34th Annual Conference of the Asian Association of Open Universities

Opening minds for a sustainable future: Re-orienting ODL to Surmount Challenges

1-3 JUNE 2021
COLOMBO, SRI LANKA

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at

Colombo, Sri Lanka
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ABOUT AAOU

The Asian Association of Open Universities (AAOU), founded in 1987, is a non-profit association of autonomous legally established institutions of higher learning primarily concerned with education at a distance. It strives to widen the educational opportunities available to all people in Asia and improve the institutions' quality in terms of their educational management, teaching, and research. It promotes education by distance teaching systems and professional and ethical standards; develops potentialities of open and distance education; cooperates with official bodies and others directly or indirectly interested in education at a distance; and facilitates cooperation with other similar regional and international bodies. At present, AAOU has 61 member institutions, with 46 being Full Members and 15 being Associate Members.

The AAOU Annual Conference, hosted in turn by member institutions, is a stimulating forum for all those associated with open and distance learning in Asia, particularly academics, administrators, and students. It provides a focal point for bringing everyone up to date on the issues, ideas, and developments in the field of open distance learning.
ABOUT OUSL

The Open University of Sri Lanka (OUSL) is the premier Open and Distance Learning (ODL) institution in Sri Lanka, where students can pursue their studies through ODL methodologies.

It was established in 1980, under the Universities Act No. 16 of 1978 and the OUSL Ordinance No. 1 of 1990, as amended. The OUSL is one of the 15 national universities coming under the purview of the University Grants Commission and enjoys the same legal and academic status. However, it differs from the other national universities because of its dependence on ODL philosophy to expand opportunities for higher education regardless of age, previous qualifications, geography, employment barriers, and income. In 2020, the OUSL celebrated 40 years of excellence in offering higher educational learning opportunities through ODL methodologies.

Due to its teaching methodology and infrastructure, the OUSL can serve a large student population spread throughout the country. More than 40,000 students are currently studying at the OUSL, whom nine (09) Regional Centres are serving, and nineteen (19) Study Centres are located around the country.

The University has six Faculties: Natural Sciences, Engineering Technology, Humanities and Social Sciences, Education, Health Sciences, and the Faculty of Management Studies.

Over the years, the OUSL has signed Memoranda of Understanding (MOU) with several international and national institutions to promote ODL opportunities in Sri Lanka and overseas. The OUSL has maintained an excellent collaboration with the Commonwealth of Learning (COL) for over two decades. COL is an Inter-Governmental organization that has the mandate to promote distance education and open learning.

In 1991, OUSL proudly hosted the annual conference of the Asian Association of Open Universities (AAOU) – as one of the founder members of the AAOU.
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¹This is a reference to the quote from Macbeth's monologue: "And then this mercy killed and turn'd / Against that virtue that did give it birth / ‘I will show you fear in a handful of dust’ / I will show you wrong wherein it did err."
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IS HYBRID LEARNING A SOURCE OF SATISFACTION OR DISTRACTION? AN EXPERIMENTAL STUDY CONDUCTED IN THE LIGHT OF VROOM’S EXPECTANCY ELEMENTS

Sohni Siddiqui1*, Naureen Nazar Soomro2, Martin Thomas3 and Reena Majid Memon4

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3Forman Christian College, Pakistan
4Dawood University of Engineering and Technology, Pakistan

Abstract

Researchers in the current study design used motivational strategies in the light of Vroom’s Expectancy theory for encouraging students to be active and motivated towards achievements of goals and learning academic content. The researchers applied motivational strategies to achieve the satisfaction of valence, instrumentality, and expectancy by engaging learners in the Hybrid learning program. The program continued for 10 weeks and 82 students participated in the study during the period of O-level Chemistry classes in a well-reputable convent school of the Metropolis City of Pakistan. To test the hypothesis, independent sample t-test, split plot ANOVA and Pearson’s Correlation were calculated using SPSS version 20. Hybrid influenced the academic achievements of the students, however, insignificant relationships between Hybrid learning approach and satisfaction of Vroom’s expectancy elements were established. Possible reasons for the insignificant relations and recommendations for future research for improving the Hybrid learning approach are discussed in the latter part of the study.

1. INTRODUCTION

Nolen (2003) along with Vedder-Weiss and Fortus, (2011) reported a drop in students’ inspiration to learn science resulted cause of unfavourable school and class context. This lack of motivation is supported by many reasons such as meager curriculum with gaps in theory and practice (Saeed and Rashid, 2014), weak teacher-student interaction and method of instruction, hypothetical and unpractical concepts delivery with poor relation with real-world problems (Akram et al., 2017), weak assessment and evaluation procedures with poor guidelines, absence of laboratory works, poor learning resources, poor English and
Mathematical skills (Tilahun and Tifru, 2016), and last but not the least lack of instructors to use project work for teaching and as an assessment method (Makato, 2016).

Similar lack of motivation was observed by the researchers while conducting a Chemistry class in a well-known convent school set up in metropolitan city of Pakistan. Researchers reviewed the literature and found abundant data available explaining, reasons behind this lack of encouragement. Wu and Foos (2010) explained that it is a common response from the students to dislike chemistry as a subject and are demotivated to pursue a career professional associated with this subject (Aregawi et al., 2017). Hancock (1995) suggested motivational strategies in the light of Vroom’s Expectancy theory for encouraging students to be active and motivated towards achievements of goals, learning content and discussed attempts in terms of teacher’s perspective. To enhance the expectancy variable, research suggests that teacher needs to identify the student’s behaviour associated with learning and explain the relationship between these behaviours and accomplishment. It can also be altered by improving students’ perception about their capabilities and making adjustments with the teaching. Using same idea explained by Hancock, researchers in the current study have tried to make adjustments with the traditional teachings to improve students’ perceptions about their capabilities by introducing pre-test quiz part in online classes and to intensify students’ readiness and confidence for regular marked class quizzes and evaluations, through the use of hybrid learning approach. Hybrid learning is defined as a blend of physical interactive lessons with the computer-mediated technically oriented approach (O’Byrne and Pytash, 2015).

Vroom’s (1964) Valence-Instrumentality-Expectancy (VIE) theory, suggested that the goal is resulted by individual evaluations of the valence which is defined as satisfaction achievement from work outcomes, instrumentality defined as achievement of outcomes by accomplishing a specific performance level, and expectancy as a level of effort attainment to a certain level of performance. These assessments determine the force of motivation for actions and goals. To enhance students’ satisfaction towards expectancy elements, researchers used online activities (refer to table 2) in addition to regular classes and content delivery in traditional lecture method and compared outcomes at the end of the research plan. Along with these activities, forum was also used to provide individual’s feedback and online motivational badges, available on EDMODO portal for outstanding performers, and active learners in physical and virtual classes. Improvement in the experimental group’s academic achievements established, however satisfaction of expectancy elements found missing. Possible reasons behind the failure to achieve satisfaction are discussed in section 5.

2. LITERATURE REVIEW

Hybrid learning has emerged recently in the field of education as a strong successor towards modifying pedagogy across path, place, time and pace (Siddiqui, Thomas and Soomro, 2020). Henrie et al., (2015) studies concluded that hybrid environment is satisfying to the students, due to more activities and clarity in instructions.

One of the classical theories dealing with motivation developed by Vroom (1964) is considered as a well-researched and respected theory amongst organizational and industrial psychologists. Barron and Hulleman (2015) highlighted that though in last few decades abundant theories of motivation have been projected, still Expectancy-Value depictions of
enthusiasm are distinguished for their ability to encounter multiple theoretical perspectives and key components that influence an individuals’ achievement-related behaviours.

It has not only been studied in academic contexts (Hancock, 1995; Whittington, 2015) but also for improving performances in other fields such as pro-environmental behaviour (Kiatkawsin and Han, 2017), development of entrepreneurship (Hsu, Shinnar, and Powell, 2014), and development of leadership capacities (Isaac, Zerbe and Pit, 2001) etc.

Whittington (2015) used Vroom’s Expectancy Theory framework to highlight the relationship of motivation with academic success. 375 students of nursing in the USA were brought into the study. Valence, Instrumentality, Expectancy Motivational Scale developed by Sanchez, Truxillo, and Bauer (2000) and Nurse Assistant Competency Examination used as an instrument in the study. A significant association between the constructs of Valence and Expectancy established did not influence motivation and test marks. Conversely, motivation’s significant impact on academic results was observed.

Erez and Isen (2002) studied the effect of feelings on motivation in the light of expectancy elements. Researchers further explained that Expectancy theory forecasts persons’ encouragement to put more efforts if they have surety that their efforts will not be wasted and lead towards improved and better performance (expectancy); and that this performance will direct to more inspirations, in the form of satisfaction, rewards or recognition (instrumentality). Thus, this study has clearly specified that positive affect enhances people’s performance and improves perceptions of expectancy and valence.

Other than educational context, Hsu, Shinnar, and Powell (2014) in their longitudinal study program applied Vroom’s Expectancy Theory to increase students’ motivation and intentions towards entrepreneurship. In experimental research designed pre and, post-test results revealed that working with variables of expectancy theory (expectancy, instrumentality, and valence) enhanced desirability towards entrepreneurship observed. Similarly, Isaac, Zerbe, and Pit (2001) explained in the light of Vroom’s Expectancy Theory that desire to have leadership capacity is enhanced through the conscientious, steady and vigilant application of principles relating to the expectancy theory model. Better performance can be achieved through the creation of motivational environments, meeting expectations, and motivating themselves about their capabilities. Kiatkawsin and Han (2017) merged two theories Vroom’s Expectancy Theory and Value-Belief-Norm Theory and designed a framework to examine the impact on pro-environmental behaviour of the 538 young group tour travellers. Results were profound in the combined model as compared to the application of the value belief norm theory alone. Furthermore, researchers manifested that variables of expectancy theory have a strong influence on the development of the environment friendly behaviour. The researchers further recommended that for generalization, large size sample with the addition of the moderators and control groups should be undertaken.

The current study is focused on the enhanced motivation towards learning chemistry through hybrid learning program and satisfaction of expectancy elements. This study is novel in a way that expectancy elements have not been discussed in the light of hybrid program so far and in similar context.
3. RESEARCH METHODOLOGY

The objective of the research was to highlight the impact of hybrid learning on satisfaction of expectancy elements and academic performance. Quasi-experimental and pre-post experimental design was adopted using quantitative approach.

Hybrid approach was used to teach chemistry syllabus to grade IX students. To know the effect of the independent variable (Teaching Methodology) on the dependent variables (Expectancy elements and Achievements), An experimental group with 37 students (taught through Hybrid approach) and control group with 45 students (taught through lecture method) were used as participants in the study (Figure 1).

Figure 1: Model-1-Hybrid Learning Influence on Academic Achievements and Vroom’s Expectancy Elements

3.1 Instruments

1. A self-evaluation questionnaires was administered as the instrument for different variables of the research. To achieve the aims of the study, the researchers adopted Valence, Instrumentality, and Expectancy Motivation Scale (VIEMS). This scale adapted from the scale developed by Sanchez et al., (2000) consists of 8 questions with 7 point Likert scale (1= Not at all, 4= somewhat true, 7= Very true). 3 questions were used to measure Valence, 3 for instrumentality and 2 for measuring expectancy. Range of Reliabilities calculated through Cronbach Alpha value, using PLS-3. All values were above 0.5, thus instrument used was reliable.

2. Standardized test based on objective and subjective questions, with total of 40 marks (20 for objective and 20 for subjective) designed to see differences.

3. Pre-test: 20 multiple choice questions (each of one 1 mark) conducted for both groups at the start of the experiment.

3.2 Sample and Sampling Technique

Research could be conducted for O-Level chemistry students in different cities of Pakistan, but due to time and financial constraint limited number of students were used in the study. 82 students selected from purposive sampling technique, where participants were homogeneous in terms of age, culture, tradition, and knowledge level. Demographic Presentation of Participants are given in Table 1.
Participants of the experimental group found quiz part most interesting that they attempted at the end of every lesson. Other common activities are shown in Table 2. In continuation with these activities, regular feedback on performances and motivational badges were awarded to encourage students. In this way, students’ confidence level was raised, and they felt competent towards achievements in chemistry. Moreover, timid students were active online and were also communicating their issues in personal messages. So the use of Hybrid learning created an environment where they started conquering their shyness. All these efforts were made to enhance students’ satisfaction towards valence, expectancy, instrumentality and motivational factors.

Table 1: Demographics of the Participants

<table>
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<th>Gender</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Hybrid Learners</td>
<td>No 15</td>
</tr>
<tr>
<td></td>
<td>Yes 23</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
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Table 2: Activities designed for Experimental Group

<table>
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<tr>
<th>Activities</th>
<th>% of Involvement</th>
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<tbody>
<tr>
<td>Attempting Quizzes</td>
<td>89%</td>
</tr>
<tr>
<td>Responding to Messages</td>
<td>65%</td>
</tr>
<tr>
<td>Learning through Video Tutorials</td>
<td>73%</td>
</tr>
<tr>
<td>Correspondence with Teacher</td>
<td>16%</td>
</tr>
<tr>
<td>Answer Sessions for Poll Questions and Panel Discussion</td>
<td>11%</td>
</tr>
<tr>
<td>Question Answer Session on Group Discussion</td>
<td>11%</td>
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</tbody>
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3.3 Time Frame

The Hybrid Learning Program was designed using EDMODO portal for students. Portal was used for providing useful resources related to the chemistry content of grade IX. This program was also designed to engage students in discussions and in chemistry-related quizzes. The online program was offered to the experimental group and the traditional (face-to-face) method for the control group for 10 weeks.

3.4 Data Analysis Techniques

Pearson Correlation, Split Plot ANOVA and independent sample t-test, used for analysis and interpretations with the help of SPSS version 20. Data reliability and validity achieved through smart PLS version 3.
4. DATA ANALYSIS

4.1 Factor Analysis

Before running factor analysis KMO value of 0.848 showed that sample size was sufficient and Bartlett’s Test significant value was 0.000 that proved that matrix was not identity and factor analysis was possible. Total cumulative % for total variance explained is 69% which is making this model fit for further factor analysis. Theoretical constructs indicated that a 3-factor for assessing satisfaction of Vrooms Expectancy Model may provide the most meaningful interpretation for this sample (Table 3). Final factor structure designed by using PLS version 3 for the Vrooms Expectancy Questionnaire comprised the following: Factor 1: Valence -3 items Factor 2: Instrumentality-3 items Factor 3: Expectancy -2 items

Table 3: Factor Analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Valence</th>
<th>Instrumentality</th>
<th>Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Valence-1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to continue studying chemistry for accomplishing my goal.</td>
<td>0.872</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Valence-2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It would be good for me to study chemistry for accomplishment of my goal.</td>
<td>0.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Valence-3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to accomplish my goal where I will use my learnings of chemistry</td>
<td>0.927</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instrumentality-1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I do well in this subject, I will have high credentials in exams and I will accomplish my goal.</td>
<td>0.606</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instrumentality-2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think I will be successful in getting accomplishing my goal if I continue to work hard with chemistry</td>
<td>0.939</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instrumentality-3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher I score well in this subject, higher will chances of getting my desired career</td>
<td>0.448</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expectancy-1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I will try to do best in this course/subject, I can surely get high scores and achieve my goal</td>
<td>0.977</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expectancy-2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can get a commendable score if I put efforts into learning of chemistry.</td>
<td>0.686</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Reliability of the Instrument

Data reliability is measured through Cronbach’s alpha using smart PLS version 3. In the reliability test, the value of Cronbach’s alpha should be greater than 0.5 (Cronbach, 1951). In this case instrument is reliable as Cronbach’s values are more than 0.5 (Refer to Table 4).
Table 4: Reliability of the Instrument

<table>
<thead>
<tr>
<th>Reliabilities</th>
<th>Cronbach’s Alpha (From PLS)</th>
<th>Composite Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>0.846</td>
<td>0.898</td>
</tr>
<tr>
<td>Instrumentality</td>
<td>0.652</td>
<td>0.720</td>
</tr>
<tr>
<td>Expectancy</td>
<td>0.678</td>
<td>0.828</td>
</tr>
</tbody>
</table>

4.4 Construct Validity

Campbell and Fiske (1959) proposed two aspects to assess the construct validity of a test:

1. Convergent validity is the sureness that trait is well measured by its indicators. Tseng et al. (2006) suggested that composite reliability should be greater than 0.6 to establish a relationship between Hybrid learning with expectancy elements. (Table 4).

Discriminant validity ensures that indicators in one factor differ from indicators of others. Fornell and Larcker (1981) criteria for validity, suggested that to satisfy this requirement, each construct’s average variance extracted (AVE) must be compared with its squared correlations with other constructs in the model. Instrument is valid as all AVE values are correlated and are highest in row and column (Table 5).

Table 5: Fornell Larker Criteria for Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>Expectancy</th>
<th>Instrumentality</th>
<th>Valence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>0.334</td>
<td>0.543</td>
<td>0.864</td>
</tr>
<tr>
<td>Instrumentality</td>
<td>0.241</td>
<td>0.695</td>
<td></td>
</tr>
<tr>
<td>Expectancy</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 Pearson’s Correlation

Correlations between academic scores and expectancy elements (valence, expectancy and instrumentality) were calculated using Pearson’ Correlation technique following the procedure suggested by Hair et al. (2006) and using SPSS version 20. Table 6 has indicated satisfaction of instrumentality is associated with satisfaction of need of valence and expectancy. Similarly, valence satisfaction has also correlation with expectancy, but none of them are correlated with academic achievements in terms of subjective and objective scores.

4.6 Independent sample t-test

To analyze the difference between experimental and control group in terms of satisfaction of Vrooms Expectancy Elements, and academic achievements independent sample t-test was run. Levene’s test indicated that there was no significant difference between the variance of these two groups since significant value was more than 0.05. A significant difference among both groups in terms of academic achievements was observed, however, teaching styles impact on expectancy elements was not established (Table 7).
Table 6: Correlations

<table>
<thead>
<tr>
<th></th>
<th>Objective Score</th>
<th>Subjective Score</th>
<th>Valence</th>
<th>Expectancy</th>
<th>Instrumentality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective Score</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective Score</td>
<td>0.670**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valence</td>
<td>0.126</td>
<td>0.121</td>
<td>1</td>
<td>0.387**</td>
<td>0.377**</td>
</tr>
<tr>
<td>Expectancy</td>
<td>0.038</td>
<td>0.069</td>
<td>0.387**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Instrumentality</td>
<td>0.017</td>
<td>0.087</td>
<td>0.790**</td>
<td>0.377**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).*
**Correlation is significant at the 0.01 level (2-tailed).**

Table 7: Independent Sample t-test

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Df</th>
<th>Sig,(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>13.22</td>
<td>3.181</td>
<td>-1.438</td>
<td>-2.250</td>
<td>80</td>
<td>0.027</td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>11.78</td>
<td>2.610</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>15.73</td>
<td>2.922</td>
<td>-2.196</td>
<td>-3.197</td>
<td>80</td>
<td>0.002</td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>13.53</td>
<td>3.231</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>4.162</td>
<td>1.7875</td>
<td>0.16376</td>
<td>0.455</td>
<td>80</td>
<td>0.651</td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>4.3259</td>
<td>1.4745</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumentality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>4.7477</td>
<td>1.5935</td>
<td>1.8559</td>
<td>0.567</td>
<td>80</td>
<td>0.572</td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>5.7889</td>
<td>1.4596</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.7 Split Plot ANOVA

Split-plot ANOVA is the statistical test used in this study to test for differences between control and experimental groups, before and after different teaching strategies applied for a fixed duration of time. A significant improvement in students’ performance in terms of academic credentials was
observed with the experimental group. However, at the same time, control group also gained significant improvement in their performance. But, comparison of mean score has indicated that level of improvement among the participants of experimental group was far more than that of the control group. It shows that though traditional teaching method has positive influence on students’ improved performance, technology integration through hybrid learning influences are higher and profound. (Refer to Figure 2 and 3)

![](image1.png)

*Figure 2: Pre-test and Post Objective test score comparison*

![](image2.png)

*Figure 3: Pre-test and Post Subjective test score comparison*

5. DISCUSSION

Vroom’s (1964) Valence-Instrumentality-Expectancy (VIE) theory suggested that the goal is resulted by satisfaction achievement from work outcomes termed as valence. However, instrumentality is defined as achievement of outcomes by accomplishing a specific performance level, and expectancy which is defined by researchers as level of effort attainment to a certain level of performance. These assessments determine the force of motivation for progress and intentions.

The current study was designed to enhance motivation towards the attainment of goals in the form of an academic score in chemistry through hybrid learning program and satisfaction of expectancy elements. Though satisfaction of Vrooms Expectancy Elements has proven to be an effective way to enhance performance and behaviour in previous literature, in the current study, hybrid learning has not provided any significant impact on the satisfaction of valence, instrumentality, and expectancy, in continuation with the results highlighted by Whittington (2015). Similarly, in contrast to findings of Geiger and Cooper (1995), expectancy elements had no direct impact on academic achievements. In extension to the research of the Gambrari, Yusuf and Thomas (2015) significant relationship was established between hybrid learning and academic achievements. Improved performance of the experimental group, at the end of the research has clearly revealed that better scores are possible while engaging students in online learning programs, along with the continuous regular classroom settings. As suggested by Siddiqui et al., (2020), for the insignificant relationship between the hybrid program and expectancy
elements could be distractions and continuous interruptions in online learning, as highlighted by Lee (2000) and Rose (2010). In the current study, students were engaged in online tasks assigned by the teacher in absence of adult supervision and there is a possibility, that distractions made the study design insignificant. Other reason of inconsequential relationship could be, the shorter time span of implementation and weak instrument usage. Instrument adopted by the researchers were used for testing nurses’ satisfaction in their academic context, however, instrument used in the current study were for chemistry classes and users of an online learning program. It is recommended to apply this study aligned with a longitudinal research design with the development of another instrument with more indicators to measure variables and to produce outcomes of the study effectively. Appana (2008) expressed impediments of hybrid approach and explained that students’ unwillingness to study on the online portal as one of the reasons for failure of this approach. In the current study, hybrid learning approach was applied for the very first time with students at the said facility and it was shown that students needed training before engaging them in online forum and to make them good online learners. An insignificant relationship of students’ satisfaction and achievement with the program might be a result of students’ lack of preparation. It is recommended to have training sessions to make students familiar with the environment and making them technology savvy, before applying for the program for learning outcomes.

ACKNOWLEDGEMENTS

Special thanks to Dr. Tehseen Jawaid, who helped the researchers to build their Quantitative Research Skills and to Sir Nur Ali Tejani for his dedications and introducing computer instructional learning in a very stimulating manner.

REFERENCES


THE ROLE OF OPEN AND DISTANCE EDUCATION IN SKILLS TRAINING IN THE HOSPITALITY INDUSTRY: A CASE STUDY FROM IGNOU

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Abstract

This paper examines the role of open and distance learning (ODL) system in imparting training of skills. In this direction, it presents a case study of one of the skills-based training programme offered by IGNOU. The study is conducted in background of an increasing emphasis upon making education skills-based and employment-oriented. The basic premise of this paper is that open and distance learning system can provide a viable alternative to conventional learning system which cannot meet the training requirement for a large number of people due to infrastructural constrains. In fact, the ODL system has proven its potential to reach the un-reached including marginalised and excluded groups. This paper aims to highlight that apart from theoretical learning opportunities, ODL can also provide vocational and technical education including skills-based training for income-generating livelihood. The viability of ODL to impart skills training to this vast pool of potential workforce can be seen as legitimate means skills training for many reasons. In this context Indira Gandhi National Open University (IGNOU) offers many programmes which are in the category of skills development, vocational and technical education aiming to impart and improve skills and capacity building of adult learners. This paper presents the case study of one such programme which aims to train people in the Tourism and Hospitality sector titled Certificate in Front Office Operations (CFO). The study is descriptive in nature. Admission and completion data of the CFO learners during the last five admission cycles (during 2016-2018) was collected and analysed. Interview technique was used to collect feedback from the pass outs. The findings of the paper reveal that programme effectiveness was positively correlated with its goal of training learners for employable skills.
1. ROLE OF OPEN AND DISTANCE LEARNING IN SKILL DEVELOPMENT

The Twelfth Five Year Plan has specially laid its emphasis on skill education in its Approach paper. Improved training and skill development is critical for providing decent employment opportunities to the growing youth population and is necessary to sustain the high growth momentum. The National Skill Development Policy aims to empower all individuals through improved skills, knowledge, qualifications, to provide access to decent employment and ensure India’s competitiveness in the global market.

Due to liberalisation and the growth of knowledge economy, there is a tough competition everywhere and therefore, the only mantra to success is knowledge, skill and training. The focus is more on working skills and expertise in a particular field of one’s own. Hence skill development and training can prove to be a double-edged weapon to be used against unemployment problem and also producing skilled workers for the global market.

There is a need for a clear focus on improving the employability of graduates. Indian higher education is organized into ‘General’ and ‘Professional’ streams. General education which is an excellent foundation for successful knowledge-based careers, often fails to equip graduates with necessary work skills due to its poor quality. On the other hand, professional education is often expensive, lengthy and usually imparted in narrowly specialized private institutions, with little emphasis on liberal arts, which is essential for the development of intelligent able-minded citizens. For both ‘General’ and ‘Professional’ education streams, integrated curriculum with greater flexibility in choice of subjects and innovative pedagogic practices are needed to improve the quality and hence the employability. Graduates now require the skills beyond the basics of reading, writing and arithmetic (the ‘3Rs’). Skills such as critical thinking, communication, collaboration and creativity (the ‘4Cs’) are now important in more and more jobs. Accordingly, there is a need to focus on the ‘4Cs’. Special emphasis on verbal and written communication skills, especially in English would go a long way in improving the employability of the large and growing mass of disempowered youth (12th Five Year Plan Approach Paper).

India has surpassed China as the world’s fastest growing large economy. It has also moved toward a knowledge economy, and more broadly from agriculture to manufacturing and services, but for the most part the Indian workforce has not changed. Indeed, policymakers, educators, trainers and firms face daunting challenges in skilling India’s workforce to meet the economy’s current and changing needs (NCAER Report, 2018).

Many of the roughly 468 million now in the workforce need to be up-skilled and re-skilled and this is not easy because 92% are in the informal sector, mostly outside the reach of formal skilling1. Of today’s workforce 31% are illiterate, 13% have only a primary education and only 6% are college graduates. Further, only about 2% of the workforces have received formal vocational training while only 9% have non-formal vocational training2. The roughly 70 million new workers entering the workforce between 2018 and 2022 need to be skilled for a 21st century economy3. They may have completed secondary education, but many are not employable because their

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1 NSSO 68th Round (2014). All data in this report refer to population aged 15 and above for the year 2011–12.

2 NSSO 2014. Data are for 2011–12.

3 This number is estimated based on MSDE 2015.
cognitive and technical skills are not up to par, and their social and behavioural skills are lacking (NCAER Report, 2018).

Distance and Open Learning has emerged as a most viable option in higher education sector. Over the past decades, there has been a noticeable growth in distance education around the world. This is very much evident from the increasing enrolment in Open Distance Learning (ODL) institutions. ODL institutions are not only imparting education as an alternative to the formal system, i.e. education in conventional courses/programmes, but also in areas such as vocational and technical, and continuing education, teacher education and even in high technology-based education (Fozdar and Kumar, 2008). The distance education also has potential to reach the un-reached and even marginalised and excluded groups. It can provide skilled based education and engage them in income-generating livelihood. In the present era it is a well-known fact that skill training enhances productivity and sustains competitiveness in the global economy.

ODL has been used to deliver education at all levels of education. This system can also be seen as a legitimate means to develop skills if it is implemented properly. There are many bases to support this. Firstly, most of the ODL systems have wider access and cost efficiency. Secondly, its rapid expansion in the past three decades suggests that there exists a ready-made infrastructure which can be capitalised upon to extend skill development. Thirdly, most of ODL institutions of the world use latest information and communication technologies (ICT). Through wider coverage, ODL systems are overcoming the gap between those who have had access to education and those who have not. Nations need skilled and trained work force for their growth. Our formal education system cannot provide training to desired number of skilled workers. In such a situation, alternative open and distance learning model can tackle such problems and this system has the tremendous scope in the area of skill-based education like vocational education and training. ODL system is now well recognised for effective teaching learning process. So, this system can also be used for providing effective vocational education and training, especially in developing countries where there is a need for providing training to large number of workers and with limited resources (Fozdar, 2009).

2. INCEPTION OF ODL SYSTEM IN INDIA

Dr. B. R. Ambedkar Open University, initially known as Andhra Pradesh Open University, was set up on 26th August 1982 through an Act of the A.P. State Legislature (APOU Act 1982). Subsequently, the University was renamed as Dr. B.R. Ambedkar Open University on 26th October, 1991 by the Government of Andhra Pradesh. The establishment of this University, the first of its kind in India, heralded an era of affirmative action on the part of the Government of Andhra Pradesh to provide opportunities of higher education to all sections of society to meet the changing individual and social needs. The motto of the University is “EDUCATION FOR ALL” (profile of BRAOU, 1999).

The Indira Gandhi National Open University (IGNOU), established by an Act of Parliament in 1985, has continuously striven to build an inclusive knowledge society through inclusive education. It has tried to increase the Gross Enrollment Ratio (GER) by offering high-quality teaching through the Open and Distance Learning (ODL) mode. The University began by offering two academic programmes in 1987, i.e., Diploma in Management and Diploma in Distance Education, with a strength of 4,528 students. Today, it serves the educational aspirations of over 3 million students in India and other countries
through 21 Schools of Studies and a network of 67 regional centres, around 2,667 learner support centres and 29 overseas partner institutions. The University offers about 228 certificate, diploma, degree and doctoral programmes, with a strength of nearly 810 faculty members and 574 academic staff at the headquarters and regional centres and about 33,212 academic counsellors from conventional institutions of higher learning, professional organisations, and industry among others. IGNOU provides innovative and need based general as well as continuing education to: the persons from disadvantaged groups, physically challenged; homemakers; and, those, who are based in remote areas for their educational and professional development. The university practices a flexible and open system of education regarding methods and place of learning, combination of courses and eligibility for enrolment, age for entry and methods of evaluation, etc. IGNOU has adopted an integrated strategy for imparting instruction. This consists of providing print materials, audio video tapes, broadcast on radio and educational TV Channels, teleconferencing, video conference as also the face-to-face counselling, at its study centres located throughout the country. The University has adopted the method of continuous assessment and term-end examination for evaluation of the performance of its students enrolled in various subjects (IGNOU Profile, 2014).

3. OBJECTIVES OF THE STUDY

The main objectives of the present study were to: (i) analyse the percentage of students who have successfully completed the assignment components of the programme; (ii) analyse the percentage of students who have successfully completed the industrial training; (iii) analyse the percentage of students who have successfully completed the term-end examination within the maximum duration available; (iv) analyse the percentage of students who have successfully completed the programme and Join in Job though placement; and (vi) examine various factors responsible for students’ successful completion of these programmes.
4. METHODOLOGY

Relevant admission and completion data of the CFO learners (admitted during 2016-2018) were collected from the SOTHSM Cell, of IGNOU Regional Centre, Bhopal. This programme required comprehensive investigation with regard to the completion rate over the years. The present paper reports an analytical study of the student data of the CF learners (admitted during 2016-2018) were collected from the SOTHSM Cell, of IGNOU Regional Centre, Bhopal. This programme required comprehensive investigation with regard to the completion rate over the years. The present paper reports an analytical study of the student completion rate of the skill development programmes of IGNOU, namely, Certificates in Front Office Operations (CFO).

4.1 About the Certificates in Front Office Operations (CFO) Programme

The target group of the programme is the persons who are employed as or aspiring for employment in the tourism and hospitality sector. This is the first short term academic programme (certificate programme) available in India to train such people through the distance mode. The Memorandum of Understanding (MoU) was signed in 2015 between Indira Gandhi National Open University (IGNOU) and Madhya Pradesh State Institute of Hospitality Training (MPIHT) with an objective to develop and deliver programmes in Tourism and Hospitality sector so as to upgrade the skills and build capacity in the area of tourism and hospitality in the state of Madhya Pradesh. The following four core areas of hotel operations and hospitality were identified:

1. Certificate in Front office Operation
2. Certificate in House Keeping Operation
3. Certificate in Food and Beverage Service Operation
4. Post Graduate Diploma in Hotel Operations (PGDHO)

These programmes have been developed with the assistance of both academicians, and industry experts. The focus and objective of this programme is to provide broad range of skill-based training and also to upgrade the capacity of the in-service staff. The programme package has been developed in a class room training mode. The package consists of print materials in the form of booklets. Besides these learners would attend practical training sessions. The print material consists of four theory blocks and one practical manual. Learners will also be given a log book to be filled in while undergoing practical training.

The main objectives of the programme are:

✓ Enable the learners to know about the basic fact of the industry, importance of front office and enlist duties and responsibilities of front office staff.

✓ Enable the learners to learn about the activities performed at each of the sections of front office, explain the lay out and hierarchy of front office personnel.

✓ Train the learners’ procedure of guest handling, maintain record and handle guest complaints.

✓ Train the learners on the communication system used in the hotel industry, telephone mannerism, use of automated
systems and efficiently handle both the incoming and outgoing calls.

✓ Familiarise the learners with safety procedures for the hotel guests, safe baggage handling procedure and to act accordingly during the emergency system.

✓ Train the learners to keep coordination with other sections of the hotel and departments.

The programme is designed to train the learners to provide effective and efficient services to the tourism and Hospitality sector.

This certificate programme is of 18 credits spread over five courses and requires 540 hours of study time, which includes studying the print materials, attending counselling Sessions, industrial training and project work. The above-mentioned CFO programmes have six courses, details are listed as follows in Table 1.

Table 1: Course Details

<table>
<thead>
<tr>
<th>S.No</th>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Understanding Tourism</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Functional Communicative Skills and Personnel Grooming.</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Front office Operations Theory (Part – I)</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Front office Operations Practical (Part – II)</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Project</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: Programme Guide of the CFO programme

4.2 Detail of Courses

In each of the five courses due emphasis has been laid on practical training through class room training, Industrial training and project work. The programme has been developed around the classroom training mode in the theory parts. Due weightage is given for practical training through industrial training and project work.

BHY – 001: Understanding Tourism:
This course consists of three units. Each unit is designed for easy comprehension of the learners. Tourism has been given a status of an industry and is very important for the developing counties. India has become a popular global destination in the recent years but we must have a skilled human resource, only then we can meet the demands of this growing industry.

BHY – 002: Functional Communicative Skills and Personal Grooming:
This course has been specially designed in an innovative way to strengthen the communicative skills of the learners. Different areas have been identified and these skills have been woven around the duties and responsibilities of the hospitality personnel.

BHY – 003: Front Office Operations (Part – I):
This course consists of five units. Each unit is pertaining to the different work areas of the front office operations such as hierarchy of the front office, duties and responsibilities of the staff, classification of hotels on the basis of different parameters, functioning of the different sections of the front office, various procedure at each section and different types of meal plans and their section as per the requirement of the guests.

This course consists of five units. The front office is the centre for activities related to the entry of the guests in a hotel. The reception deals with check in and check out procedures.
The handling of the guests in a right way is very vital as it can directly affect the hotel business. During the classroom training session learners would be guided to make their projects assignment. Each Learner will submit the project as his/her original work in the class.

The eligibility for the admission in the above-mentioned programme is that the candidate should be at least 18 years as on date of admission and must have completed at least 10+2 as the basic qualification or should have passed 10 + BPP (Bachelor’s Preparatory Programme of IGNOU). Must have pursued English as an optional language during the school education or have working knowledge of English. Minimum and maximum duration of the programme is 6 months and 2 years respectively. The programmes would comprise two phases. The first phase consists 60 days of intensive class room sessions with rigorous practical and mock drills pertaining to relevant areas. Second phase consists 60 days of Hotel Internship in relevant department.

The system of evaluation in IGNOU is also different from that of conventional universities. IGNOU has a multilayer system of evaluation.

1. Self-assessment exercises within each unit of study.

2. Continuous assessment evaluation through assignments which are tutor-marked, during classroom sessions and fieldwork training.

3. The term-end examinations.

4. Project / Term-end Practical Examination/Log Book

The role and responsibility of IGNOU is to design and develop the programmes in Tourism and Hospitality to be offered in the state of Madhya Pradesh. This includes finalising admission of learners and allotting enrolment number, supply of the Self Learning Materials (SLM) to learners, arranging counselling, practical and holding examination and awarding diploma/s and certificate/s as per IGNOU norms.

MPIHT makes available the training institutes along with space and infrastructure facilities for holding the counselling session, practical session free of cost and arrange the enrolment of as many learners as possible. It will facilitate allotment of industrial training at MPHIT hotels and restaurants located across the state of Madhya Pradesh and bear the entire cost of designing and conducting programmes. At the same time MPIHT shall provide training kits, uniform, Lunch and tea during classroom/practical training and arrange boarding and lodging for learners during classroom session only.

5. RESULTS AND DISCUSSION

The main objectives to launch the programme were primarily to cater for those sections of the population that were excluded from the conventional education system for a wide variety of reasons. The potential clientele of the programme, therefore, included significant number of students from rural areas, particularly youth who must continue to work for supporting their families. This programme aimed to create a group of skilled manpower in the field of tourism sector that would ultimately play a significant role to enrich condition of youth by creating self-employment.

Results of the present study clearly demonstrated that programme effectiveness was positively correlated with its goal as evidenced by high participation of rural unemployed youth. However, a detail of learners who have successfully completed the programme and joined in their respective job through placement drive during last five batches are mentioned in the Table 2.
The data have been analysed taking the enrolment no. of the students into consideration. The percentage of completion of classroom training i.e. counselling session, and percentage of completion of assignments, the percentage of completion of industrial training, percentage of completion of term-end examination and percentage of learners joined in the job through placement drive have been depicted in Table 1.

The table revealed that highest percentage of learners completed counselling classes (85.92%), submitted assignments (82.22%) and allotted industrial training (82.22%) whereas bit lower percentage in successfully completed industrial training (55.55%) and appearing for term-end-examination (55.55%). The pass out rate is 50.37% out of 55.55%, it is quite highest percentage comparable with other programme of the university. The learners who successfully completed Term-End-Examination were placed in four star and five-star hotels located at different part of Madhya Pradesh.

This highest pass out rate may be due to rigorous conduction of compulsory counselling classes (face to face mode) as well as industrial training (practical), well equipped study material, short duration of the programme and the most important factor is less financial burden and 100% placement after successfully completion of the programme. Similarly, Mishra (2002) suggested that for both economic and social development, immediate skills development is needed on a very large scale. What is required of the delivery method for such education and training is a vastly expanded system consisting of both formal and open learning, which would have to resort to distance learning modalities.

As per the view of the successful learners they were quite comfortable with the COF programme with the blended learning approach through ODL mode. At the same time, we have enquired regarding the quality of the course material, counselling sessions and industrial training component and their expectation with programme. In response they stated that there is no doubt regarding the quality of study materials but if it is offered in Hindi medium then it will be more appreciable. Counselling sessions were very informative and useful because

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**Table 2: Details of the Graduates**

<table>
<thead>
<tr>
<th>Academic session /Batch</th>
<th>No of Learner Registered</th>
<th>No of learners completed Class Room Training</th>
<th>No of learners completed Assignment</th>
<th>No of learners allotted Industrial Training</th>
<th>No of learners completed industrial Training</th>
<th>No of learners completed TEE</th>
<th>No of learners awarded degree</th>
<th>No of learners got job after awarded degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch – I</td>
<td>27</td>
<td>19</td>
<td>19</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Batch – II</td>
<td>33</td>
<td>32</td>
<td>27</td>
<td>20</td>
<td>20</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Batch – III</td>
<td>25</td>
<td>21</td>
<td>21</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Batch – IV</td>
<td>25</td>
<td>20</td>
<td>20</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Batch – V</td>
<td>25</td>
<td>24</td>
<td>24</td>
<td>16</td>
<td>16</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>135</strong></td>
<td><strong>116</strong></td>
<td><strong>111</strong></td>
<td><strong>111</strong></td>
<td><strong>75</strong></td>
<td><strong>75</strong></td>
<td><strong>68</strong></td>
<td><strong>68</strong></td>
</tr>
<tr>
<td><strong>Percentage (%)</strong></td>
<td><strong>85.92</strong></td>
<td><strong>82.22</strong></td>
<td><strong>82.22</strong></td>
<td><strong>55.55</strong></td>
<td><strong>55.55</strong></td>
<td><strong>50.37</strong></td>
<td><strong>50.37</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Records of SOTHSM Cell

The data have been analysed taking the enrolment no. of the students into consideration. The percentage of completion of classroom training i.e. counselling session, and percentage of completion of assignments, the percentage of completion of industrial training, percentage of completion of term-end examination and percentage of learners joined in the job through placement drive have been depicted in Table 1.
through the counselling session they get some basic knowledge pertaining to their field which they were not aware before the counselling session. Industrial training improved their performance and skills at their workplace. Most of them agreed that course contents were of good quality. The support at study centre (MPIHT), was outstanding and the staff were very helpful and cooperative. Few have informed that initially they faced a lot of problems in the place of industrial training (hotels owned by MP Tourism). All the learners successfully completed the above-mentioned programme are employed and very happy.

6. CONCLUSIONS

There is a need for a clear focus on improving the employability of graduates. Indian higher education is organized into the binary of ‘General’ and ‘Professional’ streams. General education which is an excellent foundation for successful knowledge-based careers, often fails to equip graduates with necessary work skills due to its poor quality. On the other hand, professional education is often expensive, lengthy and usually imparted in narrowly specialized private institutions, with little emphasis on liberal arts, which is essential for the development of intelligent able-minded citizens. The need of the hour is blended integrated curriculum and programmatic approach. If this could be included in Distance education along with greater flexibility and innovative pedagogy, the skill training can be done in an effective way.

Furthermore, there is a need to place special emphasis on verbal and written communication skills, especially in English which is a global language and a must for those who are working in tourism and hospitality industry. Language and communication skills would go a long way in improving the employability of the large and growing mass of disempowered youth.

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SURVIVAL STRATEGIES FOR ‘PROBLEM STUDENTS’ OF E-LEARNING

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Abstract

This study analyses a variety of ‘problem students’ in online teaching through a case study. From the perspective of logistics, the connotation of ‘problem adult students’ is narrow, while its denotation is broad. The article points out that ‘stigmatizing’, insulting remarks, lack of communication and ‘discourse supremacy’ in teachers’ teaching all contribute to the occurrence of problem students. In virtual learning environment, teachers can exercise their quick wit to instruct students in varied situations on the basis of careful observation. By laying down program content and objective and designing lead-in section teachers can cultivate a democratic teaching environment in which students are encouraged to express their opinions freely and have various emotional experiences. Teachers can make use of the accidents in online teaching and guide students back on track. This article stresses that teachers should fully understand the needs, feelings and attitude of students and pay close attention to their teaching of language. Only by cultivating teaching art and perfecting teaching behaviour can teachers effectively decrease the number of ‘problem students’ and increase the learning retention rate and completion rate of students.

1. INTRODUCTION

Online teaching, which was once considered as a peripheral teaching method, has now become a new trend in the development of higher education. With the network as a medium, online teaching means that all the teachers’ teaching activities and students’ learning activities are conducted online.

Various problems, as well as problem students, have arisen from online teaching. Thorpe (1988) has conducted a study concerning problem students in online teaching. He required teachers of British Open University to identify those students who were on the edge of failure in their performance in introductory courses, and then to offer extra help to them. The study results indicated that students who have...
received extra support were more likely to succeed in their learning. The advent of Web3.0 has made it possible to provide people-centered and classified support service in online teaching focusing more on users’ preference and experiences. In virtual teaching, teachers will be able to exercise their teaching wit to offer “survival guide” to those problem students based on their careful observations of their learning situations. They will be able to provide in-time active support, or help and guidance, for those problem students when they are in difficulties so as to help them enhance their confidence and maintain their motivation in learning and finally be able to fulfil their learning tasks. The concern for problem students will not only contribute to reducing the rate of dropout, but also help achieving the goal of education equity.

2. PROBLEMS OF “PROBLEM STUDENTS” IN ONLINE LEARNING

Generally, “problem students” refers to those students who have problems in their academic behaviours and show poor academic performance. From a logical point of view, the term of adult “problem students” has limited connotations but covers a great deal in its denotations. Their poor performance may result from problems of themselves, but may also from problems in other areas and society. According to an investigation conducted on 64 teachers of Jiangsu Open University who had participated in the teaching of new courses, the typical behaviours of problem students have been identified as shown in Figure 1.

**Figure 1:** The typical behaviours of problem students in the eyes of teachers

### 2.1 Being lazy and absent-minded

Being lazy and absent-minded in their learning accounts for 60.8% of the typical behaviours of problem students in the eyes of teachers. How can we carry out teaching if students are so lazy? Such a question actually suggests that those students are inferior to others due to their bad learning habits and poor learning abilities. In online learning some students are sometimes studying with negative moods, being reluctant to respond to the assignments from teachers. In this regard, teachers should think over: Am I in a good state
of teaching? Am I well equipped with necessary teaching techniques and skills to guide students in their learning? Does students’ absent-mindedness result from their lack of good learning habits or from their insufficient time and energy for learning? How should I get students into a learning state as soon as possible so that they can complete their learning tasks and improve their learning efficiency?

2.2 Being dilatory in submitting assignments

In the practice of online teaching, the biggest headache for teachers is that students do not submit their assignments on time, which takes up 40.6% of their typical problem behaviours. Online teaching is conducted in weekly unit, with learning tasks and activities to be completed within a stipulated period of time for each week. Students’ delay in submitting their assignments will eventually impact the schedule of follow up learning units. Students might think the teachers are troublesome and do not understand why teachers keep sending emails or phoning them to remind them of the assignments. Why are students dilatory in submitting their assignments? Is it due to the influences of their jobs? Or is it because that those assignments are too difficult for them since they have weak foundation for learning? Teachers should consider: Is the amount of assignment reasonable for the students? Are these assignments graded? Have they offered assignment alternatives? Have they offered enough instructions and explanations in terms of learning focuses and difficulties?

2.3 Plagiarizing online or asking teachers for answers

Network has become a very convenient source where we can search for any required materials with the development of Internet. It happens that students surf the net to search for answers and plagiarize. The investigation indicates that plagiarizing online or asking teachers directly for answers accounts for 30.2% of the typical behaviours of problem students. They sometimes complain that teachers give them too much homework, and that it is too time and energy-consuming if they have to look for answers one by one in the book when coming across questions that they do not know the answers. The rate of students’ internet plagiarism will be a good test for teachers’ ability in guiding students’ thinking and in test paper designing.

2.4 Not following teachers’ requirements

From teachers’ point of view, about 30.5% of students can not follow their teachers’ requirements although they have serious aspirations to succeed in their learning. They cannot understand the learning focuses and cannot understand what the teachers want to see in the end. Sometimes they need teachers to repeat assignment requirements over and over again. In this regard teachers should consider: Are there any students who have never had any higher education before their participation in online learning and thus have no idea of those terms in the field of academic situations? Are there any students who know little about online learning and are ignorant of online learning activities and the importance of submitting assignments on time?

2.5 Not being respectful to teachers

In online teaching, some teachers who are strict in their instruction and teaching management may not be understood by students; and
sometimes they may even arouse resistance among students because of their improper management practices or attitude. Not being respectful to teachers takes up almost 19.7% among those typical problem behaviours according to the investigation. Students may offend teachers verbally or give impolite responses when they get email or phone calls from their teachers. They sometimes show psychological resistance to learning tasks assigned by the teachers. On this occasion, teachers should reflect: Do I communicate with my students in a proper manner? Do I treat my students equally and democratically? Do I show my love for my students with my heart and my wisdom?

3 PROBLEM ANALYSIS FROM THE PERSPECTIVE OF TEACHERS

Do all the problems of "problem students" come from students themselves? Online learning is easily accessible because long-distance open education observes the principle of "education without social distinctions". Students enrolled are mostly adults still on their jobs who have weak academic foundations and show great differences in their learning backgrounds. These are objective yet common situations of online teaching. Since it is less possible to change the students’ situations, what can be changed lies in teachers’ perceptions and behaviours. From the writer’s point of view, students are learners perceived by teachers, and all their problems are also behaviours perceived by teachers as well. Therefore, improper teaching method, irresponsible teaching attitude and anti-education behaviours on the part of teachers may all lead to the occurrence of “problem students”.

3.1 Stigmatization in teaching

In online teaching, teachers have to know their students through their online learning behaviours since they cannot see students face to face. They usually tend to treat favourably those students who are quicker in submitting their assignments and perform better in their learning tasks. As for those students who have problems in their learning, teachers are always neglectful in their management and instruction, believing they can do nothing to help them. Those stigmatized students might think that they have left a bad impression on their teachers and they cannot change teachers’ opinions or even discrimination on them. In this case they may give up themselves or even drop out of the learning.

3.2 Hurtful remarks

In online teaching, many teachers do not try to motivate their students and make their teaching attractive. Instead, they depend more on their intuitions when making remarks. They might recklessly jump to conclusions and label students who have poor performance in one exam or in a short period of time as “stupid” or “less intelligent”. It is anti-education to label somebody arbitrarily. Just because they are deserted unfairly, those who were labelled as “problem students” are more likely to rationalize their misconducts: Because I am a “problem student”, and because I am stupid and less capable in my learning, it is very normal for me to have poor performance in my study. In this way their standards for self-value and self-accomplishments are decreased, which will eventually make them indifferent to learning tasks and activities.
3.3 Lack of communication

Network provides teachers and students with space for interactive communication. Teachers take initiatives relatively in the process of communication whose communicative attitude and skills play a decisive role. If teachers stand opposite to students in their interaction, lacking in concern, sincerity and trust in their communication, problems may arise leading to students’ ignoring or even resisting their teachers in online learning. Many behavioural problems of students in their learning can be attributed to a broken relationship between teachers and students (Marzano, 2014). Therefore, teachers should be frank with students so that students can form true and overall images of their teachers and know what they can expect from their teachers.

3.4 Supremacy in conversations

Supremacy means manoeuvre and control. For a long period of time teachers represent truth and knowledge. They take authority in their relationship with students and what is required from students is only blind obedience. This kind of teacher-student relationship, coupled with barriers of China’s exam-oriented education, results in the lack of students’ utterance in teacher-student communication, making the interactive communication a monologue of teachers. In this way teachers’ authoritative utterance has changed into a kind of supremacy in the communication. Once students respond impolitely when teachers urge them to submit homework, teachers may think that their authority has been challenged. This idea will cause negative emotions on the part of teachers, or even arouse deep potential conflicts. If teachers do not demonstrate the positive significance of the counselling program in a frank and equal manner, then students will think: If you want me to learn this, then I will make every effort to stay away from this, escaping from learning and from you.

4 SURVIVAL GUIDE STRATEGIES FOR “PROBLEM STUDENTS”

“Survival guide” means showing students learning paths and giving them suggestions on how to learn and how to maintain their motivation for learning for the purpose of retaining students in online education. Just as what Knowles has said, adult education is a form of art. (Knowles, 1989) In a virtual online learning environment and in the face of students with different learning situations, teachers should carefully observe their students and apply survival guide strategies tactically throughout the whole online learning process, with all before-study, in-study and after-study phases included.

4.1 The strategy for lead-in designing

The section of lead-in in online teaching includes: (1) providing an introduction to learning content so as to help students find their directions in the learning; (2) clarifying the ways of evaluation and feedback and the assessment requirements of homework and examinations, and providing students with suggestions on how to continue with their study and how to improve their abilities; (3) assisting students in relating their learning content with their learning objectives, and helping them understand the potential application of what they
have learned into those fields interesting to them. Helping students develop abilities to organize the concepts and knowledge that they have learned; (4) Clearly explaining the varieties of course resources and how to use these resources and helping students in effective learning with multi-media resources. For example, Supportive mentoring on the Open University learning platform includes: Guiding how to update personal information; Explaining how to complete module registration; Instructing students to check the mailbox where homework is due frequently; Reminding the due date of the assignment, etc. In addition to the text guide, there are also videos of learning tips from senior students, and it is illustrated in Figure 2.

Figure 2: The guidance of the OU's learning platform

4.2 The strategy for interactive incentives

Existing adult education studies show that “people who are motivated to learn are more likely to do what they believed to contribute to learning. They attend class more seriously, repeat learning materials to memorize them, take notes in order to facilitate the follow-up learning, review what they have learned regularly and are more likely to ask for help when in doubt” (Wlodkowski, 2013). The interactive incentive strategy includes: (1) target incentive; (2) model incentive; (3) trust incentive; (4) appreciation incentive.

4.3 The strategy for flexible adaptation

The strategy for flexible adaptation in learning refers to a series of measures taken by teachers to handle accidental situations in a timely, tactful and flexible way for the purpose of producing better teaching effectiveness. Online teaching is a complex process full of changes. There are usually accidental situations which are out of expectation and hard to be prevented from occurring even for teachers with great foresight. Therefore, teachers should keep themselves informed of the new developmental trend of online teaching so that they
will be able to take timely and effective adaptation measures in case of accidental situations. These measures comprise: (1) to make best use of circumstances; (2) to be flexible and adaptive in face of changes; (3) to take the wrong and make the best of it so as to provoke thinking.

4.4 The strategy for psychological interaction

The harmony between teachers and students in online teaching will owe thanks to their mutual coordination resulted from their psychological interaction. When adjusting themselves mentally, teachers or students are adjusting the other side too. Once they collide with each other mentally and arouse psychological resonance on the side, the teaching effectiveness will be greatly improved. Psychological interaction consists of information exchange, interpersonal exchange, emotional exchange, awareness exchange and the exchanges in terms of other psychological factors. It requires teachers: (1) to create a positive psychological atmosphere; (2) to assess students objectively and fairly through multiple methods; (3) to have mutual understanding and empathy for each other.

4.5 The strategy for verbal communication

A good command of language skills is necessary for teachers engaged in online teaching, and is also essential for the success of online teaching. Teachers usually communicate with students through written language, which includes bullets posted on the learning platform, remarks on students' online learning behaviours and their academic evaluations. Sound language such as communication through phone calls may also be employed in online teaching. In this regard teachers should address the following:

(1) Express clearly and accurately

Research shows that students' learning of knowledge has a significant correlation with the clarity of teachers' expression (Rumi Li, 2011). Online teaching requires especially clear thinking and careful expression on the part of teachers. Therefore, when trying to explain a question through verbal language, teacher should clarify all the causes, results as well as the significance of the question in a concise way so that it is easy to be understood.

(2) Pay attention to the way of language use

For adult students, how teachers speak outweighs what they speak. The tone and intonation of teachers' speech will directly affect students' acceptance of what teachers say. How students analyze and judge teachers' intention and motivation usually determine what attitude they will take when accepting messages from teachers. Teachers' proper use of language will help arouse emotional resonance from students which will facilitate their acceptance of the messages from teachers; otherwise, students might reject to accept what teachers say with a rebellious attitude.

(3) Make use of feedback sandwich

The application of "feedback sandwich" into commenting students' assignments reflects teachers' language skills. "Feedback sandwich", with negative comments placed between the positive beginning and ending, points out students' shortcomings in a friendly tone so that students can improve (Simpson, 2013). Teachers should not use remarks like "Details not enough", "Content incomplete" when finding some students do not perform well in their assignments or do not finish their assignments according to the requirements. They should give constructive feedback, telling them specific methods to correct their answers or papers. Teachers should tell students from the very beginning that they will provide specific assistance for students to alleviate their
fear in the process of learning, and that they will provide special resources and extra help for those students who has problems in their study. Through these measures' teachers are going to convey to students that: we are partners in learning. I would like to help you in solving your problems in learning, and I will give unbiased replies to your questions with interest.

5. SUMMARY

This article stresses that teachers should fully understand the needs, feelings and attitude of students and pay close attention to their teaching language. Only by cultivating teaching art and perfecting teaching behaviour teachers can effectively decrease the number of problem students and increase the learning retention rate and completion rate of students.

REFERENCES


ENHANCING ORAL INTERACTION SKILLS OF FRENCH LANGUAGE STUDENTS THROUGH INFORMAL LEARNING: AN ANALYSIS OF POTENTIALLY ACQUISITIONAL SEQUENCES OF LEARNER INTERACTION

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Abstract
The ultimate goal of language learning is to develop the ability to interact and to communicate. When it comes to teaching foreign languages, improving oral interaction skills of students is of utmost importance. However, it is also a challenging task for students and teachers alike. When proposing solutions, it is common practice to suggest modification of pedagogical material, subject content, teaching practices, or teaching methodologies. However, there is a recurrent need for more innovative, creative and student-centred strategies that could enhance oral interaction among foreign language students. The present study brings to light one such initiative taken by the University of Lille, France to develop oral interaction skills of French language students outside the walls of the traditional classroom. Thus, in the present study, a detailed analysis is conducted on oral interactions of student participants of Café Langues (Language Café - a program introduced to develop interaction skills in an informal context), in order to identify the Potentially Acquisitional Sequences of learner interaction. The results of the analysis showed that most of the Potentially Acquisitional Sequences (De Pietro et al. (1989)) were initiated by students in the form of explicit assistance requests. Also, there was minimal intervention on the part of the native speaker. Furthermore, students were more focused on communicating and expressing themselves than on acquiring linguistic elements. Thus, Café Langues was shown to be a favourable environment for interaction skill development in students.

1. INTRODUCTION
Interacting is for many, the most important, the most effective and the most natural approach to learning a foreign language. In fact, various research carried out in the fields of linguistics, psycholinguistics, language
sciences over the years testifies to the importance of oral interaction in foreign language learning. The CEFR\(^1\) is the most recent reference which fully recognizes the importance of interaction in language learning compared to other language activities: "[...] learning to interact involves more than learning to receive and produce statements. Interaction in the use and learning of the language is generally given great importance, given the central role it plays in communication."(2001, p.18). This paper aims to study the oral interactions of learners of French as a Foreign Language (henceforth FFL) in an informal learning context, in a homoglot environment.

When it comes to improving oral interaction, it is customary to provide recommendations for the teacher. However, changing teaching practice is not always the best option. It is important to think outside the box and to come up with innovative solutions. The University of Lille's "Café Langues" program represents such an initiative set up to improve oral interaction in an informal context. The "Café Langues" is therefore, an informal learning program set up with the main aim of improving oral interaction in foreign languages among university students. It is located outside the walls of the traditional classroom, in a café, on the university premises, which gives it an informal character. This system is organized into several "tables" allocated to different foreign languages such as German, Spanish, English, Chinese, Japanese, Russian and French as a Foreign Language. Learners engage in interactions in foreign languages around these tables. Unlike other tables where conversations are led by the learners themselves, "the FFL table" is led by a native speaker recruited on a Student Region contract by the Department of Teaching French (DEFI). The group of participants consists of international students (in variable and indefinite number) with varied cultural and linguistic origins. In addition, they have various language levels, from level A1 to level C1\(^2\). The aim of the study is to address the following question. "To what extent does "Café Langues" promote oral interactions among its participants?" The present paper comprises three sections. The first section sheds light on the theoretical background of the study. It focuses on identifying the criteria for recognizing potentially acquisitional sequences (henceforth PAS). After developing the theoretical basis, the second section develops the methodological framework of the study. The third section analyzes the PAS in order to identify the issues underlying oral interactions. This analysis is followed by a review of PASs and an attempt to compare the PASs in the corpus with those proposed by previous research. These three sections are followed by a conclusion which summarizes the different stages of the study, presents the results of the analysis and also suggests improvements to broaden the research topic.

2. LITERATURE REVIEW

Let us recall that the present study seeks to understand how the "Café Langues" program promotes oral interaction among learners. One of the ways to achieve this is to examine whether interactions of "Café Langues" contain elements that facilitate oral interaction in learners. In order to identify the said elements, we rely on the identification of "potentially acquisitional" sequences.

2.1 Potentially Acquisitional Sequences

Potentially acquisitional sequences is a concept suggested by De Pietro et al., (1988). It refers to:

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\(^{1}\) Common European Framework of Reference for Languages

\(^{2}\) Language competency levels according to the CEFR
"any exolingual conversational sequence organized around a formulation problem encountered by the alloglot speaker, and perceived as such either by himself (and giving rise to a request for help) or by his native interlocutor, episode followed by the presentation of a data (input) treated as such by the alloglot. The terminology used suggests that such sequences constitute conversational contexts that are particularly favourable to the acquisition of an element of L2, regardless of whether this acquisition actually takes place or not." (Jeanneret and Py 2002, p. 37).

According to this definition, there are three main movements of a PAS. Firstly, a PAS is organized around a formulation problem on the part of the alloglot which prevents the latter from continuing his interaction. Secondly, the native speaker offers him a solution to overcome this language barrier and to continue the exchange. Thirdly, the alloglot accepts the proposal of the native speaker. These three important movements help understand the PAS' dual functionality. On the one hand, PAS forms a conversational context favourable for acquisition of L2 by the alloglot; on the other hand, it ensures the smooth running of the interaction where the alloglot manages to continue his exchange by overcoming obstacles.

2.2 How to identify a Potentially Acquisitional Sequence?

De Pietro et al., (1989) present formal characteristics of a PAS that could be used as criteria for recognition. According to them, a PAS is a ternary sequence made up of the following three elements.

1. A movement of self-structuring which the alloglotte constructs using the resources offered by his interlanguage.

2. A heterostructuring response from the native speaker who helps, corrects, inflects, etc. the speech of the alloglot.

3. A resumption of the native's response by the alloglotte in the form of repetition / ratification which constitutes the eventual acquisition.

However, the repetition by the alloglot may not correspond exactly to the heterostructuring response of the native. This may be a distinct uptake of both the self-structuring alloglot production and the native heterostructuring response. This situation is identified as a gradual integration of the intermediate results of acquisition.

− In addition, a PAS focuses on the linguistic object; the way in which the message is conveyed.

− However, this focus is not fixed. The change of focus is identified as "bifocalization" by Bange (1987). According to Bange, in exolingual communication, the interlocutors focus alternately or simultaneously on the content and the code of a message. The interlocutors can change their focus during a sequence. For example, the alloglotte who first focuses on the content of his message could direct his attention to the code when he notices a formulation problem. Generally, this change of focus is noticed and shared by all interlocutors. If not, there cannot be PAS. However, in some sequences, the change in focus is not shared by the native speaker or the expert, but he provides a heterostructuring response which the alloglot ratifies. This type of PAS is identified as "communicatively integrated" sequence. (De Pietro et al., 1988).

− As for focalization, the interlocutors can focus on lexicon, syntax, pronunciation, lectal variation, and communicative standards.
However, the lexicon remains the most focused object in PASs.

- In addition, there may be occasions where the interlocutors focus on different objects within the same sequence.

### 2.3 Is it possible to have Potentially Acquisitional Sequences in any context of exolingual conversation?

The answer to this question is obviously "no". According to De Pietro, Matthey and Py, for there to be a PAS, it is mandatory that the interlocutors enter into a "didactic contract". The didactic contract is a concept inherited from the didactics of mathematics which refers to an implicit understanding of the teacher's role by the learner and learner's role by the teacher. Unlike in the school context where this contract is imposed, in exolingual conversation, the interlocutors (the native and the alloglotte) enter into a didactic contract through a shared understanding of the situation. Thus, they accept the asymmetry of their language competency levels. Moreover, they understand the complementary nature of their roles: the native is supposed to teach the language and the alloglotte is supposed to demonstrate the acquired knowledge by repeating the native's proposition.

How to identify the existence of a didactic contract in a sequence? The authors present two clues. The first clue corresponds to the play of enunciative places. For example, when the alloglotte finds it difficult to continue his remarks, the native intervenes to propose a statement in the place of the alloglotte which the latter ratifies. The native's proposition thus becomes a heterostructuring response. This play of enunciative places is identified as an "enunciative putsch".

The second clue is the lack of cooperation on the part of the native. There may be situations where the native, even if he understands the intention of the alloglotte, does not respond to his request for input. In such a sequence, the didactic contract is absent. Hitherto, we have identified the characteristics of the PASs. These characteristics are used to identifying the PASs in the students' conversations. We would be revisiting the present section in order to determine the correspondence between the theory and the results of the study.

### 3. METHODOLOGY

The present study focuses on 12 FFL learners of the University of Lille, France. Among these learners, 2 learners have A2\(^4\) level, 5 learners B2 level and 2 learners C1 level. Moreover, this group of learners come from very different linguistic and cultural backgrounds. The different nationalities represented are Chinese, Afghan, Indonesian, Italian, Ghanaian, American, Argentinian, and Czech. Their language repertoire includes Chinese, Pashto, Indonesian, Italian, English, Spanish, Portuguese, Twi, Ga, German, Mandarin, Urdu, Dari and Czech. It should be noted that the study is not limited to learners of a specific language level, because the heterogeneity of language levels is a special feature of the "Café Langues" which differentiates it from other learning contexts such as language courses grouped by level. Furthermore, we believe that the plurality of levels is an important factor that encourages strategies such as mediation, cooperation, mutual aid among learners. Bruner's (1983) notion of shoring has influenced and sharpened our thinking in this regard. Therefore, we intend to capture the interactions of all learners without limiting ourselves to a specific language level.

\(^4\) Language competency levels according to the CEFR
In order to understand how “Café Langues” promotes oral interactions, it was necessary to identify the learner profiles through a questionnaire. Then, participant observations were carried out in “Café Langues” sessions where the oral interactions of the participants were recorded. Accordingly, a total of 9 sessions (30 hours) were observed. Since the audio recordings do not collect important non-verbal data such as gestures, mimes, facial expressions, a logbook was maintained in order to record this information. During the observations, we engaged in interactions. We were part of the group of international learners participating in the interactions. Several reasons motivated this choice of observation. Firstly, we were determined not to disrupt the normal operation of “Café Langues”. Further, we wanted to ensure that our observation activities had as little effect as possible on the participation of learners in “Café Langues” activities. Therefore, we conducted participant observations, trying our best to integrate ourselves into the group of learners by taking part in the interactions and not limiting ourselves to the status of passive observer. Since the researcher was herself an international student, this task was easier than expected. In any case, it should be noted that participant observation, like any other data collection tool, is biased. In the present case, our participation in the interactions could have influenced certain interactions between the learners.

Accordingly, two types of data were collected. Oral interactions in the form of sound recordings and logbook notes. A detailed analysis of the oral interactions was carried out where we closely studied certain PASs to identify the issues at play.

4. RESULTS

A detailed analysis of PASs makes it possible to identify the underlying issues of interactions in “Café Langues”. First, we will identify the SPAs of the corpus based on the recognition criteria put forward by the previous studies and then identify the underlying issues of the interactions in question. Secondly, we will see if there is any divergence between the PASs of “Café Langues” and the PASs defined a priori in order to establish, if need be, an typology of PASs.

4.1 Underlying issues of Potentially Acquisitional Sequences in “Café Langues” learner interactions

The PASs are identified based on the recognition criteria presented by De Pietro, Matthey and Py (1989). In order to carry out a clear and coherent PAS analysis, we will proceed according to the formal PAS characteristics presented by the same researchers.
4.1.1 **Trigger Mode**

In most occurrences, PASs are initiated by the learner. Most often, the sequence is initiated following a request for linguistic tools or a request for hypotheses confirmation by the learner. In order to request, the learner uses explicit cooperation request strategies such as request for assistance, request for confirmation, acceptance of ignorance, rising intonation with interrogative value at the end of a sentence or word, the look to ask for confirmation, repetition, code-switching, ready-made expressions. We thus observe a request for an explicit didactic contract on the part of the learner who incites the expert to produce a heterostructuring statement. In cases where the expert initiates the sequence, either he detects errors or interlanguage traces of the learner's self-structuring utterance or he interprets verbalized and silent pauses of hesitation, false starts, the repetition of lexical elements, the slowing of the speech rate present in the learner's self-structuring utterance.

4.1.2 **Expert's heterostructuring response**

Except in cases of direct solicitation by the learner and except in cases of speech block of the learner due to limited linguistic resources, the expert only very rarely intervenes to propose a heterostructuring statement or to correct the learner's comments. For example, in sequence 1 (see Annex), the expert confirms the learner's hypothesis ("hum +") when called upon. On the contrary, he does not intervene to correct the learner when the latter mispronounces the word "medecin" (doctor). However, this erroneous pronunciation "medecin + [pron = medsjo ~]" which phonetically approaches the correct word does not constitute an obstacle to the comprehension of the message.

In the few cases where the expert intervenes without an explicit request, he ensures that the response is offered in the form of an "enunciative putsch" or a proposition. In sequence 2, the expert "slips into the enunciative place" of the learner (De Pietro, Matthey and Py, 1989, p. 6).

In addition to enunciative putsches, the expert's heterostructuring responses take the form of propositions. For example, in sequence 3, the expert presents two heterostructuring answers in the form of a question with an interrogative intonation and not in the form of an explicit request (Ex-injunctive form, request for repetition).

4.1.3 **Focalisation**

In most sequences, the learner's focus is on the code, while the expert tends to focus on communication. We notice this divergence of focus within the same sequence: bifocalization (Bange, 1987). Sequence 4 illustrates this phenomenon well. In this sequence, learner E3 attempts to obtain the lexeme "dealer" using the paraphrase strategy. The expert does not take the learner's attempt into consideration because the paraphrase already conveys the intended meaning. Thus, the lack of an exact term does not hinder the understanding of the message. It is clear that the expert's focus is more on the content of the message than on its form. On the contrary, the learner continues to focus on the code of the message and does not give up his attempt to obtain the desired lexical element. Two observations can be made regarding this sequence. First, it indicates the important presence of the didactic contract between the expert and the learner. The learner seems to have fully recognized and accepted his place as a learner in this contract. Secondly, the fact that the expert's focus is directed more towards the content of the message than towards its form shows that the development of communicative competence occupies a more privileged place than the acquisition of language in "Café Langues".
4.1.4 Focused linguistic objects of PAS

In line with previous research on PAS (De Pietro, Matthey and Py (1989)), the observations highlight that the lexicon constitutes the privileged linguistic object of PAS. The lexicon is the subject of most direct requests learners as well as heterostructuring answers of the expert. According to research, this is due to the fact that "words are the most accessible units for communicating" (Rodi 2014, p.154) and "perhaps because of their particularly manipulable character" (De Pietro, Matthey et Py 1989, p.12). Pronunciation takes second place.

4.1.5 Repetition / ratification / uptake

The uptake by the learner happens either by repetition of the expert's statement, "explicit acceptance" (Clark 2007, p.160) or by a phatic ratification: "Yes", "hm", "Tacit acceptance" (ibid.: 172). Also, this response recognition can occur immediately after the heterostructuring movement or later in the course of the exchange. However, there is a gap between the takeover and the capture or integration of the heterostructuring supply. The fact that the learner echoes the expert's offer does not guarantee that he will integrate the new functionality into his language system. For example, there may be sequences in which the heterostructuring offer is taken up immediately but quickly abandoned. On the contrary, there may also be sequences in which the learner shows no sign of recognition of the heterostructuring offer but integrates it or makes an attempt to integrate.

4.2 Review of Potentially Acquistional Sequences

The above analysis allows to draw the following conclusions regarding PASs of "Café Langues" interactions.

4.2.1 Well-established didactic contract

Given that most PAS type exchanges are initiated by the learner in the form of an explicit request and that he focuses on the code, the presence of a didactic contract is evident. In these contracts, the learner seems to have fully recognized his role as a learner. This request for an explicit contract favours acquisition in the sense that the learner is open to input. It avoids, on one hand, confusions linked to expert and novice roles and, on the other hand, problems linked to the learner's personality. What is most interesting is the extent to which the didactic contract is established in a context that is not formally recognized as acquisitional (unlike a language course, for example).

4.2.2 Minimal intervention – a favorable context for interaction

As we mentioned earlier, the expert rarely intervenes to correct or influence the learner's speech except on request. Furthermore, he ensures that the heterostructuring offer takes the form of an enunciative putsch or a proposition. In doing so, the expert encourages the learner to take risks, to experiment with different strategies and to overcome obstacles on his own. Moreover, the limited intervention of the expert has a positive effect on the learner's production, because the learner does not feel interrupted or disturbed in the middle of production. In addition, this type of intervention causes the least
harm to learner's personality. Indeed, the main goal of the expert, the facilitator or the native participant in the present context, is not to recreate the atmosphere of the conventional language class but to create a relaxed atmosphere, favourable to interaction where the learner expresses himself in complete freedom. Vasseur supports this idea when she says “interrupting or interrupting oneself can be useful in acquiring. But this strategy can also have negative consequences both on the immediate progress of the dialogue and on the acquisition potentials that a relaxed and co-managed dialogue can offer” (1989, p.84).

4.2.3 Privileged communication

Furthermore, we have previously pointed out that the expert's focus is more on communication than on code acquisition. Therefore, the “Café Langues” creates a favorable atmosphere for oral interaction. As Vasseur points out, “[...] the development of language competence goes beyond the strict acquisition of code. Developing language skills also presupposes developing the ability to conduct a satisfactory interaction. This means that it is certainly a question of negotiating when a problem arises (and it is then that the negotiation sequences are potentially acquisitional), but also of participating in the management of the conversation. These interactional components are both objects and conditions of acquisition” (1989, p.84).

5. CONCLUSIONS

The present study is an attempt to explore an under-exploited aspect in the field of foreign language didactics: the development of oral interactions in an informal context. More precisely, this paper sought to answer the following problem: “To which extent does “Café Langues “ program promotes oral interactions of its participants?” In order to answer this research question, we deemed it relevant to focus on potentially acquisitional sequences to find the elements conducive to the development of oral interaction. In order to conduct this research, we relied on questionnaire data, analysis of audio recordings of oral interactions as well as logbook notes. The results of the study lead to the following conclusions.

The welcoming attitude of the moderator who seems to be more interested in developing oral interaction in learners than in making them acquire linguistic tools and who tries to make the learners autonomous in relation to risk taking contributes to the development of oral interactions.

In addition, even if the participants come from different linguistic backgrounds, the presence of a shared linking language seems to greatly facilitate interactions. On the one hand, the multilingual richness of the participants allows them to overcome production problems more easily. On the other hand, the multicultural richness makes it possible to tackle more diverse topics of discussion which allow the development of cultural mediation activity. The friendly, relaxed atmosphere of the informal situation of “Café Langues” where the efforts of the learners are valued seems to favour the initiatives of learners.

Numerous literature survey is carried out on oral interactions in formal or non-formal learning situations, but few studies examine their place in an informal situation. Therefore, we believe that this research study constitutes an interesting contribution to the field of foreign language didactics. Nevertheless, we cannot deny the fact that the results of the study would have more weight if they were supported by
a quantitative dimension. A possible research avenue is to conduct a comparative study between PASs of formal learning context and / or of heteroglott environment.

REFERENCES


RELATIONSHIP BETWEEN LEARNING STRATEGIES AND ACADEMIC PERFORMANCE: A COMPARISON BETWEEN APEL AND REGULAR ENTRY UNDERGRADUATES

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Abstract
This study aims to compare the academic performance and types of learning strategy used by APEL and Regular entry undergraduates. It also looks into the relationship between the undergraduates’ academic performance and the types of learning strategy utilised by these two groups of undergraduates. This quantitative study involved 290 APEL entrants and 410 Regular entrants, from an Open Distance Learning (ODL) institution in Malaysia. Correlational research design was used in this study. The data of student academic performance was collected based on the students’ CGPA (Cumulative Grade Point Average) while the data of students’ learning strategies was collected using questionnaire adapted from Motivated Strategies for Learning Questionnaire (MSLQ). Independent t-test and Pearson’s Correlation analysis were performed using SPSS. The analysis of data showed that Regular entrants performed slightly better than APEL entrants. There is no significant difference between the types of learning strategy used by APEL and Regular entrants. However, there is a slight difference between types of learning strategy that affect the academic performance of APEL and Regular entrants. For both APEL and Regular entry students, the higher academic performers adopted time and study environment management as well as effort regulation. This might be because both groups of students are open distance learners, therefore, management of time, study environment and effort are crucial for the success of ODL students. Meta-cognitive self-regulation and help seeking which were found affecting the Regular entrants’ academic performance have no correlation with the APEL entrants’ academic performance. Last but not least, for both groups of students, there is no correlation between elaboration, organisation, critical thinking and peer learning with their academic performance.
1. INTRODUCTION

The Open Distance Learning (ODL) mode of study was introduced to allow Malaysians to develop themselves professionally while still working continuously to support the economy. It was created with the aim of upgrading and increasing Malaysia’s human capital which was part of 11th Malaysia Plan to develop its human capital through lifelong learning (Economic Planning Unit, 2015). Accreditation of Prior Experiential Learning (APEL) was created through the cooperation of the Malaysian Ministry of Education and the Malaysian Qualification Agency (MQA). By leveraging on working experience or prior working experience, APEL allows learners to enrol into tertiary education, giving access to learners from diverse backgrounds, conventional or otherwise. There are three categories in APEL, namely APEL-A (Admission), APEL-C (Credits) and the newly introduced APEL-Q (Qualifications) in 2020. All three categories and their assessment methods stem from Adult Learning Theory, Experiential Learning Theory and the Johari Window Concept (Kaprawi, 2011). For this study, we will be focusing on APEL-A only.

APEL-A offers an alternative route for admission into the university using a different approach as entry requirements as compared to the Regular entry criteria. In this article, APEL entry students refer to students who enter the university through APEL-A route. These students leverage on their prior learning acquired through formal/informal training, life or work experience to compensate for the lack in their academic qualifications. As outlined by MQA (2014), candidates who wish to pursue an undergraduate programme through APEL must be at least 21 years of age on the year of application and possess a minimum PMR/SRP/LCE qualification or its equivalent. Candidates must also possess prior learning experience in the programme of interest as well as pass the APEL-A Assessment conducted by the university. As a result, APEL entry students have a lower academic background as compared to their peers who are admitted into the university through Regular entry. Yet, both groups of students will receive the same learning services and assessment when they start their studies until they complete their studies.

Some researchers (e.g. Latifah, Mansor and Kek, 2009; Awang, Nik Yaacob and Noor, 2014) have reported that APEL entrants do not perform as well as their Regular peers. Hence, there is a need to explore the difference in personal traits, abilities or behaviours between these two groups of students to predict their academic performance so that the institutions of higher learning are able to provide them with appropriate support. There is no denying that academic performance and learning strategies are interrelated as found by various studies (e.g. Neroni et al., 2019; Lee and Mao, 2016; Law and Norlizah Che Hassan, 2015). Learning strategies are specific actions, behaviours or techniques that students consciously employ to improve their own learning (Zamora Menéndez, Gil Flores and de Besa Gutiérrez, 2020). The study by Neroni et al. (2019) indicated that management of time and effort, as well as complex cognitive strategies were positive predictors of academic performance. Different students with various learning styles utilize various forms of learning strategies to reach the same goal which is to obtain knowledge and acquire academic success and as students, it is important that they know how to acquire the knowledge and skills. Besides knowing which form of learning strategies is helpful for academic success for students, education providers should also be aware of them so that they may implement effective supportive techniques in their curriculum to help their studies achieve academic success.

Although there are many studies (e.g. Neroni et al., 2019; Lee and Mao, 2016; Law and Norlizah Che Hassan,
2015) that relate academic performance to learning strategies, they have been conducted overseas and research in this area, specifically among APEL learners in Malaysia, remains under researched. Therefore, this study aims to identify and compare the learning strategies utilised by both Regular entry and APEL entry undergraduates and to determine if there is a relationship between academic performance and learning strategies between these two groups of students. This study would be beneficial to education providers as they can better prepare to meet the demands of this growing group of APEL learners as the number of APEL learners continuously increase in the future.

2. LITERATURE REVIEW

Not many studies have been done to compare the academic performance of APEL entry students with Regular entry students. Latifah et al. (2009) found that Regular entry students performed academically better than APEL entry students. A similar study by Awang et al. (2014) echoed the findings of Latifah et al. (2009). However, Cheng and Siow (2018) found no significant difference in the academic performance with standard route entrants. These past studies, which were conducted in distance learning institutions in Malaysia, gained inconsistent findings in the relation between academic performance of APEL and Regular entrants’ academic performance.

Many studies overseas have been conducted to address the relation between learning strategies and academic performance among undergraduates (e.g. Neroni et al., 2019, Lee and Mao, 2016). A study by Valle et al. (2008) discovered that the students in a public university of Northern Spain used organisation strategy the most with mean score of 3.74. While the mean score for meta-cognitive self-regulation, time and study environment management, effort regulation and elaboration were 3.45, 3.45, 3.41 and 3.37 respectively. Besides that, Richardson, Abraham and Bond (2012) conducted a systematic review and meta-analysis of the relationship between learning strategies and grade point average (GPA) for campus-based college students. They investigated both correlations between learning strategies and GPA as well as a model with learning strategies as predictors of GPA and found that effort regulation is the most important learning strategy associated with academic performance, followed by time and study environment management and meta-cognitive self-regulation.

Ahmed Falah Al-Alwan (2008) found that undergraduates at Al-Hussein Bin Talal University in Jordan seem to make use of meta-cognitive self-regulation strategy the most (mean score=4.21). The mean score for time and study environment management, peer learning, effort regulation and help seeking were 3.96, 3.60, 2.50 and 2.36 respectively.

Puzziferro (2008) in his study on ‘Online Technologies Self-Efficacy and Self-Regulated Learning as Predictors of Final Grade and Satisfaction in College-Level Online Courses’ found that online technologies self-efficacy scores were not correlated with student performance. Using the Motivated Strategies for Learning Questionnaire subscales, this study found that time and study environment and effort regulation were significantly related to performance. Students who scored higher on these subscales received higher final grades. Also, Radovan (2011) in his study to discover possible relationships between self-regulated learning dimensions and students’ success in a distance-learning programme revealed that effort regulation tends to positively affect the course grade among the undergraduates in the university. Azlina Mohd Kosnin (2007) found that self-regulated learning explains 35.2% of the variance in CGPA (cumulative grade point average) among the Electrical Engineering undergraduates at Malaysia.
University of Technology. The resource management and meta-cognitive learning strategies are the significant predictors on academic achievement ($\beta=0.40$; $\beta=0.28$, $p<.01$).

Crede and Philips (2011) who conducted a meta-analytic review of the Motivated Strategies for Learning Questionnaire revealed that the specific learning strategies (i.e. rehearsal, elaboration, organization, critical thinking, peer learning, and help seeking) appeared to be largely unrelated to academic performance. While Agricola, Blind and Traas (2012) who studied the differences in regulation and efficiency of learning between traditional (under the age of 24) and non-traditional students (24 years of age and above) in a distance institution found that on the rehearsal scale, the traditional students score significantly higher than non-traditional students. The ability of non-traditional students to regulate their learning was found to be better than traditional students in the areas of cognition, motivation, behaviour and context. Similar finding was also indicated in a study on ‘learning strategies and academic performance in distance education’ by Neroni et al. (2019). Their findings showed that management of time and effort was the most important and positive predictor of academic performance. In the Malaysian environment, Law and Norlizah Che Hassan (2015) found that future educators in Malaysia seem to adopt more cognitive and meta-cognitive strategies compared to resource management strategies. Although many studies have been carried out to explore the relationship between learning strategies and academic performance, research related to the learning strategies used by APEL entry students remains limited. Hence, there is a research gap to be filled.

3. RESEARCH QUESTIONS

The research questions of this study are:

1. Is there a significant difference in academic performance between APEL and Regular entry students?
2. Is there a significant difference in learning strategies used between APEL and Regular entry students?

3. What is the relationship between the learning strategies used and academic performance of APEL entry students?
4. What is the relationship between the learning strategies used and academic performance of Regular entry students?

4. METHODOLOGY

This study employed the quantitative methodology approach. A comparative design was used to examine the difference in academic performance and learning strategies used between APEL and Regular entry undergraduates. Then, a correlational design was used to explore the relationship between the learning strategies used and academic performance of these students.

The data was collected from archival data and a questionnaire. The archival data included the intake of students, the type of entry and Cumulative Grade Point Average (CGPA) which were obtained from the Registry of the university. The instrument used was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ). MSLQ is a self-report instrument developed by Pintrich, Smith, Garcia and Mc Keachie (1991). It comprised motivational scales and learning strategies scales. This study only focused on the learning strategies scales. Two of these learning
strategies scales are cognitive and metacognitive strategies and resource management resources besides their own cognitive strategies. Table 1 lists the nine subscales of learning strategies.

Table 1: Learning strategies scales in MSLQ

<table>
<thead>
<tr>
<th>Scale</th>
<th>Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning strategies</td>
<td>1. Cognitive and metacognitive strategies</td>
</tr>
<tr>
<td></td>
<td>(a) Rehearsal</td>
</tr>
<tr>
<td></td>
<td>(b) Elaboration</td>
</tr>
<tr>
<td></td>
<td>(c) Organisation</td>
</tr>
<tr>
<td></td>
<td>(d) Critical thinking</td>
</tr>
<tr>
<td></td>
<td>(e) Meta-cognitive self-regulation</td>
</tr>
<tr>
<td></td>
<td>2. Resource management strategies</td>
</tr>
<tr>
<td></td>
<td>(a) Time and study environment</td>
</tr>
<tr>
<td></td>
<td>(b) Effort regulation</td>
</tr>
<tr>
<td></td>
<td>(c) Peer learning</td>
</tr>
<tr>
<td></td>
<td>(d) Help seeking</td>
</tr>
</tbody>
</table>

Some changes were made in the questionnaire to suit the context of the university. Two stages of pilot study were conducted on the questionnaire to confirm that the modified version of MSLQ was considered a reliable instrument. Firstly, a debriefing interview was conducted with four students. The questionnaire was revised based on the feedback collected from the interview. Then, the questionnaire was administered to 40 students as a pilot study. The alpha coefficient obtained was 0.857. The result of the pilot study revealed that the questionnaire was reliable as the alpha value was within the acceptable range.

The university started APEL entry in January 2016 semester. The list of students from January 2016 to January 2019 was obtained from the Registry. There were 4452 undergraduates, 2706 Regular entrants and 1746 APEL entrants, enrolled during this period. The questionnaire was administered to 4452 undergraduates using SurveyMonkey. Informed consent was collected through the questionnaire. Seven hundred students, 410 Regular entrants and 290 APEL entrants, completed the questionnaire. The CGPA of these students were then obtained from the Registry of the university. The data was imported into SPSS for data analysis. Independent t-tests were conducted to compare the difference in academic performance and learning strategies used between APEL and Regular entry undergraduates. Then, Pearson correlation was carried out to explore the relationship between academic performance and learning strategies used for both groups of students.

5. RESULTS

An independent sample t-test was conducted to compare the academic performance of APEL and Regular entry students. There was a significant difference in the scores for Regular [M=2.38, SD: 1.23] and APEL entry students [M=2.12, SD:1.35; t(700) = 4.587, p= 0.000]. The magnitude of the differences in the means was small (eta squared= 0.03). An independent sample t-test was also conducted to compare the learning strategies used by the APEL and Regular entry students. Table 2 shows the result of independent sample t-test. It was found that there was no significant difference in types of learning strategies used by these two groups of students.
Table 2: Means of the learning strategies for Regular and APEL entrants

<table>
<thead>
<tr>
<th>Learning Strategies</th>
<th>Regular entrants</th>
<th>APEL entrants</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Cognitive and metacognitive strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehearsal</td>
<td>2.95</td>
<td>0.40</td>
<td>2.94</td>
<td>0.40</td>
</tr>
<tr>
<td>Elaboration</td>
<td>3.05</td>
<td>0.45</td>
<td>3.00</td>
<td>0.44</td>
</tr>
<tr>
<td>Organization</td>
<td>3.01</td>
<td>0.53</td>
<td>2.98</td>
<td>0.53</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>2.93</td>
<td>0.49</td>
<td>2.91</td>
<td>0.48</td>
</tr>
<tr>
<td>Meta-cognitive self-regulation</td>
<td>2.82</td>
<td>0.40</td>
<td>2.85</td>
<td>0.44</td>
</tr>
<tr>
<td>Resource Management and Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time and study environment management</td>
<td>2.65</td>
<td>0.41</td>
<td>2.67</td>
<td>0.45</td>
</tr>
<tr>
<td>Effort regulation</td>
<td>2.97</td>
<td>0.43</td>
<td>2.99</td>
<td>0.46</td>
</tr>
<tr>
<td>Peer learning</td>
<td>2.39</td>
<td>0.61</td>
<td>2.34</td>
<td>0.61</td>
</tr>
<tr>
<td>Help seeking</td>
<td>2.69</td>
<td>0.63</td>
<td>2.67</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Pearson correlation was conducted to explore the relationship between the learning strategies and academic performance of Regular entrants. As shown in Table 3, meta-cognitive self-regulation, time and study environment management, effort regulation and help seeking are positively correlated with the academic performance. The magnitude of the relationship is small (Cohen, 1988).

Pearson correlation was also conducted to explore the relationship between the learning strategies and academic performance of APEL entrants. It was found that only time and study environment management and effort regulation are positively correlated with the academic performance (Table 4). The magnitude of the relationship is also small (Cohen, 1988).
### Table 3: Coefficients of relationship between learning strategies and academic achievement of Regular entrants

<table>
<thead>
<tr>
<th>Learning strategies</th>
<th>Academic achievement (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehearsal</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.030</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.550</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.056</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.259</td>
</tr>
<tr>
<td>Organization</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.008</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.866</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.023</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.645</td>
</tr>
<tr>
<td>Meta-cognitive self-regulation</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.072</td>
</tr>
<tr>
<td>Time and study environment management</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.043</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.152**</td>
</tr>
<tr>
<td>Effort regulation</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.174**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.002</td>
</tr>
<tr>
<td>Peer learning</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.087</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.080</td>
</tr>
<tr>
<td>Help seeking</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.161</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.001</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)**

### Table 4: Coefficients of relationship between learning strategies and academic achievement of APEL entrants

<table>
<thead>
<tr>
<th>Learning strategies</th>
<th>Academic achievement (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehearsal</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.079</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.177</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.067</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.255</td>
</tr>
<tr>
<td>Organization</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.046</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.437</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.098</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.096</td>
</tr>
<tr>
<td>Meta-cognitive self-regulation</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.060</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.306</td>
</tr>
<tr>
<td>Time and study environment management</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.197**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.001</td>
</tr>
<tr>
<td>Effort regulation</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>.172**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.003</td>
</tr>
<tr>
<td>Peer learning</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.076</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.198</td>
</tr>
</tbody>
</table>
5. DISCUSSION

The findings of this study showed that there was a significant difference in academic performance between the Regular and APEL undergraduates. It was aligned with the findings reported by Latifah et al. (2009) and Awang et al. (2014). However, Cheng and Siow (2018) reported that there was no significant difference in performance between these two groups of students. The inconsistency in the findings could be due to institutional factors, such as support provided by the university, quality of the programme, competence of teaching staff, relationship between students and lecturers/tutors amongst others. All these studies including the current study only focused on students from one ODL institution. Some institutions may have a better support system which enable their APEL entry students to perform equally well as Regular entry students. Future studies can be conducted by comparing the academic performance of these two groups of students from several ODL institutions.

When t-test was conducted to compare the learning strategies used by these two groups of undergraduates, it was found that there was no significant difference between these two groups of students. For both Regular and APEL entry students, time and study environment management and effort regulation were positively correlated with the academic performance. Time and study environment management includes scheduling, planning, budgeting study time as well as regulating the general study environment. Effort regulation is the management of academic tasks. It reflects the level of commitment the students maintained when they faced difficulties or obstacles. In this study, students who scored high in these two sub scales had higher CGPA scores. Similar results were reported by Agricola et al. (2012), who studied non-traditional learners (students who are 24 years old and above); as well as Neroni et al. (2019), Radovan (2011) and Puzziferro (2008), who studied on distance learners. The adult ODL learners faced a lot of challenges in their study like studying off-campus and having both work and family obligations (Ronning, 2009). Therefore, it is crucial for them to acquire high self-regulated behaviour. Students who are able to regulate and influence their study environment are more capable in resisting distraction (Pintrich, 2004) as well as maintaining concentration and ultimately being able to perform well in their studies.

It was surprising to find that there is no significant relationship between cognitive strategies (which included rehearsal, elaboration, organization and critical thinking) and academic performance. These findings were similar with the findings reported by Crede and Philips (2011) who conducted a meta-analytic review of the Motivated Strategies for Learning Questionnaire. Further study should be conducted to explore the reasons why the cognitive strategies are not correlated with the ODL students’ academic performance.

For both Regular and APEL entrants, there was no significant relationship found between peer learning and academic performance. Similar to the findings reported by Puzziferro (2008), the mean score of peer learning was the lowest compared with the mean score among all the learning strategies. This could be because ODL learners were very busy with their work and family causing them not to have time to study together with their peers.
Meta-cognitive self-regulation involves planning, monitoring their own learning, and regulating (Duncan and McKeachie, 2005). Some researchers (Neroni et al., 2019 and Agricola et al., 2012) have also reported that meta-cognitive self-regulation is a positive predictor of academic performance for distance learners. In this study, only the meta-cognitive self-regulation scores of Regular entrants were positively correlated with their academic performance while there was no significant relationship between the APEL entrants’ meta-cognitive self-regulation scores and their academic performance. The APEL entrants’ academic performance was not correlated with meta-cognitive self-regulation scores. This could be because most of them, both higher performers and low performers, were not familiar with meta-cognitive self-regulation when they were studying as they were never trained like those Regular entrants who have undergone the conventional study pathway of high school and pre-university. Alternatively, most of them, both high and low achievers, were using this learning strategy in their studies as they were used to this kind of learning strategies in their working experience.

The same goes to help seeking where it is positively correlated with Regular entrants’ academic performance but not correlated with APEL entrants. Inconsistent findings can be found in the literature. Neroni et al. (2019) reported that help seeking is a negative predictor of academic performance, whereas Credé and Phillips (2011) reported that these two variables are not interrelated. In this study, Regular entrants who have experienced conventional studies did not shy away to seek for help from others when they faced difficulties as they were taught to always seek for assistance and clarification when they do not understand the subject matter. Comparatively, APEL entrants may not be used to seeking help from others as they may have experiences that view help seeking as a sign of weakness and therefore were more willing to look inward for help.

6. CONCLUSIONS

The Regular entrants performed slightly better than the APEL entry students. There was no significant difference between the types of learning strategies used by them. For both Regular and APEL entry students, both time and study environment management as well as effort regulation were positively correlated with their academic performance. Thus, the university may provide these students with guidelines to time management skills when they first start their study in order to prepare them to manage their time well and ultimately be able to perform well in their studies. Help seeking and meta-cognitive self-regulation were positively correlated with Regular entrants’ academic performance but have no significant relationship with APEL entrants’ academic performance. The cognitive skills (rehearsal, elaboration, organisation and critical thinking) and peer learning were not correlated with the academic performance for both Regular and APEL entry students.

The university may provide several in-person sessions for the students to meet with their lecturers, tutors and peers from time to time throughout the semester. With that, the APEL entrants would be able to generate closer relationships with others and ultimately be willing to seek help from others whenever they are in need. Further studies should be carried out using a wider sample of distance learners from both Regular entry as well as APEL entry in Malaysian universities to generalize the findings. Also, future researchers can compare other personal traits between these two groups of students so that we are able to give appropriate support to assist the APEL entrants to perform as well as their Regular entry peers.
ACKNOWLEDGEMENTS

This research was funded by Centre for Research and Innovation (CeRI), Wawasan Open University, Malaysia.

REFERENCES


AN EMPIRICAL STUDY OF THE INFLUENCING FACTORS AND LEARNER PREFERENCES FOR THE SELECTION OF A STUDY PROGRAMME WITH THE FOCUS ON UNDERGRADUATE MANAGEMENT STUDIES

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Abstract
The purpose of this study is to empirically assess and identify the specific influencing factors and learner preferences as an input for the revising of the curricular of Bachelor of Management Studies Honours Degree Programme offered by The Open University of Sri Lanka. The study would also provide insights towards the purpose of selecting this programme by potential learners and the areas to be included to the curriculum. The study was conducted as a cross sectional study during the first quarter of 2020, the rank responses were obtained through a self-administered online questionnaire and analysed using Relative Importance Index (RII). The sample consisted of 385 respondents who were potential learners of the Bachelor of Management Studies Honours Degree Programme. The variables assessed in the study were the influencing personal factors, quality factors, career-related factors, preferred components and preferred learning methods related to the study programme. The results of the analysis revealed that the most important purpose of following the degree is to develop knowledge and expertise. Among the personal factors, interest in the subject area was revealed as the most influential factor, while the ability to maintain high GPA was statistically insignificant. The recognition and reputation of the study programme was revealed as the most influential quality factor, while the job opportunities available in the management field was the most influential career-related factor. The preferred components of the study programme represented the main features related to the accessibility and flexibility in the ODL context. The learning methods which ensure learner support to a great extent were identified as the most preferred by the learners. The findings of the study pave the way for the reorientation and development of curricula to address the needs and preferences of potential learners in ODL.
1. INTRODUCTION

Educational systems of the countries in the world are continuously changing with globalization. Learners' preferences for respective academic programmes of higher education institutions should align with the changes happening in the education systems. Learners' preference is centrally important to match the gaps of what global market needs and what educational institutes offer. Selection of an appropriate academic programme will pave the way to a learner to support the organization he/she serves in order to create smooth systems or incorporate corrections to existing disorders. A formal assessment of learner preferences on academic programmes is important in order to understand present learners' perceptions and help re-structuring the programmes.

The youth literacy rate in Sri Lanka is reported to be 98.77 percent, the highest in South Asia. And more importantly Human Capital Index (HCI) of Sri Lanka is higher than the average for the South Asia region and Lower middle-income countries (worldbank.org). In this background there is a broader agreement that the country should shift towards a knowledge-based economy. Furthermore, the government's key policy document, Vision 2025, aspires to transform Sri Lanka into the hub of the Indian Ocean, with a knowledge-based, highly competitive, social market economy focused on inclusion (openknowledge.worldbank.org).

The Open University of Sri Lanka (OUSL) from its inception, over 40 years, has been in Management education offering programmes from certificate to postgraduate level and research degrees. The Faculty of Management Studies (FMS), formerly, the Department of Management Studies is well experienced in offering Management education programmes throughout the country using OUSL network of regional educational services. The Bachelor of Management Studies Honors Degree Programme (BMS) was offered by the OUSL for more than one decade. Based on the recent development, the Department of Management studies was re-established as the Faculty of Management Studies in May 2019. Under the wings of the Faculty of Management Studies, few departments were proposed in order to cater to the market demand. This study was conducted to find out the purpose of selecting this programme by the potential learners and the areas to be included in the curriculum.

Today, Management degrees specialize in several fields. However, Accounting, Finance, Marketing and Human Resources are the major pillars of the business world. Student's interest, skill, capacity, and personality must match with their education fields. Because, today, students are keen about their careers and have a certain mindset while they opt education from the institutes. Their decisions are based on the information collected by themselves, guidelines obtained and upon the anticipation (Shripad et al, 2015). The need for revised curricular and customized degree programmes has been the focus in formulating Goal 3 of the Strategic Plan of University Grants Commission of Sri Lanka for 2019-2023. Objective 1 of Goal 3 of this plan is to develop new courses of study and to revise the curricular of existing courses as needed in order to ensure programme relevance and to match with the market demand. Catering to this need will also address the United Nations Sustainable Development Goals (SDGs) designed to be a "blueprint to achieve a better and more sustainable future for all". These SDGs were set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030. By designing a BMS Honours Degree Programmes in Management, Accounting and Finance, Human Resource Management and Marketing Management will specifically address SDGs 4, 6 and 9 (Quality Education, Decent Work, and Economic Growth, Industry, Innovation and
The variables assessed in the study were the influencing personal factors, quality factors, career related factors, preferred components and preferred learning methods related to the study programme. “It is widely accepted that organizations are increasingly viewing learning as a means of attaining a competitive edge; they are, therefore, likely to take steps to increase the expertise and knowledge-base” (Opengart and Short, 2002). Learners' preferences are further influenced by technological advancements in any subject discipline. “Personalized learning occurs when e-learning systems make deliberate efforts to design educational experiences that fit the needs, goals, talents, and interests of their learners” (Bachari, and Abelowahed, 2011). Learners are mainly influenced by personal factors when selecting academic programmes, especially family background and influences coming from socialization agents. Further, previous experiences revealed the fact that many search quality factors. This is a very important and common dimension in not only educational services but also in a product. Apart from that, in the present context many potential learners think of future career prospects which can be won via academic qualifications. Apart from that, priority can be given to learning methodologies specially under open and distance learning mechanisms. Rather than fully online learning, many institutions follow blended learning. Learners also prefer blended learning as it is flexible and enhance engagement to a certain extent. Educational approaches that represent a shift in instructional strategy are often described as blended learning and virtual learning environments often considered as educational environments for blended learning (Thorsteinsson, and Niculescu, 2008).

Preference for academic programme is a short-term milestone of long-term career prospects of many learners. They target a potential job or profession which is aligned with their academic qualification. Therefore, The FMS of the OUSL designed four (04) Honours degree programmes covering Management, Accounting and Finance, Marketing and Human Resource Management. All these four programmes are potential academic courses where under ODL system learners can get advantages. Specially learners can follow the preferred course while they are employed. Job market is full of opportunities if a youth has prospective academic credentials. Therefore, studying the factors behind the selection of academic programmes is really important.

To serve the broader purpose of this study, which is to empirically assess and identify the specific influencing factors and learner preferences as an input for revising of the curricular of Bachelor of Management Studies (BMS) Honours Degree Programme offered by the Open University of Sri Lanka, the following objectives were set:

1. To assess the purposes of following the degree programme
2. To examine the influential personal, quality and career related factors of selecting the degree programme
3. To evaluate the preferred components of the degree programme
4. To explore the preferred learning methods
5. To recommend the special areas to be included in the curriculum of BMS degree programme
2. METHODOLOGY

The study was conducted as a cross sectional study in the first quarter of the year 2020. The rank responses were obtained through a self-administered online questionnaire. The sample, which was obtained through convenience sampling method, consisted of 385 respondents who were the potential learners of the Bachelor of Management Studies Honours Degree Programme. The sample size was calculated based on the Morgan table (Krejcie and Morgan, 1970).

The operationalization of the concept is carried out and then each of six variables are translated into observable and measurable elements by using literature reference, as shown in the Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of following the degree</td>
<td>Abdullah and Saeid, 2016; Lekamge et al., 2016</td>
</tr>
<tr>
<td>Personal factors</td>
<td>Araham and Jacobs, 1990; Agbanu, S.K. et al., 2014</td>
</tr>
<tr>
<td>Quality factors</td>
<td>Ramalu et al., 2013; Agbanu, S.K. et al., 2014</td>
</tr>
<tr>
<td>Career related factors</td>
<td>Shripad et al., 2015; Agbanu, S.K. et al., 2014</td>
</tr>
<tr>
<td>Preferred components in the degree</td>
<td>Donmez and Hakan, 2019</td>
</tr>
<tr>
<td>Preferred learning methods</td>
<td>Agbanu, S.K. et al., 2014</td>
</tr>
</tbody>
</table>

The rank responses were obtained, where rank 1 refers to least influential or least preferred item. The responses were analyzed using Relative Importance Index (RII). (Aziz et al., 2016)

\[
RII = \frac{\text{Sum of ranks given to each component by respondents}}{\text{Highest rank} \times \text{Number of respondents}}
\]

3. RESULTS

3.1 Sample Profile

When the sample was analyzed for the age distribution, it was noted that 95 percent of the sample were between "20 years to 30 years". Considering its gender distribution, it was revealed that the sample consisted of more females than males, females with a percentage of 57 and males with a percentage of 43. It is noteworthy that most of the learners included in the sample were employed accounting for a percentage of 67 which represents another unique characteristic of a learner in the ODL setting. Out of the whole sample, 34% are employed in private sector, 15% in the public sector, 12% in the semi-government sector and 5% are self-employed, while 1% is employed in the NGOs. According to the analysis, it is visible that most of the learners have studied in the Commerce stream in Advanced Level (79%), while 10% are from Arts stream, 6% are from Biological Sciences, 4% are from Physical Sciences and 1% from Technological stream. Most of the respondents have stated that their computer literacy is in medium level (84%), while the rest suggests that they have a high level of computer literacy (16%).
3.2 Findings of Data Analysis

In this study, 45 influencing factors and learner preferences as an input for the revising of the curricular of BMS Honours Degree Programme have been identified and ranked according to the Relative Importance Index (RII). These factors have been categorized into six groups. The factors with a RII more than 0.5 have been considered as the significant factors in each category.

3.3 Analysis of the Purposes of Following the Degree Programme

First objective was to assess the purposes of following the Bachelor of Management Studies (BMS) Honours Degree Programme offered by the Open University of Sri Lanka. The Relative Importance Index and ranks of the six factors were classified under the "Purposes of following the degree programme" as shown in Table 2.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop knowledge and expertise</td>
<td>0.815</td>
<td>1</td>
</tr>
<tr>
<td>To obtain a qualification</td>
<td>0.786</td>
<td>2</td>
</tr>
<tr>
<td>To find a suitable job</td>
<td>0.731</td>
<td>3</td>
</tr>
<tr>
<td>To get a promotion</td>
<td>0.635</td>
<td>4</td>
</tr>
<tr>
<td>To earn money</td>
<td>0.593</td>
<td>5</td>
</tr>
<tr>
<td>To move from existing job</td>
<td>0.542</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2 illustrates that the surveyed participants ranked "To develop knowledge and expertise" as the most important purpose of following the degree in this group, with a RII of 0.815. In contrast, the factor "To move from existing job" is the least important factor in this group, with a RII of 0.542.

Second objective was to examine the influential personal, quality and career related factors of selecting the Bachelor of Management Studies (BMS) Honours Degree Programme offered by the Open University of Sri Lanka.

3.4 Analysis of the Influential Personal Factors

The Relative Importance Index and ranks of the five factors were classified under the "influential personal factors" as shown in Table 3.

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in the subject area(Preference)&quot;</td>
<td>0.734</td>
<td>1</td>
</tr>
<tr>
<td>My ability to maintain high GPA&quot;</td>
<td>0.471</td>
<td>2</td>
</tr>
<tr>
<td>My ability to work hard&quot;</td>
<td>0.471</td>
<td>3</td>
</tr>
<tr>
<td>My ability to manage my time&quot;</td>
<td>0.471</td>
<td>4</td>
</tr>
<tr>
<td>My ability to be creative&quot;</td>
<td>0.471</td>
<td>5</td>
</tr>
</tbody>
</table>

It shows that the surveyed participants ranked "Interest in the subject area" as the most influential personal factor in this group, with a RII of 0.734. In contrast, the factor "My ability to maintain high GPA" is the least important factor in this group, with a RII of 0.471.
Table 3: Ranking influential personal factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in the subject area (Preference)</td>
<td>0.734</td>
<td>1</td>
</tr>
<tr>
<td>My personal believes and attitudes</td>
<td>0.655</td>
<td>2</td>
</tr>
<tr>
<td>My personal capabilities</td>
<td>0.613</td>
<td>3</td>
</tr>
<tr>
<td>My childhood dreams</td>
<td>0.516</td>
<td>4</td>
</tr>
<tr>
<td>My ability to maintain high GPA</td>
<td>0.471</td>
<td>5</td>
</tr>
</tbody>
</table>

3.5 Analysis of the Influential Quality Factors

The Relative Importance Index and ranks of the seven factors were classified under the "influential quality factors" as shown in Table 4. As illustrated in Table 4, the surveyed participants ranked “Recognition and reputation of the relevant department” as the most influential quality factor in this group, with a RII of 0.687. In contrast, the factor "Online learning facilities offered by the department" is the least important factor in this group, with a RII of 0.468.

Table 4: Ranking influential quality factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition and reputation of the relevant department</td>
<td>0.687</td>
<td>1</td>
</tr>
<tr>
<td>Academic quality of the lecturers in the relevant department</td>
<td>0.616</td>
<td>2</td>
</tr>
<tr>
<td>Conducting day schools by experienced lecturers</td>
<td>0.585</td>
<td>4</td>
</tr>
<tr>
<td>Distinguished academic staff in the relevant department</td>
<td>0.562</td>
<td>3</td>
</tr>
<tr>
<td>Flexibility of the lecturers in the department</td>
<td>0.560</td>
<td>5</td>
</tr>
<tr>
<td>Availability of textbooks relevant to the specialization area</td>
<td>0.507</td>
<td>6</td>
</tr>
<tr>
<td>Online learning facilities offered by the department</td>
<td>0.468</td>
<td>7</td>
</tr>
</tbody>
</table>

3.6 Analysis of the Influential Career Related Factors

The Relative Importance Index and ranks of the nine factors were classified under the "influential career related factors" as shown in Table 5. It illustrates that the surveyed participants ranked “Job opportunities available in the relevant field” as the most influential career related factor in this group, with a RII of 0.758. In contrast, the factor "There is a diversity of jobs in the relevant field" is the least important factor in this group, with a RII of 0.322.
Table 5: Ranking influential career related factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job opportunities available in the relevant field</td>
<td>0.758</td>
<td>1</td>
</tr>
<tr>
<td>Job market demand for graduates in the relevant field</td>
<td>0.735</td>
<td>2</td>
</tr>
<tr>
<td>Potential for career advancement in the relevant field</td>
<td>0.726</td>
<td>3</td>
</tr>
<tr>
<td>Opportunity to be creative</td>
<td>0.556</td>
<td>4</td>
</tr>
<tr>
<td>High salary rates</td>
<td>0.504</td>
<td>5</td>
</tr>
<tr>
<td>Social prestige</td>
<td>0.530</td>
<td>6</td>
</tr>
<tr>
<td>Opportunity to work in dynamic atmosphere</td>
<td>0.482</td>
<td>7</td>
</tr>
<tr>
<td>It is easy to find internship/training in the relevant field</td>
<td>0.368</td>
<td>8</td>
</tr>
<tr>
<td>There is a diversity of jobs in the relevant field</td>
<td>0.322</td>
<td>9</td>
</tr>
</tbody>
</table>

3.7 Analysis of the Preferred Components of the Degree Programme

Third objective was to evaluate the preferred components of the Bachelor of Management Studies (BMS) Honours Degree Programme offered by the Open University of Sri Lanka. The Relative Importance Index and ranks of the twelve factors were classified under the "preferred components of the degree programme" as shown in Table 6. As illustrated in Table 6, the surveyed participants ranked "Weekend lectures" as the most preferred components of the degree programme in this group, with a RII of 0.708. In contrast, the factor "Research project" is the least important factor in this group, with a RII of 0.295.

Table 6: Ranking preferred components of the degree programme

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekend lectures</td>
<td>0.708</td>
<td>1</td>
</tr>
<tr>
<td>Lower course fee compared to private universities</td>
<td>0.677</td>
<td>2</td>
</tr>
<tr>
<td>Distance Learning approach</td>
<td>0.625</td>
<td>3</td>
</tr>
<tr>
<td>Non compulsory attendance</td>
<td>0.594</td>
<td>4</td>
</tr>
<tr>
<td>Studying in convenient medium in the first two levels</td>
<td>0.605</td>
<td>5</td>
</tr>
<tr>
<td>Convenient location of the regional/study centre</td>
<td>0.561</td>
<td>6</td>
</tr>
<tr>
<td>Online registration facility</td>
<td>0.490</td>
<td>7</td>
</tr>
<tr>
<td>Course content</td>
<td>0.458</td>
<td>8</td>
</tr>
<tr>
<td>High level of administration support</td>
<td>0.408</td>
<td>9</td>
</tr>
<tr>
<td>Assignment</td>
<td>0.353</td>
<td>10</td>
</tr>
<tr>
<td>Academic support</td>
<td>0.340</td>
<td>11</td>
</tr>
<tr>
<td>Research project</td>
<td>0.295</td>
<td>12</td>
</tr>
</tbody>
</table>
3.8 Analysis of the Preferred Learning Methods

Third objective was to evaluate the preferred learning methods of the Bachelor of Management Studies (BMS) Honours Degree Programme offered by the Open University of Sri Lanka. The Relative Importance Index and ranks of the six factors were classified under the "preferred components of the degree programme" as shown in Table 7. Table 7 illustrates that the surveyed participants ranked “Meeting the lecturer at the day school” as the most preferred learning method in this group, with a RII of 0.747. In contrast, the factor “Learning from peers” is the least important factor in this group, with a RII of 0.381.

Table 7: Ranking preferred learning methods

<table>
<thead>
<tr>
<th>Factor</th>
<th>RII</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting the lecturer at the day school</td>
<td>0.747</td>
<td>1</td>
</tr>
<tr>
<td>Reading the text materials</td>
<td>0.662</td>
<td>2</td>
</tr>
<tr>
<td>Study from videos</td>
<td>0.633</td>
<td>3</td>
</tr>
<tr>
<td>Listening to lecture audios</td>
<td>0.595</td>
<td>4</td>
</tr>
<tr>
<td>Through online platforms</td>
<td>0.469</td>
<td>5</td>
</tr>
<tr>
<td>Learning from peers</td>
<td>0.381</td>
<td>6</td>
</tr>
</tbody>
</table>

4. CONCLUSIONS

The results of this study pave the way to identify the purposes of selecting Bachelor of Management Studies Honours Degree Programme offered by the Open University of Sri Lanka by the potential learners, the areas to be included to the curriculum, the specific influencing factors, and learner preferences as an input for the revising of the curricular of this programme. The results of the analysis revealed that, the most important purpose of following the degree is to develop knowledge and expertise. This finding is related to the findings of Lekamge et al., 2016, which emphasizes the fact of increasing the knowledge and expertise of the graduates of OUSL. Among the personal factors, interest in the subject area was revealed as the most influential factor, while the ability to maintain high GPA was statistically insignificant. The recognition and reputation of the study programme was revealed as the most influential quality factor, while Lekamge et al., 2016 emphasizes that there is an equal recognition to the OUSL programme with the other degree programmes in conventional universities in Sri Lanka. The job opportunities available in the management field was the most influential career related factor. The preferred components of the study programme represented the main features related to accessibility and flexibility in the ODL context. The learning methods which ensure learner support to a great extent were identified as the most preferred by the learners. Based on the above findings, it can be concluded that this study paves the way for the reorientation and development of curricula to address the needs and preferences of potential learners in ODL.
ACKNOWLEDGEMENTS

The authors profoundly thank the staff of the Faculty of Management Studies, The Open University of Sri Lanka for their valuable assistance for conducting the survey.

REFERENCES


LEARNERS’ PERCEIVED IMPACT ON VIRTUAL LEARNING ACTIVITIES IN AN UNDERGRADUATE HUMAN BIOLOGY COURSE

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Abstract
Owing to the Covid-19 pandemic, The Open University of Sri Lanka had to engage its learners entirely via virtual platforms, postponing or cancelling all face-to-face academic activities. Responding to the challenge of keeping learners motivated and engaged during this forced isolation, the course team of Human Biology, a final year course of the BSc Degree programme, decided to experiment with two novel teaching-learning approaches. One was transitioning the face-to-face lectures to remote instruction using the Zoom platform and uploading recorded sessions to the online course to increase asynchronous access. Second being the development of a Virtual Laboratory (VL) to support the laboratory exercises. The purpose of this study was to explore learner experiences of the virtual instructional techniques and the perceived impact on their learning process. This study used a mixed research design and collected data through online questionnaires. The findings were triangulated with learner narrative accounts, their participation in online activities and correlated with performance data. A total of 88 responses were received (61% response rate). Majority had participated in most Zoom lectures (65%), viewed many recorded sessions (63%) and watched many demonstrations in VL (75%). However, 13% had not joined due to time constraints (45%), device (18%) and access (18%) issues. Perceived impacts of online Zoom sessions were no traveling cost (94%), effective use of time (91%), motivation to study (91%) convenience (90%) and preference over face-to-face sessions (69%). The perceived impacts of the VL were for active engagement in learning process (90%), to engage independently in practical (86%) and for revision (86%). There was a significant correlation (P<0.05) between use of the VL with performance at an online assessment. In conclusion, the novel approaches have had a positive impact on the overall learning and motivated learners toward self-directed learning, thereby improving their performance in a restrictive learning environment.
1. INTRODUCTION

The COVID-19 pandemic affected our lives unexpectedly and instantly immobilized most facets of human activities across the world. With time we gradually adjusted to the situation and started to work in a restrictive environment under near normalcy. Almost all countries have implemented school and university closures and most of the universities have enforced localised closures (UNESCO, 2020). In view of this situation, academics had a mammoth task of engaging learners in their teaching learning activities even in Open and Distance Learning (ODL) universities. As a result, The Open University of Sri Lanka (OUSL) had to engage its learners entirely via virtual platforms, postponing or cancelling all face-to-face academic activities.

Responding to the challenge of keeping learners motivated and engaged during this forced isolation, the course team of Human Biology, a final year course of the BSc Degree programme, decided to experiment with two novel teaching-learning approaches. One was transitioning the face-to face lectures to remote instruction using the Zoom platform and uploading recorded sessions to the online course to increase asynchronous access. Second approach was the development of a Virtual Laboratory (VL) to support the laboratory exercises.

The purpose of this study was to explore learner experiences of these two novel virtual instructional approaches and to identify their perceived impact on these approaches on their learning process.

2. THE STUDY

Human Biology course is a final year optional Zoology course of the BSc Degree programme of the OUSL. The OUSL is the only single mode ODL national university in Sri Lanka which was established in 1980 following the British Open University model.

2.1 Teaching-learning practice before the COVID-19 pandemic

This course is a multi-mode course using a variety of asynchronous and synchronous teaching methods to support the distance learners. The core component of the course is a set of specially designed printed course material to facilitate independent learning where learners can study at their own space. The synchronous teaching methods are compulsory laboratory sessions and non-compulsory face-to-face contact sessions referred to as day schools where learners have the opportunity to discuss any difficulties that they encounter in the printed course material with their teachers. Thus, the format of the day school is a lecture followed by discussion incorporating activities to facilitate student-centred learning. Additional support is provided through the online course through the OUSL Learning Management System (E Learn).

Both formative and summative assessments are embedded in the course to help the learner to learn the contents and for assessing the learner performance at the end of the course. The formative assessment of theory component includes two continuous assessments (CA) tests (No Book tests – NBT).

Human Biology laboratory sessions are designed to be conducted physically over four days covering 24 exercises, where the teachers provide face-to-face guidance. Assessment of the laboratory component is through a practical test (spot test) at the end of the sessions and an Online Assessment (OA) given via the online course about two-three weeks later, once all groups complete the laboratory session.
2.2 Intervention of teaching-learning practice during the COVID-19 pandemic

At the time of the temporary closure due to COVID-19 pandemic, only 25% of the day schools and 50% of the laboratory groups had been completed. Only when the university reopened for limited student activities after four months, the remaining laboratory groups and the Continuous Assessments (CAs) were conducted on-site.

During the temporary closure of the university, we introduced several additional/alternative instructional strategies mainly using the online course and other virtual platforms, to cater to the learning needs of the OUSL learners, particularly aiming at keeping them motivated and engaged in studies, despite increased anxieties and perceptions of isolation. This adoption mechanism was in line with one of the six specific instructional strategies identified by Boa (2020) where contingency plan to deal with unexpected incidents of online education platforms.

We provided a weekly study guide and additional PowerPoint presentations (some were voiced-over) based on printed course material. Moreover, two novel teaching-learning approaches were introduced to cover the remaining day schools and to provide additional support to practical exercises.

One was transitioning the face-to-face Day schools to remote instruction using the Zoom platform, where the synchronous sessions were recorded and uploaded to the online course. Zoom sessions simulated the face-to-face sessions conducted in real situation; they were made interactive by including activities and polling to keep the students engaged, and time was given for students to clarify problems during and at the end of the session.

Secondly a Virtual Laboratory (VL) was developed to support the laboratory exercises of the course, where the video explanations and demonstrations simulated the face-to-face guidance that would normally be provided by the staff in the real laboratory setting. The 22 videos included in the VL were prepared in a short period (~six weeks), where the staff assigned to teach at the practical session demonstrated each exercise and recordings were also done by these novice personnel using personal mini equipment; final videos were prepared using Windows Movie Maker. These were uploaded in the online course for learners to access. When the university reopened for laboratory classes under strict health regulations, the usual face-to-face guidance given at the class was replaced with the VL to minimize physical interaction, by providing laptop computers loaded with the VL videos for learners to watch and independently learn, with staff providing only limited explanations. As a result, we could also reduce the number of days (from 4 to 3 days) a learner had to physically travel to the university for the laboratory sessions, as learners could watch and learn from the VL at home.

These two novel approaches thus provided learners with additional virtual learning resources that were accessible asynchronously anytime and from anywhere, to study and review at their own pace (Figure 1). These resources could be downloaded to their own devices, addressing concerns on data costs and the need for high bandwidth for live viewing. Moreover, via the use of these novel remote learning instructions, we aspired to provide a better learning solution in the Human Biology course.
3. RESEARCH QUESTIONS

The following research questions were investigated:

- Research Question 1 – What was the assessment of learner participation in Day schools conducted via Zoom technology during the COVID-19 pandemic and the viewing of recorded videos afterwards?

- Research Question 2: What was the perceived impact of participating in Zoom sessions during the COVID-19 pandemic and the viewing of recorded videos afterwards?

- Research Question 3: What were the views expressed by the learners with respect to the experience of the VL which was introduced for this course during the period of COVID outbreak?

- Research Question 4: What was the perceived impact of viewing the videos in the VL?

- Research Question 5: What was the impact of these two technological innovations with learner performance?

4. RESEARCH METHODOLOGY

This study was an exploratory research using mixed research design to investigate the perceived benefits of learners with respect to technological interventions introduced immediately after the COVID-19 outbreak to combat the issues of teaching-learning activities on-site. Learners were compelled to use Zoom technology to connect with teachers remotely and to participate in the Day schools, rather than visiting centres. In addition, some of them could not come on many days to the Regional Centre to attend the laboratory sessions as they were located in the locked-down areas. Thus, this study attempted to explore the impact of introducing two novel technological interventions in this course; conducting Day schools via Zoom technology instead of face-to-face interactions and providing videos related to demonstrations which were generally conducted on-site at the laboratory sessions. These videos were specially designed videos providing clear guidance to learners to foster independent learning so that they could engage in the exercises which were generally conducted during the laboratory. Unit of analysis of this study was the learners who have actively involved in the course as some of the registered learners were non-starters. There were 145 active learners in the course.
The data collection instrument, which was an online questionnaire designed using Google form, was tested with a few staff and modified with their comments. The senior coordinator of the course circulated the link to all the registered students in this course via email and posted in the online course. Learners were also informed about this survey during the Day schools conducted via Zoom. Three reminders were sent via email to increase the response rate. The online questionnaire consisted of both closed and open questions enabling learners to express their views freely. The design of the questionnaire was based on three parts; Part I was focused on the Day schools conducted via Zoom technology and on the recorded sessions. Part II was on the Virtual Laboratory (VL) which comprised short video clips based on the exercises generally carried out in the on-site laboratory sessions. Part III was on the overall impact of these two types of technologies which were used instantaneously to help learners to engage in teaching-learning activities in a restricted environment with forced isolation during the COVID-19 outbreak.

The data were triangulated with the narrative accounts of learners written for the open-ended questions, their participatory log-reports in online activities in the LMS and their performance on both theory and practical tests. In-depth analysis was carried out to observe the relationship between the usage of these approaches with the performance of learners with respect to marks obtained for the continuous assessments and the practical tests of the course.

5. RESULTS

A total of 88 responses were received out of 145 active learners for the course, resulting a 61% response rate which is slightly above the accepted standard response rate of 60% for surveys (Fincham, 2008). The demographics of the respondents were 88% females and 12% males, the majority were single (72%), employed (cumulative percentage of 53% of fulltime/part time/self-employed), were in the range of 25-29 years (63%) and attached to the Colombo regional centre (53%). The details were illustrated in Table 1.

Table 1: Demographics of the learners

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>Age</td>
<td>&lt;24</td>
<td>25-29</td>
</tr>
<tr>
<td></td>
<td>19%</td>
<td>63%</td>
</tr>
<tr>
<td>Civil Status</td>
<td>Single</td>
<td>Married</td>
</tr>
<tr>
<td></td>
<td>72%</td>
<td>28%</td>
</tr>
<tr>
<td>Employment</td>
<td>Not employed</td>
<td>Self-employed</td>
</tr>
<tr>
<td></td>
<td>47%</td>
<td>9%</td>
</tr>
<tr>
<td>Centre</td>
<td>Colombo</td>
<td>Kandy</td>
</tr>
<tr>
<td></td>
<td>53%</td>
<td>27%</td>
</tr>
</tbody>
</table>

5.1 Research Question 1 – What was the assessment of learner participation in Day schools conducted via Zoom technology during the COVID-19 pandemic and the viewing of recorded videos afterwards?

Sixty five percent had participated in more than three Day schools conducted via Zoom technology and viewed many recorded sessions (63%). For instance, 32% had participated in all five Zoom sessions, while 41% had viewed all the recorded sessions (Table 2).

Table 2: Learner participation of Zoom sessions and viewing of recorded videos

<table>
<thead>
<tr>
<th>Number</th>
<th>Day schools</th>
<th>Recorded videos</th>
</tr>
</thead>
<tbody>
<tr>
<td>All five</td>
<td>32%</td>
<td>41%</td>
</tr>
<tr>
<td>3-4</td>
<td>33%</td>
<td>22% (many)</td>
</tr>
<tr>
<td>1-2</td>
<td>23%</td>
<td>27% (a few)</td>
</tr>
<tr>
<td>None</td>
<td>12%</td>
<td>10%</td>
</tr>
</tbody>
</table>

However, 13% had not joined these Zoom sessions at all. The reasons given by them for not joining these sessions were time constraints (45%), non-availability of the device (18%), no data (9%), no signal (9%) not aware (9%) and not interested in online activities (9%). Out of those who participated in the Zoom sessions, the majority had viewed all the recorded sessions again (42%) while some had viewed many of them (23%) and another group had viewed only a few (29%). In contrast, a small percentage (7%) have reported that they had not viewed them at all. Only 25% reported difficulties while connecting through Zoom technology such as time constraints (11%), no internet connections (5%), data issues (5%), bad weather conditions (1%), connecting difficulties (1%) and not aware of the dates (1%). In general, the commonly used device for these online activities was smart phones (42%), laptop (21%), desktop (5%) and the tablet (1%).

Table 3: Commonly used device for online activities

<table>
<thead>
<tr>
<th>Type of device</th>
<th>Zoom sessions</th>
<th>Virtual Laboratory (VL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart phone</td>
<td>42%</td>
<td>49%</td>
</tr>
<tr>
<td>Laptop</td>
<td>21%</td>
<td>25%</td>
</tr>
<tr>
<td>Desktop</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Tablet</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Having had the initial experience of using Zoom technology to engage in teaching and learning activities, an outstanding number of learners viewed it as a very effective and efficient alternative instructional solution to bridge and to motivate them during the forced isolation. Table 4 illustrates the
percentages of their overall experience, supported with the quotations derived from the responses for the open-ended questions.

**Table 4:** Overall experience of learning using Zoom technology (*Strongly Agree in brackets)

<table>
<thead>
<tr>
<th>Statement</th>
<th>% *</th>
<th>Supporting Quotation extracted from the open-ended questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful to learn the course content</td>
<td>92% (71%)</td>
<td>It gave a very good explanation on each session and made us to be in touch with the subject materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It’s very useful &amp; easy to study subject also we can watch recorded video and revise subject matter easy (sic).</td>
</tr>
<tr>
<td>Zoom was easy to use</td>
<td>90% (44%)</td>
<td>As it is an easy method to learn</td>
</tr>
<tr>
<td>Zoom was reliable throughout the Day School</td>
<td>88% (40%)</td>
<td>Easy participation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Without travelling to Colombo we were able to attend to all day schools</td>
</tr>
<tr>
<td>Enjoyed the new way of teaching using Zoom</td>
<td>90% (46%)</td>
<td>It is safe environment for during covid 19 pandemic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The course was conducted very proactively even during COVID, highly satisfied with the changes made to the course.</td>
</tr>
<tr>
<td>Time allocated for each Zoom session was adequate</td>
<td>86% (38%)</td>
<td>Efficiently used time</td>
</tr>
<tr>
<td>Zoom chat feature was useful to communicate with teacher and friends</td>
<td>87% (42%)</td>
<td>It was easy to connect with the lecture even in the situations that can’t come to the university like covid.</td>
</tr>
<tr>
<td>Zoom polling feature was useful to provide immediate response to questions given during Day school</td>
<td>83% (60%)</td>
<td>Can ask questions and from the poll directly give the responses and that make us to be in the day school that mean our concentration can be keep (sic) in the day school.</td>
</tr>
<tr>
<td>I did not like Zoom Day Schools as interactions with my teacher and friends were limited</td>
<td>14% (4%)</td>
<td>At times felt that face to face sessions can make us more involved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>But usual day schools were more interesting and effective for me.</td>
</tr>
<tr>
<td>I prefer Zoom day schools instead of Face to face</td>
<td>69% (23%)</td>
<td>I like zoom day schools because no need to travel and no need to apply leave for participate for them. Activity polls are very interesting and I like that is the thing I like most.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More efficient, easy to participate than usual day schools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It was very useful to learn from home like current situations and its very help (sic) to understand session than day schools.</td>
</tr>
</tbody>
</table>

The majority of learners did not face major difficulties related to data issues for internet access to participate in Zoom sessions. Fifty one percent faced problems rarely (23% never). Thirty-five had problems sometimes, only 7% had problems most of the time and only 1% has problems always. The data related to the least preferred aspect of the Zoom sessions in the open-ended questions were analysed using content analysis and the following categories were identified (Table 5).
Table 5: Least preferred aspect of the Zoom session

<table>
<thead>
<tr>
<th>Theme</th>
<th>Supporting Quotations extracted from the open ended questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited opportunity to learn</td>
<td>Limited opportunity to learn</td>
</tr>
<tr>
<td></td>
<td>We could not communicate as we had to mute voice msg so it was little bit unsatisfied, but was fine</td>
</tr>
<tr>
<td>Lack of interactions with the teachers and peers</td>
<td>At times felt that face to face sessions can make us more involved</td>
</tr>
<tr>
<td></td>
<td>It is not an in-person session</td>
</tr>
<tr>
<td></td>
<td>Not a 100% live classroom</td>
</tr>
<tr>
<td>Time scheduling</td>
<td>Cannot participate when it is conduct during office hours</td>
</tr>
<tr>
<td></td>
<td>Sometimes (sic), I couldn't participate in the weekday sessions as I am a government full-time officer.</td>
</tr>
<tr>
<td></td>
<td>Time scheduled for zoom is difficult to working people</td>
</tr>
<tr>
<td>Device</td>
<td>Sometimes it’s hard to follow through the small devices we have (phone)</td>
</tr>
<tr>
<td></td>
<td>I had used smart phone for access zoom app, it was inconvenience at all Internet speed and difficult to watch all the recorded videos by smartphone</td>
</tr>
<tr>
<td>Data issues</td>
<td>Data cost to access Internet</td>
</tr>
<tr>
<td></td>
<td>Time period. There was a cost to data connection because of time duration. but we can manage it</td>
</tr>
<tr>
<td>Connection issues</td>
<td>Poor connections due to location, not always but sometimes</td>
</tr>
<tr>
<td></td>
<td>Connection errors occurred some times, but it was manageable</td>
</tr>
<tr>
<td></td>
<td>Sometimes video can’t download</td>
</tr>
<tr>
<td>Technical issues</td>
<td>Some students are forgotten to off the mic</td>
</tr>
<tr>
<td></td>
<td>Running out of battery charge sooner (sic). But with recorded sessions it wasn’t a big issue</td>
</tr>
<tr>
<td></td>
<td>Sometimes there was some errors like screen or sounds not clear, if disconnected it is hard to re-join, because of the problems with internet connection</td>
</tr>
<tr>
<td>Noise</td>
<td>Distractions come from home environment during zoom session like vehicle noise &amp; limited interaction with my teacher and university friends</td>
</tr>
</tbody>
</table>

5.2 Research Question 2: What were the perceived impact of participating in Zoom sessions during the COVID-19 pandemic and the viewing of recorded videos afterwards?

The views were gathered from the learners to identify the positive effects of this introduced instructional intervention on their learning in order to assess whether it leads to improved quality education, improved learner performance and whether it has positive effects on their learning. For this analysis, both quantitative and qualitative data have been used and the frequencies were triangulated with the appropriate narrative accounts of the respondents to validate the results. When learners were asked their views on the perceived impact on participating in Zoom sessions, the responses were no traveling cost (94%), effective use of time (91%), motivation to study (91%), convenience (90%) and preference over face-to-face sessions (69%). These quantitative data were triangulated with the responses of the open-ended questions (Table 6).
Table 6: Perceived impact of participating in Zoom sessions and the viewing of recorded videos during the COVID-19 pandemic (*Strongly Agree in brackets)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentages</th>
<th>Supporting Quotation extracted from the open-ended questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience in participating in Day Schools from home</td>
<td>90% (53%)</td>
<td>As full-time government officer it was very useful for me, even I couldn't participate the zoom sessions I managed to use recorded video. Convenience of learning from home, because it take us 4-5 hours of travelling to come and return for regional centre. Also we can revise them any time with the help of recorded video which is the most advantageous of all. It was easy to connect with the lecture even in the situations that can't come to the university like covid.</td>
</tr>
<tr>
<td>Convenience in participating in Day Schools from remote locations</td>
<td>75% (22%)</td>
<td>I am from Balangoda. It is difficult for me to go to university often because of the distance. Then most of the time I miss the day school. It is also difficult to arrive on time. But here everything is easy and I can attend school all day. As I'm from Ampara, it's really helpful to participate in the classes as it helps me in not traveling to Colombo to attend the classes, and I really appreciate this zoom class.</td>
</tr>
<tr>
<td>Motivation to engage in learning during COVID</td>
<td>91% (53%)</td>
<td>It was good motivation to engage in learning during Covid19 as well as it helped to revise for NBT exams.</td>
</tr>
<tr>
<td>Helped to revise for NBTs</td>
<td>92% (57%)</td>
<td>Availability of recorded videos helped to revise some lessons. Because there were recorded zoom videos i can learn again. So it help to remember hard things. Being recorded (sic) because i can reuse again and based on the available time I can watch them</td>
</tr>
<tr>
<td>Efficient use of my time</td>
<td>91% (57%)</td>
<td>Easily study after day school during day, travelling time saving, lot of time save for study (tired during travel from home to university &amp; lot of time waste before corona pandemic), revised all facts, can efficiently use my time. It was a good answer for the situation under efficient use of my time</td>
</tr>
</tbody>
</table>
5.3 Research Question 3: What were the views expressed by the learners with respect to the experience of the Virtual Laboratory (VL) which was introduced for this course during the period of COVID outbreak?

The majority (51%) had viewed all the five videos, while 24% had viewed many of them and 16% had viewed some of them whereas 9% had not viewed any of the videos. Almost all of the non-viewers had participated in the laboratory sessions prior to the COVID outbreak. Table 7 illustrates the overall learner experience of different aspects of the virtual laboratory.

Table 7: Overall experience of the virtual laboratory (* Strongly Agree in brackets)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Laboratory (VL) was easy to use</td>
<td>90% (51%)</td>
</tr>
<tr>
<td>Demonstrated laboratory exercises clearly</td>
<td>90% (43%)</td>
</tr>
<tr>
<td>Explanations provided on the practical exercises were clear</td>
<td>90% (46%)</td>
</tr>
<tr>
<td>Video quality was satisfactory</td>
<td>87% (40%)</td>
</tr>
<tr>
<td>Audio quality was satisfactory</td>
<td>72% (22%)</td>
</tr>
<tr>
<td>Not experienced any technical difficulty when using video</td>
<td>74% (26%)</td>
</tr>
<tr>
<td>Gained the required knowledge to carryout practical exercises</td>
<td>88% (40%)</td>
</tr>
<tr>
<td>Helped to better understand what was learnt at the practical class</td>
<td>88% (43%)</td>
</tr>
<tr>
<td>Enjoyed using the virtual laboratory</td>
<td>83% (47%)</td>
</tr>
<tr>
<td>Virtual laboratory supported my learning process</td>
<td>90% (53%)</td>
</tr>
</tbody>
</table>

5.4 Research Question 4: What was the perceived impact of viewing the videos in the VL?

Respondents indicated that their perceived impacts of the VL were for active engagement in the learning process (90%), ability to carry out practical exercises independently (86%) and for revision (86%) (Table 8).
Table 8: Perceived impact of the VL on the learning process of learners (* Strongly Agree in brackets)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access anytime and from anywhere</td>
<td>86% (43%)</td>
</tr>
<tr>
<td>Ability watch at my own pace</td>
<td>88% (46%)</td>
</tr>
<tr>
<td>Supplement learning on practical knowledge</td>
<td>88% (42%)</td>
</tr>
<tr>
<td>Ability to independently carryout practical exercises in the laboratory</td>
<td>86% (33%)</td>
</tr>
<tr>
<td>To revise for the No Book Tests (NBT) test</td>
<td>86% (46%)</td>
</tr>
<tr>
<td>To revise for the online assessment test</td>
<td>88% (51%)</td>
</tr>
<tr>
<td>Material was downloadable, thus less cost of usage of data</td>
<td>73% (22%)</td>
</tr>
<tr>
<td>Overall, was beneficial to enhance my overall learning experience in the course</td>
<td>88% (46%)</td>
</tr>
</tbody>
</table>

The following quotations clearly indicated the satisfaction of the learners and they believed that there was an impact on their performance and they highly valued the intervention designed by the relevant teachers.

*It’s very interesting subject, It’s very useful (sic) improve our knowledge, Useful (sic) our NBT exam*

*Overall the best experienced zoom sessions and it was very helpful for my NBT’s and clearly there is a (sic) impact on marks. Thank you very much for having such a great lectures and LMS connection.*

*Course is fully interesting, Practical sessions done in the lab was completely satisfactory even though they didn’t require for a complete practical report, the practice they gave in identifying the human body parts and make familiar with them was very precious to us. The demonstrations given in the lab was still in the mind freshly.*

*I really appreciate our teachers dedication to teach us during covid-19 lockdown time. Zoom day schools and virtual laboratory videos were much more efficient and suites for theme of our university: “Open and distance learning”. This is much more useful to the students who learn while having a job.*

5.5 Research Question 5: What was the impact of these two technological innovations on learner performance?

In order to address this research question, the log-reports of accessing the following online activities were correlated with the performance of learners at continuous assessments (CA):

- Learning resources (15 PowerPoint) based on 21 sessions of the course in the LMS,
- Five recorded Zoom Day schools, and
- 18 videos and 4 PowerPoints (22 out of 24 exercises in the study guide) in the VL.

Findings indicated that there was a significant correlation (P<0.05) between use of the VL with performance at an online assessment based on the practical session (Table 9).
Table 9: Summary of CA marks of learners who accessed and not accessed the Virtual Laboratory (VL)

<table>
<thead>
<tr>
<th>Accessibility</th>
<th>NBT 1 Mark</th>
<th>NBT 2 Mark</th>
<th>Spot Test Mark</th>
<th>OA Mark</th>
<th>Practical Mark</th>
<th>Overall CA Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students not accessed</td>
<td>54.18±23.77</td>
<td>63.55±26.64</td>
<td>16.23±4.21</td>
<td>10.32±7.4</td>
<td>18.95±5.12</td>
<td>61.7±22.1</td>
</tr>
<tr>
<td>(n= 40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students accessed</td>
<td>62.48±15.61</td>
<td>66.30±20.01</td>
<td>17.17±3.06</td>
<td>14.98±4.15*</td>
<td>21.06±3.44*</td>
<td>68.28±11.9</td>
</tr>
<tr>
<td>(n=105)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P<0.05 significantly different

However, there was no correlation between Online Assessment (OA) with the Recorded lectures or with the PowerPoint slides (data not shown). Having analysed the data, it was clearly evident that there was an impact on the performance of learners with respect to their performance with the videos in the VL. It was also supported very well with the narrative accounts related to perceived impact of learners.

6. CONCLUSIONS

This study showed that the two novel approaches introduced during the COVID-19 pandemic period has had a positive outcome and an impact on learning. Further, findings showed the satisfaction of learners who valued the intervention to bridge the isolation under restrictive environment and enabling them to engage in the learning process. Moreover, it also showed that there was a correlation between the VL with their performance assessed by an online test. Thus, we can confirm that there was a positive impact on the overall learning and motivated learners toward self-directed learning, thereby improving their performance in a restrictive learning environment. This practice may be considered as a “best practice” to embed into the current practice of teaching-learning at the OUSL for future sustenance.

ACKNOWLEDGEMENTS

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REFERENCES


AN ACTIVITY THEORY ANALYSIS OF THE ONLINE COURSE DELIVERY AT THE OPEN UNIVERSITY OF SRI LANKA DURING THE COVID OUTBREAK

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Abstract

The purpose of this study was to investigate how the academics of The Open University of Sri Lanka (OUSL) engaged in teaching-learning activities during the Covid-19 lockdown. The expanded Activity Theory (AT) framework by Engeström (2001) was used as the theoretical framework to analyse the data. The research design was a mixed approach combining quantitative and qualitative methods. Data was collected from the academics using questionnaires, followed by individual interviews. Triangulation was carried out using multiple sources of data using online log-reports, documentary evidences and through information from Key Informants related to Learning Management System (OUSL Elearn) of OUSL. A total of 225 academics responded to the questionnaire. Demographic data indicated that respondents who delivered online courses both before and during Covid lockdown were mostly females (65%), Senior Lecturers (62%) and with training on online course development (65%). Findings also indicated that 53% had delivered online courses both before and during the Covid pandemic period while 17% had delivered only during the period and 10% had already completed their academic activities. In contrast, 20% had not delivered any online course. When AT was used for this analysis, the majority faced tensions with respect to the ‘tools’ element of the AT triangle due to inadequate technical competency, inability of supporting learners who had access issues, inability of making learners engaged throughout the learning process and seeking alternative strategies to replace practical elements. In order to find technical solutions, they had to interact with the academic support community regularly and some faced tensions due to delayed response amidst the support received by programme coordinators and the team, and in spite of relaxing the organizational protocols and rules. Having undergone this experience in forced isolation, a few experimented with some innovative instructional practices resulting in positive outcomes from a deprived encounter.

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Keywords:
Course design and development, Impact assessment, Open and distance learning, Staff development

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1. INTRODUCTION

The COVID-19 pandemic has tremendous impact on the lives of all human beings across the world irrespective of their location, wealth, prestige, social behaviour etc. It changed the whole world and made it instantly stand still disrupting all the human activities across the globe. Almost all countries have implemented school and university closures and most universities have enforced localised closures (UNESCO, 2020). In view of this situation, the Government of Sri Lanka (GoSL) has declared indefinite closure of all educational institutions since 12th March 2020 due to the COVID19 outbreak (Hayashi et. al. 2020) and an island-wide curfew was imposed as a preventive measure of spreading the disease. This lockdown state brought about various challenges in all day to day activities in the country and the higher education sector is not an exception. All academic and non-academic activities of all universities were disrupted to a greater extent.

The Open University of Sri Lanka (OUSL), being the premier, single mode distance education institution in the country, had no exceptions, and all its teaching-learning activities, including student admissions, assessments and examinations, graduations, etc were temporarily postponed. However, by the imposition of the ‘work from home’ option by the GoSL from 20th March 2020, the OUSL management announced all of its staff to recommence the teaching-learning activities using online mode with immediate effect. Facilitating this task for both teachers and learners, the GoSL intervened to provide free internet access to all university web servers, through the Lanka Education and Research Network (LEARN), enabling data free access to online education (Hayashi et. al. 2020).

The purpose of this study was to investigate the online course delivery at the OUSL during the COVID-19 pandemic and to find out the challenges faced by the main stakeholders under forced isolation using the Activity theory as the research framework.

2. CONTEXT

Online education is not a novel phenomenon to the academic community of the OUSL. It has been providing online education since 2003, and approximately 300 online courses were in operation for the academic year 2019/2020, by the time of closure of the university due to COVID-19 pandemic. These online courses were mostly supplemental, around 50 blended level courses and one fully online course delivered through the official Learning Management System; ‘OUSL Elearn’ which was customized to local context using the free open source LMS “Moodle”. A total of 900 formal courses are offered currently, and transforming all these courses to online mode was a daunting and challenging exercise for all the academic staff of the OUSL under a forced isolation. The majority of these academics were trained on online course design and development by the Centre for Educational Technology and Media (CETMe).

In practice, the CETMe is a dedicated entity for administering the online course delivery from the front end of the LMS, facilitating the design and development of online courses, supporting and training the staff on online education. There were certain standard protocols approved by the Senate to be followed in the process of designing and developing, and reviewing of online courses before course delivery, while getting support from CETMe staff throughout this process. The academic staff of the CETMe also faced tremendous pressure in accommodating the requests by Faculties while maintaining the quality standards before uploading to the web server under isolated environment with all its
academic and academic support staff working from home.

Having imposed the curfew immediately, all the teaching-learning activities were disrupted and halted. Commuting from one place to another was severely restricted due to lock-down in the country. As a result, most of the learners who were isolated faced difficulties. Some had kept their course material either in their boarding places, or workplaces or university, etc. Even some academics had kept their laptops either in the boarding places or university premises. As a result, all the stakeholders faced a severe challenge at the beginning of the COVID-19 pandemic to implement the decision imposed by the university authority to commence online learning.

3. CONCEPTUAL FRAMEWORK

The expanded Activity Theory (AT) framework by Engeström (2001) was used as the conceptual framework to analyse the data. It is based on socio-cultural perspective in order to understand the interconnections of people, organizational rules and culture, and mediating tools, all directed to some outcome or goal (Bertelsen and Bodker, 2003; Cole and Engeström, 1993).

Activity theory Framework has been used in diverse educational settings such as computer-based training (Pang and Hung, 2001), in public schools, in e-learning initiatives in higher education, asynchronous learning networks (Li and Bratt, 2004) to assess the human activity in relation to any system to get a holistic view. Thus, this framework was considered as the base for this study.

4. RESEARCH QUESTIONS

The following research questions were investigated:

Research Question 1: What was the current status of online course delivery by the academic staff of the OUSL at the time of COVID-19 pandemic?

Research Question 2: What were the tensions, frustrations, misinterpretations and confusions faced by the academics while they engage in course development process at the OUSL during the period of COVID outbreak based on the AT framework?

5. RESEARCH METHODOLOGY

This study was an exploratory study using mixed research design combining both quantitative and qualitative methods.

Unit of analysis of this study was the Faculty academics of the OUSL who are responsible for course delivery for the learners studying at a distance using Open and Distance Learning (ODL) methodology. The questionnaire was administered using Google forms to all the Faculty academics to find out how they had taught OUSL learners during the COVID-19 Pandemic. The data collection instrument, which was an online questionnaire designed using Google form, was tested with five academic staff of the CETMe and modified with their comments.

The lead researcher of the course circulated the link to all the academic members of the OUSL who are in the OUSL email list through the ALLOU. Three reminders were sent weekly through the OUSL email list. Later, personal reminders were sent to the non-respondents to increase the
response rate. The online questionnaire consisted of both closed and open-ended questions enabling respondents to express their views freely. The questionnaire was designed to capture their experiences on the challenges they faced when designing and delivering online courses during the COVID-19 outbreak where the environment was very restrictive and isolated. In addition, individual interviews were conducted to find out the challenges they faced and how they mitigated them during this isolation. Triangulation was carried out using multiple sources of data using online log-reports, documentary evidence and through information from Key Informants related to Learning Management System (OUSL Elearn) of the OUSL to enhance the credibility of this research study.

6. RESULTS

A total of 225 academics out of 341 of the academics belong to the Faculties responded to the questionnaire resulting a 66% response rate which is above the accepted standard response rate of 60% for surveys (Fincham, 2008). The demographics of the respondents who delivered online courses both before and during COVID lockdown were mostly females (61%), Senior Lecturers (62%) and with training on online course development (76%). Findings also indicated that 53% had delivered online courses both before and during the COVID pandemic period while 17% had delivered only during the period and 10% had already completed their academic activities. In contrast, 20% had not delivered any online course. The details were illustrated in Table 1.

Table 1: Demographics of the academics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-29</td>
<td>5%</td>
<td>30-34</td>
</tr>
<tr>
<td>35-39</td>
<td>12%</td>
<td>40-44</td>
</tr>
<tr>
<td>45-49</td>
<td>10%</td>
<td>50-55</td>
</tr>
<tr>
<td>56-60</td>
<td>16%</td>
<td>61-65</td>
</tr>
<tr>
<td>Position</td>
<td></td>
<td>Position</td>
</tr>
<tr>
<td>Senior Professor</td>
<td>2%</td>
<td>Professor</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>1%</td>
<td>Senior Lecturer (Grade I)</td>
</tr>
<tr>
<td>Lecturer (Grade II)</td>
<td>33%</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Lecturer (Probationary)</td>
<td>20%</td>
<td>Lecturer (Contract)</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
<td>Faculty</td>
</tr>
<tr>
<td>Education</td>
<td>9%</td>
<td>Engineering Technology</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>11%</td>
<td>Humanities and Social Sciences</td>
</tr>
<tr>
<td>Management</td>
<td>8%</td>
<td>Natural Sciences</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td>Experience</td>
</tr>
<tr>
<td>I year less</td>
<td>3%</td>
<td>1-5 years</td>
</tr>
<tr>
<td>6-10 years</td>
<td>18%</td>
<td>11-15 years</td>
</tr>
<tr>
<td>16-25 years</td>
<td>17%</td>
<td>More than 25 years</td>
</tr>
<tr>
<td>Training on Online Learning</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>65%</td>
<td>35%</td>
<td></td>
</tr>
</tbody>
</table>
The following section will discuss the findings related to the Research Question 1.

**Research Question 1 – What was the current status of online course delivery by the academic staff of the OUSL?**

The majority of the academics have delivered online courses before and during the COVID-19 pandemic (54%) while 17% have delivered only during the COVID-19 outbreak and 10% have already delivered their courses as their academic activities were completed at this time. However, 20% have not delivered any online courses. Thus, the respondents who had already delivered their courses and the respondents who had not delivered an online course were not considered for in-depth analysis.

Thirty one percent have developed online courses during the COVID-19 pandemic and the majority had delivered two online courses (17%). The type of online courses developed before and during the COVID-19 pandemic were predominantly supplemental. The majority had taken the assistance from CETMe (36%) to develop online courses while 8% have got the support from their colleagues and 5% have developed alone. Findings showed that the respondents had used different interactive tools in the MOODLE during this period to engage with learners; chats (50%) in particular. They also used additional tools other than the MOODLE LMS to connect with learners using synchronous and asynchronous methods specially zoom (46%), Microsoft Teams (2%), Google Meet (1%) and WhatsApp and Viber (1%).

**Research Question 2: What were the tensions, frustrations, misinterpretations and confusions faced by the academics while they engage in designing and delivery of online courses during the period of COVID outbreak?**

Having gone through the responses given to the open-ended questions, the major challenges were identified using content analysis. These challenges were further separated to fit into the two triangles; subject-tool-object triangle (Table 1) and the subject-community-Division of labour triangle (Table 2) of the activity system. The narrative account of the Programme coordinator who assisted the entire process of online course design and development through the COVID-19 outbreak as follows; ‘The very first call came to start up two new courses from the Department of Zoology. We had to decide how to proceed with the protocols in adding new courses into ‘OUSLElearn’ LMS and hence decided to receive the recommendations from the Head and the Dean through emails. From then onwards, throughout the lockdown period and even afterwards, there was no rest to my mobile phone, clarifying and assisting the needs of the academics in helping to develop their online courses, and managing the LMS related work until late night, and getting things done by the help of CETMe demonstrators, junior academic staff, and technical staff of the IT Division’.
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Supportive quotation extracted from the open-ended question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical issues – Internet connection</td>
<td>A day school was abandoned due to connection failure in the internet</td>
</tr>
<tr>
<td></td>
<td>As a teacher involving in level 3 zoology with very large student number in 3 languages, specially from student side major problem I am facing is complaints of students for log in... having difficulties for internet access... as they new to online and still as freshers they are not established to the system. Out of the participant numbers majority ...around 85% use mobile phones and when they switch on their microphones to clarify their problems...it makes huge noise irritating and collapsing all !!!!!!!! internet facility (bill payments were delayed) sometimes, there were internet problems, translation problems (especially typing Sinhala), unable to get support from subject expertise, (content moderation) Only challenge is students always try to tell problem with data and coverage</td>
</tr>
<tr>
<td>Technical issues – difficulty in uploading</td>
<td>the zoom recorded lectures were too big in size so it was difficult to upload the recorded presentations sent by the visiting lectures were also in different file format and size and had difficulties in uploading System crashes when high student numbers login at the same time specially to upload assignments. Students not checking our announcements regularly and sending emails on the same matters. Also, it's good if there is a way in Elearn to include student's reg.no. under participants. Also, student's emails should be updated.</td>
</tr>
<tr>
<td>Technical issues - Email and other communication issues</td>
<td>Technical problems in adding students to the courses, student email and other communication media problems</td>
</tr>
<tr>
<td>Lack of facilities/devices to students</td>
<td>It was difficult to contact students via online, maybe they don't have enough facility. Lack of facilities such as computers/laptop or smart phone (25%) and internet facilities (15%) for the students. And interferences during the DSs due to low quality internet sources. lack of proper training lack of physical facilities lack of awareness among the students…</td>
</tr>
</tbody>
</table>

Table 2: Challenges/tensions faced with the subject (academics)-tool (LMS/Zoom)-object (online course) triangle of the activity system
Only classroom discussions for specific issues, pertaining to admin matters in most part of the time, again due to students lack of response, this may be due to their internet access facilities and the busy schedule they are on, even working from home seems to be a huge challenge to the students specifically married women with children and women in general with home making obligations-as per the responses I get from my students when traditional courses were converted to Elearn, some students have lot of issues. We need additional time to look after the student’s queries. Online traffic issues, some folders that students submitted could not be opened, (needed to get IT support). When making final assessments, we cannot trace students from their registration number (only their name), Some student has uploaded assignment into the wrong course (Elearn). Some students have just uploaded the answer without any information of the student. It took lot of time to trace the cases,

<table>
<thead>
<tr>
<th>Less participation from students</th>
<th>Level 3 students didn’t have enough knowledge to work via zoom and eLearn platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Always only half of the total students was interacting …</td>
</tr>
<tr>
<td></td>
<td>Student readiness, necessary training to students and resource persons, congestion in electronic platform</td>
</tr>
<tr>
<td></td>
<td>Getting students involved</td>
</tr>
<tr>
<td></td>
<td>Getting the students to visit the online course regularly.</td>
</tr>
<tr>
<td></td>
<td>Insufficient student feedback</td>
</tr>
<tr>
<td></td>
<td>Internet access Students dedication</td>
</tr>
<tr>
<td></td>
<td>Reaching the desirable students to attend the class and retain them until completion of the class.</td>
</tr>
</tbody>
</table>

The next section will focus on the next triangle of the activity system – subject (academics)- community (other staff)- Division of labour triangle of the activity system (Table 3).

Having analysed the results it was clear that the subjects (Faculty academics), faced tensions in various dimensions when the administration asked them to commence activities online immediately. It was apparent that they had difficulties mostly with the ‘tools’ element of the AT triangle due to inadequate technical competency within themselves and with learners, inability of supporting learners who had access issues, inability of making learners engaged throughout the learning process and seeking alternative strategies to replace practical elements.

Then, the subjects had to find solutions to address above issues and had to interact with the academic community using solely through telephone calls, emails and social media and faced tensions due to delayed or no response from the other academic community.
Table 3: Challenges/tensions faced with the subject (academics)-community (other staff)-Division of labour triangle of the activity system

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Supportive quotation extracted from the open-ended question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagreement of among staff</td>
<td>Disagreements among the academic staff on online methods</td>
</tr>
<tr>
<td>Lack of support for teachers (community)</td>
<td>Difficulties faced in obtaining assistance from in-house supportive (sic) staff</td>
</tr>
<tr>
<td></td>
<td>Difficulty in getting support for techniques required to jumble the quizzes and other educational technologies</td>
</tr>
<tr>
<td></td>
<td>My laptop is quite old with old software and features. Need more technical support for video editing.</td>
</tr>
<tr>
<td></td>
<td>Poor help from IT department and CETMe</td>
</tr>
<tr>
<td>Division of labour</td>
<td>less supportive staff, most staffs are new to develop online courses, allocating time with other duties, No technical experts in CETMe</td>
</tr>
<tr>
<td></td>
<td>… feeling extremely tired cos having to attend to a huge bulk of the admin issues, and keep it out of the way before prep for DSs sessions, which is extremely draining as we have to handle and keep under control the entire student group attending each and every issue as module leaders. When the student number is huge like more than 200, marking online seems to be impossible</td>
</tr>
</tbody>
</table>

7. CONCLUSIONS

In conclusion, this study showed that the faculty academics faced many challenges during this COVID-19 pandemic and had to work under pressure to meet the requirement enforced by the authority to go for online. The majority felt that they did not receive adequate support to develop online courses during this forced isolation. They had to resolve many difficulties faced by students and sometimes were not successful due to limited access to technology, lack of resources, lack of training etc. However, some have taken the advantage of this situation and tried their best to introduce innovative strategies to reach students and make them engaged in the teaching-learning situations.

The findings captured the contradictions of respondents using the AT framework that emerged in the form of tensions, frustrations, misinterpretations and confusions while they engaged in course design and development process at the OUSL. These findings helped the researchers to identify the core inadequacies associated with delivery of online courses under forced isolation. It may throw light on the needs that required to address immediately to make the entire system viable to function smoothly.
REFERENCES


FACTORS AFFECTING ONLINE EDUCATION FOR PUBLIC SERVANTS IN THE PHILIPPINES

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Abstract

In the Philippines, online education has been utilized for public servants even before the Covid-19 pandemic era. Public servants refer to people who work either in the public or private sector and provide services to people. Although the use of online education has been recognized by governments, there are several factors that affect its development and implementation. These include political, socio-economic and technological aspects that could facilitate or hinder its growth and utilization. This paper presents the various factors that affect public administration and governance education through online education in the Philippines as it prepares for the post Covid-19 scenario. Specifically, it discusses the case of the Master of Public Management (MPM) program of the University of the Philippines Open University (UPOU). The research questions include: 1) How did the MPM program evolved as an online program? 2) What are the policies implemented by the government that facilitates the use of ICT in education? 3) What are the socio-economic and technological factors that affect online education in the Philippines? and 3) What are the challenges and prospects of implementing the MPM Program? The paper utilized primary and secondary materials for this study. It also reviewed various government policies, documents and reports. Moreover, program reports and articles were analysed to determine the history of public administration and governance education in the country. Finally, the researcher included her own experiences and observations as the chair of the program under focus in this paper.
1. INTRODUCTION
The COVID-19 pandemic has prompted educational institutions to shift online which affected the lives of educators, academic staff, and students. However, shifting online is better said than done. The digital divide has become more apparent as there is no readily available information on the readiness of educators and students as regards online learning. Teachers and students did not only have access to desktop computers and laptops, but mobile data charges are also expensive.

In the Philippines, there have been efforts to modernize the public sector through the use of Information and Communications Technology (ICT). The use of technology is expected to improve the delivery of public services to the citizens in a more efficient, effective and accountable manner. The pandemic also highlighted the need for public servants to utilize technology in order to aid them in decision making.

In terms of capacity development of public servants, the use of ICT has been utilized even before the COVID-19 pandemic era by the University of the Philippines Open University through its Master of Public Management Program. Public servants refer to people who work either in public or private sector and provides services to people.

This paper aims to show the evolution, growth, challenges, and accomplishments of the MPM Program as an online Program including the factors that affects its implementation. The paper also highlights the prospects of the Program as it gears up for the new normal of public administration and governance education.

2. RESEARCH QUESTION
Hybrid learning has emerged recently in This paper presents the growth of UPOU's MPM Program and the factors that affects its implementation towards the new normal. The research questions include: 1) How did the MPM program evolve and become online? 2) What are the policies implemented by the government that facilitate the use of ICT in education? 3) What are the socio-economic and technological factors that affect online education in the Philippines? 4) What are the challenges in implementing online education? 4) What are the accomplishments of the MPM Program in implementing online education?

3. METHODOLOGY
The paper utilized primary and secondary materials for this study. It reviewed various government policies, documents, and reports before and during the COVID-19 era. Moreover, program reports and articles were analyzed to determine the history of public administration and governance education in the country. Finally, the researcher included her own experiences and observations being the chair of the Program.

4. RESULTS
4.1 The University of the Philippines Open University's Master of Public Management Program
The University of the Philippines Open University (UPOU) was established in 1995 but unlike other universities, the mode of delivery is through distance education. Immediately after its creation, the Master of Public Management (MPM) was offered during the second semester of AY 1997-1998.

The MPM program is designed for policymakers, administrators, and
managers of public, private, and non-governmental organizations; practitioners in local government and administration; and other individuals interested in good governance, and public policy and administration. It has three specializations: Public Policy and Program Administration (PPPA); Local Government and Regional Administration (LGRA); and Voluntary Sector Management (VSM).

The institution of the MPM Program was initiated and led by the University of the Philippines National College of Public Administration of Administration (UP NCPAG) with the support of the Philippine Civil Service Commission which had aspired to assist in democratizing education by offering programs in distance mode. Distance education (DE) as an approach aims to enhance the knowledge and skills of practitioners who have no time to attend the University or cannot leave their workplace due to tasks in the office or in the field.

During the initial years of the Program, like any typical UPOU Program, the MPM tutors met their students face to face once a month and learning materials were delivered through courier or picked up by the students themselves. Moreover, the learning modules were prepared by experts and were distributed through traditional printed media. Electronic mail was used as a means of communication. In 2001, the UPOU declared that it will go online when it started to convert printed modules into pdf files that could be transported easily. There was also the introduction of the Integrated Virtual Learning Environment (IVLE) to facilitate online connectivity of learners and teachers. However, the IVLE simply became a repository of assignments and course guides.

It was in 2012 that UPOU introduced the concept of Open and distance e-learning (ODeL) when it organized the first International Conference on Open and Distance e-Learning (ICODEL). In the conference, the UPOU proposed to explore spaces and possibilities for open, distance, and e-learning; the convergence of philosophies, pedagogies, technologies; and the opportunities, issues and challenges in the education and public sectors (Lumanta as mentioned in Alfonso, 2013). Consequently, MPM modules were developed and updated using the Resource-based Course Development (RBCD) strategy.

In March 2015, the MPM Program launched its Massive Online Courses (MOOCs) which is composed of the four courses on Inter-local cooperation. These courses were developed in partnership with the Decentralization Program of the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) in 2013. The MOOCs gained the support of the Department of Interior and Local Government (DILG) which issued a Memorandum Circular inviting all "Provincial Governors, City and Municipal Mayors, DILG Regional Directors and others concerned" to avail of the online and open course on ILC. The MOOCs were offered again in 2020.

In 2019, the MPM Program also created its own repository of open educational resources (OERs), otherwise known as the MPM Playlist. It is composed of several videos that were produced and curated to fit 21st century learners. These online videos are now shared freely with other institutions offering programs related to public administration. The MPM playlist is now available through networks.upou.edu.ph.

During the 2020 pandemic, the UPOU’s MPM Program in partnership with the Association of Schools of Public Administration of the Philippines (ASPAP) conducted a series of webinars in order to develop the capacities of MPM educators in delivering e-learning courses.
4.2 Policies Implemented to Facilitate Online Learning in the Philippines

The growth of UPOU’s MPM Program is in accordance not only with the changing nature of technology but also due to the enabling environment in which the program operates. Below are the major policies that were created before and during the COVID-19 pandemic and are expected to make a major impact on how the Public Administration and Governance education in the Philippines will be designed and implemented.

4.3 Republic Act 10650 or the Open Distance Learning Act

Republic Act 10650 otherwise known as the Open Distance Learning Act was signed into law last December 9, 2014. It aims to “expand and further democratize access to quality tertiary education through the promotion and application of open learning as a philosophy of access to educational services, and the use of distance education as an appropriate, efficient and effective system of delivering quality higher and technical educational services in the country.”

The University of the Philippines Open University (UPOU) in one of the agencies that was tasked to implement the law. Based on the law, ODL can be delivered through the following approaches:

(a) Print – textbooks, study guides, workbooks, course syllabi, correspondence feedback and other print formats,

(b) Audio-Visual – radio, audio cassettes, slides, film, videotapes, television, telephone, fax, audio-conferencing and videoconferencing,

(c) Electronic/Computer Technology and Virtual Classrooms – internet, CD-ROM, electronic mail, e-bulletin boards, podcasts, m-learning, i-lectures, e-learning or online learning management systems; and

(d) Face-to-Face Sessions – conducted in learning and study centres.

4.4 Bayanihan to Recover as One Act or Bayanihan Act 2

Republic Act No 11494 also known as Bayanihan to Recover as One Act was Signed into Law last September 11, 2020. The law was created in response to the COVID-19 pandemic. The law allocated funding to the Commission on Higher Education (CHED) to assist state universities and colleges (SUCs) in the development of smart campuses through investments in ICT infrastructure, acquisition of learning management systems and other appropriate equipment to fully implement flexible learning modalities. (Bayanihan Act 2, 2020).

4.5 CHED’s Memorandum Order No. 4 Series of 2020 “Guidelines on the Implementation of flexible Learning.”

Flexible Learning is defined in the documents as a pedagogical approach allowing flexibility of time, place, and audience including, but not solely focused on the use of technology (CHED, 2020). It involves the use of digital and non-digital technology and covers both face-to-face or in-person learning, out-of-classroom learning modes of delivery, or a combination of modes of delivery. It ensures the continuity of inclusive and accessible
education when the use of traditional modes of teaching is not feasible, as in the occurrence of national emergencies (CHED, 2020).

Under the memorandum, HEIs can choose from any of the following modes of flexible learning:

**Online** – A flexible learning mode which is electronic-based and uses available online classrooms for the delivery of instruction. Learning materials are in digital format such as webcast, podcast, videos, audio, and other open educational resources or OERs. To aid online learning, CHED launched a web-based platform, PHL CHED Connect, that provides free learning materials for college students.

**Offline** – A flexible learning mode that does not use internet connectivity at all. Learning is done through printed modules or uses digital forms such as video and audio placed in storage devices.

**Blended** – A type of flexible learning which is a combination of online and offline modes. Online technology will be used for delivering lessons, while other classroom activities will be done offline using printed modules, video tapes, storage devices, and learning packets (Magsambol, 2020).

### 4.6 PHL CHED Connect

CHED also launched the PHL CHED Connect, a web application that contains higher education course materials in text, media and other digital assets that are useful for teaching, learning and research purposes. The educational materials range from categories like agriculture, forestry, fishery, architecture, business administration, education, engineering and technology, among others. Materials from the academic contributors can easily be downloadable as they are in PDF format (Dillera, 2020).

HEIs are also expected to serve as contributors. They will share their content (PDF or Video) to CHED Regional Offices. The website serves as a space for HEIs to co-create knowledge and collaborate with each other.

### 4.7 Socio-Economic and Technological Factors Affecting Online Education

Aside from the policies, the online education in the Philippines is also affected by several socio-economic and technological factors. The Philippines is the fourth largest country in Southeast Asia after Indonesia, Myanmar and Thailand. It also has the 13th largest population in the world, seventh in Asia. Over the past decade, the Philippines' average growth per year is at 6.4 percent.

When the country reported the first COVID-19 case outside China in January 2020, a series of rigorous lockdowns began in March of the same year as a response. The global pandemic has severely impacted the Philippine economy, causing major decline by 9.5 percent in the country's 2020 gross domestic product (GDP)—the worst contraction since World War II. It is also the first GDP dip since 1998. Data from the Philippine Statistics Authority show that annual unemployment rate in 2020 hit 10.3 percent, the highest record since April 2005, which is equivalent to 4.5 million Filipinos. While mass layoffs and company closures perpetuated amid the lockdown, inflation rate rose for the fifth month in a row to 4.7 percent in February 2021, the highest since the January 2019 record of 4.4 percent. This is mainly due to the high cost of food and transportation. Foreign direct investments also contracted by 24.6% ($6.5 billion) in 2020.
The pandemic made it almost impossible to keep expenses from accelerating as revenues drop. Since more funds are crucial to mitigate the dire effects of COVID-19, the Philippines’ debt rose to P10.3 trillion by the end of January 2021, as per the Bureau of Treasury. This is still expected to increase through loans from multilateral lenders for COVID-19 vaccines.

Pre-pandemic internet profile of the Philippines also shows a different picture. In 2018, the Philippines had a total population of 106.5 million and there were 67 million internet users or 62.9% and about 62 million facebook users. Generally, Filipinos spend 9 hours and 38 minutes per day on the internet (https://www.internetworldstats.com/stats.htm). Moreover, the country’s broadband download speed is among the slowest at 4.3megabits per second (Mbps) vis-à-vis ASEAN-5 average of 9.6Mbps in 2016, while the cost of fixed broadband as a percentage of Gross National Income (GNI) is at 7.53 percent, way above the 5.0 percent affordability threshold. (Philippine Development Plan, 2017-2022). The COVID-19 pandemic marked the Philippines’ major shift to a digital economy. In advertising firms: We Are Social and Hootsuite’s Digital 2021 report; the country was top in social media and internet usage worldwide— for the sixth year in a row. Of the 110.3 million Philippine population as of January 2021, 73.91 million are internet users and 89 million are onboard social media. About 138.2 percent of the country’s population has mobile connection. With Filipinos capable of accessing the internet at any time of the day, a daily average time of 10 hours and 56 minutes are spent using the internet while four hours and 15 minutes are consumed on social media.

The average download speed of mobile internet connections and fixed internet connections also increased and are at 22.50 MBPS and 31.44 MBPS, respectively. Mobile phones have a web traffic of 51.3 percent while laptops and desktops have 45.6 percent. Online video content is the most consumed activity on the internet with 99.4 percent of internet users aged 16 to 64 utilizing such content each month. Given the increasing internet patronage in the digital economy, 1.41 million homes have smart devices. Despite this, some users expressed their concerns regarding online privacy and well-being such as companies’ use of personal data, use of ad-blocking tools and deletion of cookies from web browsers. The top three most used platforms on social media are Youtube (97.2 percent), Facebook (96.8 percent) and Facebook Messenger (92.1 percent).

5. CHALLENGES AND PROSPECTS FOR UPOU’S MPM PROGRAM

Based on what UPOU’s MPM Program has accomplished and other factors that affect the Program, before and during the pandemic era, the following are the challenges and prospects for the Program as it embarks on the new normal.

5.1 Integration of digital skills in Public Management Education

With the use of online education, there should be a conscious effort to integrate digital skills in the Program. Public servants are expected to lead, govern, participate and collaborate. Hence, the use of communication and collaborative tools should be encouraged as part of the activities and assessment of studies. Digital skills are also important because it will also aide public servants in decision making.
5.2 Internet infrastructure
Despite various policies, plans and programs to enable the use of ICT in education, the internet infrastructure still needs to be improved to ensure that Filipinos will be provided fast, affordable and reliable internet connectivity, especially for those located in far flung areas. The MPM Program aims that public servants working in rural areas will also have accessibility.

5.3 Capacity development of MPM faculty members
The COVID-19 has fast-tracked the development of skills of educators at all levels. There should be a continuous effort in the Program to upskill and reskill educators to enable them to manage their courses efficiently and effectively.

5.4 Conduct of research on the competencies of MPM Graduates
There should be continuous research on the competencies needed by public servants to respond to agile environments. The COVID-19 pandemic revealed the strengths and weaknesses of public servants in dealing with the pandemic. Hence, it is important to come up with courses that could address these issues.

5.5 Continuous development Open Educational Resources (OERs)
The MPM Program is expected to develop and share more open education resources in its MPM Playlist. This will be made possible through partnerships with different organizations who share the same vision with the UPOU and the MPM Program.

5.6 Development and Implementation of Micro courses/MOOCs
The MPM Program is poised to develop micro courses that will cater to public servants. This is to respond to the post-pandemic capacity development needs of public servants as they prepare on their tasks under the new normal.

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A VISUAL ANALYSIS OF THE RESEARCH PROGRESS IN THE FIELD OF STUDENT SUPPORT SERVICES IN CHINA USING CITESPACE BIBLIOMETRICS

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Abstract  
Effective student support service is the core element of modern distance education, which can catalyze students’ active learning behaviour, guarantee their academic progress and promote their overall development. A deep analysis of the present situation in the research of Chinese student support services reveals the development trend of the future. This research takes the core of CNKI database as the data source. Visual analysis software CiteSpace. V. 5.6.R4 is used to present literature processing results in the form of knowledge map and statistical table, and to dig the rules behind core literature and the development frontier of discipline knowledge. Through keyword clustering, co-occurrence and emergent word analysis, this paper makes a visual analysis of the research progress in the field of student support services in China. Combined with the second literature review to find frequent research topics in this field the study conducts a qualitative analysis and offers predictions. The research points out that student support service is the innate gene of distance education, and is the key to promote its healthy development of MOOCs. Student support service and the reform of teaching mode walk in the same direction, and it is an important starting point to deal with the dropout behaviour in distance education.

1. INTRODUCTION

Student Support Services originated from David Sewart's "Continuous Theory of Concern". Based on his own distance education practice, he believes that educational institutions should not only provide teaching materials and packages, but also provide continuous teaching consultation and guidance to students. Such continuous concern is learning support services. Since then, learning support service has attracted extensive attention from the academic circles at
home and abroad, and has been regarded as an important measure to guarantee the quality of distance education. With the systematization of the study on the thought of learning support service, some scholars define it as learning support service or student learning support service from the point of view of service objects. Ding Xingfu (2009) believes that the unified definition of student learning support service should be based on its basic classification and characteristics. Through systematic analysis, he believes that student learning support service is the sum of all kinds of information, resources, personnel, and facilities provided by distance colleges and teachers, which takes place in the context of distance education and mainly consists of face-to-face teaching and communication. Its main purpose is to help students complete autonomous learning and improve the effectiveness of distance learning. Student support service originated from the distance teaching practice of the Open University of Britain. Published since 1978 by David Sewart the learning support service first treatise "distance learning system continuously paying attention to student's" opened the prelude of research in this field, then the theoretical system of student support services constantly perfected, from the taking shape to the mature system. Moreover, it has been introduced into the domestic distance education practice by Chinese scholars as a key factor to improve the quality of distance education.

2. RESEARCH DESIGN AND METHODS

2.1 Data sample

The sample data of this study comes from China academic journal network publishing pool (CNKI), considering the diversification of the word "student support services", in order to guarantee the comprehensiveness of literature retrieval, with "student support services", "learning support services", "student support service" as the theme, at the same time, and the search, or keyword that contains both in "learning" and "support services", "students" and "support services", "students" and "support services" for the retrieval condition, the accurate retrieval after expansion in both English and Chinese.

The search time of this study was November 5, 2020, and a total of 7994 literatures were searched on CNKI. Before 1996, all of them were in foreign languages, but only after that did Chinese literatures appear, which proved that "student support service" originated from western educational ideas. Domestic research on this topic is mainly based on the initial reference and concept introduction, and the practice field starts relatively late. A total of 1218 articles were selected from the CSSCI database and core journals. According to Bradford's literature information centralization and discrete distribution law, the key paper information of a certain specialty is centrally distributed in the journal with the highest efficiency but a small number in the field, namely the core area. Based on this, the relevant literatures of Chinese core and CSSCI journals were selected as the basis for the analysis. After removing irrelevant papers in the form of conferences, reports, information, introductions, management methods, etc., 1210 literatures that can directly reflect the research content of student support services in China were left. The annual distribution of the number of papers is shown in Figure 1.
2.2 Research methodology

In this study, quantitative and qualitative research methods were combined. CiteSpace, the knowledge mapping tool developed by Professor Chen Chaomei, was applied to transform and process sample data in combination with CNKI bibliometric statistics. As one of the most widely used tools for text mining and mapping scientific knowledge, CiteSpace can visually present the evolution law behind the data, mine a variety of imperceptible phenomena, and understand the frontier and development of the subject knowledge field. This study chose CiteSpace. V. 5.6 R4 (64-bit), appears in the form of knowledge map and statistics form document processing result, depth excavation core literature behind frontier knowledge of law and discipline development, and highlight the word clustering by keyword, co-occurrence analysis, etc., research progress in the field of student support services in China for visual analysis. This was combined with the second literature review to find the hot research topics in this field and make qualitative analysis and prediction.

3. DATA STATISTICS OF RELEVANT RESEARCH ON STUDENT SUPPORT SERVICES IN CHINA

3.1 Researcher statistics

3.1.1 Distance education researchers are the main study groups in the field of student support services

According to Price's theory, the number of articles published is an important indicator of outstanding scientists in a given field. The number of articles published by core authors is \( N = 0.749 \cdot (\eta_{\text{Max}})^{1/2} \), where \( \eta_{\text{Max}} \) is the number of articles published by the most productive authors among researchers. According to the statistics, the author with the most productive papers in the research field is scholar Ding Xin. The maximum number of his papers published in the core journals \( \eta_{\text{Max}} = 20 \), which is calculated as \( N = 3.34 \) (papers), that is, the number of core authors in the student support service field should be at least 4, a total of 22. Including Ding Xin and Zheng Qinhuai (2015), Ding Xingfu (2009), Wu Ligang et al. (2019), Fan Xinmin and so on. From the point of view of the units to which the core authors belong, they are mainly from distance education institutions, including teachers from the Open University system and researchers from the College of Online Education and Continuing Education.
3.1.2 The core group of authors leads the research trend of student support services

Through the author collaboration graph analysis, we can intuitively feel the number of papers published by authors in this period through the size of nodes, and characterize the cooperative research among authors through the connecting lines between nodes. The larger the nodes, the more frequently the authors published papers, and the more connections, the closer the relationship of collaborative research.

Fig. 2 was obtained after visual analysis of 1210 valid literatures in this paper. As shown in the figure, the research on the theme of “learning support service” is dominated by cooperative research, and the cooperation atmosphere in the scientific research community is relatively good, forming the research teams of Ding Xin and Ren Weimin, Chen Li and Zheng Qinhua, etc., whose research started earlier and led the development trend of student support service.

Figure 2: Visualization of the author of the student support services study

3.2 Statistics of research institutions

Research institutions that pay more attention to student support services include China Central Radio and Television University (National Open University), South China Normal University, Tianjin Radio and Television University, and Jiangsu Open University (Jiangsu Radio and Television University). Among them, Open University of China (formerly Central Radio and Television University) has the largest number of papers. Its research subsidiaries include its distance education research institute, learning support service centre and its affiliated colleges, which play an important role in promoting the research. It is followed by South China Normal University, Tianjin Radio and Television University and Jiangsu Radio and Television University. We found that studies on the subject was given priority in radio and TV university education system, also including other colleges and universities information technology institute, school of continuing education, distance education institute and remote. This shows that the high student support service and remote education fit, is an important research object in distance education field with practical results (Figure 3).
From the student support services at the institute for the study of visual map (Figure 3), can be found in the central radio and TV university (national Open University) and Beijing radio and television university, chongqing radio and television university cooperative research of high frequency, fully display the advantages of open education system of running system, and part of the ordinary university institute of information technology and school of continuing education is given priority to with independent research, less number of higher vocational colleges. There is no obvious community of research institutions across regions, schools and education fields, and there is no basic motivation to integrate high-quality disciplines of various institutions for joint research. From a macro perspective, this is not conducive to in-depth research and promotion of research in this field.

4. PRESENTATION OF RESEARCH HOTSPOTS OF STUDENT SUPPORT SERVICES

Figure 4 shows the research hotspots in the field of student support services. The size of the node directly represents the frequency of keyword occurrence. The larger the node, the higher the frequency of keyword co-occurrence, the darker the colour of the node, the earlier the keyword appears, and the greater the thickness of the node, the higher the centrality. On this basis, we can see "learning support services", "distance education", "contemporary and long-range education", "Open University", "open education" and "network education", "artificial intelligence" as keywords for this research in the field of high frequency keywords, in consideration of its frequency and centrality, and synonymous after merge. This paper took the high frequency keywords 25, according to the frequency sequence as shown in Table 1.
Figure 4: Hotspot map of student support services research

Table 1: Statistics of frequency and earliest year of occurrence of high-frequency keywords

<table>
<thead>
<tr>
<th>Frequency</th>
<th>keywords</th>
<th>Year</th>
<th>Frequency</th>
<th>keywords</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>209</td>
<td>Learning Support Services</td>
<td>1999</td>
<td>21</td>
<td>Lifelong education</td>
<td>1996</td>
</tr>
<tr>
<td>193</td>
<td>The remote education</td>
<td>2001</td>
<td>20</td>
<td>Adult learner</td>
<td>1996</td>
</tr>
<tr>
<td>44</td>
<td>The Open University</td>
<td>1997</td>
<td>18</td>
<td>Learning support</td>
<td>2003</td>
</tr>
<tr>
<td>42</td>
<td>Open education</td>
<td>2000</td>
<td>17</td>
<td>The central radio and television university</td>
<td>1998</td>
</tr>
<tr>
<td>36</td>
<td>The network education</td>
<td>2002</td>
<td>17</td>
<td>Online learning</td>
<td>2004</td>
</tr>
<tr>
<td>35</td>
<td>Support services</td>
<td>2002</td>
<td>16</td>
<td>Learning Support Services System</td>
<td>1998</td>
</tr>
<tr>
<td>29</td>
<td>Distance and open education</td>
<td>2005</td>
<td>15</td>
<td>countermeasures</td>
<td>2010</td>
</tr>
<tr>
<td>28</td>
<td>Artificial intelligence (AI)</td>
<td>1996</td>
<td>15</td>
<td>Learning support service system</td>
<td>2002</td>
</tr>
<tr>
<td>26</td>
<td>Learners</td>
<td>1998</td>
<td>15</td>
<td>Teaching mode</td>
<td>2002</td>
</tr>
<tr>
<td>25</td>
<td>mooc</td>
<td>2013</td>
<td>13</td>
<td>Mobile learning</td>
<td>2010</td>
</tr>
<tr>
<td>23</td>
<td>University library</td>
<td>2009</td>
<td>12</td>
<td>Autonomous learning</td>
<td>2004</td>
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<td>23</td>
<td>Lifelong learning</td>
<td>1996</td>
<td>12</td>
<td>Learning center</td>
<td>1999</td>
</tr>
<tr>
<td>22</td>
<td>Public service system</td>
<td>2003</td>
<td>12</td>
<td>Factors affecting the</td>
<td>2010</td>
</tr>
</tbody>
</table>

Through the relevant research literature and statistical results of Table 1, it was found that the concept of student support services earlier appeared in lifelong education, lifelong learning, Open University related study, since 1999, the “learning support services”, “distance education”, “contemporary
and long-range education” and it has caught the attention of scholars, making “learning support services” and “student support service” the research hot spot, fully embodied in the remote education and network education teaching practice. Since then, there has been a high degree of integration between student support services and distance education and open education. Therefore, the research results of this stage focus on the professional support services in the context of the relative separation of teachers and students.

As can be seen from the Figure 5, with the popularization of information technology and online learning generalization, modern education relationship has shifted from one-way transmission of knowledge to the interactive process between the main body. A single study support service is not very good to satisfy the whole process of education teaching, therefore, since 2002, researchers studying the integral design of the learning support service system, to the learners as the centre have been discussing the education mode of student support services system change. Since 2013, with the outbreak of the first year of MOOC and ideas in artificial intelligence era, education from the wisdom of “generic” gradually moved to the plan in the study. MOOC education mode by the high attention, so influenced by the education background as a whole, student support services also moved to cMOOC and xMOOC research topics, and raised a hot wave of research. At the same time, it also aroused the “cold thinking” of some theoretical researchers. Wang Jide et al. (2014) pointed out that in order to face the bottleneck problem in the development of MOOC, behind the phenomenon of high dropout rate, it is necessary to create and improve the learning support service system and solve the long-distance obstacles in teacher-student interaction, so as to make it become a high-quality learning mode for the public.

![Figure 5: Time sequence diagram of student support service research](image)

5. CONCLUSIONS AND FRONTIER ANALYSIS

Mutant words refer to the words that appear frequently in a short period of time. Based on this, it can be used to characterize the factors that influence the development direction of research in this field, and then predict its development trend and frontier hot spots. By means of CiteSpace's word exploration function, the front-line terms can be highlighted by Citation.
amplification, and the top 25 keywords with the highest prominence value are sorted out, as shown in Figure 6. On the whole, the emergence time span of these emergent words is from 1996 to 2020. Among them, "learning support service" began to appear in 1996, and gradually declined in popularity after 2002, while "student support service" gradually became the mainstream vocabulary in this field. From 1998 to 2002, the academic circle began to be keen on the study of "learning support service system". From 2002 to 2006, scholars mainly focused on the influence of "teaching model" on student support services. From 2006 to 2009, the student support service from the beginning of the scale to the pursuit of quality, discussed its position and role in the teaching "quality assurance", and with the construction of learning society and network education in-depth integration; After 2010, based on the large-scale use of mobile terminals, "mobile learning" has become the focus of research in this field. After 2011, with the popularization of MOOC teaching, learning support services are also seen as the key to alleviate the "dropout" problem of learners. At the same time, with the transformation and development of China's radio and television universities, "Open University" has become a research hotspot, which is also an important direction of future development trend.

Figure 6: Student support service keyword prominence rate

### 5.1 Student support service is the inherent gene of modern distance education

Figure 6 intuitively shows that "modern distance education" has the highest prominence value, reaching 9.045, ranking the first place. From the research origin of student support service, it was born in the foreign distance education field of running a school practice. Therefore, distance education itself has the gene of student support service, or the student support service is dependent on the development of distance education.
and gradually entered the public vision. According to the visualization of before, "contemporary and long-range education" is a hot research topic in the field of the related research content, according to underline the word analysis found that "contemporary and long-range education" is also the research frontier of the field, from the point of view of radical "contemporary and long-range education" for learning support services for the development of the practice of the soil. Student support service is not only an indispensable link in distance education teaching process, but also an important aspect to ensure its teaching quality. It is the core of modern distance education teaching. Therefore, it can be predicted that in the future, "modern distance education" will always be the hot spot and focus of academic research, including the optimization of distance education students' support service system, the remodelling of service connotation, the improvement of service mechanism and the study of the interaction between support service and education quality. Scholars Zhang Jia-ni et al. (2019), in reference to the Open University Learning and learners integration Model (Model for Integrated Learning and Learner Support, MILLS) Support system, point out that the development of distance education in our country to reconsider the time dimension, staffing and service range, clear each service link, the intervention of the node set up Support services professional team, expand the connotation of the service, Integrated data analysis, and then realize the service process reengineering. It is necessary to eliminate the stereotype of distance education and promote the sustainable development of distance education.

5.2 Student support services promote the benign development of MOOCs

With the outbreak of MOOCs in 2012, a large number of online teaching resources have emerged one after another. Information technology and teaching have been deeply integrated, and the teaching organization form and students' learning mode have also undergone significant changes. There are "flipped classrooms", which are student-centered and reversed between classroom teaching and after-class knowledge internalization. There are also "MOOCs" online teaching form which takes online teaching as the premise and takes collaborative interaction as the means; and there is the mixed teaching mode which is carried out online and offline. The traditional classroom teaching model has been constantly subverted, and the role of teachers in this process has also changed from the "front" to the "back", becoming the provider of online resources and the guide of learning interaction. At the same time, learning support service is also regarded as an important part of network teaching and mixed teaching, which has aroused the attention of education researchers. Zheng Qinhua et al., (2015) through to the domestic mainstream MOOCs platform courses such as empirical analysis, think xMOOC is one of the leading curriculum patterns in 2015 domestic MOOCs, behaviorism theory led the construction and application of MOOCs, guide, superintendent, promotion and other learning support services while in the form of diversity, but relatively weak strength of the support, especially the application of BBS online interactive function is not ideal, the attention of teachers for the curriculum content is much higher than the attention of learning support services. Therefore, the provision of socialized and normalized learning support services is the key to improve the overall quality of MOOCs teaching; otherwise, MOOCs and open video courses will converge and lose their own core advantages.
5.3 Student support service and teaching model reform walk in the same direction

As can be seen from the analysis in Figure 6, “teaching mode”, “independent learning” and “mobile learning” are also the core words with high frequency of highlighting. Whether it is self-directed learning based on the supply side of resources, mobile learning oriented by learning everywhere, or SPOC mixed learning mode guided by learning motivation theory, its essence is the self-adaptation between the reform of teaching mode and the development level of information and people's educational needs. In this process, whether the learning support service is perfect will directly affect the learning experience of learners, and then affect the process of teaching reform. Therefore, whenever there is a key node of teaching reform, there will be corresponding improvement and reflection on the existing student support service, and the continuous improvement of student support service will also promote the optimization of teaching model.

From the perspective of higher vocational colleges, Li Xiaolong (2015) and others believe that under the development trend of vocational education informatization, intelligent mobile terminals have become the crucial point for the reform of blended teaching mode, and learning support services, as an important carrier of students' knowledge construction and emotional communication, are important factors that directly affect learning results. Feng Liguo et al. (2011), use of case law and literature research, based on the practice of open education, combining the theory of distance education and adult learning theory, the paper raised the mode of curriculum design of basic framework, and points out that the curriculum development and learning support service is the key of teaching design, need around teaching strategy and learning method to design all kinds of activities, and provide their services outside the problem coping mechanism. And instructional design is the core of orderly development and implementation of the whole learning support service.

5.4 Student support service is an important way to deal with the plight of "dropout"

Since 2011, the phenomenon of "dropout" has attracted great attention from academic theorists and educational practitioners. Faced with the high dropout rate, scholars have conducted diversified research on its causes, influencing mechanisms and dropout rules, in order to solve the dropout problem in MOOCs. Distance education mainly reduces the cost of education through scale effect and provides low price and high-quality education service. Liu Jinlei (2014) analysed from the perspective of human capital investment cost profit of rules and the distribution of the high dropout rate, individual utility maximization of investment and investment environment trend, and pointed out that distance institutions should analyse the influencing factors of dropout according to learners' internal needs, and maximize the effectiveness of individual investment through comprehensive academic support services and institutional guarantee circulation system, so as to reduce the massive loss of learners. Scholar Zhou Yuan et al. (2013) used a variety of statistical methods to conduct a case study with the college of network education as the object. It was found that the dropout behaviour of students was mainly concentrated in the early learning period, and it was affected by many factors such as age level, regional economic development level and major choice. Therefore, colleges and learning centres should improve the dropout data statistics,
improve the service level, and transform passive support into active support. It is still a long way to go to reduce the dropout rate, which is particularly important in today's Open University transition and scale expansion. It can be predicted that the focus on the topic of "dropout" is not only the direction of the reform and efforts of the student support service system, but also the trend and focus of future research in this field.

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STUDENTS’ RESPONSES TO THE USE OF ONLINE SMART TEACHER PORTAL IN DISTANCE EDUCATION

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Distance education, Online smart teacher, Portal, Student responses

Abstract

This study examined the extent to which students responded to the use of Online Smart Teacher Portal (OSTP) for enrichment of materials, online tutoring and its visual appearance. The term ‘smart’ in OSTP refers to the idea of a platform of interaction between teachers. The expectation of this online media is to provide means of interactive communication within the framework of fostering a lifelong learning culture. The study was constructed using a qualitative descriptive design within a population of 3,367 individuals from which 317 samples were drawn, which made up 5% of the population in its entirety. Sampling technique dealt with purposive random sampling with questionnaires serving as the instrument. Data analysis matched the relative percentage technique. The estimated results revealed that 78.94% constituted favorable responses to the use of OSTP for enrichment of materials, while the remaining 21.40% did not. This suggests that the utilization of the facility of enrichment of materials available in OSTP offered ease of use in terms of user experiences and attitudes. As for the performance of OSTP, the majority of respondents provided favorable responses, peaking at 78.54%, while the remaining 21.46% did not. This percentage indicates the degree to which the portal performed and how its useful facilities were perceived by the students in Elementary Teacher Education and Early Childhood Education programs. The implication is that these findings can provide discussions that put forth potential benefits for society in general and students in particular for the improvement of knowledge, skills and attitudes in the years to come.
1. INTRODUCTION

The idea of an Open University (OU) is connected to the fundamental values of academia such as quality, integrity, innovation, accessibility, relevance and accountability. The products and services of an OU should be of high quality upon which stakeholders could place high expectations. All individuals employed at an OU are expected to comply with strict policies in terms of the enforcement of standard ethics and professionalism. To demonstrate its dedication to high quality service all OUs encourage innovation across all service domains. The key component to the quality of service development is accessibility, that is, the whole programs of an OU should be accessible to all learners irrespective of time and place. The development of all programs at an OU is carried out to fulfill the needs of a community in a contextual manner, and its implementation is strictly subject to effective and efficient mechanisms in a way that ensures accountability and transparency. This corresponds to the Law of Republic of Indonesia Number 12 of 2012 Article 31 Paragraph 1, stating that distance education is a mode of education through which students learn remotely using a plethora of communication media. The underlying value that makes education offered through a distance platform differs from the traditional face-to-face setting is the delivery of learning, that is, teachers and students are physically separated (Moore and Kearsley, 1996; Keegan, 1990). In a distance setting, learning heavily puts emphasis on self-regulated education, while face-to-face learning does not. Distance education embodies planned learning and normally takes place in a different place between teachers and students. Accordingly, the implementation of distance education programs calls for particular designs and techniques, i.e., the use of electronic media and other media (Moore and Kearsley, 1996). The role of the distance education system is regulated in the Law of Education and the Culture Ministry of the Republic of Indonesia in Number 24 of 2012 Article 2 Paragraph 1 states that distance education serves as a form of education for students who are unable to attend face-to-face education without compromising on the quality of education.

The operationalization of this process across the academic domains at the Open University of Indonesia (OUI) involves setting priority on the fundamental values of quality, integrity, innovation, accessibility, relevance and accountability with the objective of creating employees who practice integrity, improve their productivity and adopt behaviors compatible to the culture of learning in the University. The value of quality refers to the degree of excellence of the products and services at OUI which aim to fulfill the expectation of its stakeholders. Integrity enables each individual of OUI to uphold high ethics and professionalism. Innovation allows for the improvement of quality services across all academic domains in a sustainable manner. Accessibility refers to the degree to which all programs of the OUI are available to all members of society regardless of time and place. Relevance indicates the development of the programs of OUI in a manner that addresses the needs of the community. Accountability ensures that the implementation of the OUI programs is effective and efficient and is conducted in a way that reinforces the principles of accountability and transparency. In an ever-changing educational landscape, OUI, as a higher education institution with a large number of students throughout Indonesia, strives to nurture employees with a great sense of resilience and fosters a culture of product and service excellence.

Online Smart Teacher Portal (OSTP) is one of the programs at OUI designed to meet the aforementioned goals. This program is not only teacher-oriented but also serves to meet the needs of the community. It is developed by the Faculty of Teaching and Education as its leading program. The program
facilitates science-based forums dedicated to teachers and students, specifically for teachers who foster concerns about improving the qualities of teaching and learning in formal schools. The term ‘smart’ is associated with the idea of a platform of interaction between teachers that brings about a culture of lifelong learning.

The OUI embraces the concept of Open Educational Resources (OER), locally referred to as SUAKA-UT, in which learning materials are freely accessed by any learners. SUAKA-UT comprises a plethora of high-quality learning resources, which are designed and developed by teachers individually and collectively. These resources are licensed using creative commons, eg., CC BY-NC-SA license.

Online Smart Teacher emerges in a portal environment that provides a vast range of information regarding education and learning for educators at various levels, eg., early childhood, elementary school and middle school educators. The development of this portal is part of the contributory plans of OUI for enhancing teachers’ competencies and qualities in a sustainable manner. A more specific set of goals that underlies the portal development includes: (1) providing a myriad of references to open educational resources in conjunction with the needs for developing teaching professions and implementing learning in schools; (2) offering resources to a variety of policies and regulations associated with teaching-learning activities; and (3) facilitating communication and interaction within an online platform to share knowledge and experiences. Typical features and menu items in OSTP include Learning Laboratory, Material, and Video of Enrichment Learning (Noviyanti, et al., 2013).

Online Smart Teacher, as previously mentioned, is an internet-based portal that embraces open educational resources and contains digitized learning materials established by OUI for teachers and students nationwide. The portal conceptualizes trends in learning resources that may be used as references to real-life classroom learning experiences. Menu items highlight a large array of video streaming based on emergent difficulties in learning and also address these issues by offering solutions. The portal provides approaches through which teachers and students are able to enrich learning experiences, develop learning designs, enhance teaching styles, and acquire solutions to learning issues across various subject matters in classrooms. Within the environment of open educational resources, OUI is expected to provide a wide range of learners with learning resources that are quality-assured and freely available to promote learning communities in Indonesia.

Melton (2002) explained that distance education is integral to a system where learning materials are provided by the institution to assist students in self-directed learning with the support of tutors, academics and librarians. As a matter of fact, the student support system goes beyond merely assisting students in dealing with their personal issues; it also navigates them toward skill development such as discussion and debate, and provides them with opportunities to look at problems from different standpoints, including those outside the context of learning materials. Distance education represents the hallmark of independent learning, which is oriented toward the utilization of online learning resources. As Long (1989) suggests, applications for independent learning are fundamental approaches to andragogical learning. In adulthood, individuals manifest in the concept of self, life experience and decision-making skills, learning preparedness, time perspectives and learning orientation (Atmodiwirio, 1993).

Common features integral to the applications of OSTP includes micro learning, smart clinic, faculty of teaching
and education, teacher scientific seminar, the head of the faculty teaching and education, study program, communities of practice, teacher scientific work, certified program, Online Smart Teacher, Indonesian language for non-native speaker, and Getap. The portal incorporates facilities for enrichment of materials and online tutoring materials into its features. While the former is presented in articles, the latter are in videos.

This study focused on the perception of students in both Basic Education and Non-basic Education programs regarding the visual appearance of OSTP, its facility to enrich materials and video-based tutoring materials. Prior results by Dimiyati Surahman and Mujadi (2014) in the study of Physics identified visual quality, lay-outs, and colour schemes as areas that called for improvement. The content, samples and applications of physics concepts in the module were also crucial sectors that required improvement on the basis of Science, Technology, Education and Mechanical Engineering (STEAM).

2. RESEARCH METHODOLOGY

2.1 Population and Sample

The population of the study included the entire students of Basic Education at Unit Program Belajar Jarak Jauh Universitas Terbuka (Distance Learning Program Unit of the Open University) with 3,367 students in 2020/21. Samples were taken using purposive sampling based on particular considerations, i.e., (1) samples that were geographically close to the researchers given that students of Basic Education are widespread throughout cities and regencies, (2) time efficiency and (3) internet connection. Sampling settled on 317 students using Isaac and Michael’s table. Such sampling fits perfectly into qualitative studies (Sugiyono, 2014).

2.2 Data Collection Technique

Erickson (1968), Dekzin and Lincoln (1994) in Anggito and Setiawan (2018) explained that qualitative studies seek to probe into and describe an activity or event in narratives and the impacts of actions on the participants’ lives. Qualitative studies occur in a natural setting with the intention of interpreting an emergent phenomenon using a myriad of available methods. The instrument of the study involved close-ended questionnaires, that is, respondents can only answer by selecting from two possible options, i.e. yes or no questions. These questionnaires were delivered online and customized for Google Form or sent via Gmail where samples responded to questionnaires in an e-mail.

2.3 Data Analysis Technique

Sugiyono (2003) contended that descriptive statistics aims to describe or provide an overview of an object under study through the data of samples or populations as they naturally exist, without making analysis and general conclusions. The qualitative descriptive data fit into the formulation of relative frequency (Sudijono, 1997). A relative frequency is obtained by dividing the frequency of each case and multiplying it by 100 (Hadi, 2016).

\[ P = \frac{F}{N} \times 100\% \]

Description: 
- \( f \) = frequency
- \( N \) = Number of cases (number of frequency or individual)
- \( p \) = percentage
3. RESULTS

3.1 Validity and Reliability

Construct validity was tested in Pearson’s Product Moment, and testing for statistical significance met the criteria of $r_{\text{table}}$ at a significance level of 0.05 in a two-tailed test. If the value is positive and $r_{\text{count}} \geq r_{\text{table}}$, the item is valid; and if $r_{\text{count}} \leq r_{\text{table}}$, the item is not valid. Validity testing fit into SPSS 22. Based on the calculation using Pearson’s Product Moment, each variable resulted in $r_{\text{count}} \geq r_{\text{table}}$, and were thus considered valid and measurable construct. In terms of internal consistency using Cronbach’s Alpha, an alpha ($\alpha$) less than 0.6 indicates poor consistency; $\alpha$ between 0.6 and 0.7 indicates acceptable consistency; and $\alpha$ greater than 0.8 indicates good consistency (Priyatno, 2015) Table 1).

Table 1: Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.631</td>
<td>9</td>
</tr>
</tbody>
</table>

Based on the calculation featured in the Table, the resulting Cronbach’s alpha is 0.631, suggesting an acceptable value of consistency.

3.2 Visual Appearance of Online Smart Teacher Portal

The visual design of OSTP plays a key role in user acceptance in a way that the learning features provided in the portal can encourage students to use it. The visual design of the portal represents nine tenets when it comes to user acceptance. The percentage of the use of colour palette on homepage peaked at 98.42%, while the percentage of information or news features at 99.36% (Figure 1). The percentage of website display peaked at 99.68%; the percentage of navigation items to provide easy access to important destinations at 98.42%. The percentage of font selection or typography peaked at 97.79% and the percentage of access speed at 69.08%. The percentage of the button for social shares peaked at 65.93% and the percentage of online connection at 64.98%.

Among all of the indicators, the items that represented quality excellence with which respondents had positive experiences include color selection, information or news features, website display, navigation items, and typography. The remaining indicators were less appealing to the respondents, i.e., access speed, social shares, and connection, therefore becoming critical areas for improvement. This is especially important in the ever-growing trends in educational industries as today’s learning has become interactive with the support of mobiles. Critical improvement in those areas will help form the foundations for future direction and development of OSTP as a means of interactive communication for fostering a culture of lifelong learning. This corresponds to the goal of expanding learning opportunities nationwide in a way that individuals are able to delve into various types of learning in certain situations based on their needs (Fisher, 2000).
3.3 Enrichment Materials in Online Smart Teacher Portal

The visual design of OSTP plays a key role in user acceptance in a way that the learning features provided in the portal can encourage students to use it. The visual design of the portal represents nine tenets when it comes to user acceptance. The percentage of the use of colour palette on homepage peaked at 98.42%, while the percentage of information or news features at 99.36%. The percentage of website display peaked at 99.68%; the percentage of navigation items to provide easy access to important destinations at 98.42%. The percentage of font selection or typography peaked at 97.79% and the percentage of access speed at 69.08%. The percentage of the button for social shares peaked at 65.93% and the percentage of online connection at 64.98% (Figure 2).

Among all of the indicators, the items that represented quality excellence with which respondents had positive experiences include colour selection, information or news features, website display, navigation items, and typography. The remaining indicators were less appealing to the respondents, i.e., access speed, social shares, and connection, therefore becoming critical areas for improvement. This is especially important in the ever-growing trends in educational industries as today’s learning has become interactive with the support of mobiles. Critical improvement in those areas will help form the foundations for future direction and development of OSTP as a means of interactive communication for fostering a culture of lifelong learning. This corresponds to the goal of expanding learning opportunities nationwide in a way that individuals are able to delve into various types of learning in certain situations based on their needs (Fisher, 2000).
Enrichment materials provided in OSTP are integral to online-based open learning programs. Table 2 reveals the extent to which student respondents perceived the substantial components of enrichment materials in the portal. There are four components that peaked at 94.95%, i.e., the enrichment topics that appealed to students, the appealing enrichment course content, the information that provided rich insight into learning processes, and the resources that provided solutions to learning issues in school. The percentage of students’ interest in exploring other learning resources within the same topic peaked at 88.01%, while the percentage of up-to-date information at 86.75%. The percentage of the availability of enrichment topics peaked at 85.48% and the percentage of enrichment materials for critical thinking at 75.07%, which represented the lowest indicator among others. As such, the development of enrichment materials in the portal needs further assessment to focus on the quality of enrichment content that is able to nurture students’ critical thinking skills. In its basic sense, the overall components of enrichment materials in the portal need to reflect the benefits for students in both basic education and non-basic education programs.

### 3.4 Video-Based Tutoring Materials

OSTP provides video-based online tutoring as a complement to the course’s student take in UPBJJ UT Makassar. The benefits of tutoring videos include enriching students’ insights, developing particular learning methodologies, and nurturing relevant knowledge and skills. The performance of OSTP in terms of video-based online tutoring is presented in Figures 3 and 4. The overall perceptions of the components in video-based online tutoring in both graphs are favourable, approaching at least 90%, with the only exception of the video duration that only peaked at 51.78%.

![Figure 2: Enrichment Materials in Online Smart Teacher Portal](image-url)
Figure 3: Video-Based Tutoring Materials (1)

The highest percentage peaked at 100% in terms of the extent to which teachers were able to delve into problem-solving learning as a reference to classroom learning, as seen in Figure 4 below. The extent to which tutoring videos appealed to students peaked at 99.68%. The capacity of tutoring videos to provide insights into learning processes peaked at 99.36%. The capacity of tutoring videos to encourage and in still a sense of creativity into learning processes peaked at 98.10%. The advantages students got from reading user comments after viewing tutoring videos to provide ideas for classroom improvement peaked at 98.01%. The capacity of tutoring videos that encouraged students to probe into other learning resources within the same topics peaked at 95.89%. The application of tutoring videos to learning experiences in classrooms, the relevance of learning issues presented in tutoring videos to teachers’ experiences, and the overview of tutoring videos that described the overall summary of video content peaked at 97.74%. The development of critical thinking peaked at 93.05%. Johnson (2002) contended that critical thinking skills constitute a pure process by which brain activities or mentality aim to solve problems, settle on decision making, take on persuasive acts, analyse feedback or response, and conduct scientific observations. The provision of topics presented in tutoring videos desirable for students peaked at 83.59%. The ease of use when it comes to the accessibility of tutoring videos peaked at 83.28%.
Among these indicators of video-based online tutoring, video length was the least favourable among the respondents. It is therefore vital to look over how long a tutoring presentation runs in a single video and adjust the length of time with students’ attention spans. An ideal length of a video should captivate users’ interest and get them to capture the heart of the content.

In the experience of video-based online tutoring, students or users are exposed to visual learning. Visual learning media helps them accelerate understanding, encourage interest and make a meaningful relationship between the content and real-life experiences. Visual media underlies meaningful contexts, and allows for interaction to create a communication process (Zainiyati, 2017; Limbong et al., 2020) explained that video is part of technology that captures, records, processes, transmits and reorganizes moving pictures. Videos are capable of displaying pictures and audios at the same time. Learning through videos enables students to nurture a sense of curiosity and develop crucial skills due to a more concrete and thus more comprehensible presentation for students. This is in line with Chalmer’s study (Kurniawati, et al., 2013) that found understanding an object does not require presenting real objects; but things that may represent those objects instead. This heavily corresponds to the fundamental and essential values of videos as a form visualization media that serves to represent tutoring practices with a focus on constructing the content of tutoring materials.

4. CONCLUSIONS

The following summarizes the key concluding points of the study:

1. In terms of the visual appearance of OSTP, the highest percentage peaked at 98.04%, and the lowest percentage at 66.66% which indicated the critical area for improvement.

2. In terms of enrichment materials, the highest percentage peaked at 94.10% with a mean score or average performance of 83.02%.

3. As for video-based online tutoring, the highest percentage peaked at 92.03% with the lowest peaking at
51.79%, addressing the critical need for improvement in the area of video length.

4. The capacity of nurturing critical thinking skills students obtain from the portal needs further assessment by the developer and the supervisor of the portal management in a way that enrichment materials provided in the portal can benefit across all students in both Basic Education and Non-basic Education programs.

5. Other items and features that are associated with ease of use, social shares, and online access also need rooms for improvement with an implication of fulfilling the goal of establishing a means of interactive communication within the framework of fostering a lifelong learning culture nationwide.

6. Further assessment on video length, as previously mentioned, is the most crucial component that needs immediate improvement as it turned out to be the least favourable among the respondents. The length of video presentations must address students’ particular needs and the degree of their attention spans under certain conditions to capture the key points of video content and learning objectives.

7. The three focuses of the study, i.e., the visual design and appearance, enrichment materials, and video-based online tutoring of OSTP, garnered overall positive user acceptance among students of Basic Education and Non-basic Education at Unit Program Belajar Jarak Jauh Universitas Terbuka Makassar. These three focuses become essential parts of the optimal efforts in enhancing the use of learning resources for students who participate in Basic Education and Non-basic Education programs. This is also in line with the goal of establishing a means of interactive communication within the framework of a lifelong learning culture.

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DATA MONOPOLY AND SOCIAL MEDIA PEDAGOGY:
CURIOUS CASE OF DATA CAPITALISM AND PLATFORMED
FETISHISM IN LIFE-LONG LEARNING

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Abstract
With the introduction of web 2.0, together with the advances of digital convergence and technological simplification, Social Media (SM) platforms became a major source of entertainment and information, production and distribution in addition to being the most attractive means of networking, communication and dialogue. After witnessing the user interests in engagement and activism and their contributions to free labour through the SM platforms, the education sector saw this phenomenon as a potential area of growth in teaching and learning with special consideration to Open and Distance Learning. This paper is a theoretical analysis of such trends and developments associated with social media platforms. It uses Marxist perspective on capital and labour to develop its arguments. Further, articulations of thinkers such as Baudrillard, Jameson, Chomsky, Goffman, Hall, and Fuchs encourage the exploration of the potential of the mainstream SM platforms to create a productive Teaching and Learning Environment (TLE) to be utilized in Open and Distance education. At a glance, the platformed sociality on SM shows the potential to function as TLEs. Further SM provides user-friendly, technological apparatus to produce, distribute and interact with such content. On the other hand, the political economies of data capitalism, and the growth of data monopolies, and their exploitation of free labour lead the platformed sociality towards a different form of isolation and consumerism. Subsequently, these platforms are diverting from their earlier accommodative attitude towards genuine social interactions to highly controlled platform ecologies that benefit predominantly the corporate agendas of the data capitalists. The growth of international monopolies and the exploitations by the data capitalists are driving the web 2.0 sociality from its era of chaos and opportunity to a new era of social order, surveillance, alienation and domination, subsequently creating unfavorable conditions for TLEs.
1. DIGITALIZATION OF COMMUNICATION TECHNOLOGY

Developments in computer technology in early 20th century led to the digitization of analogue information. Digitization is the process of converting information into a digital (i.e. computer-readable) format, in which the information is organized into bits. The result is the representation of an object, image, sound, document or signal (usually an analog signal) through a series of numbers that describe a discrete set of its points or samples. The introduction of personal computer in the mid-20th century and the World Wide Web in late 20th century led to what we know as Digital Convergence. The convergence communication technology facilitated different technological systems to collaborate in performing activities, which were previously performed by separate and independent devices. Digital convergence refers to the convergence of four industries into one conglomerate, ITTCE (Information Technologies, Telecommunication, Consumer Electronics, and Entertainment).

Digitization also facilitated the trade of goods and services over the Internet. This digital economy, digital networking and communication infrastructures provide a global platform over which people and organizations devise strategies, interact, communicate, collaborate and search for information. Therefore, digital convergence goes beyond the convergence of communication technologies. It is a convergence of media, economic and political spaces and institutions at a global level. This convergence facilitates global trade and commerce hence endorse global capitalism and operates independently from geographical boundaries and associated traditional authorities.

The development of web 2.0 technology further strengthened online activism and public engagement in both political and economic matters. Further, it paved the way for Social Media platforms. These SM platforms created more interactive communities on the Internet, since they offer predominantly free usage. Further, its user-friendly interfaces made it possible for an average individual to get into content production. Along with the introduction of web 2.0, the distribution and exhibition of this content became simpler, faster and efficient. This provided a powerful media content production, distribution and exhibition tool in the hands of unskilled members of the public. Hence, SM platforms became popular among both younger and adult communities. The individuals with access to digital communication devices and internet are trying to find ways to gain social, political and monetary benefits from these platforms. Therefore, it can be argued that digital convergence created a novel technological environment that the global populations never experienced before. Because of its user friendliness and free access these social media platforms could offer attractive opportunities for the ODL community, who utilize social media as part of their teaching and learning process.

On the other hand, the platform ownership is trying to develop strategic platform attributes that could generate better revenues and market reach and subsequently attract high levels of investments. At the same time, the platform ownership tries to distinct themselves from the regulatory authorities and jurisdictions of the conventional political system. Ironically, the conventional geographically separated governing bodies are not prepared to address the issues and concerns with regards to such globalized commercial operation. Consequently, the internet in general and its web 2.0 platforms has created a chaos in the World Wide Web. Under this circumstantial reality of SM platforms, this research explores the practices and tendencies of SM platforms and its viability as a pedagogical instrument through a critical theory perspective. With this approach this study focuses on the political
2. THEORETICAL PREMISES

This paper is a theoretical analysis, where it pertains to look at the way the SM platforms interact with its users/consumers and how these platforms are constitutive of a new form of political economy. The main emphasis of the research is on the mainstream social media that are popular and widely used among local population in the light of Facebook, Instagram, WhatsApp and YouTube. The research focuses on social media platforms and their user/consumer relations, in addition to its data management and utilization strategies, to understand its potential to operate as a pedagogical instrument.

The research refers to Marxian thesis on capitalism, commodification, labour and exploitation in relation to its inferences on digital convergence, web 2.0 technology and SM platforms. The study looks at the concept of simulacra and simulation forwarded by Baudrillard (1988), to bridge the Marxian thinking with the new digital environment. The implications of this new form of capitalism is further investigated with Jameson’s (1991) articulations on the new technology and its forms of consumption and commodification, Erving Goffman’s (1959) diction of performed self, Stuart Hall’s (1997) representation theory, and the concept of ‘Manufacturing Consent’ forwarded Edward S. Herman and Noam Chomsky (2002). With this approach the study tries to explore the political economy of the SM platforms and the characteristics of the corresponding user/consumer interactions.

Further, this research looks at the writings of contemporary thinkers in the light of Christian Fuchs (2017), and Couldry and Van Dijck (2015) to understand how the technological structures like social media platforms interact with social relations and human activities in a techno-economic system. Subsequently, the study tries understanding the potential of mainstream social media platforms that could be utilized as pedagogical instruments by creating a Teaching and Learning Environment (TLE).

3. SOCIAL MEDIA AND SOCIETY

Christian Fuchs (2017) looks at Media as techno-social systems in which technological structures interact with social relations and human activities in complex ways. Power structures the shape and social relations of media. He further argues that SM enables the convergence of three modes of sociality (cognition, communication and cooperation) in an integrated sociality. Van Dijck (2013) identifies SM as platforms that are user centered and facilitate communal activities, hence as The Internet in general, and social media in particular, makes digital realities a simulacrum, where an individual presents him/herself as a simulation, a digital other, creating a online facilitators or enhancers of human networks. He further elaborates that “as a result of the interconnection of platforms, a new infrastructure emerged: an ecosystem of connective media with a few large and many small players. The transformation from networked communication to ‘platformed’ sociality, and from a participatory culture to a culture of connectivity took place in a relatively short time span of ten years” (p. 4).

dual personality. According to Kroker, in such simulation, a person abandons the individual identity in favour of the dual identity. Subsequently, digital and human realities were twinned
completing the interface between human and synthetic identity (p. xi). This concept of synthetic identity parallels with Erving Goffman’s (1959) articulation of performed self. Goffman argues that there is no true self, no identifiable performer behind the role, but the roles just are the performer. This parallels the Baudrillard’s articulation of simulacra and simulation. The social media environment not only facilitates the growth of culture in the physical environment, it also creates individuals, communities and a culture of its own, mirroring the physical space, but different and better than the real. It can be argued that these attributes and conveniences attract people to social media. Furthermore, the ODL community see potential in SM as an archetype of TLE. On the contrary, when you analyze the SM architecture deeply, it questions the very notion of its user-friendly representation. It all starts with the concept of datafication and utilizations of data analytics and Big Data.

4. DATAFICATION OF PUBLIC AND BIG DATA ANALYTICS

It can be argued that SM platforms and the internet in general are data driven. As a general definition the Big Data are the vast amounts of data generated by large-scale computing operations in order to analyze and predict the development of certain aspects of society or nature (Fuchs 2017). These are the digital data that are generated as the products of users’ transactions and content generation via digital media technologies, as well as digital surveillance technologies such as CCTV cameras, traffic monitors and sensors monitoring the natural environment.

Fuchs (2017) further elaborates that big data can be placed in a broader societal of economic, political and ideological context, where society is moving towards a culture of control, surveillance followed by suspicion, competition and individualization. In other words, as the 20th century consumer culture is controlled by mass media, comparably Big Data has become the new form of hegemony in contemporary data culture. Hence control over Big Data provides control over the global political economy.

Google, Facebook and SM media in general collect, store and possess a continuously, growing massive amounts of data, that can be utilized by the platform for commercial purposes. In other words, the SM platforms commodify the data obtained from their users that include private information and individual preferences. Facebook and Google are not communications companies. They do not sell access to communications. They sell Big Data for advertising purposes. “They are the world’s largest advertising agencies that operate as Big Data collection and commodification machines” (Fuchs 2017, p.54).

The access to these data repositories comes with a massive price tag, which is totally out of the reach from the average consumer. Hence, the Big Data divide has created a new power dynamic, resulting in increased commodification and social inequality, which contradicts the utopian multi-center environment where each individual is as strong as a multinational corporation. The Big Data hegemony and the surveillance culture provides the multinational corporations and powerful governments the ability to dominate the powerless by controlling the SM environment and hence engineering the culture to their specifications. Subsequently, it leads to manufacturing consent of the public who are connected. This phenomenon parallels the concept of ‘Manufacturing Consent’ forwarded Edward S. Herman and Noam Chomsky (2002). The authors argue that mass media “are effective and powerful ideological institutions.
that carry out a system-supportive propaganda function, by reliance on market forces, internalized assumptions, and self-censorship, and without overt coercion” (p. 306). Similarly, it can be argued that the consent for economic, social, and political policies is manufactured in the public mind by manipulating the online platform ecology and online privet spaces through algorithmic customizations and Big Data analytics.

5. DATA-CAPITALISM AND DIGITAL LABOUR

Jameson (1991) describes new technology as itself a figure for a whole new economic world system that is more concerned with reproduction and has lost the sense of any distinction between the real and culture. He understands this consumption and commodification driven condition as a yet another systemic modification of capitalism itself and interprets it as the “cultural logic of late capitalism” (p. xviii). The late capitalism introduced multinational and transnational business organizations expanding the concept of monopoly beyond national borders. Arguably, the introduction of web 2.0 and SM platforms can be identified as a major component in the narrative of global political economy, where labour relations are restructured into a unique and novel work environment.

From a Marxian perspective, social media could be understood as a cooperation of several individuals, no matter under what conditions, in what manner and to what end. Subsequently, a certain mode of production or industrial stage is always combined with a certain mode of co-operation or social stage, and this mode of co-operation is itself a “productive force” (Marx & Engels, 1974). On these grounds, it can be argued that social media is also an ecological system, which is developed and maintained by its users and hence the culture that grows within it is created by the users themselves. Therefore, on SM platforms the user plays a dual character as both consumer and producer, hence referred to as the prosumer.

But on the other hand, Marx believed that “the wealth of societies in which the capitalist mode of production prevails appears as an ‘immense collection of commodities’; the individual commodity appears as its elementary form” (Marx, 1990, 125). With regard to SM, data and information that the prosumers produce can be identified as a commodity form. These include many varieties ranging from personal data and network information to content produced and consumed by the prosumers as well as the metadata. On these grounds, it can be argued that this commodity is produced predominantly by the prosumers with their free digital labour. This data capital can be identified as the driving force of this new form of capitalism. Hence, it can be described as data-capitalism. The platform providers/owners manage and distribute the content created by the prosumers, and under limited conditions, platform owners allow prosumers to make money with their content in addition to illusion of global reach. This connects and enslaves the prosumer to the platform and in the process alienate him/her from the real society and communal activity. Such digital environment, which propagates alienation and isolation, is presumably prone to exploitation of free labour extracted from its users to the benefit of platform ownership. Unlike traditional capitalism, in data-capitalism, the value is generated predominantly from external free labour in contrast to the traditional labour force employed by the relevant organization. Subsequently, these data-capitalist have the potential to grow limitlessly, creating global monopolies like Google, Facebook and YouTube.

The feel-better component of the digital environment is a strategically fine-tuned algorithm that is designed and developed to keep the individual
engaged with the platforms which ultimately caters to the politico-economic agendas and motivations of their developers. Every human creation in a capitalist society (second nature) also regards ‘how to make money/profit out of it’ (Marx, 1974). Comparing traditional media and new media, Christian Fuchs (2017) argues that, with the advertising funded traditional media, (in which the attention produced by audiences), the audience labour becomes the commodity form. Similarly, in the new media the data commodity shares qualities with the audience commodity. In addition, it also has new qualities such as constant real-time surveillance, the production of not just meaning, but also social use-values and the corporations’ total knowledge of the user activities. Fuchs identifies this as an example of the Marxian dialectic of continuity and change.

Couldry and Van Dijck (2015) elaborate how the platforms we see as purely social are in fact “an effect of a techno-economic materiality”. They convict the motives of a corporation to conduct “social” interactions as a means for “datafication, manipulation and commoditization” of the reality. On these grounds, it can be argued that the social actors are formatted as data stored digitally somewhere out of our reach to open for interception or analysis as Big Data and targeted advertising. Subsequently, this data can be consumed to move social traffic onto a networked infrastructure where it becomes traceable, calculable and so manipulable for profit. Further, Suarez-Villa (2009) believes that the flows of data are triggered to produce systems of economic gain where the systems revolve around the accumulation of attention and its sustenance. He claims that accumulated attention (as measured) is social value. According to Suarez-Villa (2009), democratic accountability is required to make techno-capitalism more responsive to human needs. He suggests that the pursue towards digitally connected sociality pays no respect to real social interaction. Baudrillard (1999) elaborates that it has “fallen in the register of supply and demand” (p.91).

This new capitalism in which data become the commodity, can be identified as ‘data capitalism’. The new capitalists and their monopolies go beyond the conventional ideological manipulations and hegemonies. By owning the platforms, networks and relevant infrastructure which facilitate sociality, communication, production and exhibition for its prosumers, they control everything from interactions to the very existence of their users. Subsequently, SM ownership has the power to nurture ecology and culture as well as attitudes and behaviours that ultimately benefits the growth of their monopolies. With these manufactured forms of sociality and subjectivity that favour the capitalist, the struggles of relevant publics are highly unlikely, against the data capitalist or platform owners. In the short history of SM, the struggles and agency on SM have been predominantly against the traditional authorities and oppressions. SM users or the prosumers do not have the ability or capacity to take part in decision making with regard to laws of policies of these platforms. The decision-making part of the distribution networks and repositories are in its totality owned and governed by international monopolies, they also control the flow of data and information. Wark (2004) describes these new capitalists as the vectoral class. “The vectoral class is driving the world to the brink of disaster, but it also opens up the world to the resources for overcoming its own destructive tendencies.” (Wark, 2004, p. 25). Further, it can be argued that in data-capitalism, all the prosumers whose labour is exploited fall under the digital labour or data labour class.
6. SOCIAL MEDIA AS A PEDAGOGICAL INSTRUMENT

The platform algorithms customize and personalize user interfaces by analysing user choices and interactions. As discussed earlier, these choices are manufactured by consumerism and market forces but from a different perspective. An individual makes these choices in a highly isolated and personalized environment in the light of a personal mobile devise or a personal computer, where an individual feels free and safe to express him/herself. Consequently, the addiction to ‘performed self’ (Goffman 1959) and corresponding false consciousness where people desire to enhance the relation with the SM platform, which subsequently leads to alienation, isolation and platform fetishism. This nature and ecology of mainstream SM platforms raise the question regarding its viability to perform as a TLE. Algorithms operate on mathematical equations and logics that are aimed at maximizing the growth of the platform community and connectivity. In other words, platform is not interested in a particular social system or culture, its only interest is what makes people happy, that makes them spend more time on the platform.

SM platforms realize this objective of demanding people to contribute their labour, time and energy, more and more on SM for free in a consumerist society by interpreting and representing the world around its users and positioning the individual in ways that he/she desire to identify him/her with. The data analytics and platform algorithms facilitate the individualized and personalized representations on SM platforms. The same applies to search engines, where they prioritize information delivered to its users. With reference to Stuart Hall’s (1997) representation theory, it can be argued that power of representation gives power over media maps. Consequently, platform ideology tries to categorize, personalize and fix meaning to favour the needs and agenda of the data capitalists and their elite clientele.

Hence, SM serves the social, political and economic requirements of this new elite class by creating a close system, where information is highly controlled and at the same time creating a simulacrum of free and open sociocultural existence. This closure, information control and corresponding platform agendas hinders the potential of SM to serve as a TLE. The attributes and architecture of SM and the SM ecology does not support the free flow of information, open dialogue and discourse that is necessary to operate as a teaching and learning platform.

The counter argument would be, if the people are literate, responsible and make rational decisions and choices, the platform would be a more productive and enlightening space. Further, SM can create trends and movements, attracting and motivating people to come together for various purposes for the betterment of humanity, where people freely engage with such activities spending their own time, skills and effort without any financial gains, just for the pleasure and joy of been able to contribute to a course or opportunity for self-expression and recognition. But the same can be said about many things in their corresponding ideal condition. The same can be said about democracy, consumerism, liberalism, capitalism and even socialism. But when the human condition is included into to any of these systems, the historical evidence show that, they get distorted beyond recognition, and operate creating opposite the effect to what it meant to be or how it should be. Considering that, SM operates as global monopolies outside the jurisdictions of any state or authority, it is predominantly governed by the primary demand of the data capitalists to generate more revenue, followed by its financial growth. Hence, the social media activism in general can be categorized as informative entertainment that exploits digital labour. Subsequently, when we explore the dynamics and attribute of SM platform, arguably, all it can teach and all we can learn is how to be a loyal consumer,
who desires platform fetishism and willingly sacrifice both labour and identity for no good cause. Considering the case of data capitalism and platformed fetishism, the potential of the mainstream SM platforms to create TLEs is highly doubtful and exceedingly questionable.

REFERENCES


A WINDOWS APPLICATION FOR LOCATING FEATURES OF NERVOUSNESS WHEN MAKING A PRESENTATION

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Abstract
Effective presentation skills are needed for good communication. By speaking eloquently, a presenter could transfer ideas and messages across to people competently. An effective presentation is the most important element in a conference to encourage the audience to pay undivided attention. Lack of confidence owing to less practicing opportunities could lead a presenter to become nervous at a particular situation. Then the stuttering and stage fright make the presentation monotonous. This study addresses the problem through the development of a Windows Application to identify the number of times that a person stutters during a presentation using Artificial Neural Network. The proposed windows application is acquired by Python using the Convolution Neural Network (CNN). For this project, stuttering audio samples were collected. To execute the Feature Extraction for isolated word recognition Mel-Frequency Cepstral Coefficient (MFCC) was used. The windows application displays the number of stuttering times in a user-friendly interface allowing a presenter to train individually to minimize the stuttering with a user-friendly windows application interface.

1. INTRODUCTION

University students, the business community and those employed in administrative service make presentations and speeches for various purposes. Presentation is more of a mode of imperative communication whereby a presenter offers straightforward statements to an audience. It is important to capture the audience’s attention and maintain their interest through the entire presentation. For that, professional skills are critically important. When making a presentation, the most common mistakes that a presenter commits is stuttering thus making the presentation becomes monotonous and unexciting. To reduce these weaknesses and to be informative, motivating, and inspiring, practice is essential. Practice can be more or less useful depending on the way a presenter approaches them. But they might not be able to count the...
number of times they stutter accurately and need outside help. In order to address these problems, a window application was developed. In this application the user is only required to provide the duration of the presentation and the device identifies the events of stuttering and displays them at the end of the presentation. This is the only such Windows application that performs such a function. Thus, this application could facilitate better communication skills among presenters.

1.1 Automatic Speech Recognition

Automatic Speech Recognition (ASR) system is a process whereby spoken words are identified by a computer or any other type of machine. In other words, ASR is the ability to identify words from spoken language and convert them into a machine-readable format. The critical challenge for an ASR system is the correct identification of a word. A speaker might pronounce the same word differently using different time frames. Likewise, human voice signals are inconsistent due to alterations in the quality of speech, speaking styles, background noises and etc. Therefore, a large number of data is needed for the training process. But presently, there is a considerable potential to achieve this in the ASR systems. There are a wide range of applications in ASR systems, like security systems, healthcare and telephony military etc. ASR Process is shown in Figure 1. As shown in the figure, after speech is offered to the system a feature extraction is carried out. Then the speech is identified and output is given according to the necessity.

![Figure 1: Automatic Speech Recognition Process](image)

There are two different categories of ASR system: isolated speech recognition and continuous speech recognition. Isolated speech is single utterance at a time. It requires a pause between each uttered word. Continuous speech is usual human speech. For this type, there are no silent pauses between the words.

1.2 Feature extraction techniques

For the ASR system, the most important part is feature extraction. It is a process which transforms input data into a set of features. It removes unwanted information and retains only the useful information titled the set of properties or parameter of utterances. These parameters are the features. A few major features of the speech characteristics are speech flow, loudness, intonation and intensity of overtones. There are several possible features of extraction techniques. They are: Mel frequency Cepstral.
1.3 Mel frequency Cepstral Coefficient

A signal is a change within a certain quantity of time. To capture audio information digitally one need to take samples of the air pressure over time. For this the most commonly used rate is 44.1kHz, or 44,100 samples per second. The captured signal is a wave form and can be analyzed using computer software. The limit of human hearing is approximately 20kHz, therefore, it requires a sample rate of approximately 40Khz. An analog signal is converted to a stream of numbers and it represents the analog signal's amplitude at a moment in time. Each number is called a "sample." The number sample per second is called the sampling rate. In an audio stream Bandwidth is the difference between the highest and the lowest frequencies. The Fourier transform is a mathematical formula. Using this mathematical formula, time domain signal can be converted into a frequency domain. The result is a spectrum. The Mel Scale is a logarithmic transformation of a signal's frequency. MelSpectrograms visualize sounds in the Mel scale on a spectrogram opposite the frequency domain. MelSpectogram can be obtained easily using the librosa package on python. An example for the MelSpectogram is shown in Figure 2.

![Figure 2: An example of the MelSpectogram](image)

1.4 Speech recognition techniques

For the ASR, there are three basic speech recognition techniques: Acoustic Phonetic Approach, Pattern Recognition Approach and Artificial Intelligence (AI) Approach. Speech Recognition Technique Classification is shown in Figure 3. Acoustic phonetic approach is based on finding transmission of sounds from speaker to listener. Using this technique one can study the nature of speech signal for different sounds. It can be used to understand the nature of different sounds like vowels, semi-vowels, etc. Pattern Recognition Technique is one of the very important techniques and a branch of Artificial Intelligence (AI).
In this study, the AI approach was used. AI makes it possible for machines to learn from experience. For this task the most reliable method is the Artificial Neural Network method (ANN). ANN behaves like the human brain. It recognizes patterns and solves common problems in the fields of AI. If used on a simple ANN for ASR, there are two ways to feed inputs to the ANN. The first is feeding the .wav file to the ANN. In this method the .wav file loads as a NUMPY array and the data gets stored as a 1-D matrix. So a large number of neurons are needed for the first layer of the simple ANN as input neurons. Therefore, the calculations will add extreme complexity. The other method is to convert the .wav files into 2-D image files and feed image files to a simple Neural Network. Then image files are loaded as an array and stored as a 1-D matrix. For example, if the colour image size is 300 x 300 x 3 (3 mentions to RGB value) then it is calculated as:

\[300 \times 300 \times 3 = 270,000\]

270,000 numbers of neurons are needed for the input layer, which is a large number requiring complex handling method. Hence a large number of neurons are required for the operation. It is computationally ineffective. For this problem Convolutional Neural Network (CNN) is the best solution.
1.5 Creating a Convolutional Neural Network (CNN) Model

CNN is one of the most powerful supervised Deep Learning techniques which offers optimum results. It converts images into lower dimension without losing its characteristics. In CNN, there are different layers such as Convolutional Layers with ReLU, Pooling Layers, Flatten Layers, fully connected (FC) layer, Softmax / logistic layer and Output layer. Convo layer (Convolutional Layer) or feature extractor layer is used to extract the features of the image. Convolution filters the image using a smaller pixel filter to decrease the size of the image without losing the relationship between pixels. While there are some convolution operations to extract features, some filters are used for detecting edges in the convolution operation. For example, if the image size is N x N and F x F filter size then convolution result is shown in Figures 4 and 5.

\[(N \times N) \times (F \times F) = (N-F+1) \times (N-F+1)\]

**Figure 4**: Convolution operation result after using a filter

**Figure 5**: Convolution operation result after using a filter for RGB image
In convolution operation stride padding are important operations. Stride represents how many steps could be moved in a convolution. Normally Stride default is one. An example is shown in Figure 6 for Stride value one.

![Figure 6: Stride value one](image)

Padding is used to maintain the dimensions of output to input. For this process zeros are added to the input matrix symmetrically. When “p” is the padding, then convolution result is shown in Figure 7.

![Figure 7: Applying padding](image)

(N+2p-F+1) x (N+2p-F+1) = NxN
N+2p-F+1 = N ----(2)
p = (F-1)/2 ----(3)

One of the greatest activation functions is ReLU. It does not activate all neurons at the same time. It converts all negative inputs to zero. This makes it very computational efficient. ReLU activation functions is shown in Figure 8.

![Figure 8: ReLU activation functions](image)

Between two convolution layers a Pooling layer is used to reduce the spatial volume of image. There are two types of Pooling: Max Pooling and Average Pooling. Max Pooling is the best way to reduce the spatial volume of input image. Two types of Pooling are shown in Figure 9.
After the application of convolution and pooling layers the complexity could be reduced. Then matrix is flattened into vector and fed to a fully connected layer (FC) like a Neural Network. An example CNN model is shown in Figure 10. For Softmax (Logistic) layer, the softmax function is used as the activation function in the output layer. It predicts the probability distribution.

Figure 8: ReLU activation functions

Figure 9: Two types of Pooling

Figure 10: An example CNN model
If there are a small number of training examples, noises or unwanted details from training examples can be added to the model. Because of that overfitting could take place. If there is a huge difference between training accuracy and validation accuracy it is known as overfitting. There are two methods to reduce the overfitting: data augmentation and add Dropout. Data augmentation generates additional training data from the existing examples. During the training process Dropout randomly reduces the number of output units from the layer.

2. LITERATURE REVIEW

For a good presentation, good communication skills are needed. To transfer ideas and message to an audience correctly practice is more important. Less practice can lead the presenter to become nervous at the particular situation. Then the stuttering makes the presentation dull. ASR can be used to identify the number of stuttering times. Various methodologies have been proposed for ASR. A review has been done for Feature Extraction Techniques for Speech Recognition (Kishori and Deshmukh, 2015). According to this review there are different feature extraction techniques like MFCC, LPC, LPCC, DWT can be used for Audio feature extractions. Furthermore, this review has explained the idea of speech recognition techniques such as Acoustic Phonetic Approach, Pattern Recognition Approach, and the Artificial Intelligence Approach. A study has been conducted using MFCC and DTW for Speech Recognition (Bhadragiri and Ramesh Babu, 2014). In this study, the implementation of speech recognition system in MATLAB environment is explained. A study has been conducted for Dynamic Time Warping Based Speech Recognition for Isolated Sinhala Words (Priyadarshani et al., 2012). This paper presents an approach to identify Sinhala speech-based on Dynamic Time Warping (DTW) and the Mel Frequency Cepstral Coefficients (MFCC). The most popular feature extractions technique is MFCC. Many studies have been done using ANN. A study for unsupervised Text to Speech and Automatic Speech Recognition has been done using Deep learning (Yi Ren et al., 2019). In this paper, by leveraging the dual nature of the two tasks, we propose an almost unsupervised learning method that only leverages a few hundreds of paired data and extra unpaired data for Text to speech (TTS) and ASR. This method achieves 99.84% in terms of word level intelligible rate and 2.68 MOS for TTS, and 11.7% PER for ASR. A non-native speech recognition study has been done using dual supervised learning (Radzikowski et al., 2019). Mostly MFCC and Convolutional Neural Network (CNN) is use for ASR (Colangelo et al., 2018: Mitra and Franco, 2015). According to these studies, CNN network is the best way to train images to get the best results. Using a CNN training model, results can be obtained with 98% recognition accuracy, which is the highest recognition accuracy of the database. Today popularity of DCNN is increasing with the number of applications in the area of pattern identification. There are various modified algorithms for CNN to get better performance. Popularity of these CNN algorithms are increasing among the researchers. The aim of automatic speech recognition is to translate human speech into spoken word which is a stimulating task. To classify the audio there are various methods. A Speech Recognition has been developed using CNN (Abdel-Hamid et al., 2014). This project has demonstrated that for the audio classification error rate reduction can be obtained by using CNNs. Initially they present a brief description of the basic CNN and explain how it can be used for speech recognition. Also, a Sinhala Speech Recognition has been developed (Sandasaran, 2015). This paper aims to find a suitable method for Sinhala Speech Recognition. This
study has used two approaches: isolated word recognition and continuous speech recognition using Artificial Neural Networks to go through the Continuous Speech Recognition approach, and Mel Frequency Cepstral Coefficients (MFCC) and Dynamic Time Warping (DTW) as feature matching and feature extraction techniques under isolated word recognition. An acoustic scene classification has been developed using convolutional neural network and multiple width frequency-delta data augmentation recently [10]. In this paper these methods have been applied to convolutional neural networks (ConvNet) to demonstrate that the error rate can be further decreased by using delta features in the frequency domain. They suggest a multiple width frequency-delta (MWFD) data augmentation method that uses static mel-spectrogram and frequency-delta feature as individual input examples. An Audio spectrogram representation for processing with Convolutional Neural Networks has been also been built [11]. This study also presents classification method for audio. For audio, a variety of representations have been used for different applications including the raw digitized sample stream, hand-crafted features, machine discovered features, MFCCs and variants that include deltas, and a variety of spectral representations. This paper reviews some of these representations and issues that arise, focusing particularly on spectrograms for generating audio using neural networks for style transfer. Also, a Sound Classification has been built using Convolutional Neural Network and Tensor Deep Stacking Network [12]. In this paper the use of deep learning networks for classifying the environmental sounds based on the generated spectrograms of these sounds is also explored. They used the spectrogram images of environmental sounds to train the convolutional neural network (CNN) and the tensor deep stacking network (TDSN).

3. RESEARCH METHODOLOGY

3.1 Data Preprocessing for ASR

The audio training block diagram is shown in Figure 11. As shown in the figure, all the audios have been converted into images. After that the feature extraction was done using MFCC. Then, the training process was done using CNN. Then the trained classifier can be obtained.

Figure 11: The block diagram for the audio training
For the audio training, various stuttering audio clips and other audio clips were collected. Then audio samples were divided into two classes: “stuttering and “other”. There were 2500 audio samples for each class. Then audio samples were broken into 1 second (1s) small audio clips and all the audio clips were converted into 44100 samples per second (44,100 Hz). Then using MFCC feature extraction .wav audio clips were converted into 2-D image files. MFCC representation for the .wav file is shown in Figure 12.

![Figure 12: MFCC representation for the .wav file](image)

3.2 Convolution Neural Network Model Building

For this study, the data was split as 80% training data and 20% validation data. Then all the images were converted into fix size of 100x100 pixel. To prevent the I/O from blocking two methods were used: Dataset.cache() and Dataset.prefetch(). To view training and validation accuracy for each training epoch the “metrics” argument was used. The “optimizers.Adam” optimizer and “losses.SparseCategoricalCrossentropy” loss functions were used. Then “data augmentation” and “Dropout” were used to prevent the data “Overfitting”. Three convolution blocks with a max pool layer in each of them were used for the model. For the classification Softmax Activation was used. Figure 13 shows the way MFCC files feeds to CNN. For the training 100 epochs were used and images were trained using Python programming language. Then the trained model was obtained after the training process was finished.

![Figure 13: CNN Model with MFCC file](image)
3.3 Windows Application

To create the windows application GUI, Python was used. The developed windows application consisted of three main options: Duration, Start and Result. Developed windows application progress is shown in Figure 14.

Figure 14: Developed windows application

To count the number of stuttering times, the presenter needs to provide the duration of the presentation. Then the proposed windows application determines the number of stuttering times and display.

3.4 ASR prediction

The block diagram for audio prediction for stuttering is shown in Figure 15. The trained classifier (model) was used to count the number of stuttering times. To capture and identify the number of stuttering times a computer microphone was used. Then the real-time unknown audio was converted into 2D images and the feature was extracted. Then the prediction is made with a trained classifier. Finally, the number of stuttering times is given as a result. Figure 16 illustrates the above step-by-step procedure.

Figure 15: Block diagram for the Audio prediction for ASR
4. RESULTS

4.1 Audio training results
The model performance and training progress is shown in Figure 17 and 18. Sample training loss: 0.0414%, Sample training accuracy: 0.9871%, Sample test loss: 0.0335%, Sample test accuracy: 0.9916%.
Figure 18: The model performance and training progress

Identifying the number of stuttering is shown in Figure 19.

Figure 19: Identifying the number of stuttering
5. CONCLUSIONS

This paper focused on a windows application built to identify the number of times a presenter stutters when making a presentation. This unit will help to create motivated and skilled presenters. Stuttering audio clips were used to focus in on the errors. Since Audio Classification was a challenging task, CNN was used to track the audio clips. There were several feature extraction techniques, but Mel-Frequency Cepstral Coefficient (MFCC) was used. Then .wav files were converted into 2-d image files using MFCC. This proposed window application facilitates the improvement of presentation skills without getting feedback from others and this is a user-friendly mode of training.

REFERENCES


CONVOLUTIONAL RECURRENT NEURAL NETWORK FOR AUDIO EVENTS. Detection and Classification of Acoustic Scenes and Events


ACCESS TO KNOWLEDGE MOVEMENT: IMPLICATIONS FOR OPEN AND DISTANCE LEARNING IN SRI LANKA

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Abstract

Access to Knowledge Movement (A2K) is a global movement that emerged in response to the Intellectual Property Rights (IPR) regime. This paper examines the implications of the A2K movement for Open and Distance Learning (ODL) especially in a context where Open Educational Resources (OER) constitutes an important feature of ODL. Based on a study on IPRs in relation to A2K in the Sri Lankan context, the paper will set out the features of the A2K movement; offer a brief analysis of the IP regime in Sri Lanka and its impact on access to education; and finally, explore how the A2K movement can enhance learning opportunities and strengthen learning communities in the ODL system. This paper will argue that knowledge production and dissemination are situated within a political economic context best represented by existing IP regimes. Existing discussions on OER, OEP etc. are framed primarily as technical inputs into knowledge dissemination that ignore the politics of knowledge production and dissemination. The A2K movement presents an alternative political economic framework that is ideal for ODL and challenges the highly restrictive IPR regime that currently exists. Finally, this paper will argue that a more explicit framing of the political economy of knowledge production and dissemination within ODL will enable a more robust approach to ensuring equity in the provision of learning opportunities and enabling learning communities.

1. INTRODUCTION

Popular opinion considers Intellectual Property Rights (IPR) as something natural and as an inherent consideration in knowledge dissemination. Universities world over have adopted IPR policies. Patents are celebrated as academic achievements. Ensuring ‘ownership’ of
knowledge and the violation of one's ownership is viewed as integral to academic integrity and IPR as a means of protecting this ownership. The concept of IRP has been internalized to the extent that it is treated merely as a technical issue in discussions on production and dissemination of knowledge. This paper discusses how with this overwhelming focus on "protection", the aspect of "access" has escaped focus and attention. Protection of knowledge by the rights holder implies that access to the same knowledge by the larger society is restricted. This paper argues that IPR is not merely technical, but political and that it is a tool that emerged out of a certain political economic context. We further argue that “Access to Knowledge” (A2K) provides an alternative narrative where education – particularly open distance learning can be usefully situated.

2. METHOD OF STUDY

This paper draws on a study conducted in 2009 by the authors. This study has been updated with policy analysis and an updated literature survey.

3. INTERPRETATION OF ANALYSIS

3.1 The regime of intellectual property rights (IPR): A brief history

Protection of intellectual property rights (IPR) has a long history. Copyrights and patent laws are a few centuries old. The Berne Convention for the Protection of Literary and Artistic Works on the protection of copyrights was introduced back in 1886. Paris Convention on the Industrial Property, the framework related to intellectual rights of industry, was introduced even before in 1883. United International Bureau for the Protection of Intellectual Property (BIRPI) was set up in 1893 to administer these two conventions. After its long existence BIRPI was renamed in 1970 as World Intellectual Property Organisation (WIPO) and became the specialized agency of United Nations in 1974 to administer intellectual property matters recognized by the member states of the UN. Since its inception, in the 1960s and then in the 1970s, WIPO became a site of contestation between the blocks of developed and developing countries. While developed countries pushed for an expanded IPR regime beyond Berne and Paris Conventions, the developing countries resisted (Latif, 2010). The WIPO decision making arrangement that allocated each member a single vote regardless of population or contribution to funding helped developing countries to block these expansion plans. According to Noronha and Malcolm (2010), “to get around this stand-off, developed countries led by the United States in the 1980s moved the discussion on intellectual property standard-setting out of the WIPO and into a forum where the developed countries are better able to get their way” – the General Agreement on Tariffs and Trade (GATT). GATT eventually evolved into the World Trade Organisation (WTO) and the American forum shifting strategy in relation to intellectual property led to the enactment of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)”. TRIPS since its inception provided a stronger IPR framework. It restricted the choice available for countries to opt out of the property rights regime. Receiving membership of the WTO means that a country automatically becomes a part of all the trade agreements it offered. This included TRIPS. WTO contains one of the most powerful enforcement procedures of any international agreement now in force. The Dispute Settlement Body (DSB) of the WTO can issue recommendations and rulings backed by the threat of trade sanctions for non-compliance. DSB rulings are automatically binding and only the
unanimous consent of all members can halt its adoption (Witharana, 2015). The coverage of the intellectual property regime was extended to cover essential products as well life forms (WTO 1995). Along with the introduction of TRIPS in 1995, countries started revising their local IPR legal frameworks. Sri Lanka introduced the Intellectual Property Act (No. 36 of 2003) in line with the requirements of TRIPS by replacing the existing law, the Code of Intellectual Property Act (No. 52 of 1979).

A simple argument was presented to convince developing countries to strengthen their IPR frameworks. It was said that a regime of strong protection in developing countries would lead to an increased flow of investments. An IPR regime it was argued would erase the space for ‘free riders’ or ‘thieves’ who would discourage investment in the sector of intellectual property, attract genuine investors and help developing countries to move towards the target of becoming knowledge economies (Latif, 2010).

3.2 Politics of intellectual property rights regimes

Even though IPR is considered in general as a part of life as at present, it is important to go back to the times of the re-emergence of the regime in 1990s to understand who is served most by the regime. Corporate lobby groups were more or less behind all multilateral free trade agreements at the WTO. The role of corporate lobby groups in the formation of multilateral agreement for services, GATS, was well acknowledged by the then director of the services division of the WTO, Davis Hartridge, in his famous statement in 1997, “Without the enormous pressure generated by the American financial service sector particularly companies like American Express and Citicorp, there would have been no services agreement and therefore perhaps no Uruguay Round and no WTO” (Juhasz, 2002). This was the case with TRIPS as well. Norona and Malcolm (2010) refer to strong corporate lobbying by multinational pharmaceutical, software and entertainment industry groups. Kapczynski (2010) gives more details of those who were active behind the scenes. According to her, “TRIPS was the brainchild of key players from the multinational information industries, that is, companies whose primary business is the production and processing of information and informational goods. CEOs from companies such as Pfizer, Merck, Monsanto, DuPont, General Motors, IBM, and Warner Communications, through a high-powered lobby group known as the Intellectual Property Committee, persuaded the United States, Europe, and Japan that the agreement was needed to protect their national interests in strong intellectual property protection”.

3.3 Emergence and spread of the A2K movement

The spread of the IPR regime resulted in the gradual formation of A2K Movement in parallel. It took time for the A2K Movement to emerge and develop in the way we see it today. The origin of the A2K Movement can be traced back to the access to medicine movement of the 1960s and 1970s where developing countries came together against globalized intellectual property standards on public health.

Literature indicates key instances that helped the gradual formation of the A2K Movement at the global level. The withdrawal in 1998 of the lawsuits brought by thirty-nine pharmaceutical companies against progressive measures introduced by the South African government to import low cost drugs for AIDS is an early instance. This withdrawal is considered as one of the early victories of the access to medicine movement. The Doha Declaration on TRIPS and public health
agreed to by WTO members in 2001 can be identified as another significant step towards the formation of the A2K Movement. Flexibilities offered to developing countries by the Declaration as a result of lobbying by groups and countries interested in A2K was seen as a departure from the maximalist intellectual property discourse that was prevalent until that time. The Access to medicine movement worked closely with the emerging A2K Movement. The influential report of the UK Commission on Intellectual Property Rights (CIPR) released in 2002 contributed to strengthening the A2K discourse by proposing a balanced IPR system that would take different needs and levels of development of countries into consideration. Building on the CIPR report Quaker United Nations Office in Geneva and Quakers International Affairs Programme went in 2003 to the extent of questioning the mandate of the WIPO. In a policy paper focusing exclusively on WIPO, they argued that the mandate of WIPO should not be the promotion of intellectual property, but the promotion of creative intellectual activity. It was during this time that A2K initiatives based in the developing world realized the necessity to move beyond TRIPS and public health to address other substantive issues such as access to educational material and scientific knowledge. The theatre of battle hence shifted from the WTO to WIPO. While WTO and TRIPS continue to remain as the forum to act on issues related to patents and medicine, WIPO turned out to be the forum for more general debates on the regulation of global knowledge. Writing an open letter in 2013 to the director general of WIPO, a group of prominent public figures including Nobel Prize winners highlighted the need to examine new collaborative development models such as the Humane Genome Project and open academic and scientific journals. The Geneva Declaration on the Future of the WIPO drafted in 2004 and the Treaty on Access to Knowledge drafted in 2005 at WIPO as a result of the strong influence exerted by developing countries led to another watershed in the formation of the A2K Movement: The Development Agenda for WIPO. The Development Agenda adopted in 2007 include recommendations to promote a development-oriented intellectual property culture, preservation of the public domain and the exchange of experiences on open collaborative projects (Latif, 2010; Noronha and Malcolm, 2010).

Global level interventions mentioned above attracted actors to the A2K Movement. Initial challenges faced at the WTO and WIPO by developing countries brought civil society groups and academics to form alliances with progressive representatives of the developing world. The Movement, however, expanded in quick time beyond the forums of WTO and WIPO and spread to different corners of the world. Access to medicine movement, consumer groups, organisations fighting for civil liberties and human rights, groups campaigning for media freedom, ICT user groups, software development activists, privacy groups, educationalists, farmer organisations and pirates and hackers played different roles in strengthening and expanding the A2K Movement. While highlighting implications of the regime of IPR on a variety of spheres from access to medicine, information, food, education, etc. (all aspects of access to knowledge), they were instrumental in introducing new ways of ensuring free share of knowledge that was prevented by the regime of IPR. Participating in a virtual roundtable on A2K strategies in 2010, authors of this paper identified “free and open-source software (FOSS) movement”, “antiglobalisation movement” and “seeds movement” as partners of the Sri Lankan A2K Movement (Kapczynski and Krikorian, 2010).
3.4 interventions of the A2K movement

Interventions of the A2K Movement can be identified under two broad categories. When it comes to the existing IPR law the Movement tries its best to encourage the maximum potential of fair use measures that are available. They refer to various spaces available within the IPR regime to use proprietary works and products without the permission of the rights holder. The A2K Movement is also proactive in introducing and promoting alternative spaces outside the IPR framework to share knowledge.

3.4.1 Maximum use of fair use measures

The global IPR framework allows countries to design their local IPR laws with provisions for fair use under special circumstances. Copyrights law as defined by the Berne Convention, TRIPS and the WIPO Copyright Treaty, the legal framework most relevant to education, allows a range of fair use measures. Flexibilities are available for the scope of copyright protection, for duration of protection and for limitations and exceptions. By setting a minimum time duration for copyrights the IPR regimes leave space for countries to have free access for such work immediately after the lapse of IPR protection.

Limitations and exceptions are offered for a range of aspects. The provision parallel imports allow a country to design its law allowing cheaper versions of the same copyrighted work to be imported from other countries. This helps a country to maintain affordable prices for books. Compulsory licensing is another important fair use measure allowing a government to offer a third party the right to use or sell a copyrighted work without the permission of the owner, a measure that allows a country to place the idea of access before the need of protecting individual rights. Another provision that is useful for developing countries is the requirement by the Berne Convention to ‘fix’ works to be copyrighted in ‘some material form’ before they qualify for copyright protection. Not fixing certain categories of works (e.g. digital material) in material form allows countries to leave such works out of the IPR regime and allowing free access to the public. Right given to countries by the international framework on IPR to adopt measures to control abusive property rights that adversely affect competition can also be used by local IPR laws to improve access to knowledge. Under the title minor reservations countries are also offered the space to use copyrighted material without permission under special circumstances when conducting performances, broadcasts, recitations, recordings and on-screen visuals (e.g. performances in schools and universities). A range of flexibilities are also available to violate rights of holders of quotes and use them without permission.

The most important fair use measures available in relation to the discussion we conduct here are for teaching. This includes the use of a whole work (i.e. not just a part) for teaching purposes without the permission given by the rights holder. This provision is available for all types and forms of copyrighted work. The global IPR framework refers specifically to distance education, allowing local IPR laws to keep distance education out of IPR jurisdiction so that the practitioners of distance education can freely use materials that are copyrighted (Consumers International, 2006).
3.4.2 Promotion of alternatives to IPR

If the era of 1990s can be identified as the time during which the IPR regime got firmly established in the world, the 2000s can be seen as the time of transition where the regime was challenged, and the A2K Movement was in formation. It was during the 2010s that the A2K Movement gathered momentum. The idea of a public domain emerged as the opposite, the alternative paradigm to IPR. It was recognized as the space available for the free use of knowledge. A range of tools, mechanisms, resources and spaces are available by now providing free access to software, data, information and a variety of learning resources. Free and open source software (FOSS) is available free of charge and provide free access for users to use them, redistribute them and even to modify and improve them. The concept of open source has spread beyond software to a range of other products (e.g. technical products, recipes, etc.) where source codes are available in the public domain so that others can reproduce, modify and improve on them. Having been inspired by the FOSS movement, Creative Commons, an exceptionally popular organization by now, has introduced a licensing system that can be positioned in opposition to IPR. Creative Commons license is applicable not only to software but also to books, videos, photographs, music and comics. Different categories of licenses allow users different levels of access. The open data movement has taken the leadership in canvassing openness to raw data including scientific data, maps and statistical information. Open educational resources (OER), an emerging trend, has overturned the general mindset created since 1990s to award prominence to the aspect of protection of knowledge. Lessons to full courses and programmes on a vast rage of themes are now made available free for anyone to access freely. Open access publishing has provided an alternative for academics and students in the developing world to access knowledge through open access journals and other publications which remained a barrier so far with regard to A2K (Kapczynski, 2010; Noronha and Malcolm, 2010).

3.5 A2K Movement and open distance learning in Sri Lanka

In comparison to traditional face to face learning where the teacher’s input plays a major role, ODL depends heavily on learning resources that are highly protected by IPR and copyrights in particular. Adhering to copyrights has prevented students the free use of data, information and knowledge that are out there in the society, in books, in journals and on the world-wide-web. Teachers who could afford to access knowledge at a cost are still restricted by copyright legal requirements when it comes to dissemination of knowledge. Expensive proprietary software force majority of students to depend on pirated versions for distance learning. It is our observation that even the institution dedicated for ODL does not pay adequate attention to this serious issue of distance learners being compelled to violate IPR law and use pirated software for education. As discussed above there are two ways that the IPR restrictions can be overcome within the Sri Lankan context – by incorporating in the Sri Lankan IPR law the fair use measures allowed by the global IPR regime and by using learning resources made available by the A2K Movement that do not fall under IPR restrictions.

A study conducted by a research team at The Open University of Sri Lanka which includes the authors of this paper reveals that the Sri Lankan copyrights law is very strict when it compared to copyrights law other countries of the Asia Pacific region.
Part II of the Chapter I of Intellectual Property Act of 2003 of Sri Lanka, the section on copyrights, has failed to use many of the fair use measures allowed by Berne Convention, TRIPS and WIPO Copyrights Treaty (Amarasuriya and Witharana, 2009, Witharana et al., 2009).

**Table 1: Some of the flexibilities offered by the IPR regime and used/not used by the Sri Lankan copyright law (GoSL, 2003; Consumers International, 2006)**

<table>
<thead>
<tr>
<th>Type of flexibility</th>
<th>Nature of flexibility offered by the global copyright’s regime</th>
<th>Sri Lankan status (whether flexibility is used or not)</th>
<th>Status in some of the countries in the Asia Pacific region*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of copyright</td>
<td>Minimum of lifetime of the author + 50 years</td>
<td>Lifetime of the author + 70 years</td>
<td>Lifetime of the author + 60 years or less (India provides the strongest protection after Sri Lanka)</td>
</tr>
<tr>
<td>Parallel imports</td>
<td>Allowed</td>
<td>Not used</td>
<td>Not used by any of the countries</td>
</tr>
<tr>
<td>Compulsory licensing</td>
<td>Allowed</td>
<td>Not used</td>
<td>Mongolia and Philippines have used both provisions while Thailand, for translations</td>
</tr>
<tr>
<td>a. for translations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. for reproduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixation in material form to leave digital material out of the scope of copyrights</td>
<td>Allowed</td>
<td>Not used</td>
<td>Malaysia has used the flexibility to a certain extent</td>
</tr>
<tr>
<td>Anti-competitive</td>
<td>Allowed</td>
<td>Used (as a general rule for all IPR tools)</td>
<td>Indonesia and Thailand have used this facility</td>
</tr>
<tr>
<td>Type of flexibility</td>
<td>Nature of flexibility offered by the global copyright's regime</td>
<td>Sri Lankan status (whether flexibility is used or not)</td>
<td>Status in some of the countries in the Asia Pacific region*</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Teaching exception</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. allowing the use of a whole work</td>
<td>Allowed</td>
<td>Not used (only short parts are allowed)</td>
<td>Indonesia, Malaysia and Philippines allow the use of whole work</td>
</tr>
<tr>
<td>b. Types and forms of utilization</td>
<td>Allowed for all types and forms</td>
<td>Used with limits Reproduction is allowed for education purposes with restriction Performance and display of work is allowed only for government, non-profit institutions and in class room settings</td>
<td>Philippines and Indonesia have taken full advantage of this provision</td>
</tr>
<tr>
<td>c. Distance education</td>
<td>Allowed (Teaching is not defined narrowly as “face to face” or “classroom”)</td>
<td>Not used extensively (Photocopying is not allowed at all and performance and display of work for teaching is restricted to classroom settings)</td>
<td>Indonesia and Philippines incorporates distance education under teaching exceptions</td>
</tr>
<tr>
<td>d. No. of copies of illustration allowed</td>
<td>No restriction</td>
<td>No restriction</td>
<td>Bhutan, Cambodia, Malaysia, Mongolia, Philippines and Thailand set no limit</td>
</tr>
</tbody>
</table>

*Note: The status in some of the countries in the Asia Pacific region may vary and is subject to change. It is advisable to consult the latest copyright laws and regulations for the most accurate information.
<table>
<thead>
<tr>
<th>Type of flexibility</th>
<th>Nature of flexibility offered by the global copyright’s regime</th>
<th>Sri Lankan status (whether flexibility is used or not)</th>
<th>Status in some of the countries in the Asia Pacific region*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of works in broadcast</td>
<td>Allow freedom to determine conditions under which copyright owner may not exercise the right of broadcasting.</td>
<td>Not used for educational purposes</td>
<td>No country has used</td>
</tr>
<tr>
<td>Minor reservations</td>
<td>Allowed</td>
<td>Not used</td>
<td>China, India, Malaysia, Philippines and Thailand have used this flexibility, partially</td>
</tr>
</tbody>
</table>

*Bhutan, Cambodia, China, India, Indonesia, Kazakhstan, Malaysia, Mongolia, Papua New Guinea, Philippines and Thailand* – Source: Consumers International (2006)

Unnecessary extension of the duration of copyrights and failure to use provisions for parallel imports, compulsory licensing and minor reservations have a negative impact on ODL in particular. The provision to leave digital material out of the copyright regime, if used, could have drastically improved legitimate access to software and other digital learning resources. Non-incorporation of this useful provision in the Sri Lanka law which would enable the use of whole works for teaching purposes is a serious lapse when it comes to education as well as ODL. In the same way, defining teaching as face-to-face or classroom has set unnecessary restrictions on distance learning.

4. CONCLUSIONS

How do we understand Sri Lanka’s arguably unnecessarily inflexible IPR regime, especially with regard to copyrights? Advocacy by interest groups, particularly farmer’s movements in Sri Lanka ensured greater flexibility on patent rights. However, there were no similar advocacy groups on behalf of copyrights from an access to knowledge perspective. This shows the power of the narrative that is built around IPR regimes as a tool that protects knowledge. Yet, this protection is for individual rights holders. The idea that education is a public good that requires sharing and dissemination of knowledge is absent from any discussion on IPR in Sri Lanka. This absence is quite remarkable given the long-standing commitment to public education and equal access to high quality education for several decades. The fact that IPR is discussed purely as a legal instrument absent of any political economic analysis has contributed to the limited interpretation and discussion of IPR as well as A2K in Sri Lanka.

Yet, there is no doubt of the huge potential for a strong A2K movement in the education sector in Sri Lanka. Education statistics consistently report significant disparities in the quality of education as well as outcomes of education. These disparities are...
largely on socio-economic considerations (See for instance the 2017 School Census conducted by the Department of Census and Statistics). The potential of distance learning for dealing with some of these educational disparities is strong, further justifying the need for linking the A2K movement with distance education. Apart from education, strengthening research would also be facilitated by A2K movements since high costs of publications especially scientific journals restrict access to current research outcomes.

What is required is a strong advocacy movement that places A2K at the heart of knowledge production and dissemination, aligning it with educational goals for access and equality. Such an advocacy movement can then call for reforms to existing IP laws in Sri Lanka which at the very least make use of the flexibilities that are already provided for in the global framework.

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LEARNER ENGAGEMENT AND MOTIVATION IN CONTINUING EDUCATION THROUGH ODL: A CASE STUDY OF THE HANOI OPEN UNIVERSITY

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Abstract
Continuing education helps people to have continuous lifelong learning in order to improve their personality, expand their knowledge, improve their educational and professional qualifications to enhance the quality of life, to find jobs, even self-create jobs and adapt to social life. Vietnam has policies to develop continuing education, implement education for everyone, and build a learning society. Forms of continuing education to get a degree of the national education system include: a) Non-major study b) Distance learning and c) Directed self-study. The quality and effectiveness of the continuing education programs depend on the degree to which learners’ needs are met. Continuing education through Open Distance Learning in Vietnam now plays an important role in building a lifelong learning and lifelong learning society in the region. Therefore, this research aims at studying the status of continuing education through distance learning at Hanoi Open University in particular, in Southeast Asia in general, thereby finding solutions to create learning motivation for learners to meet their needs in today's contextual scenario of integration.

1. INTRODUCTION

Many researches on education and training have recently shown that high motivation and engagement in learning have been linked consistently to reduced dropout rates and increase the levels of a learner’s success in job and life. That is why keeping learners interested in studying and motivating them to succeed are challenges that present themselves to even the most seasoned teachers.

In practice, there are many factors that contribute to learners' interest and level of engagement and motivation in learning and teachers have little control over many of those factors. However, they can influence learners' engagement and motivation; that certain practices do work to increase time spent on tasks; and that there are ways to make assigned work more engaging and more effective for students of all
levels with different training modes, including learners of Continuing Education (CE) through open distance learning (ODL).

The challenge of keeping open distance learners engaged and motivated is common across grade levels, subject matter, and all types of institutions and courses. CE through the ODL mode presents a special concern. With learners and teachers of ODL several new challenges arise such as: without face-to-face contact teachers cannot pick up nonverbal cues from students that can indicate that they are disengaged, frustrated or unenthusiastic; teachers also cannot share their emotions easily and may find it harder to express enthusiasm, encouragement or concern; the anonymous feeling of an ODL environment can make it easier for learners to withdraw, participate minimally, or completely disappear from the course; learners may enrol in ODL courses because they feel these courses will be easier and require less of their time.

With the aim of studying the status of CE through ODL at Hanoi Open University (HOU) in particular, this research focuses on these objectives: 1. investigate the existing practices of CE programs through ODL taken by HOU learners; 2. determine desirable practices of CE programs for ODL courses; and 3. find solutions to create learning engagement and motivation for learners to meet their needs in today's integration trend.

2. THEORETICAL BASIS

2.1 Life-long learning and CE through ODL

CE in learning society - CE development is a basic content in the road map for building a learning society. This is one of the core concepts that make up an educational triangle covering almost all the content, modes, methods, properties, ideas and management of adult education. The triangle is CE, continuous training and lifelong learning. There are 2 approaches to the concept of CE:

The first approach: CE is a system of educational institutions for adults studying in the form of non-formal education. These non-formal education institutions are part of the CE system. Initial education system: include formal education institutions such as kindergartens, high schools, vocational schools, to colleges and universities. CE system Includes non-formal education institutions such as Provincial CE Center, District CE Center, Commune Community Learning Center, Center for Foreign Languages, Information Technology, short-term training. Besides, there are educational "supportive" institutions such as libraries, museums, cultural houses, clubs, etc., which are located in administrative areas at all levels. These institutions help people learn what they need in the form of non-formal education (in the current Vietnam Education Law, this form is also considered non-formal).

The second approach: At the educational development level, CE is considered a national policy on education, and according to UNESCO those are the national policies that are given priority compared to the other educational policies, promoting education for sustainable development. The organization of education for all ages of people is carried out in accordance with the policy of continuing education - a policy that helps "everyone have an education" as President Ho Chi Minh once said.

Open Distance Learning: The form of distance training used in Vietnam is similar to other countries in the world, including the basic methods based on learning materials and training technology, namely: mailing method
(printing materials), broadcasting method, television, online mode (computer networks), and a blended mode. In addition to the ODL method of sending correspondence in the 1990s, in the past decade, online training has officially been established in Vietnam.

There are many definitions of ODL. However, in this study, CE through ODL in the national education system is understood as an educational process, in which most of the distance is between teachers and learners in terms of time and space. Learners of CE through ODL are mainly self-taught through learning materials such as textbooks, video tapes, audio tapes, CD-ROMs, computer software, using personal audio-visual media, radio and transmitters, TV, multimedia complexes, and Internet networks under the school's organization and assistance. CE through ODL is self-study, requiring learners to be self-aware, persistent and determined to complete their academic programs.

2.2 Learner engagement and motivation

The definition of engagement is "the degree of attention, curiosity, optimism, interest, and passion that students demonstrate when learning". It's vital to assess an audience accurately, which ensures that the purpose and value the training will add is clearly defined at the start. One can also add regular notes and reminders about how each part of the training will benefit their everyday work. One might want them to buy into the training. They should feel that the time they invest in the module will deliver high returns for them. Trainees will find content more engaging when they see how it adds value to their work and career path.

Online learning presents new challenges. Since learners are remote from their colleagues and instructor, they may feel isolated. How should one prevent them from struggling with frustration or lack of motivation? If virtual training is not appealing, trainees will put it on the back-burner. Together with motivation, engagement is viewed in the literature as important for enhanced learning outcomes of all students (Schlechty, 2001; Woolfolk and Margetts, 2007). Motivation is seen as a prerequisite of and a necessary element for student engagement in learning. Learner engagement in learning is not only an end in itself but it is also a means to the end of learners achieving sound academic outcomes (Russell, Ainley and Frydenberg, 2005; Ryan and Deci, 2009). This is important because authentic engagement may lead to higher academic achievement throughout student life (Zyngier, 2008). If educators want to know and resolve the young students’ issues and to make schools engaging places (Meyer, 2010; Smyth and McInerney, 2007), then they actually have to listen to what learners are saying about their classes and teachers (Mitra, and Serriere, 2012; O'Brien, and Lai, 2011; Potter and Briggs, 2003; Zyngier, 2011).

In this study, learner engagement is defined in broad terms as the time and physical energy that learners expend on activities in their academic experience. More specifically, engagement involves the learners’ efforts to study a subject, to practice, to obtain feedback, to analyze, and to solve problems. Furthermore, in the present study, the term "engagement" is used interchangeably with the term "interaction." According to Ryan and Deci (2000), to be motivated means to be moved to do something. A person who feels no impetus or inspiration to act is thus characterized as unmotivated, whereas someone who is energized or activated toward an end is considered motivated (p. 54) as in Figure 1 below.
2.3 Related education policies

Article 44 of the Vietnam Education Law 2005 stipulates that: CE helps people learn by working, continuing, and lifelong learning in order to improve their personality, expand their understanding and improve their educational and professional levels, subjects and skills to improve the quality of life, find jobs, create jobs and adapt to social life. The State has policies to develop CE, implement education for everyone, and build a learning society.

Considering CE as a component system of the national education system is also included in the Prime Minister's Decision 112/2005/QD-TTg of May 18, 2005, approving the project "Building a learning society in the 2005-2010 period": "To build the country into a learning society based on the simultaneous, coherent and interconnected development of the two constituent parts: regular and CE of the national education system, in which education regularly implements learning programs to create the best conditions to meet the requirements of lifelong learning, continuous learning of everyone will be an important part of the function, making money to build a learning society".

UNESCO makes a concept of CE very suitable to the current development conditions in Vietnam. In this sense, CE includes all the learning opportunities that everyone wants or needs after basic literacy and primary education. The provision of learning opportunities following the Post-literacy Programs has many different programs that many countries offer such as: Quality of Life Improvement Programs; Equivalent Programs; Income-Generating Programs; Individual Interest Promotion Programs; Future-oriented Program, etc. In fact, such programs are often welcomed by people such as those who have to drop out of school in the middle of a regular school, the poor or unemployed, the migrants, the refugees, victims, women with limited educational opportunities, pensioners, etc. Therefore, CE carries out many different functions. Summarizing the essential role of continuing education, four main functions of this educational system are drawn as follows:

- Alternative functions: implementing this function, continuing education provides a second learning opportunity for those who have never gone to school, thereby contributing to bringing social justice and equality in education.

- Serial function: for those who drop out of school for some reason, education often reconnects the disruption in their learning process, making the learning repeated, seamlessly.
- Additional functions: people who have been provided with the knowledge and skills through formal or non-formal education often find themselves lacking in certain knowledge and skills during the TB process, activities, social exchanges, etc. This deficiency makes it difficult for them to adapt and develop in the context of rapidly changing social aspects of production, business, foreign relations, etc. Praying for people to update the necessary knowledge, working methods that life requires.

- Complete function: with this function, CE provides learning opportunities through which people make their experience more fully, improve operational capacity, enhance health, the personality qualities are developed in a more harmonious and complete manner.

2.4 Subject, scope and research method

Hanoi Open University has been providing CE for nearly 30 years. The knowledge society and advanced information technology are currently changing. Vietnamese people need more knowledge and information for adapting to such a drastic changing situation. Therefore, CE is crucial for our life-long learning society. In this study, CE focuses on knowledge provision and training in various short courses (non-degree programs) provided or not provided by HOU but having taken by HOU learners. They are short courses in English and skills training under CE through ODL. The target groups are open distance learners receiving CE services (both traditional/face-to-face and online education) provided and the model will focus on working people.

This study is divided into 2 phases. Phase I is an investigation of existing practices of CE programs taken by HOU learners. The study samples are administrators and educators who are responsible for CE activities. The research instrument is a structural interviewing questionnaire regarding CE through ODL. The data collection is the in-depth interview of each sample group. The results of Phase I will be discussed in another article. This article is only focused on phase II which aims at determining the desirable practices of CE programs for HOU learners of CE through ODL. The study sample is designed for HOU learners of CE activities for questionnaire respondents and a small group of them for in-depth interviews and for experts on distance learning and CE. For phase II, the research instruments are questionnaires with 3 parts including: 1) personal basic information; 2) benefits from CE through ODL; and 3) desirable practices on CE should be provided by program organizers. The data analysis consists of the frequency, the percentage, standard deviation, and content analysis from which some solutions to create learning engagement and motivation for learners of CE through ODL to meet their needs in today’s integration trend will be proposed.

3. RESULTS

To reach the above-mentioned aim and objectives, a 3-part survey questionnaire with 22 questions was raised under a created link shared and sent to nearly 200 distance learners of HOU in 2019 and 121 feedbacks were received. Part 1, with 6 questions, is about the background information of the learners. Part 2, which includes 8 questions, is about the benefit from CE and part 3 consists of 8 questions about the desirable practice on CE. The investigation period lasts 4 months, from August to November of 2019.
3.1 Part 1 of the survey questionnaire

It is on the basic background information of the learners. The survey results show that:
- 46.35% of learners are male and 53.7% are female.
- There are 76 learners aged 25-35, accounting for 62.8%, learners aged 35-45 account for 32.2%, and only 6 learners are over 45 years old. No learners over 55 years of age take part in the CE.
- 74 learners, taking 61.2%, are working in the State agencies, 38% of the learners are working in the private agencies and 4 out of 121 learners are business owners.
- Up to 44.6% of learners have bachelor’s degrees, over 10% of them have postgraduate degrees (masters and doctorates), and 44.7% of learners have high school and upper high school degrees.
- Out of 121 learners, 2 learners are from overseas (China and Cambodia). The remaining 119 come from 33 cities and provinces of Vietnam, stretching from the northern mountainous provinces to the southern provinces. 32.23% of learners are from the South of Vietnam as Đồng nai, Bến Tre, Đồng Tháp, Long An, Bình Dương, Vĩnh Long, An Giang, Phú Yên, Vũng Tàu, Kiên Giang, Bình Định, Bình Thuận và Thành phố Hồ Chí Minh; 50.41% of learners are from the North as Hải Phòng, Nam Định, Ninh Bình, Thái Bình, Hải Dương, Sơn La, Hòa Bình, Lào Cai, Yên Bái, Hà Nam, Vĩnh Phúc, Phú Thọ, Quảng Ninh, Bắc Giang và Thành phố Hà Nội; 19 learners, by 15.7%, come from the Central region of Vietnam as Quảng Ngãi, Quảng Trị, Quảng Nam, Nghệ An, Thanh Hóa.
- Regarding marital status, 69.4% of learners are married, 27.3% of them are single and the rest are divorced.

3.2 Part 2 of the survey questionnaire

It includes 8 questions about the benefits from CE through ODL. The results are as follows:
- The vast majority of learners, by 60.23%, attend CE through ODL for the first time, 35.42% of learners who have taken more than one program and only 4.25% of learners have participated in more than 2 programs.
- The most popular courses are English, IT, and career skills for lawyers, accountants, teachers, office workers, tourism and service workers, and hotel staff etc.
- 74.4% of learners taking courses selected the option for career development, 43.8% of learners are for self-fulfillment. 9.1% of them study because of financial issues and 8.3% go to school for other purposes.
- The most popular kind of education mode is fully online as shown in Figure 2 below. Learning through radio, television, printed materials are other forms of education.
The survey demonstrates satisfactory levels towards the programs (very high, high, moderate, low, very low) and shows that 52.9% of learners are satisfied at high level, 40.5% of them are satisfied with average level, 4.59%

of learners are satisfied at a very high level and only 1.65% had a low level of satisfaction with the program they have taken. No one rated the program at a very low level (See Figure 3).

Relating to the benefits learners get from the programs (the learners may choose more than one option), the results indicates that 98 options are for career development, 22 options for higher-paid jobs, only 1 option is for being promoted, 18 options are for the purpose of getting new jobs and 46 options are for lifelong learning opportunities Figure 4).

After the last program, 61.2% of learners said they would take another program and 38.8% of them said “No”. 93.4% of interviewees confirmed that they would recommend the learned program to others and only 6.6% answered "no recommendation". Being asked about the application of the programs to career, to daily life, to personal life and other applications (the interviewees may choose more than one answer), 81.8% of learners apply the knowledge learned from the program into their career, 30.6% of learners apply knowledge to daily life, 17.4% of learners apply what they learn into personal life and 24.8% of learners answered that they could apply the knowledge of the course to other areas of life.
3.3 Part 3 of the survey questionnaire

It is on the desirable practice on continuing education. Question 1 of the part is on the skills the university should provide. The learners may choose more than one answer among language skills, IT skills, technical skills, working skills (team work, critical thinking, innovation), start-ups skill, lifelong learning skills and other skills. The results are: 84 votes for working skills, 49 learners choose the option for lifelong learning skills, 47 votes for language skills, 39 learners selected the option for start-up skills, 36 votes for technical skills, 29 votes for IT skills and 38 votes for learning other skills (Figure 5).

![Figure 5: Skills the university should provide](image)

Question 2 of part 3 is about the expected learning modes. The interviewees may choose more than one answer among television, radio, printed materials, online learning, face2face, blended program and others that they expect to be provided. The results are: 92 votes for online learning, 38 for blended program, 21 votes for printed materials program, 13 votes for TV and F2F, only 6 votes for radio program (Figure 6).

![Figure 6: Learning modes the learners expect to be provided](image)

- Being asked about the convenient time for studying, 71.1% of learners want to study in the evening, 5% of learners want to take part in the morning course that equals the number of learners voting for the afternoon course and the rest consider weekend as the convenient time for their study that takes about 18.9%.
- About the frequency for studying learners prefer (everyday, once a week, twice a week, three times a week), the highest selection is "once a week" taking 32.2%, ranking second is "daily", accounting for 28.9%, 26.4% of learners want to study 3 times a week.

- Concerning to the duration of the program the learners prefer, the vast majority of learners (24%) expected the 2-month courses, 1-month courses stand at the second position with 21.5%, the rest of learners choose courses of 3 months or more.

- 57.9% of learners expect the duration of each lesson to be 30 minutes, 23.1% choose the 20-minute lesson, and the rest want the lesson to be longer than 30 minutes.

- About the evaluation methods of the program as shown in figure 7 below, 88 learners expect to take the multiple-choice test after each lesson, 42 learners want to be evaluated by practice test after each lesson, 38 learners vote for Essay test after the program, 57 learners want to be assessed through group report/assignment after the program, 14 learners choose other evaluation methods as being graded through discussions during the lesson and the final mark is the cumulative score for all class activities (Figure 7).

Figure 7: The evaluation methods of the program

- To give feedback to the program (Figure 8), 98 learners voted for feedback via email, 48 learners selected the option for online feedback through email to the program organizer, 31 voted for feedback via phone, and only 14 voted for feedback in written form.

Figure 8: Feedback channels on the program
4. FINDINGS

The results obtained in this study reveal that:

- About the courses, the most popular CE courses through ODL that HOU’s learners had ever taken are English, IT, and career skills.

- About learners, the common age for joining these programs is 25-35 years old. Learners come from diverse backgrounds from all parts of the country: from the plains to the mountains, from the north to the south, and there are foreign learners, too. Most of them are married. There are those who have a university degree and a stable job, even those who have a master or doctorate degree still join the course.

- Concerning the purpose of learning, a majority of learners attending CE courses are for improving their working skills (as team work, critical thinking, innovation) their lifelong learning skills for their career development and lifelong learning opportunity.

- In terms of learning experience, the vast majority of learners attend CE through ODL for the first time. The most popular kind of education mode is fully online. More than half of the learners are satisfied at a high level with the CE courses. They confirmed that they would recommend the learned program to others because the knowledge learned from the program can be well applied to their career, even daily life and to other areas of life.

- About the desirable practice on CE the university should provide, the survey data shows that learners of CE through ODL expect to attend 2-month online courses on working and lifelong learning skills which are held daily in the evening for 30 minutes per lesson with the multiple-choice test after each lesson for evaluation. After the course, they would like to send feedback online through email to the program organizers.

4.1 To promote learners’ engagement and motivation

Motivating learners is one of the major challenges that all education units face on a daily basis. Conceptualized as learners’ energy and drive to engage, learn, work effectively, and achieve their potential at studying, motivation and engagement play a large role in their interest and enjoyment of the courses. Through the above research results and arguments, we offer a number of solutions for 3 stages before, during and after the course to stimulate learners’ motivation and engagement in CE courses through ODL.

Before the course, it is necessary to set learners with expectations about the course. These are the goals and expected learning outcomes. They are as follows:

- Create explicit course and activity goals to help learners feel more motivated to put effort into a worthwhile course. If the course goals are explicitly laid out, students can more accurately judge if they are worthwhile.

- Clearly communicate work / learning expectations before class begins. Using videos to introduce the course and provide learning strategy advice from successful students in previous classes is an effective way to do this. Create a short video to initiate each new activity to provide a personalized introduction to the work.

- Create a detailed syllabus with assignment information, format of class, course and assignment schedule and advice for completing work. If possible, link assignments and policies directly from the
syllabus so learners don’t have to search for this information.

- Use a syllabus survey/course policies quiz at the beginning of the course, which can be a gateway to assignments.
- Set up a consistent timetable for work each week, even each day so that deadlines are predictable.

During the course, administrators and lecturers need to do the following things to inspire and motivate learners:

- Log in often, respond quickly, and convey genuine enthusiasm to learners.
- Allow learners to develop self-efficacy. Recognize when a student has done a particularly good job on a task, or has dramatically improved on a skill. Ensure an early success for each learner; praise and document his/her achievement and progress.
- There are many ways to stay in touch with learners. If an administrator or a lecturer is facile with multiple modes of communication, use whichever learners prefer. Aim for frequent and regular contact, each week, even daily, especially if a student is falling behind.
- Apply modern communication technologies like Skype videos or iChat videos for one-one discussion and interaction.
- Administrator/lecturer may set up a Facebook page for the course. This can be a separate Facebook account from his/her personal page, allowing him/her to keep his/her personal page independent from his/her professional one.
- Encourage personal interactions.
- Link your assessment with the course objectives.

After the course, the assessment and evaluation to record the learners’ expectations as well as absorbing their feedback to make appropriate adjustments for the following courses play a very important role for any CE program. In terms of assessment practices for CE courses, educators may add assessment activities at the end of the course that include questions from each of course sections. In the end, it is necessary to assess learners’ achievement based on a variety of assessment types as the multiple-choice test after each lesson, practice test after each lesson, essay test after the program, group report/assignment after the program, or other evaluation methods as being graded through discussions during the lesson. Selecting assessment activities is a powerful way to achieve learning outcomes and to assure course completion. It determines the degree to which each of our goals has been reached–hence the degree to which your course is successful and valuable.

Relating to CE courses, most administrators/lecturers provide a final quiz at the end of their course and a passing score accompanied by a certificate. This is a good start to apply assessment but is it enough? Assessment works best when it is ongoing, not episodic. This way, learners’ progress and what they achieved in each step of the way may be shown in the course. This means that you can include questionnaires and mini scored-exams in several parts of the course, not only in the end. This kind of assessment aims to support learning until the desired level of knowledge has been achieved. These are opportunities for learners to apply their knowledge and skills and identify where they lack understanding. Concerning the learners’ feedback to the course, exams and quizzes provide immediate feedback to students – particularly crucial for formative assessment. However, the most effective type of feedback for improving learning is specific to the individual learner, and there is no getting around the fact that this type of accurate, timely and meaningful feedback is labour-intensive.
5. CONCLUSIONS

With improvements made to the survey and administration procedures, the researcher plans to target additional programs in different disciplines as well as programs at the graduate level. We not only want to see if similar patterns emerge such that professional development for instructors is perceived as effective in promoting student engagement, but also confirm that strategies employed by trained instructors are effective despite discipline or level of program. Although some instructors who have taken either of the professional development courses did successfully engage students, it would be interesting to determine the extent to which this occurred using a larger sample. On this point, the researcher is unaware of whether the non-trained instructors were able to engage the students because these instructors were experienced in the face-to-face and/or online context, because they were trained in pedagogy elsewhere, or for other reasons. There is also the possibility that some instructors are natural-born teachers. Further research might explore instructor perceptions about whether or not they are engaging students so that we can compare student versus instructor perceptions. Examining instructor perceptions would give insights into the value of professional development, another measure of the effectiveness of our faculty development program.

REFERENCES


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TRIALLING NOVELTY IN MICRO-LEARNING DESIGN TO INCREASE ENGAGEMENT IN FIRST YEAR ONLINE COURSES

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Abstract

This paper reports on how novel approaches to micro-learning design principles are being trialled in an Australian and Malaysian university to make first year online-courses more accessible and attractive, and thereby increase retention and performance. Central to our approach is segmenting materials into “bite-size” instalments with several 7-to-15-minute micro-lecture presentations per week, and reducing all other content wherever possible (e.g. shortening readings and videos). This ‘less is more’ pedagogic strategy is used to reduce cognitive load (Jomah et.al., 2016) and shift focus onto prioritising essential content and core learning outcomes. Early results, from satisfaction surveys, student performance and progression show promising signs of increased student engagement with the design elements so far trialled. An important first element is making it immediately apparent to students that their course materials can easily be viewed, listened to, and read in bite-sized segments (i.e. within the design itself). Strong lecturer presence also appeared to add appeal with two-minute video introductions to topics at the start of each week. These videos, as well as the micro-lectures are used as vehicles to stimulate enthusiasm and interest in forthcoming concepts, readings and learning materials. Simple recording and reduction editing skills are important for micro-sizing, and these can be easily acquired. Students tended to find content more relatable when presented in a conversational formal delivery style. But interestingly, novelty, by way of blending in some delivery style, worked to good effect. Inclusion of short, occasional ‘guest’ voice contributions by colleagues proved very useful as a form of novelty and can be achieved in simple ways that keep time demands minimal. Preliminary findings on the use of micro-learning design principles reached here are encouraging and may help contribute to existing understanding and on increasing learner engagement with online pedagogy.
1. INTRODUCTION

Cognitive overload and subsequent stress with the sense of being ‘overwhelmed’ by the ‘volume’ of course material and information has been identified as a serious issue that contributes to students’ attrition rate (Kamel, 2018). This current trial has involved the utilising of micro-learning principles with the aim of making online course materials more attractive and manageable for students. Thus far, micro-learning design has been trialled in selected courses by creating bite-sized micro-cast materials including micro-lectures and short video guides to assist with writing and completing assignments. This project also incorporated novelty into micro-learning design of micro-lectures and presentations (e.g. variety in tone, inclusion of short vocal contributions by colleagues and guests) as a strategy to help further increase student engagement with course materials.

2. LITERATURE REVIEW

Firstly, making it very apparent to students that they can easily view, listen or read materials in small bite-sized segments is central to the research design approach. This is where a pedagogical strategy which aims to decrease the common “daunted by length’ student perception of learning materials, (Jomah et.al. 2016, Saddle-Smith and Amstrong, 2008) will be most useful to learners. Micro-learning is coined in 2005 by the Research Studios Austria, as to mean “learning in small steps”. Gutierrez (2018) states that “Micro-learning refers to an educational approach that offers bite-sized, small learning units with just the necessary amount of information to help learners achieve the goal”. A study by Dresden University (2015) found that the short content in micro-learning has an improvement of retention rate of information of 22% over traditional learning (Kapp et al., 2015). This ‘less is more’ approach is seen as a way to better optimise learning materials and make them more inviting. It requires focus on reviewing content for determining and prioritising content. It will be designed to help enhance student and lecturer engagement by bite-sizing the materials to be focussed and concise. According to the Journal of Applied Psychology, learning in bite-sized pieces makes the transfer of learning from the classroom to the desk 17% more efficient (Gutierrez, 2018).

With micro-learning, it is targeted learning where all the redundant and unnecessary information is filtered out, learners will not clutter their memories with irrelevant information. By only digesting small ‘chunks’ of vital information, absorption and retention becomes easier thus making comprehension easier achieving the learning outcomes. The inefficacy of micro-learning is in addressing the needs of modern learners (Buchem and Hamelmann, 2010). The average modern learner cannot retain focus for long and has become accustomed to consuming short pieces of content in shorter bursts of time. The learners of today learn differently and the traditional mantra of reading and memorising pages and pages of course material is no longer effective especially in the ODL setting.

Many of today’s learners want to attain the required knowledge in as short a time span as possible. And while shorter attention spans pose real problems for conventional teaching methods, content delivered in small and very specific video “bursts” can provide an effective learner experience that targets specific and measurable learning objectives. It is important to note that the human brain can process visuals 60,000 times faster than text and viewers retain 95% of a video’s messages as compared to 10% when reading the text (Dunn, 2019). According to CISCO (2018), by the year 2019, video will...
account for 80% of the internet traffic worldwide. Furthermore, 75% today’s tech-savvy employees are more likely to watch a video than to read emails, documents or web articles (Forrester Research Report, 2014). Micro-learning videos can be an effective instructional tool at teaching learners’ specific concepts, delivered in the short and straight manner that modern learners prefer.

3. RESULTS

3.1 Trial one (USQ)

As a successful public relations and communication educator at the University of Southern Queensland, Australia, I, (Chris Kossen), the first author, teach effective communication skills, but also do so with a strong commitment to the effectiveness of my own communication as a teacher. It was in the context of consistent positive feedback, ratings, and reasonably favourable retention rates, in 2017 I noted a few students had commented that they had, at times, felt daunted by the length of materials e.g. modules, readings, and to some extent lectures. It seems reasonable to assume others would also have experienced similar feelings.

In reviewing relevant educational literature, I found that cognitive overload and stress due to a sense of being overwhelmed by volume in learning materials had been identified as a major barrier to effective learning and motivation to engage (Kamel 2018; Sweller 2010). Reflecting on this I wanted to try and address this issue by moving my focus to making materials less daunting and more attractive, i.e. ‘student-friendly’. Consequently, I began adopting and adapting micro-learning design principles to reduce volume in learning materials as a way (1) to try and improve student experience, (2) increase motivation to engage and (3) communicate content and skills to them more effectively.

Micro-learning is a pedagogical approach which helps address cognitive overload by providing small ‘bite-sized’ learning units where information is reduced and focused primarily on the most relevant concepts and skills (Gutierrez 2018). By digesting small ‘chunks’ of vital information only; absorption, comprehension and memory retention become more cognitively manageable, and hence attaining learning outcomes becomes less demanding and more achievable (Kamel 2018; Sweller 2010).

3.1.1 Applications

Key elements in the application and implementation of micro-learning have involved:
- **Shortening length of modules** (splitting and increasing modules to one-per-week)
  - Reduced readings load (e.g. editing out unnecessary pages)
  - Increased visuals, graphics, audio and reduced text (e.g. sourcing shorter videos)
- **Miro-cast** slide presentations: 2-3 per week, 7-15 minutes each (in place of single 50min)
- **Lecture-presence videos**: 1-2 minute video guides for each module: to personalise delivery boost dynamics and ‘sell’ engagement with week’s materials (e.g. readings, videos)
  - Lecturer video guides for each assessment (3-4 minutes)

Inclusion of activities, exercises and inclusion of 3-4 minute audio-casts i.e. podcasts.

- **Dynamic voicing** with co-presenters: colleagues, guest speakers (with minimal demand requirements) Vocal dynamism to break monotony of one voice and one perspective.
- **Relevance linking**: Frequent linking of relevance of content to: (1) assessments and (2) employment (i.e. professional practice, work tasks and skills)

My success in teaching has long been underpinned by the regular linking of relevance; in classes, with practically built into presentations relevant ‘applicable’ materials and activities. I have found that structuring content around usefulness to students for (1) producing good assessments and (2) value and practicality for employment and work performance are an effective and engaging way to determine and focus content. This approach also seems to fit naturally and logically with micro-learning.

Importantly, making it immediately apparent to students that they can easily view, listen or read materials in compact bite-sized segments has been central to Course Page design and decreasing ‘volume shock’. Student evaluation feedback data showed they found that the easy to locate and readily accessible bite-sized micro-lectures and videos useful in helping them to better manage their learning, for example, learning at their own pace, and at times when they felt they were ready and motivated to engage in periods of study and learning.

### 3.1.2 Results

Student performance in assessment, along with course engagement analytics and student feedback (e.g. course evaluation and satisfaction ratings) to date indicate support for this 'less is more' (Whitehead 1949) micro approach as an effective way of optimising learning materials by making them more attractive and engaging to learners. Once again, this bite-sizing approach is well supported in published literature (Gutierrez 2018; Jomah *et.al.* 2016; Kamel 2018; Sweller 2010) (Tables 1 & 2).

**Table 1: Public Relations Research Methods**

<table>
<thead>
<tr>
<th>Year</th>
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<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2019</th>
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<td>4.8</td>
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<tr>
<td>Marked improvement in progression rate (100%)</td>
<td>79%</td>
<td>88%</td>
<td>96%</td>
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**Table 2: Community Consultation and Development**

<table>
<thead>
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<th>Year</th>
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<th>2019</th>
<th>2019</th>
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<tbody>
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<td>Improvements in progression rate (100%)</td>
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<td>92%</td>
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<td></td>
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<td>Corresponding reductions in fail rate (100%)</td>
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<td>Fail rate for final assessment fallen (100%)</td>
<td>17%</td>
<td>11%</td>
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### 3.1.3 Combined qualitative data

Micro-format and lectures have drawn positive student evaluation comments:

- I loved the short lectures. It made studying with kids at home a lot easier...I could squeeze them in wherever I could, and didn't...
have to dedicate hours that I didn’t have.
- The way PowerPoint contained audio clips was fantastic.
- Mini-presentations for online students were really helpful and assisted me with interpreting information in a manner that helped me better understand the course material.
- The modules were outlined in a digestible and clear format that I could easily learn from.
- Micro lectures are to the point to help focus learning.

- I feel that other faculties need to look at what you’re doing here, and learn from this.
- The way this class is done online should be the standard. Easy to navigate, sectioned into modules, everything very easy to access through Study Desk [Moodle LMS]. Lectures were recorded and easy to access. Assessment clearly detailed, available immediately and we were encouraged to start early. Absolutely love this class.

3.2 Trial two (WOU)

3.2.1 In Progress

The purpose of the project is to learn, adapt and apply the micro-learning design principles for Wawasan Open University (WOU) courses starting with the re-designing of the content presentation of the selected General Studies course of MPU3333/03 Human Rights. The General Studies or MPU (Mata Pelajaran Umum) courses are compulsory for all undergraduate degree programmes in Malaysia. This project is a collaboration with University of Southern Queensland (USQ) Australia where transference of knowledge regarding micro-learning strategies is shared and adapted.

The main aim is to develop a prototype of a standardised format in utilising the micro-learning methodology to transcend the content of the course modules into ‘chunks’ to help maximise students’ learning experience. The end objectives are to convert the Human Rights course into fully online by using the micro-learning principles and finally the project will also aim to conduct a series of workshops to train the WOU staff and equip them with the skill to utilise micro-learning principles for their own courses.

3.2.2 Context, literature, and development of problem statement

Student cognitive overload is often an overlooked issue where learners are expected to perform well and score good grades as a norm in society. However, the serious consequences of academic overload with learners feeling overwhelmed, lost and helpless facing their academic requirements and responsibilities while pursuing a University degree needs to be addressed. This is more so for ODL learners who are studying part-time while working full time. Many students experience difficulty in managing the academic workload at university (Bitzer and Troskie-De Bruin, 2004). Students’ perceptions of the demands of the academic tasks and their perceptions of their ability to succeed in completing the tasks influence the amount of effort they put into academic work, and an insufficient amount of effort may lead to academic failure (Petersen et al., 2011). Academic failure would also lead to higher attrition rate. Micro-learning principles will be able to help overcome academic overload and in addressing the needs of modern learners.

The motivation is because bite-sized content is more focussed, learners are not overwhelmed with information overload. Micro-learning will be a necessity in new teaching and learning pedagogies where in a world of post COVID-19, online teaching and learning
with one method such as micro-learning would be the most probable way higher education is headed. Micro-learning as a delivery format is also well suited with the way the average modern learner functions in his/her daily life. Generally, the design of micro-learning bite-sized video content lasts between 7-15 minutes befitting the short attention span of modern learners. Therefore, when bite-sized learning video content is easily and readily accessible, learners can manage at their own pace, wherever they are, and most importantly, when they are ready to learn.

**Research questions / hypothesis**
The aim of this research is to test whether micro-learning is:

(1) effective in reducing academic overload, and
(2) is effective in better meeting the needs of today’s learners.

### 3.3 Trial two: Project plan

**Stage 1 – Review of content**
The selected prototype course is MPU3333/03 Human Rights. It is a level 100 compulsory course for all the degree programmes in WOU including the Bachelor of Liberal Studies (Hons) from the School of Education, Humanities and Social Sciences (SEHSS). A review of content of the course and scripting for the videos will be carried out. At this stage, it will also include the summary of the course in the form of animation videos uploaded on the WOU’s Learning Moodle System - LMS (Brightspace).

**Stage 2 - Producing videos and pilot**
At this stage, videos will be filmed, edited and produced systematically to be uploaded on the LMS (Brightspace) in the May 2021 semester. The study will include producing a welcome video, assignment guide videos for the general university course Human Rights in the May semester.

**Stage 3 - Feedback and data analysis**
The sampling includes all students enrolled in the Human Rights course from all five regional offices (Penang Regional Office, Kuala Lumpur Regional Office, Ipoh Regional Office, Johor Bahru Regional Office and Kuching Regional Office). A mixed mode methodology will be adopted where surveys will be sent to gain feedback from all the students and group interviews will be conducted. However, only students who agreed to be interviewed will be involved as participants of this research. Data analysis will also be completed in this stage.

**Stage 4 – Final report**
The final stage will involve completing the final report on the findings of the research. The prototype course will also be adapted for the purpose of training workshops for lecturing staff.

### 3.4 Methods and use of future findings

The outcome would include contribution to literature where findings from this study will contribute significantly to the governing literature on micro-learning in higher and online distance education. Findings from this study, once complete, should also contribute to the WOU University, staff and students. The University and relevant staff will be informed with an enhanced perspective of how micro-learning can be adapted into a successful new format of delivering the courses. The students should also benefit from the findings on how to overcome academic overload and be presented with a new better suited format of learning to enhance their learning experiences. Descriptive quantitative data ratings and qualitative student commentary from student course evaluation surveys. Findings from course evaluations on the trialling of micro-learning design at WOU University will also be used where possible to further improve and refine future use and application of these principles and methods.
4. DISCUSSION: APPLICATION OF MICRO- LEARNING DESIGN

Having audio-visual at the centre of delivery, i.e. making learning primarily an audio-visual experience (as the key entry point) appears to be effective as a means for making content attractive to students and for stimulating, as well as, sustaining genuine interest and engagement. Micro-cast slide presentations (i.e. micro-lectures or micro-classes) can include a mix of live in-class and home (or office) voiced slides. We have used audio-visual delivery, micro-presentations and lecturer videos, to serve as a vehicle for creating interest and curiosity by ‘selling’ rewards and benefits students can gain by understanding the specified content e.g. concepts, principles, theories, case studies. This ‘appetite-wetting’ strategy has become a feature in our approach to micro-casting and is based on relevance-linking.

Relevance is very often linked through explaining and demonstrating the usefulness of knowledge/content and skills to employment and for performing well on assessments. Wherever possible this is also linked to application through activities. For example, first year students commence their first assessment, an essay, in their very first class, a micro-lecture incorporating a tutorial type activity. The key topics of their first micro-lecture relate to ethics and professionalism. Figure 1, shows how a practical assignment-preparation activity, based on the lecture topic area, has been embedded in a PowerPoint slide.

The purpose of the activity below is to engage students in the starting of their first assignment in their very first class. In this activity students write the first sentence of their essay, a thesis statement, as the focus point for their entire essay, and then identify a potential main supporting point from those presented in the micro-lecture. This approach involves making students aware that keeping the assignment task firmly in mind is a very good way to approach their study of the course content over coming weeks. It is a learning strategy they can use to help guide the way they approach and focus on learning resources.

Using bite-sizing and ‘less is more’ principles, presentation slides should be kept brief, uncluttered, and direct i.e. ‘to the point’. These design principles then continue through to readings and video learning materials. Micro-learning design requires focusing on the reviewing of content in order to determine and prioritise content and as a key to reduce volume and subsequently cognitive-load learning barriers. For example, as a general rule, content in set readings should be discussed in micro-classes; otherwise their continued inclusion should be reviewed.

**ACTIVITY: begin your essay plan now**

Example (thesis is the first sentence of the essay)

“This essay will argue that public relations has...”

NEXT

*Weeks 1 – 4 choose main points to support thesis and gather supporting evidence
These points form your #working plan

NOW

choose one or two points possible points
5.1 Logistics and development using experimentation

The application of micro-learning design principles has involved the use of trial and error for continuous improvement, e.g. for increasing vibrancy through novelty (e.g. variance). For instance, students seem to find micro-casts especially relatable when a conversational style is used.

But interestingly, varying between formal and informal styles also appears to be effective in creating impact. Importantly, to date, we have come to learn that providing colleagues with a script they can work from and instructions for voicing slides is an effective way to achieve desired impact while keeping demands easy and minimal. Using a small number of short contributions has also allowed us to develop conversational podcast style aspects.

6. CONCLUSIONS

Global and national trends are bearing influence on the way universities are engaging with students in the face of growing competition. Increasingly, competitors are starting to offer educational services through lower-cost, online-only courses. However, micro-learning course design may provide universities with a valuable opportunity to be able to offer poor students with affordable and accessible learning experiences that are attractive and engaging, and well-tailored to their needs, as a point of competitive advantage into the future. The early results from this ongoing study, on the trialling of micro-learning design principles, are encouraging in terms of (1) its utility for engaging learners and (2) relative ease of application, i.e. implementability and transference. Thus far, this trial also provides strong support for the idea of incorporating novelty into learning design as an important means by which to engage and energise students and increase their learning performance.

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ENHANCING LEARNERS’ LISTENING SKILLS WITH H5P:
A MOODLE-BASED ONLINE LEARNING PLATFORM

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Abstract

Listening, which is one of the four language skills, should be mastered by those learning a language. Listening to English has been a major challenge for teachers. Why is it challenging? Teachers have to provide more varied and meaningful materials in order for learners to understand the spoken language. Universitas Terbuka (UT) is a higher education institution offering Open and Distance Education (ODE) for in-service teachers, including English teachers. Listening III is a compulsory course for the students of the English Education Study Program at UT. UT’s learners are expected to be highly motivated to learn independently through an online tutorial that is offered as students’ learning support services. By adopting Moodle software, it is possible for tutors to provide effective learning activities for students to practice listening. This system enables learners to download the material provided by the tutors as well as a link to the open sources. Therefore, the development of features or applications integrated with Moodle has motivated the design and teaching team to identify technologically enhanced learning tools that could meet these essential requirements. H5P has provided an innovative way to solve these technological and educational issues. It also allows teaching staff to create interactive learning opportunities by providing free open sources and enables learners to share their knowledge and experiences through some interactive and mobile-friendly learning tools that teaching staff create, share and reuse. This study aims to describe the online learning activities for the Listening III Course at UT using H5P and analyze learners’ perceptions of their learning experiences in listening with H5P. A descriptive analysis was conducted in this study by observation and an online survey. The results show that the use of H5P could enhance learners’ listening skills and gave them meaningful learning activities.

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Keywords:
H5P, Learners’ listening skills, Moodle Software, Online learning
1. INTRODUCTION

The development of information and communication technology (ICT) today has a very significant influence on changing the paradigm of global society in all aspects of life. One of the impacts of these changes is the fourth-generation industry or what is known as the industrial revolution 4.0 which is marked by the digitalization of the industry. Universitas Terbuka (UT) as a university that applies Distance Education (DE) is given the mandate to assist the Ministry of Education's program. UT has both opportunities and challenges to support government programs on DE which will be applied to several tertiary institutions as a way of increasing the access of Indonesian youth to higher education. Therefore, UT continues to improve the quality of products and services to students and stakeholders.

The characteristics of students’ self-directed learning in online learning need to be optimally facilitated. The use of the term self-directed learners is described in more detail by (Warring, 2013) as learners who voluntarily and confidently follow the learning process and make their own decisions regarding the material and learning activities they undertake. Apart from self-directed learners, (Phi, 2017) explains another term that is widely used i.e. “autonomous learners”, who have the abilities to take charge of their own learning. Learners are expected to have the ability to achieve their learning objectives by determining and managing the materials and assignments they have chosen according to the available evaluation criteria. Learning materials play an important role in replacing the presence of a teacher in a learner’s learning process. In learning English listening skills, the characteristic of UT’s learners as self-directed learners strongly supports their success in improving their listening skills.

Listening III course is one of the courses in the English Language Education study program that trains learners to have advanced listening skills. This course is very important because the materials and exercises provided can improve learners’ listening skills which are often integrated with writing skills. Learners’ learning supports for this course called online tutorial (tuition) are provided. Technological developments, especially the use of Moodle features or plugins, are very useful for learning English as a foreign language. Learning materials and activities enable learners to gain effective learning experiences and even collaborate with tutors and other learners (Rice, 2011).

This study aims at describing the online learning activities for the Listening III Course at UT using H5P and analyze learners’ perceptions of their learning experiences in listening with H5P. A descriptive analysis was conducted in this study by observation and online survey.

2. LISTENING SKILLS FOR HIGHER EDUCATION LEARNERS

Listening ability is the basis for the development of other language skills such as reading, speaking, and writing. (Rost, 1991) states that Listening is the coordination of perception, analysis, and synthesis skills that are mutually integrated so as to form a Listening ability. In other words, “Successful Listening involves an integration of these
Referring to Rost's opinion, listening ability needs to be trained continuously so that it is not only perceptive but reaches the level of analysis and synthesis skills. Rost provides examples of abilities at the synthesis level including the ability to combine linguistics with other interrelated signs and the ability to use basic knowledge in listening activities.

In Listening skills, an instructor has the responsibility of providing meaningful and authentic learning experiences. Learning materials offered to learners have become the main factor in the learning process. Rixon in (Darminah., Antoro, S.D., Ardasih, 2007) stated that the purpose of Listening skills is to help learners connect learning material with real-life through varied situations. Furthermore, Rixon gives nine examples of situations where Listening plays an important role, i.e. 1) Listening to the announcements in stations, airports 2) Listening to the radio 3) Participating in a conversation face-to-face 4) Watching a film, play or TV 5) Participating in a meeting, seminar, or discussion 6) Taking part in a lesson 7) Listening to a talk or lecture 8) Eavesdropping on other people’s conversations 9) Participating in a telephone conversation (Darminah., Antoro, S.D., Ardasih, 2007)

3. LISTENING ACTIVITIES THROUGH ONLINE PLATFORM FOR DISTANCE LEARNERS

UT as a DE institution is currently still using printed media as the main teaching material to assist learners in the learning process. This is in line with Shearer’s opinion in (Moore, 2007) which states that “in most institutions printed learning materials or ‘non-electronic text’ is still offered as the major learning materials or the most versatile medium for the delivery of course content” (Moore, 2007). Printed teaching materials are still considered the most efficient for distance learners in their independent learning process. However, non-printed teaching materials such as audio programs, video programs, and multimedia programs began to be developed as programs that are integrated with printed teaching materials. Non-printed teaching materials are expected to support the learners’ learning process in achieving course competencies more effectively and efficiently.
Audio media is very appropriate to support the listening learning process because this type of media is related to the sense of hearing in understanding an oral message. There are several elements related to the quality of audio media itself, including sound and music, sound, dialogue and monologue. These elements should be designed so that they are easily accepted, attractive, and not boring to the listener. The advantages of this audio media according to Anitha in (Darminah, Antoro, S.D., Ardisih, 2007), among others, are not so expensive for learning activities, audio CD is quite economical, can be used for group or individual learning, and audio media is ideal for independent learners.

The advantages of using audio media in the Listening III Course are expected to increase the effectiveness in the learner's learning process. Distance learners can use the audio media flexibly in terms of time and place. Furthermore, considering its function as supporting material integrated with printed teaching materials, audio media is very useful in improving learners' listening skills because it provides a meaningful learning experience.

In terms of distance learning material innovations, the use of appropriate technology for instructors and learners in communication becomes important. In this case, (Simonson M; Smaldino S; Zvacek S, 2011) emphasize that "effective instructional messages are designed according to the situation, experiences, and competencies of learners" (Simonson M; Smaldino S; Zvacek S, 2011). Interaction is considered effective if learners actively do independent learning and instructors provide feedback to evaluate the learning process that has been done. Therefore, besides choosing the right materials, the use of the appropriate media will influence the learners' success in achieving their competencies. In listening activities for distance learners, (Simonson M; Smaldino S; Zvacek S, 2011) also suggested the use of MPG Files (Podcasting) as one of the choices of digital audio media that can be accessed via the internet that is downloadable in the format of MPG3 or MPG4 files.

5. THE APPLICATION OF H5P THROUGH MOODLE FOR LISTENING AT UNIVERSITAS TERBUKA

In terms of the quality of non-printed or audio materials, especially in providing effective listening experiences for students, the challenge that must be faced by instructors at DE is that these materials are meaningful in helping learners increase their competencies. Erben state that "materials should be in a wide range and authentic" (Erben et al., 2008). This opinion emphasizes the provision of authentic teaching materials. One example of providing authentic material is the use of speakers from the native language or native speakers as models for teaching collaborative activities can be recorded automatically in the application, allowing researchers to use these advantages as material to create a portfolio for each learner.

materials, especially non-printed or audio materials.

Moodle is an online platform for learning that is originally used in Europe and North America was created by Martin Dougiamas. It is very flexible and supports the practice of online learning, including giving comments to other people's uploads, uploading files, sending announcements, and even online conversations. (Rice, 2011) states that Moodle has been modified to enable learners to collaborate. The strength of Moodle is that all Related to its use, Moodle is in line with Moodle design principles that were created to support the social construction learning style, which
prioritizes interaction in the learning process. This learning style philosophy is that learners can achieve the best learning process when they interact with teaching materials, construct new materials/concepts from learning outcomes, and also interact with tutors and other learners in their learning process (Rice, 2011).

H5P is a JavaScript-based open-source application that can create rich content based on HTML5. H5P is an abbreviation for the HTML5 Package and aims to make it easier for everyone to create, share and reuse interactive HTML5 contents. Interactive videos, interactive presentations, quizzes, interactive schedules, and more features have been developed and shared using H5P on H5P.org. There are currently four platforms that can be connected to H5P namely Drupal, WordPress, Tiki, and Moodle. Some of the advantages of H5P include easy, share and reuse, mobile-friendly, rich content, and open-source (H5P, 2021) “Easy, share, and reuse” means that H5P makes it easy to create, share, and reuse HTML5 contents and applications. H5P empowers everyone to create rich and interactive web experiences more efficiently. Mobile-friendly means that H5P content is responsive and mobile-friendly. In other words, users will see the same rich and interactive contents as on computers, smartphones, and tablets. Rich content means that H5P can be integrated into existing CMS and LMS applications to create richer content. With H5P, writers can create and edit interactive videos, presentations, games, advertisements, and more. Content can be imported and exported. All that is needed to view or edit H5P content is a web browser. Types and applications of H5P contents are shared here on H5P.org. H5P content can be created on websites that support H5P such as H5P.com or Drupal or WordPress sites. Open source means that H5P is a completely free and open technology, licensed under the MIT license. Demo/download, tutorial, and documentation are all available for users who want to join the community.

6. RESULTS AND DISCUSSION

This research was conducted by applying a descriptive analysis method involving twenty (20) learners in the online tutorial for the Listening III Course at UT. An observation was used to describe the materials online questionnaire was used to gain the information about the learners’ perceptions. Furthermore, a virtual forum group discussion (FGD) was conducted in order to have learners’ further information about the use of H5P to enhance their listening skills.

6.1 The Description of Using H5P for Listening at UT

The use of H5P is expected to enhance students’ listening skills with its interactive activities completed with tutor’s feedback to help learners in their self-learning as well. The following is the results of observation in the Listening III Course in the period of 2020 (Figure 1).

The implementation of online tutorials (tuition) at UT in 2020 utilizes Moodle 3.7 version. Thus, it is expected that the There are five types of H5P quizzes offered to learners. First, Drag and Drop type of listening activities allow tutors can optimize their creativity, especially in the use of features or plugins that are integrated with Moodle. The following is the timeline for the online tutorial of the Listening III Course conducted in 2020 (Table 1). Table 1 shows that there were eight sessions in the online tutorial for the Listening III Course and each session has different quizzes that learners had to complete.

learners to associate two or more elements and to make logical relationships in a visual way. Creating
Drag and Drop quizzes use text and images as an alternative to being draggable. H5P Drag and Drop support multiple drag-to-drop zone combinations; one-to-one, one-to-many, many-to-one, and many-to-many. The Drag and Drop type can be used independently, but can also be included in: Course Presentation, Interactive Video, Question Set or Column.

Figure 1: The Introduction of Using H5P in Listening III Course

![Quiz](image)

Welcome to the QUIZ session. In the quiz session on week 1 up to week 8, you will experience some listening activities using H5P. It is an application for interactive learning activities in order to help learners enhance their language skills, including listening skills. You will try some types of exercises in the form of 'multiple choice', 'drag and drop' and 'fill in the blanks'. After you listen to the instructions or conversation, therefore, in order to get meaningful learning activities and gain the core of the materials, you are expected to activity all the quizzes. In the seventh week, the tutors are going to send all the students enrolled in tuition of Listening III an online questionnaire. We are very grateful if you are all actively engaged in the online survey of "using H5P".

Please click [here](link) (at the upper-left of this quiz) to start the quiz.

Thank you and have joyful learning!

Listen to the recording and drag the correct words or numbers to the appropriate gap.

NOTE: if you are using a tablet to take this quiz, drag and drop activities can be completed by tapping once on the text box and then tapping and dragging it to the appropriate space. The words will magnify when you click on them.

Table 1: Mapping of H5P Quiz Material on the Listening III Online Tutorial

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Topics</th>
<th>Quiz Title</th>
<th>Quiz Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Listening for Main Idea and Details</td>
<td>Form information details</td>
<td>Drag and Drop</td>
</tr>
<tr>
<td>2</td>
<td>Reconstructing Context</td>
<td>Reconstructing Context</td>
<td>Drag the word</td>
</tr>
<tr>
<td>3</td>
<td>Redescribing Objects</td>
<td>Who's who in the office 1</td>
<td>True and False</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Who's who in the office 2</td>
<td>Drag the word</td>
</tr>
<tr>
<td>4</td>
<td>Following Oral Instructions</td>
<td>Following Oral Instructions</td>
<td>Drag and Drop</td>
</tr>
<tr>
<td>5</td>
<td>Developing Diagrams/Charts</td>
<td>Developing Diagrams/Charts</td>
<td>Drag and Drop</td>
</tr>
<tr>
<td>6</td>
<td>Interpreting Speaker's Opinion/Attitude</td>
<td>Interpreting speakers' agreement</td>
<td>Drag and Drop</td>
</tr>
<tr>
<td>7</td>
<td>Identifying people's Mood/Tone</td>
<td>Film Review 1</td>
<td>Drag and Drop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Film Review 2</td>
<td></td>
</tr>
</tbody>
</table>
Sessions | Topics | Quiz Title | Quiz Types
---|---|---|---
8 | Completing Notes and Making Summaries | Let's do the exercises based on the recording you just heard! | Fill in the blanks
| | Completing Notes and Making Summaries 1 | Drag the word
| | Completing Notes and Making Summaries 2 | Multiple Choice

Second, **Drag the Words** allows content creators to create textual expressions with missing pieces of text. The end-user drags the missing piece of text to the correct place, to form a complete expression. It can also be used to check if the user remembers the text he has read, or if he understands something. Besides, it helps users think of text. It is easy to drag the word on the H5P. The content editors/speaker only writes text and wraps the words to be dragged with an asterix such as *draggableWord* *. Third, another feature that can help users is **entering feedback**. Instructions can be added to any missing pieces of text. Meanwhile, the answer words can be in the form of presentation, interactive video, and question set content type. Fourth, **Multiple Choice Questions type** consists of questions that can be an effective assessment tool. Users are given immediate performance feedback. The H5P multiple choice questions can have one or more correct choices per question. Fifth, **True and False** type consists of questions that are simple or straightforward content types that can work on their own or be combined into other content types such as course presentations. More complex questions can be created by adding pictures or videos.

The last is **Fill in the blanks type**. The user fills in the missing words in a text. Users are shown the solution after filling in all the missing words, or after each word depending on the setting and filling in the feedback. The tutor enters text and marks the words to be replaced with an Asterix. In addition to learning mother tongue and second language, blank fields can be used to test learners’ ability to reproduce facts or generate mathematical conclusions.

### 6.2 Students’ perceptions towards interactive digital materials using Moodle-based H5P Features in the Listening III Course at Universitas Terbuka

Students’ perceptions were obtained from two sources of information, namely through an online survey using questionnaires and a virtual focus group discussion (FGD). The online The questionnaire is divided into two main parts consisting of several statements or questions, namely student identity (1-10) and student perceptions questionnaire uses an online application, i.e. Surveymonkey.com that researchers did not experience difficulties in distributing the questionnaire. about the use of H5P as a form of quizzes in the online tutorial of Listening III Course.

### 6.3 Results of Online Questionnaire Analysis

The implementation of interactive quizzes using H5P was used by students in the first semester of 2020 and was followed by three online
classes of the Listening III Course (May-June 2020). Due to the lack of respondents in this semester, the online survey was continued in the next semester (September-November 2020) followed by two classes of the Listening III Course. The sample of respondents in this study was shown in Figure 2.

Figure 2: Distribution of respondents’ areas

Based on the diagram, the survey participants were dominated by learners from Java, namely from UT regional offices of Bandung, Malang, Yogyakarta, Purwokerto, Jakarta, and several other areas, while outside Java Island there were students who participated, namely from Kendari, Ambon, Bandarlampung, and Pontianak. In terms of learners’ prior knowledge about the use of H5P for weekly quizzes, 60% of them stated that they already knew and worked on the quiz as described in Figure 3.

Figure 3: Students’ Understanding of HP Content
Several respondents added that their preferred type of quiz is the *Drag and drop quizzes* type. One learner explained that "she always does the quizzes in the Listening III Course every week, but she does not notice very well about H5P". This means that she did all the quizzes but did not observe the type of the quizzes. On the other hand, there were other learners who stated that "they kept working on quizzes since they are fun like game models, so they did not get bored". It can be interpreted that students feel happy doing quizzes in the form of H5P.

The experience of students working on quizzes using H5P is one of the focuses of attention of researchers. The utilization of H5P has been recently introduced to UT tutors in addition to utilizing other features or plugins in the Moodle. Figure 4 depicts learners' experiences related to the use of H5P on the Listening III quizzes.

Figure 5 shows that as many as 17 people or 85% of learners stated that doing quizzes in the H5P plugins was their first experience, while 15% stated that they had encountered quizzes with H5P. This implies that H5P has not been widely used by tutors at UT, especially in the English Education study program. The following is an explanation of the extent to which students are actively working on quizzes in the available H5P format. Figure 5 shows that 20% learners stated that they did not complete the available quizzes, while 16 people or 80% showed their enthusiasm by actively working on the weekly quizzes available in the form of H5P.

**Figure 4**: Learning Experiences with H5P
Access to Moodle-based features in UT’s online learning is another consideration for learners’ successful learning activities. Therefore, accessibility to H5P quizzes of the Listening III Course has been one important aspect to discuss. The Figure 6 is the results of learners’ accessibility to the H5P quizzes.
Judging from its convenience, as many as 15 learners or 75% stated that they could access H5P very easily, while others expressed disagreement with the opinion that accessing H5P was easy.

The relevance of the H5P materials with the discussion topics of the weekly sessions is very important for learners in facilitating them achieve their listening competencies. As tutors prepared the tutorial guidelines, they had to ensure that the materials, including the quizzes available for learners, fulfilled the learners’ needs. For example, preparing the listening quizzes for the topic discussion of following oral instructions, the tutor needs to provide listening activities consisting of procedures of doing something. The following chart is the result of the online survey regarding the relevance between H5P materials for quizzes and the weekly topics of discussion.

Figure 7 shows that the relevance of the H5P material to the discussion topics discussed in the related week is good and as many as 95% of learners agree, while one learner states that the H5P material is not relevant to the topic of discussion each week. One principle of providing online learning activities is considering whether the materials given to learners are interesting. The following charts shows the learners’ perceptions about the interesting materials. From Figure 7, as many as 95% of learners agreed that the H5P quiz materials were interesting and only one person said the H5P materials were not interesting.
**Figure 7: Relevance of H5P Material to Discussion Topics**

The Figure 8 shows the result of learners’ opinion about the varied materials available in H5P quizzes in the online tutorial of the Listening III Course.

**The quizzes available in the tuton are interesting.**

**Figure 8: Attractive H5P Materials**
Figure 9 shows that 100% of students agreed that the quiz material in the H5P format was quite varied. Feedback is also one aspect that shows characteristics in the application of a distance learning system where students are expected to be able to carry out self-assessments of the process of working on the available quiz questions.

![Variations of H5P Material](image)

**Figure 9: Variations of H5P Materials**

Figure 10 shows how students think about the benefits of the H5P quiz in the tutorial for Listening III. Regarding the tutor’s feedback given in the H5P quizzes, as many as 16 people or 80% of learners stated that feedback was very useful, while 20% stated that the feedback was not very useful.

![Benefits of Feedback on the H5P](image)

**Figure 10: Benefits of Feedback on the H5P**
Figure 11 states that 19 students or 95% stated that they agreed with the presentation of the images and the questions presented on the quiz with H5P were interesting. There is one person who disagrees with the statement that the presentation of images and questions with H5P is interesting.

At the end of the survey, various obstacles experienced by students were discussed when operating the H5P with the results as shown in Figure 12. The obstacles that are often experienced by students are the difficulty of accessing the H5P and the time constraints that are long enough to operate the H5P.

If you get difficulties, choose the following reasons (you can choose more than one choice).

Figure 12. Learners’ Difficulties in Operating H5P quizzes

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I could not access the quizzes.</td>
<td>30.77%  1</td>
</tr>
<tr>
<td>I did not know how to operate the quizzes with H5P.</td>
<td>7.69%  1</td>
</tr>
<tr>
<td>I did not understand the instructions.</td>
<td>23.08%  3</td>
</tr>
<tr>
<td>The quizzes need a big Internet package to access.</td>
<td>7.69%  1</td>
</tr>
<tr>
<td>It takes a long time to operate.</td>
<td>30.77%  4</td>
</tr>
<tr>
<td>Others...</td>
<td>23.08%  3</td>
</tr>
</tbody>
</table>

Total Respondents: 13
6.4 Results of the Analysis of the Focus Group Discussion (FGD)

A virtual focus group discussion (FGD) was held on November 20, 2020 by involving five learners who had actively participated in the previous online survey (Figure 13). The FGD took about 90 minutes to deepen the learners' perceptions as stated in the questionnaires. There are three main agendas in the FGD i.e., 1) presentation about H5P in brief by the researcher, 2) discussion, and 3) participants’ recommendations.

The FGD was conducted successfully since all the participants were very active in the discussion. The researcher started the FGD by presenting some information regarding the practice of H5P for listening quizzes and its benefits for learners. Each participant was given time to share their ideas and experiences in doing H5P quizzes. Moreover, they were also invited to address their recommendations or suggestions for the researchers regarding the practice of H5P for enhancing listening skills.

Table 2 is the summary of the FGD results based on the question guide prepared by the researcher prior to the implementation of the FGD. Based on the results of both the online survey and the FGD, there are many benefits of implementing H5P for online learning taken by institutions, tutors, and learners. From the institutional points of view, the implementation of H5P integrated with Moodle has been an inspiration to bring UT to be more innovative, while for tutors this can be another way of being creative in providing learners with meaningful listening activities. The results of this research also show that learners were satisfied with their learning experiences in enhancing their listening skills. This is in line with the research results conducted by (Wicaksono et al., 2021) that “there are two main benefits of using H5P in teaching English i.e., 1) its positive impacts on learners’ achievements and 2) its adaptability and the ease of application” (Wicaksono et al., 2021). Thus, it is important to continue and develop the learning activities using H5P, especially for language skills.
Table 2: Learners’ Experiences and Opinions about H5P Quizzes for Listening

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>All learners tried and completed the available quizzes using H5P.</td>
</tr>
<tr>
<td>2</td>
<td>All learners operated H5P easily and there were no system or network problems.</td>
</tr>
<tr>
<td>3</td>
<td>The first experience for all learners working on the H5P quizzes were from the Listening III Course, and not on any other courses.</td>
</tr>
<tr>
<td>4</td>
<td>Learners were excited in working on the H5P quizzes because it is very fun and interesting.</td>
</tr>
<tr>
<td>5</td>
<td>Learners who have profession as teachers were interested to developed quizzes using H5P plugin to be implemented for their own students in their schools.</td>
</tr>
<tr>
<td>6</td>
<td>There is a type of question from the H5P, namely interactive video which is very interesting because the video can be played by inserting the questions or inserting the material on the video. And make sure the user answers correctly and then he can continue the video. They are interested to try it too and can be included in other online courses.</td>
</tr>
<tr>
<td>7</td>
<td>Learners were interested in the listening course this time because it is varied.</td>
</tr>
<tr>
<td>8</td>
<td>Learners liked the type of Drag and Drop questions the most, because when working directly the correct answers are seen and can also see the feedback. By answering questions after listening-to-listening materials, learners can hone their listening for the truth of listening material that is heard and understand the material</td>
</tr>
<tr>
<td>9</td>
<td>Quiz questions can train the independence of learners to test their material abilities by implementing variously available quizzes and their feedback.</td>
</tr>
<tr>
<td>10</td>
<td>All learners are not bored with the presentation of the H5P quizzes.</td>
</tr>
<tr>
<td>11</td>
<td>A note from one learner involved in FGD suggested that the materials on the listening III online class have been given on the previous course. But for the previous semester, the tutor did not use H5P, while this semester the presentation material uses H5P. Possibly the material is the same, but the presentation method is different and the learning outcomes are different. Repetition of material may occur.</td>
</tr>
<tr>
<td>12</td>
<td>In the filling in the blank type, the tutor should input feedback or the key answer/word to help learners as a reference for answering.</td>
</tr>
<tr>
<td>13</td>
<td>H5P was integrated with Moodle so it has to be operated with an internet connection or online. Moreover, it cannot be downloaded. But it can be shared with other learners or tutors.</td>
</tr>
<tr>
<td>14</td>
<td>H5P is friendly for mobile devices and must be integrated with other platforms, such as Moodle. H5p is not a standalone application.</td>
</tr>
<tr>
<td>15</td>
<td>H5P is an open-source application that can be used and is based on HTML5.</td>
</tr>
<tr>
<td>16</td>
<td>The interactive video type on H5P is a type of quiz question that is the most unique from other question types in other applications.</td>
</tr>
<tr>
<td>17</td>
<td>Live quiz session using H5Pw needs to be created together with tutors and students live because there is no synchronous activity on this course.</td>
</tr>
</tbody>
</table>
18. Learners suggested researchers of using other interactive tools besides H5p to vary the presentation of online tutorials materials.

19. The FGD participants were also interested in learning Moodle class management and materials from UT as an Open University.

7. CONCLUSIONS

Interactive contents using the H5p quizzes in the Listening III Course have shown that it is quite effective for providing meaningful and authentic learning experiences to learners. Even so, some learners still face obstacles in using or viewing H5P interactive content. The biggest obstacle experienced by students is the network, which prevents students from fully utilizing H5P’s inactive content for learning. The positive feedback given by the learners during the FGD was that they were very satisfied, and they expected that such content would be added to the variations, and also applied to other classes as well as other language skills.

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EXPLORING THE RESEARCH TRAJECTORIES OF SENIOR ACADEMICS: A QUALITATIVE STUDY AT THE OPEN UNIVERSITY OF SRI LANKA

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Abstract

Research plays an important role in academia and it is considered a major agent of transformation in universities and higher education institutes. The academics who are attached to the six faculties and the centres of The Open University of Sri Lanka (OUSL) also engage in research in diverse fields. However, in-depth studies of the research experiences of these academics are scarce to the researchers’ knowledge. The main objective of this qualitative in-depth study is to explore the trajectories of senior academics’ research. The study adopted a qualitative research design and in-depth interviews were conducted with a purposive sample of 10 senior academics from different faculties at OUSL. The interviews were audio-recorded with the informants’ consent and the interviews were transcribed verbatim and coded independently by two coders. The data was analyzed using Braun and Clarke’s (2006) thematic analysis approach. The findings revealed complexities in OUSL academics’ research interests, their views about Open and Distance Learning (ODL) research, and the challenges they face in conducting research and dissemination of their research findings. The study shows the importance of both discipline-based and systemic research in an ODL institution and stresses the need to provide due recognition for ODL research as it informs policy and practice of ODL.

1. INTRODUCTION

In a world which is subject to rapid transformation, research has become indispensable in all spheres including education. This is especially the case in relation to Higher Education. It is imperative for faculty in universities and higher education institutes to engage in research, seek new knowledge and disseminate research findings. Research publications of academics are a major component in the criteria for quality assurance mechanisms such as institutional reviews and program reviews. The quality and quantity of research play a major role in university rankings as well. As Kanwer (2014) states, an institutional research culture results in three things: develops an environment of creativity and innovation, values research and encourages researchers through rewards, and uses research findings to...
inform policy and practice towards the improvement of the institution continuously. Such research culture is important for Open and Distance Learning (ODL) as it is a continuously evolving field. This evolving nature requires ODL institutions to upgrade themselves regularly to face the challenge of new demands and expectations. While research is important in informing policy and practice at institutional level, it is required for career progression of individual academics as well. Hence, it is important to review research done in ODL contexts and identify research trends. How individual academics make decisions on their research and reasons behind such decisions are worth studying.

1.1 Previous Studies on Research Experience of Academics

Research trends and research experience of university academics have been studied by a few researchers. The foci of these studies include factors affecting research productivity and motivation to conduct research. Creswell (2002) classifies factors affecting academics’ research productivity into two main categories: a) ones that focus on individual characteristics, such as ability, stamina, personality, gender, age and years of experience and self-efficacy and b) ones that are related to environmental factors such as departmental size, resources, teaching load, research support and culture. Bland et al. (2002) studied the factors affecting research productivity of medical school academics and found that inadequate time for engaging in scholarly research and lack of a suitable atmosphere as main barriers for research. Another study by Bland et al. (2005) found that sufficient time, intrinsic motivation, formal mentorship, a culture that values research, and a network of external colleagues are factors that result in high research productivity.

The importance of a broad social network for enhancing research productivity of academics has been stressed by Santo et al. (2009). They found that “faculty members who were limiting their network to division or school members were less productive than those who had a network of colleague with their field” (p. 126). A study by Zhang (2014) investigated the factors affecting research motivation and productivity of academics at different levels in Chinese universities, and found that the motivation factors change over time and they differ at different academic levels, especially when they get promoted to higher levels. The trend was a gradual change from extrinsic to intrinsic factors.

1.2 Research Trends in Open and Distance Learning (ODL)

Previous studies on research trends in ODL are mostly meta-analyses of articles published in a selected set of journals related to open and distance education (Berge and Mrozowski, 2001; Lee et al., 2004; Wong, et al., 2016; Zawacki-Richter, 2009). While some studies review research irrespective of the country of origin, there are others which focus on research carried out in a single country. Lee et al. (2004) analyzed research articles published in four scholarly journals between 1997 and 2002 and they classified the topics into six categories, namely, general and specific research topics, research methods adopted, statistical methods used in experimental studies, citations of authors and books and articles cited. Zawacki-Richter et al., (2009) reviewed journal articles published in five distance education journals from 2000 to 2008 attempted to identify the research areas and research trends in distance education research. Their seminal work resulted in a classification system for research in distance education and according to their system, research could be classified into three broad categories, namely, macro level (distance education systems and theories), meso level (management, organization, and technology), and micro level (teaching and learning in distance education). Their findings
revealed that the focus was mainly on micro-level and the meso and macro level research were under-represented. Bozkurt et al. (2015) reviewing 861 research articles in ODL journals published between 2009 and 2013 to identify research trends in ODL also found that those studies have also focused mainly on micro-level. The study also revealed that there was an increase in multiple author articles in comparison to single author articles.

Srivastava et al. (2020) reviewed research articles published in 11 peer-reviewed journals dedicated to Open and Distance Learning. The focus of this study was to analyze the research trends on open and distance education in India. They found that only 7.42% of the total number of articles published were on open and distance education in India and they were mostly published in Indian journals. They also found that the single author publications were higher than multiple author publications, a finding which is different from that of Zawacki-Richter et al. (2009). According to Srivastava et al. (2020) this can be attributed to the type of research conducted by these researchers “which was mostly system based, directed towards policy formulations or representation of learner support services data, where most of the researchers carried out solitary research in their own domains.” (pp. 270-271). Srivastava et al. (2020) state that researchers in open universities in India need “adequate financial resources for research, capacity building activities, incentive for research and most pertinently, government support” and they stress that “the onus is on the government as well as ODE institutions to encourage research at the university, both systemic and discipline based.” (p. 280).

While research trends in ODL have been investigated through bibliometrics, there are not many studies that have studied the research experiences and trends of individual academics in an ODL institution. A recent study by De Silva (2020) on research publication experience of academics at the OUSL revealed that her research sample experienced publication pressure which has both positive and negative effects on academics. The study also found that lack of resources, facilities, and time affect quantity and quality of research publication of OUSL academics. De Silva (2020) stressed that creating a supportive research culture in the institution would result in intrinsic motivation of academics towards research and this would encourage researchers to engage in high quality research rather than mass production of low-quality research to meet external requirements like promotions, allowances, and awards.

The literature review showed that in-depth and qualitative studies on research trends of academics and their individual decision-making processes are scarce. The main objective of this in-depth study is to explore the trajectories of academics’ research journeys and to explore the reason and motivation for evolving trends. They provide information regarding individuals’ stories regarding research histories which adds a different dimension to the meta-analyses that have been conducted.

Hence, the present study attempted to investigate the following research questions.

- What are the current research trends of a sample of senior academics at OUSL?
- How have senior academics’ research interests changed over time?
- What are the reasons for these changes?
- What are the challenges faced by the sample in conducting research? What are their suggestions to overcome these challenges?
2. SAMPLE

The sample was a purposive sample and it consisted of senior academics of OUSL who had 18-33 years of experience. The sample consisted of senior academics from five faculties, namely, Engineering Technology, Natural Science, Humanities and Social Sciences, Education, and Management and specialized centres. There were two senior professors, four professors, and four senior lecturers.

3. RESEARCH METHODOLOGY

The study adopted a purely qualitative research design. Semi-structured interviews were conducted with the sample using an interview schedule. Some interviews were conducted face to face while others were conducted via Zoom due to the prevailing health guidelines. The interviews were recorded with participants' consent and they were transcribed verbatim. The transcripts were coded independently by two researchers and the themes were finalized after discussion following the six-step process outlined by Braun and Clarke (2006) familiarization with data, generating initial codes, searching for themes, reviewing themes, defining themes and writing up.

4. RESULTS

The themes that emerged from the coding of the interview data are set out below. The major themes along with the sub themes are presented.

4.1 Current research trends

The interviews revealed the current research trends and interests of the participant of this sample. Several of the senior academics had started their research careers in their specific subject areas and had then transitioned in to ODL research for a range of reasons. Other participants had managed to combine their disciplinary interests with ODL issues while others continued to primarily research in their disciplinary areas.

Out of the ten (10) informants, two claimed that their research is mainly discipline-based. They believe that engaging in research in their own discipline supports them in their teaching and professional development. These informants claim that even though they have some interest in ODL research, they have not pursued it further as there are several established ODL researchers in the institution. Therefore, they felt that carving a niche for them in ODL will be challenging.

Another senior academic stated that some faculties do not consider ODL based research for promotional purposes and therefore some academics tend to confine themselves to research in their own discipline. Four informants in the sample were found to be engaging in both ODL related research and discipline-based research. There were informants who claimed that their discipline was connected to ODL and hence what they did was interdisciplinary anyway.

A major trend observed in the sample was that there is an interest towards purely ODL research. The most senior academics in the sample were found to be engaging in pure ODL research and the main areas of research included learner support, Educational technology, Open Education Resources, and learning analytics. They were interested in innovative interventions in learner support such as PASS (Peer Assisted Student Support) and EfIL (Empowerment for Independent Learning).
4.2 Changes in research trends and reasons for change

Almost all the participants in the research were involved in various degrees in ODL based research and cited diverse reasons for their involvement in this particular field. Many of the participant’s had started in disciplinary based research and had integrated ODL research for a variety of reasons. In many cases this required significant changes in the fields of research.

4.2.1 Facing institutional challenges

Many of the participants saw ODL research as a means of exploring the key challenges faced by the university in relation to various aspects of program development and delivery.

But since we are in ODL and the issues we are facing it is important for academics to do ODL research. If not we cannot tackle the problems we are facing and the students are facing. (R1)

If we are doing research that is linked to your practice, then it becomes very useful and relevant to you. So, my research is always integrated in to teaching, courses and students(R3)

It is much better to do something directly useful to the institution so that is why I started doing research in DE (R2)

It was also important to note that many of the researchers switched to ODL based research as their roles in the university changes from being primarily academic in disciplinary areas to senior administrators in key positions across the university. These changes allowed such academics to get a more in-depth understanding of the issues that face the institution and the importance of research-based solutions.

4.2.2 Context specific challenges

While there is a recognition that they are part of the larger community of ODL practitioners there was also an acknowledgement of the need for localized context specific solutions which required research. We are a community of ODL. We can't just borrow the things from abroad. We have to do our own thing in our context and for that we need research. We must start and encourage the other people to come and join us. There is a lot of research. (R4)

Some of the participants were able to identify very specific areas that they felt required attention. Mainly I got interested in retention. I was shocked in to see the pass rate. In the University I worked before, I hardly knew people who dropped out may be 95% people get the degree. Here In my courses the input-output ratio was about 16%- 20%. (R2)

4.2.3 Informed stance

There were also some academics who believed that it was important for all academics to be interested in ODL research because it meant that you could take and informed stances on teaching in the university. For a long time I believed that I would be a disciplinary researcher—and I was proud of it. But I later realized that we are an ODL institution and therefore I need to explore it and least have an opinion on it (R5)

There were others who believed that ODL researcher was constantly evolving and that it offered more changes for transformation rather than maintaining disciplinary focus.
a) Pragmatic reasons
For some the academics involved ODL research offered a viable and vibrant alternative to their own disciplinary area which they felt could not be supported by the infrastructure in Sri Lanka and that therefore it was necessary to switch to field that could be supported. In such a scenario ODL offered a pragmatic and viable option to continue their research. Unfortunately, in Sri Lanka we don’t have large-scale testing facilities also I switched over to doing DE research – in the recent past my research has been with ODL and OER concepts. It was a practical decision. (R1)

b) The importance of mentors
Many of the researchers interviewed commented on the role of senior academics who were responsible for introducing them to research when they joined the university. They felt that this was a very significant part of their research journey in the field of ODL as well as their disciplinary research.

Yes, at the beginning by getting us involved in research. Prof… did a lot of national and international research and got us to do things like data collection and analysis which helped develop our skills. (R3)

She was a very active researcher and she always involved young people – so there was a kind of research culture. (R5)

They also noted that that when they themselves became senior academics that they tried to emulate these role models by creating similar opportunities for their junior colleagues.

I am trying to create that culture with the young academics. When you have senior mentors, you get the chance to get experience that is how I developed as an academic. (R3)

c) The role of students
Among the factors that affected the choice of research areas was the impact of students and their research. Some of the researchers commented on the role played by undergraduates and graduate students in determining their research agendas. One senior researcher who had transitioned to ODL research which had disciplinary elements noted that research supervision helped her to keep in touch with disciplinary based research as well.

Actually, I was forced into research when my mentor left the university. He left me with his postgraduate students. From 2006 I had a PhD supervisee. I was not doing research on my own but this supervision kept me in touch with research.

Final year students do disciplinary based research. So I keep in touch in that way. (R6)

d) Networking and Collaboration
Some informants stated the importance of research collaboration with local and international researchers. They believe that attending international conferences expands networking opportunities with experts in the field and that has positive outcomes towards individual and institutional development.

4.2.3 Challenges faced by researchers

a) Status of ODL research
The interviews revealed that there were many challenges faced by researchers especially in relation to ODL research. One of the major issues that was the ambiguous status of ODL research in
the university as well as in the wider academic context. While ODL research is encouraged in the OUSL there are questions as to its worth. The status of ODL research in relation to issues such as promotional prospects remains very ambivalent.

Even the recent promotion scheme asks for subject specific research. This is problematic. For OUSL staff ODL research must also be considered a subject area. (R1)

This raises the issue that ODL research occupies a problematic status in the university itself. In relation to issues like career prospects ODL research seemed to occupy a negligible position. The problem is further exacerbated in the wider academic context where the focus is very much on disciplinary research. Therefore, for academics wanting to maintain their standing in the academic community what mattered was their ability to produce high quality disciplinary research.

If you look at the science faculty for example, they prefer to do subject-based research. One reason may be that their colleagues in other universities do that kind of research- so there is pressure. Also, funds are given by the Funding bodies is for those disciplines (R2)

Some researchers also felt that the position of ODL research seemed to depend on the viewpoints and support given by the administration – that at sometimes in the history of the university there was a high position given to ODL research which led to many new interventions. It was noted that during the DFID project the OUSL journal was established. However, this interest has not always been consistent.

The interviews revealed that a recent decision to re-establish the Committee for Research Advice on Distance Education (CRADE) in the university has created new enthusiasm among academics to engage in ODL research to a certain extent.

5. DISCUSSION AND CONCLUSIONS

The present qualitative study attempted to explore research experience of a sample of senior academics at The Open University of Sri Lanka through their self-reported research trajectories. The study revealed the complexity of the decision-making process regarding research. Most of the informants (80%) showed motivation and interest towards both discipline-based and ODL research leading to institutional development. Srivastava et al. (2020) also stresses the need to support both systemic and discipline-based research in an ODL institution.

Another issue that was discussed was the fact that there was also no sustained agenda for ODL research. It was noted that that there should be a long term commitment to investigating issues pertaining to ODL.

When someone comes like (... foreign consultant)- then we get motivated and then everything dies down. Subject specific things are not like that people apply for grants – once you get a grant you have to do it. For ODL research it is not like that. (R4)

The reasons and motivation for research of senior academics at OUSL included institutional and context-specific challenges, informed stance on teaching, influence of mentors and students, availability of resources, and networking and collaboration with local and international researchers (Bland et al.,2005 Santo, et al.,2009). While acknowledging the time and resource constraints faced by many academics in the system (Bland, et al., 2002; De Silva, 2020), the majority of the senior academics had faced these challenges effectively and engaged in research that directly contributed towards institutional development. They used their maturity
and experience in experimenting with interventions for learner support like PASS and EFIL and promoting new areas like Open Education Resources (OER) and Open Education Practices (OEP). The informants were hopeful about a better research culture in the institution as they see the revival and repositioning of Committee for Research Advice on Distance Education (CRAD) as a catalyst for systemic research. The study signifies the value of qualitative studies in discovering nuances in research trajectories of academics in ODL and it reveals the unique nature of ODL academics who cannot limit themselves to discipline-based research but are drawn towards system-based research which will not only inform their own teaching but also the domain of Open and Distance Learning.

ACKNOWLEDGEMENTS

We acknowledge the support given by the senior academics of The Open University of Sri Lanka by agreeing to be informants of this study.

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THE VALIDITY OF THE QUALITY ASSESSMENT TOOLS USED AT THE OPEN UNIVERSITY OF SRI LANKA

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Abstract

Student evaluations of faculty teaching have four recognized functions. They provide diagnostic feedback for faculty, an evaluative tool for personnel decisions, information for students, and a subject for academic research. Teaching quality is an important criterion to assess in higher education. Students and their parents demand high-quality teaching, and teachers and department heads need good measures of teaching quality. Its importance begs the question of whether current teaching assessments provide reliable data on teaching effectiveness. The objective of this study is to examine the ratings of students on the quality of teaching and to assess the validity of the quality assessment tools used in The Open University of Sri Lanka. The student feedback form for Day School evaluation, a 16-item questionnaire, was administered among 345 undergraduate students from the Faculty of Health Sciences, which includes Departments of Nursing, Pharmacy, Basic sciences, Psychology and Counselling, and Medical Laboratory Sciences, to evaluate their teaching and learning experiences in the programme. The proportion of the students was only 16% out of the population due to the low attendance of students in the last days of Day Schools. The items in the questionnaire were measured on a five-point Likert scale, where 1 indicated ‘Strong Disagreement’ and 5 indicated ‘Strongly Agreement’ to the statement. The data were analyzed using statistical software, SPSS, version 21. The internal consistency reliability was assessed using Cronbach’s alpha coefficient and item-to-total correlations. Cronbach’s alpha of more than 0.7 indicates that Student feedback on Day School is reliable. Construct validity was evaluated using Exploratory Factor Analysis (EFA), and it was used to check if all items could be reduced into a smaller dimension. Factor loading of 0.4 was used as the cut-off point in order to check the redundant items. The conclusion of this study showed that the student feedback form on Day School is a valid instrument in evaluating teaching effectiveness. The items of the questionnaire were validated and extracted into two factors. Through this model it could be argued that the student feedback form on Day School has construct validity but lacks content validity, as some of the items does not measure teaching effectiveness. It is suggested to develop a more comprehensive instrument as a valid tool to measure teaching effectiveness in the institution, particularly focusing on content validity.
1. INTRODUCTION

Teaching quality can be measured in different ways and by tapping different sources. The most common way to measure teaching quality in higher education is through student evaluations of teachers (Ben-Chaim, D. et al., 2001). In most cases, student evaluations of teaching quality are obtained via evaluation questionnaires. In higher education, student ratings are often used to evaluate and improve the quality of courses and lecturers’ instructional skills. Unfortunately, student-rating questionnaires rarely generate specific feedback for lecturers to improve their instructional skills. Peterson et al. (2000) found that student perception questionnaires used at various levels of the education system (primary school, middle school, and high school) were reliable and valid teacher evaluation measures (Daniela Feistauer, 2017). Determining teaching quality reliably and validly serves as an important measure for improvement and accountability purposes.

Quality can be considered to have three components- internal validity (risk of bias), external validity (applicability/variability), and reporting quality. The quality of studies evaluated will depend on them being sufficiently well-designed and conducted to be able to provide reliable results. Poor design of conduct or analysis can introduce bias or systematic error affecting study results and conclusions, which affects internal validity. External validity or the applicability of the study to the review question is also an important component of study quality. Reporting quality relates to how well the study is reported. It is difficult to assess other components of study quality if the study is not reported with an appropriate level of details (Whiting et al., 2017).

Quality assessment is central to good teaching and is inevitably a key component in learning environments that facilitate students’ learning with understanding (Donovan and Bransford, 2005). Validity, including reliability and manageability are key principles underpinning quality assessment and, from these principles, specific descriptors of practice have been formulated. Assessment practice impacts students and teachers at many levels, including the way curriculum is presented and the ways teachers operate in classrooms. Quality assessment practices need to include a consideration of ‘fitness for purpose’ of an assessment task/activity as well as consideration of the characteristics of the learners themselves, so that the best choices are made regarding the nature and timing of assessment (Gardner, 2006). This study focuses on finding out the validity of the quality assessment tools used in the Open University of Sri Lanka.

2. METHODOLOGY

The student feedback form for Day School evaluation, a 16-item questionnaire, was administered among 345 undergraduate students from the Faculty of Health Sciences, which includes the Departments of Nursing, Pharmacy, Basic Sciences, Psychology and Counselling, and Medical Laboratory Sciences, to evaluate their teaching and learning experiences in their study programme. The proportion of the students was only 16% out of the population due to the low attendance of students in the last days of day schools. The items in the questionnaire were measured using a five-point Likert scale, where 1 indicated ‘Strong Disagreement’ and 5 indicated ‘Strongly Agreement’ to the statement. The Google forms were also used to collect data, as well as the printed feedback forms. All collected data were recorded in Microsoft Excel. The data were analysed using statistical software, SPSS, version 21.
2.1 Data analysis

The data was imported to SPSS from Microsoft Excel. The determination of the adequacy of the exploratory factor analysis (EFA) was performed through the analysis of Bartlett's test and the Kaiser-Meyer-Olkin (KMO) measure. The KMO statistics range from 0 to 1, with values closer to 1 denoting greater adequacy of the factor analysis (KMO 0.6 low adequacy, KMO 0.7 medium adequacy, KMO 0.8 high adequacy, KMO 0.9 very high adequacy). Principal factor analysis with a Varimax rotation was used to explore the structure underlying the qualitative items. The inclusion or exclusion of an item in a construct was determined iteratively by examining factor loadings. If the factor loadings are less than 0.4, that item can be removed from the questionnaire.

3.2 Reliability test

Internal consistency reliability was assessed using Cronbach's alpha coefficient and item-to-total correlations. Cronbach's alpha was used to identify redundant items. A low Cronbach's alpha indicates a lack of correlation between the items in a scale, which makes summarizing the items unjustified. A very high Cronbach's alpha indicates high correlations among the items in the scale. An alpha value higher than 0.70 is a measure of good internal consistency. The "Cronbach's alpha if item deleted" was calculated for all the items.

3. RESULTS

3.1 Construct validity

The KMO statistic was 0.913, and the result of Bartlett's test was $p < 0.001$, which leads to a high sampling adequacy (Table 1). The principal component analysis of the resulting 16-item questionnaire was extracted in to two factors, which explained 53.2% of the variance in the data.

Table 1: KMO and Bartlett's Test

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<tr>
<th>KMO and Bartlett's Test</th>
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<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</td>
<td>0.913</td>
</tr>
<tr>
<td>Bartlett's Sphericity Test of Approx. Chi-Square</td>
<td>2361.058</td>
</tr>
<tr>
<td>df</td>
<td>120</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

The values in the extraction column indicate the proportion of each variable's variance that can be explained by the factors (Table 2). Variables having low communalities (lower than 0.40) do not contribute much to measuring the underlying factors. Such variables can be removed from the analysis.
### Table 2: Communalities

<table>
<thead>
<tr>
<th>Items</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose (objectives) of the day school was explained at the</td>
<td>0.522</td>
</tr>
<tr>
<td>commencement of the day school</td>
<td></td>
</tr>
<tr>
<td>The order of topics was sufficiently logical to help the learning</td>
<td>0.728</td>
</tr>
<tr>
<td>process</td>
<td></td>
</tr>
<tr>
<td>Subject matter was clearly explained</td>
<td>0.660</td>
</tr>
<tr>
<td>Greater emphasis was placed on the concepts difficult to understand</td>
<td>0.560</td>
</tr>
<tr>
<td>Presentation slides were useful</td>
<td>0.413</td>
</tr>
<tr>
<td>Use of blackboard/white board was effective</td>
<td>0.343</td>
</tr>
<tr>
<td>Examples were used for better explanation</td>
<td>0.466</td>
</tr>
<tr>
<td>Students were encouraged to ask questions and express their views</td>
<td>0.402</td>
</tr>
<tr>
<td>Group discussion was encouraged in the learning process</td>
<td>0.625</td>
</tr>
<tr>
<td>The lecturer was well prepared for the class</td>
<td>0.246</td>
</tr>
<tr>
<td>The lecturer came for the day school on time</td>
<td>0.142</td>
</tr>
<tr>
<td>Time management of the lecturer was good (sufficient time was spent</td>
<td>0.469</td>
</tr>
<tr>
<td>on each topic)</td>
<td></td>
</tr>
<tr>
<td>The lecture was audible (loud enough to be heard)</td>
<td>0.488</td>
</tr>
<tr>
<td>The lecturer is friendly and approachable</td>
<td>0.671</td>
</tr>
<tr>
<td>I am motivated to follow the course after attending the day school</td>
<td>0.266</td>
</tr>
<tr>
<td>Overall, I am happy that I attended the day school because I was</td>
<td>0.206</td>
</tr>
<tr>
<td>able to gain knowledge and clear my doubts</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 contains component loadings, which are the correlations between the variable and the component. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway. Therefore, some of the items can be removed from the questionnaire. They are as follows,

- The lecturer was well prepared for the class
- The lecturer came for the day school on time
- Use of blackboard/white board was effective
- I am motivated to follow the course after attending the day school
- Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts
Table 3: Component matrix (Extraction Method: Principal Component Analysis)

<table>
<thead>
<tr>
<th>Component Matrix</th>
<th>Component 1</th>
<th>Component 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose (objectives) of the day school was explained at the commencement of the day school</td>
<td>0.666</td>
<td>-0.279</td>
</tr>
<tr>
<td>The order of topics was sufficiently logical to help the learning process</td>
<td>0.832</td>
<td>-0.192</td>
</tr>
<tr>
<td>Subject matter was clearly explained</td>
<td>0.792</td>
<td>-0.179</td>
</tr>
<tr>
<td>Greater emphasis was placed on the concepts difficult to understand</td>
<td>0.493</td>
<td>0.343</td>
</tr>
<tr>
<td>Presentation slides were useful</td>
<td>0.536</td>
<td>0.158</td>
</tr>
<tr>
<td>Use of blackboard/white board was effective</td>
<td>0.363</td>
<td>0.260</td>
</tr>
<tr>
<td>Examples were used for better explanation</td>
<td>0.681</td>
<td>-0.043</td>
</tr>
<tr>
<td>Students were encouraged to ask questions and express their views</td>
<td>0.590</td>
<td>0.399</td>
</tr>
<tr>
<td>Group discussion was encouraged in the learning process</td>
<td>0.411</td>
<td>0.675</td>
</tr>
<tr>
<td>The lecturer was well prepared for the class</td>
<td>0.179</td>
<td>-0.196</td>
</tr>
<tr>
<td>The lecturer came for the day school on time</td>
<td>0.264</td>
<td>0.029</td>
</tr>
<tr>
<td>Time management of the lecturer was good (sufficient time was spent on each topic)</td>
<td>0.610</td>
<td>0.313</td>
</tr>
<tr>
<td>The lecture was audible (loud enough to be heard)</td>
<td>0.665</td>
<td>-0.214</td>
</tr>
<tr>
<td>The lecturer is friendly and approachable</td>
<td>0.789</td>
<td>-0.220</td>
</tr>
<tr>
<td>I am motivated to follow the course after attending the day school</td>
<td>0.112</td>
<td>-0.085</td>
</tr>
<tr>
<td>Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts</td>
<td>0.238</td>
<td>-0.059</td>
</tr>
</tbody>
</table>

After removing the items which have shown the low correlations with both of the factors, the EFA was done to the remaining variables (Table 4). Those 11 items can be extracted again into 2 components, as shown in Table 4. Items 1, 2, 5, 6, 9, 10 and 11 show a high correlation with the 1st component, while the others show a high correlation with the 2nd factor.
Table 4: Rotated component matrix (Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization)

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose (objectives) of the day school was explained at the commencement of the day school</td>
<td>0.766</td>
<td>0.021</td>
</tr>
<tr>
<td>The order of topics was sufficiently logical to help the learning process</td>
<td>0.844</td>
<td>0.219</td>
</tr>
<tr>
<td>Subject matter was clearly explained</td>
<td>0.239</td>
<td>0.787</td>
</tr>
<tr>
<td>Greater emphasis was placed on the concepts difficult to understand</td>
<td>0.267</td>
<td>0.546</td>
</tr>
<tr>
<td>Examples were used for better explanation</td>
<td>0.604</td>
<td>0.336</td>
</tr>
<tr>
<td>Presentation slides were useful</td>
<td>0.508</td>
<td>0.390</td>
</tr>
<tr>
<td>Students were encouraged to ask questions and express their views</td>
<td>0.168</td>
<td>0.731</td>
</tr>
<tr>
<td>Group discussion was encouraged in the learning process</td>
<td>0.037</td>
<td>0.795</td>
</tr>
<tr>
<td>Time management of the lecturer was good (sufficient time was spent on each topic)</td>
<td>0.542</td>
<td>0.388</td>
</tr>
<tr>
<td>The lecture was audible (loud enough to be heard)</td>
<td>0.670</td>
<td>0.217</td>
</tr>
<tr>
<td>The lecturer is friendly and approachable</td>
<td>0.786</td>
<td>0.211</td>
</tr>
</tbody>
</table>

3.2 Reliability analysis

The Cronbach’s alpha for the questionnaire (before removing the above items) was 0.886, which shows a high consistency of the measures.

Table 5: Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.886</td>
<td>0.911</td>
<td>16</td>
</tr>
</tbody>
</table>

By looking at the item-total correlation and “Cronbach’s Alpha if item deleted”, it can be interpreted that the alpha value is getting somewhat higher when those variables are removed, as mentioned in the exploratory factor analysis (Table 6). Therefore, we can conclude that the following items can be removed from the day school feedback form.

- The lecturer was well prepared for the class
- The lecturer came for the day school on time
- Use of blackboard/white board was effective
- I am motivated to follow the course after attending the day school
- Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts
Table 6: Item-total Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose (objectives) of the day school was explained at the commencement of the day school</td>
<td>0.561</td>
<td>0.879</td>
</tr>
<tr>
<td>The order of topics was sufficiently logical to help the learning process</td>
<td>0.744</td>
<td>0.874</td>
</tr>
<tr>
<td>Subject matter was clearly explained</td>
<td>0.706</td>
<td>0.874</td>
</tr>
<tr>
<td>Greater emphasis was placed on the concepts difficult to understand</td>
<td>0.561</td>
<td>0.874</td>
</tr>
<tr>
<td>Presentation slides were useful</td>
<td>0.587</td>
<td>0.872</td>
</tr>
<tr>
<td>Use of blackboard/white board was effective</td>
<td>0.343</td>
<td>0.899</td>
</tr>
<tr>
<td>Examples were used for better explanation</td>
<td>0.605</td>
<td>0.877</td>
</tr>
<tr>
<td>Students were encouraged to ask questions and express their views</td>
<td>0.552</td>
<td>0.882</td>
</tr>
<tr>
<td>Group discussion was encouraged in the learning process</td>
<td>0.507</td>
<td>0.882</td>
</tr>
<tr>
<td>The lecturer was well prepared for the class</td>
<td>0.385</td>
<td>0.887</td>
</tr>
<tr>
<td>The lecturer came for the day school on time</td>
<td>0.387</td>
<td>0.887</td>
</tr>
<tr>
<td>Time management of the lecturer was good (sufficient time was spent on each topic)</td>
<td>0.572</td>
<td>0.877</td>
</tr>
<tr>
<td>The lecture was audible (loud enough to be heard)</td>
<td>0.569</td>
<td>0.878</td>
</tr>
<tr>
<td>The lecturer is friendly and approachable</td>
<td>0.684</td>
<td>0.875</td>
</tr>
<tr>
<td>I am motivated to follow the course after attending the day school</td>
<td>0.425</td>
<td>0.884</td>
</tr>
<tr>
<td>Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts</td>
<td>0.461</td>
<td>0.885</td>
</tr>
</tbody>
</table>

4. DISCUSSION AND CONCLUSIONS

In this study, we investigated the validity and reliability of student perceptions of the teaching quality in undergraduate programmes conducted by the Faculty of Health Sciences and their consistency with the ratings obtained from student observers. We will first elaborate on the findings and strengths of this study. Thereafter, the limitations of this study and suggestions for further research are presented.

The present study examined the validity of student evaluations of teaching quality. Our results showed that teachers and courses were essential sources of variance for all four facets of teaching quality examined in this study.
and also for the overall ratings of courses and teachers. The evaluation of a valid and reliable assessment tool is not a trivial task (Wagner, 2013). Therefore, after studying other research in different quality assessment tools, an evaluation of the construct validity and the psychometric reliability of the questionnaire was performed. The most important aspect of this research is that, this could be the first study to develop and test a quality assessment tools used in the Open University of Sri Lanka.

We evaluated 345 questionnaires completed by undergraduate students who attended the day schools in each study programme.

The aims of the present study were to identify the validity of the day school evaluation form and evaluate the student’s perception on classroom teaching. This study showed that the student feedback form on Day School is a valid instrument in evaluating teaching effectiveness. The items of the questionnaire were validated and extracted into two factors. Through this model it could be argued that the student feedback form on Day School has construct validity but lacks content validity, as some of the items (item 6, 10, 11, 15, and 16) does not measure teaching effectiveness. It is suggested to develop a more comprehensive instrument as a valid tool to measure teaching effectiveness in the institution, particularly focusing on content validity.

4.1 Limitations of the study and recommendations for further research

In this study, a limited number of the students provided their opinion about their teachers. As attendance is not compulsory in day schools, data were collected from the students who participated in the day schools. For future research, it is suggested to investigate the comparability of both measurements in a more rigorous way: by comparing teaching quality based on student perceptions and ratings by student observers for the same lessons, and also, using the same wording and rating scales for the items. In addition, some items of the student perception questionnaire in this study did not provide much information and might be excluded in future research.

ACKNOWLEDGEMENTS

We thank all the students who participated in this research.

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ODL FOR RURAL MASSES AND THE USE OF COMMUNITY RADIO AS AN ALTERNATIVE MECHANISM TO REACH THE UNREACHED: AN EMPIRICAL STUDY OF “JNAN TARANGA” COMMUNITY RADIO SERVICE, GUWAHATI, ASSAM, INDIA

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Keywords:
Community Radio (CR) Service, Digital divide, E-material, Equity and social inclusion, Jnan Taranga CR Station, ODL mode of education

Abstract
Learning material in various forms is one of the main pillars in ODL mode of education, where e-material acquires a high demand in the present age. The percentage of usage of e-material is high in developed countries as compared to that of developing countries. This is because they could be disseminated to the learner at the grassroots with high-speed smart phones, computers, internet connectivity etc. However, affordability of such instruments and its accessories is a major issue in the developing world, where only a microscopic minority has access to the smart devices. A study stated that in a developing country like India, the smartphone users were 12% in 2018 and 13.8% in 2019. ODL in spite of its commitment to equity and social inclusion has become biased in favour of economically privileged class. This is the digital divide and the ODL institutes have to think of an alternative mechanism and give emphasis to the formulation of an effective education policy involving inexpensive and affordable devices. In this context, this paper seeks to explore the possibility of making Community Radio (CR) Service a genuine alternative to that of the existing smart devices. This study has an empirical reference to that of Jnan Taranga CR Station, patronized by Krishna Kanta Handiqui State Open University (KKHSOU), Guwahati, Assam, India. Specific focus would be made to formulate a strategic plan with emphasis on restructuring, rationalization of application process, community orientation and funding dimensions, so that India and the rest of the developing world could make an effective use of CR services for dissemination purpose. It may further be stated here that amidst the Covid-19 pandemic all over the world, the need for such an inexpensive structure for dissemination has become of utmost importance.
1. INTRODUCTION

Reaching the unreached and ensuring the continuity of education irrespective of age and place is the main goal of an ODL institution. As per India population 2020 statistics, more than 65 percent of Indians live in rural areas. Making education accessible for them is the motto of the ODL providers. It is reflected in the slogan of many ODL providers, for example, “The People’s University”, “Education Beyond Barrier” are slogans of IGNOU and KKHSOU respectively. Bordoloi, (2018) stated that ODL is a mode through which the system of Higher Education can be transformed and empowered in an unprecedented way. ODL can provide justice to millions of people in achieving the motto of higher education (access, equity, quality, innovation and research). ODL significantly succeed in covering rural learners. It is understood from the increased rate of GER of higher education.

For almost all ODL providers, the existing mainstream mechanism is the Study Learning Material (SLM), which is considered the main pathway to reach their learners. However, with the advent of different advanced technologies, many ODL providers are incorporating many supporting mechanisms in addition to it. UNESCO (2002) report stated that the basic purpose of the open universities is to provide instruction to the learners at their doorsteps through various media and technology. e-SLM, Virtual classes, Audio visual learning materials are some popular supporting applications of SLM. These applications are in high demand today, especially after the COVID 19 pandemic situation, as this has become the only option to obtain education in pandemic times and in the delivery of educational opportunities to the learner. Like other socio-economic sectors, the educational sectors were not very affected mainly due to the technology, due to ICT and due to the combination of ICT with Multimedia tools. However, it is not 100 percent successful. Not 100% learners were covered with this new technology. Still not 100% learners are able to connect by this digital learning environment, both in rural and urban areas. There is still a digital divide in India, just like in all other developing countries. High-speed smart phones or computers with internet connectivity are the common communication tools in every sector and for learners too. However, affordability of such instruments and its accessibility is the major issue in a developing world. In developing countries, only a microscopic minority have use of smart devices. For such learners, who do not have access to smart devices, an alternative solution has to be planned. The learners of an ODL institute, who are dependent only on the SLM and who have no other options to get education are facing major problems in this pandemic situation. SLM and e-SLM are inaccessible for a huge section of the rural population. Therefore, the ODL institutes have to think of an alternate mechanism to reach such learners.

2. OBJECTIVES

In this paper, an attempt has been made to:

• Identify the challenges and technical glitches faced by the ODL learners in remote areas in achieving their education.
• Discuss CR as an alternative mechanism to reach the unreached in the ODL system
• Focus on Jnan Taranga CR contribution to an ODL institution
3. RESEARCH METHODOLOGY

The study is qualitative in nature, based on mostly secondary sources. Learner support services of ODL institutes and the problem faced by the rural learners are the source of this study. For this, the services of KKHSOU towards learner at the lockdown period through their CR Jnan Taranga is considered as the focus of this study. Volunteers of Jnan Taranga were interviewed for the strategy taken at managerial and organizational level to reach the learners of rural areas. KKHSOU faculty members were randomly interviewed to get the exact information about the accessibility of implemented educational tools, their needs and desires. Broadcasting programme, listener's feedback was studied to strengthen this study.

4. RATIONALE OF THE STUDY

During this pandemic time, when the whole world has been almost paralyzed, when all education sectors from lower to higher level were closed, online learning was the only option in the delivery of educational opportunities to the learner. KKHSOU started their verities of instructional instruments to facilitate their learners. More than 200 items of audio-visual material were produced during this pandemic and uploaded through the website, Youtube channel, facebook live etc. However, for the learners of the remote areas, accessibility to all these facilities became a major issue due to poor internet services. Then the University utilized its CR "Jnan Taranga" services to reach the learners staying within the covering range of the radio transmitter. KKHSOU realized this is the only way to connect the rural masses. Therefore, all ODL institutes can adopt the CR services to facilitate education to their learners, both during the pandemic and in normal times.

5. CHALLENGES FACED BY RURAL ODL LEARNERS

The learners belonging to the remote areas are always deprived of the facilities provided by the ODL institutes. Due to the flexible and easily accessible nature of the ODL system, many rural communities prefer ODL mode of education. It is significantly scattered among rural areas. Das et al. (2009) observe that half of the students enrolled in higher education in the developing world are receiving it through the open and distance learning mode. Dodo, (2013) argues that this has been caused by the growing desire of the majority to acquire education from a few institutions that are offering higher education in a flexible manner, particularly those in the rural communities. The learner of a rural area cannot directly access the tutorial support and physical resources provided by the ODL institutes. They are therefore dependent on the printing material and the ICT support system.

As per OECD (2017), advances in video conferences, interactive television, and podcasting, teaching tablets, e-learning platforms, modular coursework, flipped classroom strategies and self-directed learning can indeed enrich curriculum opportunities in remote schooling and help to overcome difficulties. However, due to the poor supply of or lack of electricity to operate those ICT appliances, most of the rural learners are deprived of the facilities provided by most of the ODL institutions. Mutanana (2018) mentioned that students in rural communities are facing some challenges during their academic career. These challenges include inadequate access to tutor support and physical resources, inflexible practices and access to ICT, poor or no electricity to operate ICT appliances, financial, cultural, community and employment responsibilities. Apart from all these, the challenges may be related to a lack of
communication and not being familiar with the usage of such tools. These challenges may be due to an individual learner, instructional gap or they may be institutional.

6. COMMUNITY RADIO AND ITS SERVICES

Radio is one of the oldest and still popular means of communication media in all generations of people. Radio still maintains a constant communication power among all. Because of its popular nature, FM radio has progressed. One part of this FM radio which comes with a new concept to serve a particular geographical community is the CR. It is the initiative of UNESCO in the 1980s, which was later considered as the 3rd generation of radio in the radio history. In India, it came to being in the 20th century as a private radio and succeed in attracting audiences due to their innovative programming. Kakoty, (2020) stated that resurgence of radio took place after the invention of CR in the later 1990s. It started to serve typically a local audience, a geographical community and community of interest. It can directly raise community voice, may be individually or in groups. Communities can tell their stories, can share their experiences through this. The content broadcast are relevant to a local and specific audience and hence the popularity increased. Communities even use it as a vehicle to disseminate their information locally. When broadcasting power opened for any voluntary section, NGOs, private agencies, educational institutes etc., it became successful in covering a wide audience.

One major advantage of CR is that it can broadcast those contents, which cannot easily be broadcast by commercial radio stations. It can directly focus on the community’s voice; it can reach a community directly. This is the only media that can focus on a community’s problem. Therefore, we can say that CR is a good communicator between community and society and it can help reshape the development of a community. Kapoor, (2020) in her article stated, “A recent study, commissioned by the Association of Radio Operators for India (AROI), found that the radio industry has a listenership of 51 million people, which is nearly as much as television’s reach of 56 million and social media’s reach of 57 million. During the lockdown, radio has seen an increase of 23% in its listenership”. This is a good sign in radio history. Despite all the risk and challenges of COVID 19, most of CR broadcast information on this pandemic and tried to make the community aware of it. Prakash Javadekar, the Minister for Information and Broadcasting in his first recorded interaction with CR stations in the month of May 2020 acknowledged the valuable contribution of CR stations in spreading awareness amongst communities on COVID-19. He claimed that CR is an ‘agent of change’ and said they have the power to influence opinions and change behaviour of the communities.

Odisha is home to 17 CRSs and most of them proved harbingers of change during the pandemic time. While a number of newspapers in that state have stopped printing papers during lockdown, CR reaches these community with its authentic information. Kumar, (2020) talks about CR when he says “These hyper-local, low-power, low-cost setups have been mandated to serve the local population and are presumed to be run by the local community”.
7. ACCESSIBILITY AND AFFORDABILITY OF COMMUNITY RADIO

CR is very easily accessible and affordable media among all, which makes it sustainable. These properties are explained in this section.

7.1 Accessibility Nature of CR: From an accessibility point of view, as CR is for the community and by the community, it is easily accessible for all. The aim of the CR is to give voice to the voiceless and give opportunity to marginalized communities to come forward and speak about their issues concerning their lives. More and more aspirational areas and dark areas can be covered and developed to achieve better results. CR plays a crucial communication role particularly in communities where most people can neither read nor write. Since it broadcasts in local language, people can relate to it easily and instantly. The reach of a CR was previously 5-10 Kms, which is extended to 30 Kms maximum now. It now covers a huge area, so can reach masses and can cover a maximum no. of people. As CR is one of FMs, it is accessible from the smart Android phone also within the transmitter coverage range and without Internet connectivity.

7.2 Affordability Nature of CR: CR is defined as a type of radio that caters to the interests of the community in the local area. It is most cost-effective and is a democratic form of media that allows participation of people in the process of development. It is a low power radio station, which can be set up with a minimum cost. As per CR policy and Guideline (2002), a bank guarantee of Rs. 25,000/- is to be furnished to establish a station. To start a CR is not complicated and expensive, a spectrum fee of Rs. 22,500/- and license fee of Rs. 1000/- is the only charge annually by the Ministry. Therefore, to establish a CR is affordable to a community, NGOs, educational institutes and for those who feel the need of a CR. They only have to think, determine, and analyze how a CR could cater to their necessity.

CR handbook (2001) mentioned that the equipment required for CR is robust and easy to maintain, and it does not need support from broadcasting engineers beyond some initial training. Its cost is constantly falling. For a typical CRS, the normal cost of the equipment is little more than US$20,000. For minimal broadcasting, there is even a suitcase available, weighing 16 kg, which contains a five-watt transmitter, a six-channel audio mixer, two compact disc players, two cassette tape recorders/players, and an antenna. The total cost is about US$3,000.

The set-up and maintenance is inherently robust, reliable and very simple compared to the commercial radio stations. The whole system can be set-up in any existing house in a small room of minimum 9sq.m. of size to install the equipment, one announcer booth of minimum 12sq.m. of size, which may be more for round table discussion type programme. Overall, the total of minimum 50sq.m area is sufficient to set-up a CR station.

Acoustic and soundproofing is not compulsory for the studio, only the announcer’s booth must be soundproof, so that it will not pick up any external noise.
8. CR AS EDUCATIONAL TOOL FOR ODL PROVIDERS

In this section an attempt has been made to focus on the effectiveness of CR as educational tool, particularly for ODL mode of education. An Open University has the autonomy to adapt different approaches for its development as well to fulfill the needs of local community. With different approaches of their instructional instruments, they can adapt CR as one of the instructional and education dissemination tools. CR has the power to reach the remote and most marginalized communities.

The chairperson of Namaskar Community Media Network, Ansari (2017), said that the CR movement in the country got an official nod in the year 2003. The first campus radio came up in February 2004. He opines that people living in remote areas of underdeveloped region very often do not enjoy the fruits of good governance due to lack of transparent and accountable system: ignorance and lack of opportunity strangle their voice. Since the mainstream media do not reach such pockets as it is not viable commercially, the community has been struggling to raise its voice of dissent and CRs provide the much-needed platform in their area of operation.

As per the Govt. order no. F.No. 104/103/2017-CRS (Pt.I) dated New Delhi, the 27th August, 2018 in clause 7(iii), Universities, Deemed Universities, Agricultural Universities and Krishi Vigyan Kendras (KVks), Educational Institutions, and also branch Campus, if any, shall be permitted to locate the transmitter and antenna within the geographical area of the community they seek to serve. In clause (3(a) (i)) of that order it is written that for this they need to have only single window clearance, no separate clearance shall be necessary.

Out of 251 operational CRS in India, 110 are operated by the Educational Institutions and 15 by the Agricultural Universities/Krishi Vigyan Kendras. The first exclusive educational FM channel “Gyan Vani” was launched by IGNOU in 2001. Delhi University CR DUCR 90.4MHz was established in 2007 to strengthen the communication between faculty and students. From 2008 they started using this station to disseminate information about the admission process. KKHSOU launched CR “Jnan Taranga 90.4 MHz” on 2010. The ODL Universities usually have branch campuses and study centres across their jurisdiction. Therefore, they can locate those branches where learners are deprived from other facilities of the University and can think of establishing CR for them. Teachers can play a major role not only in providing their education, but also in shaping their career in different ways from their study to their private life. One of the fundamental objectives of a CR is to help and educate people to improve their lives. CR handbook also stated, “Setting up a programme of education broadcasts can be a very worthwhile objective for a CR, but it needs to be carefully thought out, planned and work in conjunction with the appropriate services. Advice and support from adult educationists can help to ensure successful programmes”. Thus, educational content should always be present in CR programme with variety of formats including reportage, interviews, panel discussion, question-answer session, education with entertainment and drama etc. to make the education interesting.

Even in the COVID-19 pandemic, the biggest disruption to education, Radio and Television played a significant role. According to a recent study by the UNESCO Institute of Statistics (UIS) and the Teacher Task Force (2020), around 706 million students lack internet access and 56 million live in areas not covered by mobile networks. Many countries had to quickly find effective solutions and Television and Radio have proven to be a good alternative in a context where online learning is not possible.
9. JT CONTRIBUTION TOWARDS LEARNERS AT THE TIME OF CORONA PANDEMIC

In Assam, the lockdown started on 23rd March 2020 and continued for almost 5 months. In this period, the entire education system stopped, all face-to-face educational institutions were closed. However, although situated in an under developed area, the education of KKHSOU continued because of its existing multimedia practices. Learners were connected through different learning platforms and media. Data shows that among 302 study centres across the state, 238 are in char areas, flood affected areas, tea garden areas, hill areas and border areas [data taken from KKHSOU database]. Internet connectivity in these areas are not up to the mark to access their online classes. Reaching them in pandemic situation through incorporated advanced technologies was not so easy. Therefore, among all instructional instruments to disseminate education to its learners during and post COVID 19 pandemic time, KKHSOU uses its CR station Jnan Taranga 90 MHz as one of the instruments to provide education to their learners as regular basis. It broadcast several educational programmes that includes debate, discussion, talk show and class delivery. KKHSOU in this pandemic time fully utilized its CR services to connect their remotely situated learners. It played a significant role in this pandemic time to disseminate information and education to their learners.

Volunteers of Jnan Taranga said that they regularly broadcast programmes in the pandemic time also by following all the restrictions as a measure of Govt. guideline. They broadcast educational programme daily for 2 hours that directly related to the SLM. Teachers of KKHSOU were engaged as volunteer broadcasters, so that they could directly connect to their learners. They remind their learners about their assignment submission deadlines, examination information and encouraged them in timely learning to avoid cases of dropping out.

10. CONCLUSIONS

CR is considered as a grass root level convenience. With SLM and its various forms, ODL providers can utilize CR as one of the education dissemination tools in all pandemics and in other times too. For learners beyond the transmitting range, Internet Radio with live streaming facility is the solution. For the remotely located learner having poor internet facility and beyond the transmitting range, establishing CR in those areas is the only solution. Offline accessible mobile app with downloading facility can also be a solution for this group of learners. All ODL providers can take initiatives to improvise CR services for education purposes, as CR is the only alternative mechanism to reach the unreached.
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FACTORS ASSOCIATED WITH LOW ECONOMIC STATUS STUDENTS’ DISENGAGEMENT IN LEARNING: A REVIEW DOCUMENT

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Early adolescents, Engagement in learning, Low socio-economic status (SES)

Abstract

This paper was written based on a theme that emerged while reviewing literature for a larger research that investigated ‘early adolescents’ motivation and engagement in learning in low socio-economic districts in Sri Lanka’. This review has attempted to incorporate several significant studies that observed the students of low socioeconomic status (SES) disengaging from learning. Most of the reviewed literature was published in online journals. The selected articles and books were read, and the information was tabulated according to the overarching research question of the study - what are the factors associated with student disengagement in learning in lower SES schools? The data analysis was done using document analysis. The findings of the literature review suggest that at an individual level, the low SES students faced cognitive issues, particularly with short concentration periods and higher levels of distractibility. Low SES is a major factor among high risk of disengagement categories in the middle years of schooling. When considering the family factor, children in low SES families show lower achievement levels over all school years. Low SES families might be deficient in the essential resources to support their children and increasing stress in those families is associated with children’s lower achievements in learning. Similarly, low SES adolescents get lower grades and tend to be drop out of education. In relation to the school factor, student, teacher, classroom, and the school are the causes of dissimilarities in achievement. Similarly, school engagement was the main factor in determining whether a student continued in school or not. This study found that the family, school, and teacher are directly associated with students’ engagement in learning in lower SES schools despite individual factors. Drawing on the previous literature, this paper attempts to point out that young students from deprived environments frequently face numerous hurdles that obstruct their learning. Their position worsens if they do not have helpful surroundings in the school and in their society. Therefore, these factors must be improved to increase lower SES students’ engagement in learning to enhance their participation and improve quality in learning.
1. INTRODUCTION

This paper was written based on a theme that emerged while reviewing literature for a larger research that investigated 'Early adolescents' motivation and engagement in learning in low socio-economic districts in Sri Lanka'. This review has attempted to incorporate several significant studies that observed low socioeconomic status (SES) students' disengagement in learning.

According to Schlechty (2001) and Woolfolk and Margetts (2007), together with motivation, engagement is significant for improving the learning outcomes of all students. They consider motivation as a pre-requisite of and an essential aspect for student engagement in learning. Scholars (e.g., Appleton, Christenson, and Furlong, 2008; Baron and Corbin, 2012; Fredricks, Blumenfeld, and Paris, 2004; Phan and Ngu, 2014a) believe that engagement stresses students' different patterns of motivation, cognition and behaviour. Various forms of engagement have been described in the academic literature, including school engagement (Fredricks et al., 2004), study engagement (Schaufeli, Salanova, Gonzalez-Rom, and Bakker, 2002), and student engagement (Kuh, 2003). This study focuses on the students' engagement with their school and study.

Many arguments exist in the research literature with regard to the number of dimensions of student engagement. Finn (1989) and Willms (2003) describe engagement as comprising two dimensions: behavioural and psychological. Two different three-dimensional models have been proposed. Fredricks et al. (2004) and Jimerson, Campos, and Greif (2003) propose the dimensions as being cognitive, psychological, and behavioural, while Schaufeli et al. (2002) propose vigour, dedication and absorption. Appleton, Christenson, Kim, and Reschly (2006) describe a four-dimensional model, comprising the academic, behavioural, psychological, and cognitive dimensions.

The literature examined for this study exposed two key approaches to engagement: the North American model, primarily associated with Fredricks et al. (2004) and comprising the cognitive, behavioural, and emotional dimensions, and the European model, primarily associated with Schaufeli et al. (2002), comprising vigour, dedication and absorption dimensions. These two models have been used in numerous research studies (e.g., Breso, Schaufeli, and Salanova, 2011; Mo and Singh, 2008; Phan, 2014a; Salmela-Aro, Tolvanen, and Nurmi, 2009; Wang, Willett, and Eccles, 2011).

Numerous research studies have been conducted employing both conceptualisations of the views of engagement, particularly with a focus on students' achievement (e.g., Appleton et al., 2008). There is also extensive research identifying a number of motivational and social precursors able to promote and develop students' engagement. Motivational precursors consist of self-efficacy (e.g., Phan, 2014b; Phan and Ngu, 2014a; Reeve and Lee, 2014), task value (Fan, 2011; Phan and Ngu, 2014b; Wang and Eccles, 2013), and mastery goal orientation (e.g., Phan, 2014a, Wang and Holcombe, 2010). Social precursors of engagement include parents' and teachers' support (Wang and Eccles, 2012b; Wang and Holcombe, 2010).

On the whole, as discussed above with an understanding of the Sri Lankan educational context, it seems that the North American model of engagement is more appropriate than the European model of engagement because of its wide coverage of engagement. Therefore, the engagement framework employed in this study is the North American model of engagement: cognitive, behavioural, and emotional dimensions. Accordingly, in this study 'engagement' refers to those three types of engagement in learning.
2. METHODOLOGY

The overarching research question of this study was.

What are the factors associated with students’ disengagement in learning in lower SES schools?

This literature review mainly focused on research articles and books that investigated the factors associated with students’ disengagement in learning in lower SES schools. Most of the reviewed literature was published in online journals. The selected articles and books were read, and the information was tabulated according to the research question of the study. The data analysis was done using document analysis.

3. RESULTS AND DISCUSSION

The research literature shows that a considerable number of students from disadvantaged backgrounds display indicators of disengagement; for example, high absence (Hancock, Shepherd, Lawrence, and Zubrick, 2013), poorer classroom behaviours (OECD, 2012), and premature school leaving (Rumberger and Lamb, 2003). Most types of disengagement, for example, absence, troublesome behaviour and low school relations, are connected with a lack of achievement. This has important implications for the students’ school experience (Hancock and Zubrick, 2015).

At the individual student level, low SES students present with cognitive issues, particularly short concentration periods and higher levels of distractibility (Alloway, Gathercole, Kirkwood, and Elliot, 2009). According to Murray, Mitchell, Gale, Edwards, and Zynier (2004), low SES is a major factor among high risk of disengagement categories in the middle years of schooling.

When considering the family factor, children in low SES families show lower achievement levels over all school years (Hancock et al., 2013). Gray and Baxter (2010), emphasised that low SES families might be deficient in the essential resources to support their children, and increasing stress in those families is associated with children’s Hanson et al. (2011) conducted a study using 1,006 US students and found neighbourhood financial difficulties were a significant predictor of students’ lower levels of achievement in mathematics.

Similarly, low SES adolescents get lower grades and tend to be drop out of education (Hauser, Simmons, and Pager, 2000). In high income countries, children from low SES families have a higher chance of academic failure (Fergusson et al., 2008). Further they have a greater likelihood of having low SES in later life (Matthews, Gallo, and Taylor, 2010). Kuh, Ben-Shlomo, Lynch, Hallqvist, and Power (2003) found that a low SES family background is the prime indicator and risk aspect for having less education. Disadvantaged students do not achieve as well educationally as their privileged peers (Reardon, 2011; Steele, 2010). Families who have elevated poverty, high joblessness, and live in low educational level neighbourhoods have been found to employ fewer study-focussed activities with their children (Banarjee, 2016). Nonoyama (2005) conducted a cross-cultural study over 40 countries and found that, in all countries, family SES and background effects had a bigger influence on student achievement than SES on its own or school impacts. Further Belachew et al. (2011), in his study of 13-17-year-old adolescents in Southwest Ethiopia, found that family food insecurity was clearly associated with school absenteeism and adolescents’ poor academic performance.

They found the lack of role models, teachers, poor learning resources, and aggressive and violent behaviours as some of the reasons for this situation.
According to Basch (2011), aggression and violence lessen school connectedness and increase absenteeism.

In relation to the school factor, which is more relevant to the current study, Irvin, Meece, Byun, Farmer, and Hutchnis (2011) conducted a study of 60 high-poverty schools and found that the basic factor in student motivation and achievement is not the home background of students but the school and the teacher. Similarly, Finn and Rock (1997), in their investigation of more than 1,800 poor students found that school engagement was the main factor in determining whether a student continued in school or not. Bruner (2014) studied factors affecting lower achievement of low SES students via a six-country sample and suggested that factors related to the student, teacher, classroom and school are the causes of dissimilarities in achievement. Higher learning ambitions, empathic consideration and optimism for the future are considered as defensive factors contributing to the educational resilience of students in SES (Gizir and Aydin, 2009). Because the current study also considers school-related conditions impacting students’ motivation and engagement in learning, the Gizir and Aydin study is relevant.

Gemici and Lu (2014) conducted a study employing a 2009 base year group from the Longitudinal Surveys of Australian Youth. The sample represented 15-year-old students nationally. Altogether 14,251 students and 353 schools in Australia were involved in this study. They found that socio-economic status is a strong predictor of emotional engagement. Students with higher SES showed higher levels of emotional engagement with their school. There are two Sri Lankan low socio-economic groups represented in the current study. The findings by Gemici and Lu indicate the likely findings for the current study of low socio-economic areas students’ engagement levels.

Johnson-Brown (2014) conducted a study employing all 11th-grade students in West Virginia and found that the size of the school and rural location of the school had an effect on examination scores. Students from larger schools achieved better results, and the achievement in rural schools was lower than in urban and sub-urban schools. Students’ motivation and engagement had an influence on their achievement (Covington, 2002; Di Domenico and Fournier, 2015; Salinas-Jimenez et al., 2010; Walker, Green, and Mansell, 2006; Williams, 2000). Their findings indicate likely results for this study on how rural areas affect students’ achievement.

When considering teachers’ influence on lower SES students, Whitehead (2006) found that the lowest SES quartile students are regularly absent from school because of their fear of being embarrassed in the classroom and also because of their teachers’ low expectations of their achievement. Positive teacher expectations, help and motivation have beneficial developmental impacts on students despite their vulnerable low SES situation (Sorhagen, 2013). Archambault, Janosz, and Chouinard (2012) argue that teachers’ comprehension of student views, encouraging relations and a better classroom dynamic lead to improved achievement by lower SES students. As stated by Hogrebe and Tate (2010), teacher excellence in high poverty schools remains a significant policy aim for restructuring and development. Support given by the teacher for lower SES students might even assist to modify the negative relationship between poverty and educational achievement (Little-Harrison, 2012; Liu and Wang, 2008). An enthusiastic teacher who has a higher level of self-efficacy can disregard lower SES, poverty or adversities and assist in creating a friendly learning situation (Freitas, 2013). In the current study, which examines school-related conditions impacting students’
motivation and engagement in learning, the teacher is expected to be an important causal factor.

In summary, young students from deprived environments frequently face numerous hurdles that obstruct their learning. Their position worsens if they do not have helpful surroundings in school and in their society (Banerjee, 2016).

4. CONCLUSIONS

In this literature review, it has been found that family (including neighbourhood), school and teacher are directly associated with students’ engagement in learning in lower SES schools despite individual factors (e.g., self-concept). Therefore, these factors must be improved to increase lower SES students’ engagement (as well as motivation) in learning to enhance their participation in learning. There might be more factors such as students with special educational needs, associated with low SES students’ disengagement in learning and those factors need to be revealed.

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IDENTIFICATION OF FACTORS AFFECTING PROGRAMME COMPLETION AT OUSL: A CASE STUDY ON ENGINEERING AND SCIENCE STREAMS

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Abstract

The Open University of Sri Lanka (OUSL) provides an alternative pathway for all who seek an opportunity to pursue higher education. In line with other ODL institutes, learner communities at OUSL have a vast diversity in demographics, psychological factors, learner intentions and capabilities etc. Thus, the learner support requirements of students vary considerably. Many researchers have noted that the completion rate of students in ODL systems is generally below than those in the conventional streams. Poor performance and low completion rates not only adversely affect the reputation and the credibility of the university, but also creates a loss to the learner and to the country as a whole. The aim of this research is to identify localized factors that affect the students in their learning process and in completion of programmes at OUSL. The scope of this research is limited to the streams of Engineering Technology and Natural Sciences. A thorough research review has been carried out to find out factors reported in similar research studies conducted in other ODL institutes in the fields of Science and Engineering. Considering the local scenario, these factors were short listed to a manageable number and a questionnaire was designed and pilot tested to suit the local context. Through the preliminary analysis of the variables reported in this paper, we postulate that the attendance at academic activities and the competency in English at the entry are associated with the likelihood of completion of the B.Sc. Degree programme. These findings need to be established through a well-designed study that includes programme dropouts as well. The findings of this study are useful for designing a study to identify factors that are appropriate as input variables for developing a predictive model that can be used to identify appropriate customized learner support to uplift the learning process and enhance the programme completion.
1. INTRODUCTION
The Open University of Sri Lanka (OUSL) provides opportunities to students who wish to engage in higher education using distance education methodologies. In line with other Open and Distance Learning (ODL) institutes, learner communities at OUSL have a vast diversity in demographics, psychological factors, learner intentions and competencies. (Ariadurai and Manohanthan, 2008). Even though ODL systems provide pathways to higher education, thereby opening access to a large number of students spatially dispersed, many researchers worldwide (Simpson, Ormond., 2013; Ibrahim et al., 2019; Taniguchi, Kaufman, 2005) have reported poor program completion rates in ODL systems compared to conventional systems. In order to uplift the completion rates, it is vital to identify localized factors that affect the performance of students and programme completion rates.

The literature reveals many studies conducted internationally (Li and Wong, 2019; Radheshyam et al., 2017) as well as locally (Dedigamuwa and Senanayake, 2012; Aluwihare and Silva, 2016) to identify factors which may affect the programme completion rates and have reported learner support is a crucial factor. Exogenous factors such as changes in secondary education curriculum, variations inconceivable time commitments by the learners, differences in modes of access to learner support in the present-day etc. demand deviations in the kind of support that learners seek. With the advances in Technology, pedagogical improvements, developments in infra-structure facilities etc. permit enhancements in the extent and mode of learner support that the institutions can provide. As a result, identification of factors that can uplift the learning process turns out to be an ongoing process especially for learners in ODL systems.

Recent advances in learning analytics can be effectively used to develop predictive models for the likelihood of completion at different stages in the learning process and thereby identify customized learner support that will uplift the learning process. As a first step, we need to identify the variables that are most appropriate as input variables for a predictive model applicable for the current learners. This research investigates the localized factors that affect the learning process of learners in the Bachelor of Technology Honours in Engineering degree program offered by the Faculty of Engineering Technology and the Bachelor of Science Degree programme offered by the Faculty of Natural Sciences of the Open University of Sri Lanka.

The Bachelor of Science degree programme is a three-year full-time degree programme comprising 90 credits offered at three levels (Level 3, Level 4, and Level 5) with 30 credits of compulsory credit requirement at Level 3. The Bachelor of Technology Honours in Engineering is a 152-credit programme offered at four levels (Level 3, Level 4, Level 5, and Level 6).

This paper is organized as follows: Section 1 elaborates the literature survey done, Section 2 describes the methodology, Section 3 analyses the results and finally, the Conclusion is given in Section 4.

2. LITERATURE REVIEW
The literature reports a large number of multifaceted factors affecting student persistence in ODL. Li and Wong, (2019), examined the changes and trends in factors related to student persistence in open universities from
1970 to 2010 through a review of 108 studies and identified 284 factors. These factors have been broadly categorised into student factors, institutional factors, and environmental factors. Student factors have been further classified as pre-enrolment factors such as prior educational experience and skills and post-enrolment factors such as planning, managing and resource allocation and academic outcomes. Aluwihare and Silva, (2016) examined the motivating factors for enrolling in an engineering study programme and the factors that affect the students’ performance at OUSL and concluded that the recognition for the qualification is the key factor and the flexibility in the programme is the factor generating most concern among employed students. Performance in secondary education GCE(A/L) and student’s awareness of ODL are noted to influence the academic performance. Under course delivery, difficulty level in subject content, too much subject content, language difficulty, insufficient day classes, and large lab groups have been identified as critical factors for successful performance of the focused engineering study programme in OUSL.

3. RESEARCH METHODOLOGY

The sampled population in this study comprised all registrants in the academic year 2020/2021 for the degree programmes offered by the Faculties of Engineering Technology and Natural Sciences of the Open University of Sri Lanka. The sample included those who had completed the degree requirements and maintained studentship for graduation. Data were collected using a questionnaire developed as a Google form that focused on information under the broad categories: Learner profile (Demographic data, Entry qualifications, Language and ICT skills. Time management skills at entry etc), Learning environment (Place of study, support from mentors, financial support for education etc.), Learner characteristics (time management during studies, Study practices, Attitude and commitment towards studies etc.), Learner support (Learning resources, opportunities for interactions with instructors and peers, scheduling of academic activities etc.) and Learner constraints (extensive commitments for family, work and other activities, financial difficulties, other unexpected constraints such as unfavourable life events etc.). The link for the Google form was made accessible to students via SMS (for B.Sc. students from the Faculty of Natural Sciences) and using myOUSL web portal (for students from the Faculty of Engineering Technology).

The data were mainly analysed using descriptive statistics. Kruskal Wallis test was applied to identify the factors that are closely associated with the time taken for completion of the degree programmes. The analysis presented was done using SPSS Version 20 statistical software.

4. RESULTS

Out of the 3878 student contacts from the B.Sc. Degree programme, 516 (around 13%) had responded. The link was accessible for all 2545 registrants for the B. Tech programme in the academic year 2020/21 and 301 (around 12%) had responded. A major part of the analysis presented in this paper is confined to the B.Sc. Degree programme.
4.1 Learner Profile of students in the B.Sc. Degree programme

The sample of 516 students selected from the B.Sc. degree programme comprised 62 at Level3, 182 at Level4, 199 at Level5 and 73 degrees completed students. Of the sampled students, 401 (77.7%) are female. The majority of students in the sample were in the age groups of 20 to 24 years (66.5%) and 25 to 29 years (22.3%), at their initial registration for the programme. Around 2.5% of the students had joined the degree programme immediately after the secondary education (age below 20years); the rest were in the age groups of 30 to 34 (4.3%), 35 to 39 (2.3%) and 40 or above (2.1%). Around 88.4% were G.C.E(A/L) qualified students, 5.0% had entered with a combination of G.C.E (A/L) and Foundation Level courses, 4.7% had entered entirely through the Foundation programme and the rest (1.9%) had other entry qualifications. Around 78.5% of the students had completed their secondary education in the Biological stream, 21.1% in the Physical Science stream, and 0.4% were from other streams (Technology and Arts). Around 86.4% had no prior experience in studying in distance mode and the rest (13.6%) had some experience such as studying diploma, certificate courses.

4.2 Learner Characteristics: B.Sc. Degree programme

Distribution of learners based on their knowledge on English, ICT and other skills are summarized in Table 1.

Table 1: Distribution of learners based on the knowledge on English, ICT and other skills at enrollment

<table>
<thead>
<tr>
<th>Knowledge on</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Weak</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>19.0%</td>
<td>62.0%</td>
<td>18.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>ICT</td>
<td>11.8%</td>
<td>65.7%</td>
<td>21.3%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Presentation/Report writing</td>
<td>13.6%</td>
<td>57.6%</td>
<td>26.7%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Team work</td>
<td>24.2%</td>
<td>57.9%</td>
<td>17.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Interpersonal skills</td>
<td>21.5%</td>
<td>60.3%</td>
<td>17.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Time management</td>
<td>15.3%</td>
<td>59.1%</td>
<td>22.5%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

4.2.1 Study Practices of Learners: B.Sc. Degree Programme

Here we report the study patterns that are widely accepted as closely associated with the performance. Summary statistics presented in Table 2 clearly indicate that the time commitment for studies at all levels of study is low with almost a quarter of students studying only close to examinations.
Table 2: Time commitment for studies

<table>
<thead>
<tr>
<th>Level</th>
<th>Only studied close to exams</th>
<th>Studied as and when time is available</th>
<th>Organized time according to a schedule</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 3</td>
<td>16.2%</td>
<td>41.9%</td>
<td>41.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Level 4</td>
<td>10.4%</td>
<td>44.0%</td>
<td>45.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Level 5</td>
<td>28.1%</td>
<td>42.7%</td>
<td>29.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Degree completed</td>
<td>23.3%</td>
<td>35.6%</td>
<td>41.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

As illustrated in Table 3, the tendency for participation in academic activities is better at Level 3 compared to other levels.

Table 3: Attendance for academic activities

<table>
<thead>
<tr>
<th>Level</th>
<th>Attendance is regular</th>
<th>Attendance is fairly good</th>
<th>Attendance is poor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 3</td>
<td>33.9%</td>
<td>32.3%</td>
<td>33.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Level 4</td>
<td>21.4%</td>
<td>42.3%</td>
<td>36.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Level 5</td>
<td>18.1%</td>
<td>33.2%</td>
<td>48.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Degree completed</td>
<td>21.9%</td>
<td>41.1%</td>
<td>37.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

4.2.2 Learning Resources

Here we report the learning resources used by the entire sample of respondents that includes learners in the Bachelor’s degree programmes offered by the two faculties. As illustrated in Figure 1, course material (94%), past papers (83.8%), myOUSL (71.7%) and online platforms (69.1%) stand out as the widely used learning resources.
4.3 Factors associated with duration of programme completion

The results presented here apply to the Bachelor of Science Degree programme and the Bachelor of Technology Honours in Engineering Degree Programme.

4.3.1 Time duration for programme Completion: B.Sc. Degree Programme

Of the 73 students who had completed degree requirements, 1 (1.4%), 10 (13.7%), 22 (30.1%), 21 (28.8%) had completed in 3 years, 4 years, 5 years, and 6 years respectively. Around 26% of students had taken more than 6 years to complete the degree. Times taken for program completion by students with different entry qualifications were quite similar with median and mode for both GCE A/L and A/L with Foundation courses were 6 years and 5 years respectively, while those with the Foundation alone had taken a slightly longer time with median and mode 6.5 years and 6 years respectively.

Tables 4 and 5 present the results of Kruskal Wallis test for examining which of the learner profiles and characteristics of learners in the B.Sc. Degree programme are likely to be associated with the time taken for programme completion.
Table 4: Association of Learner profiles and duration of programme completion

<table>
<thead>
<tr>
<th>Category</th>
<th>Factor</th>
<th>B.Sc. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>KW test statistic</td>
</tr>
<tr>
<td>Learner Profile</td>
<td>Gender</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>Age at initial registration</td>
<td>8.05</td>
</tr>
<tr>
<td></td>
<td>Presentation/ Report writing</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>Team work skills at entry</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td>Interpersonal skills at entry</td>
<td>1.15</td>
</tr>
<tr>
<td>Time management at entry</td>
<td></td>
<td>6.59</td>
</tr>
<tr>
<td></td>
<td>Prior experience in ODL</td>
<td>2.61</td>
</tr>
</tbody>
</table>

- Significant at 10% level.

Table 5: Learner Characteristics associated with duration for programme completion

<table>
<thead>
<tr>
<th>Category</th>
<th>Factor</th>
<th>B.Sc. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>KW test statistic</td>
</tr>
<tr>
<td>Learner Characteristics</td>
<td>Time commitment for studies</td>
<td>2.38</td>
</tr>
<tr>
<td></td>
<td>Attendance for academic activities</td>
<td>2.29</td>
</tr>
<tr>
<td></td>
<td>Attention on notional hours in studying</td>
<td>3.16</td>
</tr>
</tbody>
</table>

From the results presented in Tables 4 and 5, we conclude that none of the factors presented except age at initial registration and time management skills at the entry point to the programme had significantly affected the length of time taken for programme completion.

4.4 Factors associated with programme completion

Recall that based on the summary statistics presented earlier, around 74% of the students had completed the degree within a period of 6 years. This persuaded us to take 6 years as a reasonable time duration for completion. In order to identify factors that were associated with programme completion, we created a binary variable to represent the status of the student with the two levels "programme completed" and "not completed". There were altogether 107 students who had spent 6 or more years and out of them 67 students (62.6%) had completed the degree requirements. We
then applied binary logistic regression on the created binary variable to identify the factors associated with programme completion. Results are presented in Table 6, where we have reported the p-value for comparing the null model and the model with the variable concerned using Wald test statistic.

**Table 6: Association of Factors with programme completion**

<table>
<thead>
<tr>
<th>Category</th>
<th>Factor</th>
<th>B.Sc. Degree</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Wald test</td>
<td>statistic</td>
<td>pvalue</td>
</tr>
<tr>
<td>Learner Profile</td>
<td>Gender</td>
<td>0.04</td>
<td></td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>Age at initial registration</td>
<td>2.03</td>
<td></td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td><strong>Knowledge on English</strong></td>
<td>4.21</td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Knowledge on ICT</td>
<td>2.46</td>
<td></td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>Presentation skills</td>
<td>.24</td>
<td></td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Teamwork skills at entry</td>
<td>1.90</td>
<td></td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>Interpersonal skills at entry</td>
<td>1.80</td>
<td></td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>Time management skills at entry</td>
<td>0.17</td>
<td></td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>Prior experience in ODL</td>
<td>0.10</td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>Learner Characteristics</td>
<td>Study pattern as near exams or not</td>
<td>2.33</td>
<td></td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td><strong>Attendance for academic activities</strong></td>
<td>4.24</td>
<td></td>
<td>0.04*</td>
</tr>
<tr>
<td></td>
<td>Attention on notional hours</td>
<td>0.38</td>
<td></td>
<td>0.54</td>
</tr>
</tbody>
</table>

- Significant at 5% level.

From the results presented in Tables 6, we conclude that among the learner profile variables, knowledge of English has a significant effect on the likelihood of programme completion. Among the learner characteristic variables, attendance at academic activities had significantly affected the likelihood of programme completion within 6 years. It is worth emphasizing that even though the time taken for programme completion had no significant differences within the group who had completed the programme, it turns out as an important variable in predicting the likelihood of completion.
5. CONCLUSIONS

The preliminary analysis reported in this paper indicates that course material, past examination papers and support through online modes are widely used modes of learner support accessed by the current learners in the degree programmes focused on in this study. Among the variables focused in this report, age at initial registration and time management skills at entry to the programme appear as important variables for explaining the time taken for completion of the Bachelor of Science Degree programme. Contrary to what one would expect, attendance at academic activities and attendance on notional hours have not turned out to be variables that are likely to be associated with the time taken for programme completion. However, the attendance at academic activities turned out to be an important predictor for the likelihood of completion. Testing of this hypothesis we postulated needs to be done through a carefully designed confirmatory study that includes program completers as well as dropouts and is left as further research that needs to be done. It is also worth noting that this study only focused on the time duration and did not focus on the performance levels of the students. It is worth examining how these variables affect the performance level of the students. Here we only reported the findings of a preliminary analysis of responses collected in this study. However, these findings are useful in designing a comprehensive study to develop a predictive model for identifying customized learner support using learning analytics.

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ROLE OF THE REGIONAL EDUCATIONAL SERVICES (RES) TOWARDS EFFECTIVE LEARNER SUPPORT SERVICES OF ODL IN SRI LANKA: STAKEHOLDER PERSPECTIVES

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Abstract

In Open and Distance Learning (ODL) the teacher and student are separated in time and space. To ensure continuity of teaching and learning, learner support mechanisms are required (Mutambo et al., 2018). The Open University of Sri Lanka (OUSL) is the premier ODL institution in Sri Lanka with nine Regional Centres (RCs) throughout the country and the RCs are expected to provide suitable learner support services while targeting retention and preventing learners dropping out of the system (Manual for review of undergraduate study programmes of Sri Lankan distance higher education institutions, 2019). Therefore, promotion of learner support services through RCs may positively reduce the dropout rates as well as to increase the completion rate and especially this would be highly influential for reaching the unreached community since it is one of the key objectives of OUSL’s strategic management plan of 2019. The study investigates the role and the challenges associated with implementing quality of the operations in RCs of OUSL in Sri Lanka and it attempts to respond to the following two research questions: 1. What are the institutional policies and the mechanism relevant to the learner support services in the RCs. 2. What are the expectations and the challenges in terms of learner support services by the RCs. Methodology involved mixed method approach as quantitative data is collected using self-administered questionnaires for Students (n = 200) and Alumni (n = 100) and qualitative data is collected using relevant stakeholder focus group discussions through semi-structured interview schedules for the Directors, Assistant Directors (n = 10). The study concludes with recommendations for the better performance in terms of effective learner support mechanism.
1. INTRODUCTION

Open distance learning is one of the most effective educational methods that can be used to expand the educational opportunities for the dynamic student communities in the world. Advances in technology further challenge higher education to transform it to meet the changing needs of working world and to provide access and quality education in more flexible modes. New approaches and technologies have used distant and blended learning and increasing roles for the Open University to expand participation in higher education (Latchem and Jung, 2010).

In the context of Sri Lanka, the Open University of Sri Lanka is the premier open and distance educational institution with 9 regional centres and 19 study centres with the aim of expanding the student support services to the students spread across the country. The expansion of student support services in regional centres can have a positive impact by reducing the drop-out rate and increasing the completion rate. This is also very influential in reaching the unattainable communities as one of the main goals of the university’s strategic management plan OUSL 2019. Therefore, it is of vital importance that student support services in regional centres are extended to achieve the above tasks at the university.

Therefore, this paper addresses the role and challenges associated with implementing the quality of operations in RCs in OUSL.

2. LITERATURE REVIEW

2.1 Open Distance Learning (ODL)

ODL institutions provide educational opportunities to individuals who are unable to attend traditional education institutions due to various reasons; in other words, the learner group has a heterogeneous structure. (Genç and Koçdar, 2020). The concept of ODL has reduced traditional and conventional barriers in education and has created a ladder to achieve higher educational goals for various social groups in society. Therefore, a large number of students have enrolled in the open and distance learning institutions to pursue their higher education.

Open and distance learning is an amalgam of two approaches in education namely, Open learning (OL) and Distance Education (DE). Openness, learner centeredness, flexibility in learning with respect to place, time, place of study etc., removal of unnecessary barriers to access, recognition of prior learning, technology to mediate learning, industrial process, curriculum and courses in the public domain are the basic principles of the Open learning and Distance education is a process which is carried out by someone or something removed in space and time from the learner (UGC, 2019). Although the concept of ODL has become a world trend in education, various challenges can be identified when implementing the ODL system in any context. The most significant challenges that ODL students face are; continuing academic work with other commitments, lack of sufficient time for studies, difficulties in accessing and using ICT, language problems, lack of infrastructure facilities, cultural and territorial barriers, psychological issues, economic constraints, etc.
The effects of the above challenges were addressed by various researchers by emphasizing the importance of finding alterations to overcome the above challenges. Since the learner is been physically separated from the educational institution, it is a challenge to keep good interactions among student to student, tutor to student as well as student to study materials. This situation causes a reduction in the learners’ motivational levels and eventually they drop out from the programme. (Arindo, 2016; Nsamba and Makoe, 2019).

Maxwell et al. (2015) state that high dropout rates and late completion of programs are symptoms of underlying challenges that ODL students face. However, to ensure that any ODL system works smoothly, it is crucial to address the above-mentioned issues. Open and remote learning institutions use different strategies to overcome the challenges mentioned above, that ODL students face. For an educational process to be successful, Learner satisfaction is very important. Therefore, it is necessary to find new ways to overcome the above challenges that ODL students face.

2.2 Learner Support Services

Learner support services are the main mechanisms that can be used by the ODL institutions to solve key problems faced by them. The importance of learner support services has been discussed by various researchers as follows. Distance education is challenging for most students, as they have to juggle many responsibilities within the family, work and community. This is compounded by isolation from fellow students and campus activities; hence, there is a need for the provision of effective and flexible support services to enhance learning (Shikulo and Lekhetho, 2020). Ranasinghe et al. (2009) explained two major sub systems, which are linked to the success of ODL system. They are Course Material Production (CMP); and Student Support Services (SSS). Student Support Services is regarded as the support an institution extends to its learners to facilitate learning at a distance. It comprises a cluster of facilities and activities.

Establishing a comprehensive learner support system in an ODL institution will help the students to continue their academic work efficiently. Learner support has been placed in three non-exclusive categories, namely: academic support, personal support, and administrative support (Tait, 2003; Thorpe, 2001; Simpson, 2002). Hence, most of the ODL institutions have used a wide range of student support systems to meet the diverse needs of the ODL students. Therefore, student support services are considered an integral part of the ODL setup and enhanced student support services are needed for success throughout the ODL process.

2.3 Regional Centres

The regional network of the ODL institution can be considered as one of the most important learner support mechanisms, as it helps to implement all other student support services at the regional level. The regional centres are responsible for providing a range of facilities to their registered students, including academic, academic support and administrative assistance. Therefore, the whole purpose of regional education service is to offer student support services to the students who are in regional centres. The separation, alienation and isolation of students in the ODL system could be
minimized by strengthening the learning support system in the regional services. Therefore, a well-established regional centre network is crucial for the implementation of effective and high-quality learning support services for ODL students. In a nutshell, the RCs could be considered as the most important learner support service which conveys all other learner support services to the learners who are in the peripheries.

A range of research can be found in research literature on the importance of the learner support services in any ODL system. Researchers address different aspects and perspectives of this theme. A research has been done by Mayanaja et al. (2019) on promoting student support in open and distance learning, using Information and Communication Technologies. The study was carried out in Makerere University. Makerere University enhanced their services by introducing ICT applications in order to ensure the students satisfaction and retention in ODL system. According to the study, the limited electronic support was extended to the ODL learners through e-mails, mobile phones, social media applications, radio and television. Roberts (2004) also conducted a study on student support in South African distance education. The researcher identified several major challenges associated with the expansion of higher education through ODL status such as redress, equity, quality, access and massification. As a result of these challenges in higher education, retention issues and a low pass rate can be identified as problems. Further, this study also discusses the importance of student support programs to overcome many challenges, especially to increase participation and expected graduate output.

Maxwell et al. (2015) carried out a study on challenges of the ODL students' experiences from Zimbabwe Open University (ZOU). Accordingly, the most reported challenges were lack of sufficient time to study, difficulties in access and use of ICT, ineffective feedback and lack of study materials. It was recommended that ZOU should strive to achieve an effective and balanced teaching and learning system that satisfies the desire of the learners to the extent that they would wish to come back to the institution for further studies and feel proud to recommend the institution to others who are seeking knowledge.

Shuikulo and Lekhetho (2020) have done a study on exploring student support services of a distance learning centre at a Namibian University. According to the research, most of the students enrol in the open and distance learning degree programme as this system allow learners to study while engaging with other commitments. However, many of them take a longer time period than necessary to obtain qualifications due to high failure and repetition rates. This could be linked to a shortage of resources and underutilization of available resources by students, lack of collaboration between marker-tutors and lecturers, and poor attendance of tutorial classes by students and lecturers/tutors. The research proposes a model for effective implementation of SSS in order to improve students' academic experience and success rate in Namibian University.

Mutambo et al., (2018) studied the effectiveness of study centres in supporting ODL at Makerere University. The research revealed that the centres are relevant to offering remote learner support, especially given the low level of technological advancement in Uganda. However, due to a number of factors, the centres are not offering satisfactory support to the students. These include the centres’ indistinct status and mandate; gaps in the University's policies and understanding of ODL; inadequate funding of the centres; communication gaps between the centres and their coordinating unit at the University's main campus; inadequacy of study, ICT and human resources at the centres; and unconducive location and opening hours of the centres.
Aluwihare and De Silva (2016) studied prolonged time taken to complete the degree programmes at the Faculty of Engineering Technology of the Open University of Sri Lanka. Results indicated that institutional barriers such as poor academic counselling and guidance; laboratory sessions being inappropriate/not sufficient to understand the course material; inadequate facilities, such as library resources, and lack of laboratory facilities at the regional centres have contributed immensely to the lengthy duration taken to complete the degree. Personal factors such as work-related challenges, travelling time and cost of commuting to the main centre located in Colombo and inability to spend the required time expected of the programme have played major roles in the prolonged completion. Moreover, the lack of understanding of ODL methods and deficiency of continuous motivation had a tremendous impact for delayed graduation.

Ranasinghe et al. (2009) studied the importance of the student support services (SSS) in open and distance learning process in the Open University of Sri Lanka. The study reveals that regular day schools, audio-visual aids and timely availability of course materials as the most important components of the SSS. According to the research findings the SSS providers have not been able prioritize the importance and the order of satisfaction levels of the learners. Hence several shortfalls and lapses were identified in the different components of the SSS package.

Zuhairi et al. (2019) conducted a study on support for students to succeed in open and distance learning at the Open University of Sri Lanka and University of Terbuka Indonesia, and the study revealed practices and experiences that may be useful as a reference to open universities taking into account the fact that each open university is created to tackle specific challenges under its own unique circumstances.

The above research literature shows the importance of implementing student support services in the ODL system and especially focused on the role of the regional centres towards an effective implementation of student support services.

3. RESEARCH METHODOLOGY

A mixed method was used for this study as data had to be collected from various stakeholders in the OUSL setup. Data were collected from academic and administrative members of the university using interview and focus group discussion methods. A questionnaire was used to collect data from the students in regional centres, and 100 students from 9 regional centres responded to the questionnaire. Apart from this focus group, discussions were held with a student group in the Kandy Regional Centre. In addition, data were collected from documents such as annual reports, strategic management plan and program review manuals. Quantitative data were analyzed with SPSS, and thematic analysis was used to analyze qualitative data.
4. RESULTS AND DISCUSSION

4.1 Learner support landscape in RCs

The Open University of Sri Lanka is one of the national universities in Sri Lanka that uses ODL mode to provide education to a broad student base. The OUSL, established in 1980 under the University Act No. 16 in 1978, functions with the mission to "enhance access to high quality, affordable and relevant education through Open Distance Education and ensure life - long learning opportunities to face challenges in a knowledge society."

OUSL provides a wide range of academic opportunities for students who have missed out on higher education for innumerable reasons. The registered OUSL student number is more than 4000 and these students are spread over the nine regional and nineteen study centres island wide. All regional centres and study centres are administered by Regional Educational Services (RES). Due to the enormous importance of the RES network, it is considered the backbone of the Open University of Sri Lanka. Regional education services provide a wide range of services to support students to successfully complete their academic programs. It is a great support for the students who are in the periphery and for those who have difficulty maintaining regular contacts with the central campus.

The Manual for Program Review of Sri Lanka’s Higher Education Institutions (2019) indicates six criteria for the program review, and the fourth criterion advocates “learning infrastructure, resources and learner support”. The proposed strategic management plan for 2021-2025 for Open University states "to ensure high quality educational support services" as the 5th goal and majorly confers the importance of the development of learner support systems. The implementation of student support services in OUSL, RCs can be summarized in Figure 1.

![Figure 1: Learner Support landscape in RES](image-url)
Accordingly, a student can choose two centres that they prefer for their academic (Academic Centre – For day schools, laboratories etc.) and administrative (Administrative centre – for registration, collecting books, submission assignments. Etc.) matters. Most of the functions mentioned in Figure 01 can be performed from regional or Study Centres established throughout the country. They can also visit other regional or study centre, if the necessary service is not available in the centre, he or she is registered in. Since a significant number of students at the university participate in various commitments, this helps the students to continue their academic work smoothly. Therefore, the Regional Educational Service network is important and helps the students to continue their academic work effectively.

4.2 Promoting Degree programmes

The research result shows that most students became aware of OUSL programs from their friends (Figure 2). Promoting OUSL degree programs is one of the main roles in the regional education network and this aspect can also be considered as a form of learner support. As a national university, OUSL has a national obligation to promote higher education opportunities among lifelong learners in the county. Research results show that 57% of respondents were informed about OUSL by their friends. This fact shows new directions for developing promotional propaganda for the university.

![Figure 2: The way students become aware of OUSL](image)

4.3 Satisfaction with the services rendered by the regional staff

According to Figure 3, more than 65% of students are satisfied and strongly contented with the services provided by university staff, including academic, academic support, administrative and non-academic staff from the regional centres.
Figure 3: Satisfaction with the services rendered by the regional staff

The results also denote that the interaction between students and staff in certain RCs are closer than in the central campus. In some centres, most students and staff have a good relationship as the number of students is relatively low. A few Student participants appreciated the service provided by the staff and this condition has a positive impact on the student as well as the centre. In any case, it is the officers’ responsibility to maintain confidentiality, discipline and the general rules and regulations concerning the university, while maintaining a positive relationship with students.

4.4 Availability of resources and utilization of resources

Apart from CRC, KRC, MRC and JRC, most centres face a lack of basic human and physical resources. This includes insufficient staff, lack of adequate office space and examination / study halls. Although the university offers the opportunity to study while working, from the student profile of OUSL, we can observe that a significant number of registered students are recent school leavers, the majority being in the age group 18 years to 25 years. Therefore, these students spend much time on their academic work and most of them visit centres daily. They expect to spend conventional university life in regional centres and request to expand resources such as students’ common hall facilities, sports facilities and residential facilities. This trend can be seen in centres like CRC, KRC and MRC.
As illustrated in Figure 4, most of the students utilize resources provided by the centres for both academic related and extracurricular activities. There are two views that can be identified from the university authorities regarding the expansion of resources in RCs and SCs. One group suggests that considering the requirement of the majority student group, facilities must be provided to the students as it also one of the learner support components. The other group argues that as per the ODL principles the university should not entertain students requesting conventional university requirements and provide more facilities to enhance the Open and distance learning and teaching facilities in regional centres. As illustrated in Figure 4, most students use resources from the centres for both academic related and extracurricular activities. In any case, there are two views that can be identified from the university authorities regarding the expansion of resources in RCs and SCs. As stated above, one suggests that given the requirement of most student groups, facilities should be provided to the students as it is also one of the student support components. The second argue that according to the ODL principles, the university should not entertain students requesting conventional university requirements.

4.5 The importance of day schools

The majority of students agree that day schools are very important for their academic work. Figure 5 shows the way in which students are view the importance of conducting day schools.75% of students agreed that day schools support their academic work.

A significant correlation can be seen between the student's employment status and participating in day schools (Figure 6). Most of the unemployed students attend day schools as they are fully engaged in studies. Apart from that, officials as teachers grant duty leaves to continue their studies. Therefore, better attendance can be seen in such groups as well.

Unlike at conventional universities, participation in day schools is not mandatory. Nevertheless, significant student participation in day schools can be seen. This can vary from one discipline to another. However, these findings indicate the importance of day schools for ODL students.
Figure 5: Importance of the day schools

According to the focus group discussions conducted with the students, different views can be identified regarding day schools. Most students preferred to attend F2F day schools conducted in regional centres.

Figure 6: Employment status and day school participation
The students can discuss subject-related matters with the academics, and it can further their academic advancement. Since most students are isolated and alienated in this system, the day school creates a good platform to gather and generate peer groups for the students. Therefore, F2F day schools are important not only for teaching and learning, but also for creating peer groups, which is certainly important in the ODL system.

With the COVID pandemic, day schools are conducted via online medium. Especially employed adult students prefer online day schools as it is very convenient for them to attend while committing to other activities. In addition, students located in remote areas may not attend these sessions due to diverse issues. Problems can range from connectivity concerns, lack of technological knowledge and lack of ICT infrastructure. Although RCs and SCs offer facilities for participation online day schools, very poor participation can be seen in all RCs and SCs.

Several departments plan to continue fully online lectures instead of conducting F2F day schools. However, it is very important to review the student's considerations before implementing such policy decisions.

4.6 Student participation for the functions of RCs

Students are satisfied with RC's contribution to academic related work and many students attend the University for academic work. Figure 7 shows a complete picture of the causes of visiting RCs.

Figure 7: Reasons to Visit Regional Centres

Figure 7 shows that 64.6% and 48.5% visited the centre to study and meet colleagues apart from academic necessities. Again, these statistics show the requirement of peer group interaction as one of very important factors in the ODL institutions. In general, students are satisfied with the procedures associated with above activities. However, some students expressed the difficulties faced at the time of online assignment submission. They stressed the importance of developing online assistance for the students for when they need technical support. Apart from that, most students agreed on the importance of expanding facilities in RCs as it is crucial to continue their academic work more efficiently.
5 RECOMMENDATIONS

The role of learner support services is crucial in providing effective service to open and distance learners. In Sri Lanka, the Open University plays a key role as the leading higher educational institution of open-distance learning. The Regional Education Services division, including nine regional centres and nineteen study centres, provides enormous amenities to provide support services to a wide range of student bodies spread across the country.

According to the data analysis, the role of the regional educational services towards the learner support services is valued by stakeholders, including students, alumni, academic as well as non-academic staff. In addition, public and private institutions in regions also valued the services provided by the regional and study centres. It further identified the importance of rethinking attractive advertising propaganda to promote OUSL education, as it is certainly important to make students aware specially for those who are willing to continue their higher education. The data analysis further indicates the importance of the role of friends and peer groups. This suggests the level of attention that needs to be paid to these factors when organizing promotional activities for the degree programs.

Students and staff who are in regional centres with fewer students have the possibility to maintain good relationships with each other and it helps both students and staff with their academic and official work. However, substantial centres such as CRC, KRC, and MRC, which cater to the needs of a large number of registered students, cannot maintain such close relationships, and this detachment poses several disadvantages for both staff and students. Therefore, it is recommended to provide opportunities for gatherings for all staff and students as it will help all stakeholders to create good rapport with each other. The regional staff must be well trained to take into account the specific student conditions and respect their needs and requirements and maintain good interpersonal relationships with them. However, the student profile of the OUSL is diverse and there is a wide range of students as a result of the flexibility and the openness of the enrolment. Yet, satisfying and fulfilling all requirements of this assorted student group is an immense challenge for the university.

Most of the regional centres operate with basic infrastructure facilities and with limited staff. In addition, students in these regional centres expect additional facilities from the centres and are willing to utilize other support services than mere academic events. Therefore, the expansion of support facilities such as canteens, photocopying centres, etc. is absolutely important and this can be considered as a major concern for the expansion of student support services in the regional centres. It should also be noted that student participation in day schools is not only designed for academic purposes. Apart from this obvious scholastic dimension, there are psychological aspects to this construction. Most of the students come from the conventional education system in the country and are familiar with face-to-face learning experiences. Therefore, face-to-face interaction is necessary for them to perform the academic work more successfully as it provides a lively outlook for the learning process.

Therefore, it is necessary to understand this nature of students in the Open University setup when organizing day schools or related activities while maintaining the ODL principles. Most of the students participate in the regional and study centres especially for their academic activities. Although the university has provided online facilities for some activities, students prefer to visit the regional centres for these activities. Therefore, it is certainly important to develop facilities in RCs as it would be a great support for those students who are struggling with lack of such facilities in personal premises.
Finally, it is essential to identify students’ needs to provide effective student support services to ODL, and RES plays an executive role for realizing this task. Therefore, the development of the physical and human resources in the regional centres and study centres is the most important student support services that can be provided by OUSL along with all other services that are currently implemented through regional centres and study centres located island wide.

REFERENCES


THE ROLE OF EXTRA-CURRICULAR ACTIVITIES IN INCREASING STUDENT ENGAGEMENT

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Virtual University of Pakistan, Pakistan

**Abstract**

Most of the literature on ODL today focuses on improving the distance learning processes, finding new methods to increase student motivation or enhancing technological support to enhance student engagement. But there has been little focus on finding non-traditional ways to build student engagement. The ways of involving students in extra-curricular activities at traditional universities might seem out of place in the open distance learning (ODL) system. To bridge this missing link, the Virtual University of Pakistan established various clubs and societies to increase student participation and engagement. This has been practiced successfully for the last 07 years. This study’s first objective is to review the mechanism of conducting extra-curricular and co-curricular activities (ECCAs) in the ODL setting. To achieve this objective, the procedure of ECCAs at the Virtual University of Pakistan was studied. This mechanism can be replicated in other ODL institutions wholly or partially. The second objective of this study is to find the impact of ECCAs on student engagement. To meet this objective, quantitative research methods were used. Data were collected from the students of the Virtual University of Pakistan through a questionnaire. The purposive sampling technique was used to collect data. The sample size of this study is 970. An Independent sample T-test was used to find the difference between the groups. This study shows a significant difference between the engagement levels of students who have been part of any ECCA at the university compared to the students who never participated in any ECCA. This study will help in convincing the policymakers of ODL about the importance of ECCAs. This study has also discussed about conducting ECCAs in an ODL setting that can be generalized and implemented across all the ODL universities to enhance student engagement.
1. INTRODUCTION

The emergence of knowledge economies has made everyone realize that individuals must focus on continuous education to thrive in the current competitive environment (Sharma, 2018). Open, and Distance Learning (ODL) has been proved to be a viable source for making education accessible at minimum cost to all, diminishing the boundaries of gender, age, economic status, or physical proximity (Bordolo, 2018). ODL has been playing an important role in disseminating education among the masses for many decades, but its presence has become inevitable during the last couple of years that have brought a revolutionary change in the perspective and policies of the education sector across the world due to covid-19 (Almaiah et al., 2020).

Although distance education in terms of policies, procedures, and technologies has emerged to a great extent, still few variables in the ODL chain are still missing or are still in their infancy, ‘Student Affairs’ is one of those variables (Dare et al., 2005). Among various student-related issues, the most ignored one is the use of extra-curricular activities in ODL. Along with enhancing the physical and mental abilities of students, ECCAs provides multiple benefits to the concerning educational institutions including, student retention (Flores-González, 2000), better employability skills in students (Lau et al., 2014), student motivation and student engagement (Gunuc and Kuzu, 2015). ODL institutions can also achieve the benefits offered by ECCAs by making it a part of their academic calendar.

Few studies have highlighted the importance of extra and co-curricular activities (ECAs) in Open Distance education (Foley and Marr, 2019; Ruth, 2005), but literature still lacks in providing a widely accepted mechanism of implementing ECAs in ODL institutions and its impact on non-traditional students. The role of ECAs is still unclear in the ODL organizations, and there is a strong need for a better understanding of the long-term impact of ECAs (Stuart et al., 2011).

The current research attempts to study the impact of participation in ECAs on student engagement in the ODL setting. The authors, through this study, highlighted that an ODL institute like conventional universities could achieve a balanced integration of academic knowledge, personal development, and extra and co-curricular engagement to provide a learning environment facilitating the personal and professional transformation of their students.

The objectives of this research are:

1. To study the mechanism of conducting extra and co-curricular activities at an ODL institute
2. To find the impact of participation in ECAs on student engagement.

2. LITERATURE REVIEW

Extra-curricular activities are activities that students perform other than required to earn a degree during their education at a particular institute. Stuart et al. (2011) defined extra and co-curricular (ECCAs) as “all activities beyond ‘the classroom’, such as involvement in university clubs and societies, paid and voluntary employment, family commitments, religious activity and internet activities”.

As the name suggests, these are separate from students’ main curriculum to earn a degree. There is no second opinion about the importance of extra-curricular activities (ECAs) in a student’s life. Via extra-curricular activities, students’ employability or work skills can be enhanced (Tran, 2017). Many universities worldwide have already included ECAs in their strategies to improve students’ employability skills.
ECAs provide students with an opportunity to work in real settings, and according to Osman (2011), skills gained through practical learning have a deeper impact on students. They can build better collaborative working skills. Lau et al. (2014), in their study on business graduates, found that students who participate in ECAs rate their creativity, communication skills, leadership and self-promotion skills higher than their fellow students who do not participate in ECAs. Few studies highlighted that participation in certain ECAs could help students access large firms, secure jobs, avoid unemployment, and increase academic achievements (Eide and Ronan, 2001; Tchibozo, 2005). Academic achievement is the most compelling factor for the parents and the students as all the student’s future endeavours depend on it. Stuart et al. (2011) linked high involvement in ECAs with higher marks in academics. Kaufman and Gabler (2004) emphasized on the importance of ECAs and stated that institutions should provide opportunities to their students to participate in extra-curricular activities to build their human, cultural and social capital. A study on alumni of various UK universities Stuart et al. (2011) found that alumni was related to their self-confidence, well-being, and happiness at a university. They linked the social aspect of the ECAs with the networking that ultimately helped them secure a good job. Participation in various activities like sports, music and dance, and community services increases students’ chances of getting admission in higher education institutions (HEIs). These activities increase students’ self-confidence and exposure (Kaufman and Gabler, 2004; Aoyagi et al., 2020) studied the factors that motivate students to participate in various extra-curricular activities. Among different factors, the prominent ones were the sense of responsibility and continuity, the spirit of challenge, and advancement. Participation in such activities enhances the students’ skills and increases their motivation (Wallhead et al., 2014), and this increased motivation leads towards better academic results. These activities enhance certain skills or interests and improve affiliation with the institution.

The focus of research has always been more on extra-curricular activities at the school or college level, while less work has been done on its role at the university level. The studies focusing on extra and co-curricular activities at online distance learning institutions are scarce. The academicians focus on developing learning objectives that can ascertain the knowledge a student has gained from the course work. Still, they rarely focus on giving their students a suitable study environment where they can groom or transform personally and professionally. It is easier for traditional institutions to arrange extra or co-curricular activities at their premises to engage their students. In an ODL setting the geographic dispersion and time constraints make it difficult for the institutions to arrange such activities (Fontaine and Cook, 2014). According to Tucker (2003), non-traditional students are less interested in ECCAs as they have to balance their family, degree, and work obligations. Holding this view for many years, ODL institutions have ignored the importance of ECAs. But at present this trend is changing. One can find diversity in the ODL sector in terms of students. For example, these researchers came across a 20-year-old student who is pursuing a Bachelor’s degree full-time or a 50-year-old student who is following an MPhil to progress in career; or even an unemployed mother raising children or a single female following a diploma in psychology. Considering this diversity, researchers and academicians have realized that non-traditional students should also be provided with the chance of participation in ECAs as it provides them with the same depth of experiential learning as the campus-based students (Dare et al., 2005). These students are also part of the institutional community, and they should be provided with all the
programs or activities offered to traditional campus-based students.

Participation in ECAs increases students’ affiliation with their institution, and the absence of such activities can cause a disconnect or a weaker identification with their alma mater (Ruth, 2005). The lack of interaction can cause the feeling of isolation in the ODL students. In previous literature on ODL, the relationship between student success and a sense of connection with the institution is missing. Krauth and Carbajal (1999) found a strong relationship between the sense of connection and completion and satisfaction. This connection between institution and student can be enhanced with student services and extra co-curricular activities. It can be the most effective way to employ the highest level of socialization, interest, sense of achievement, and involvement in the participants, enhancing student engagement.

Student engagement has gained the academic researchers’ special attention as an important source of decreasing boredom, dropout rates, and increasing achievement levels (Fredricks, 2011). Student engagement plays an important role in the academic and intellectual development of the student. Gunuc and Kuzu (2015) defined engagement as “the quality and quantity of students’ psychological, cognitive, emotional and behavioural reactions to the learning process, as well as to in-class/out-of-class academic and social activities, to achieve successful learning outcomes” (P. 3). The construct of student engagement consisted of three dimensions, emotional, behavioural and cognitive. Fredricks et al., (2004) conducted a comprehensive study on the concept of engagement and gave a detailed literature review of all the dimensions of engagement. They defined Behavioural engagement as the student’s involvement in learning and academic tasks, school-related activities, and positive conduct. Emotional engagement deals with the feelings of a student towards belongingness with the institution and the positive and negative reactions towards the institute and the activities. In contrast, they explained cognitive engagement as a student’s level of investment in learning and acquiring difficult skills. Measuring student engagement is difficult in ODL settings than conventional face-to-face learning and should be measured differently (Henrie et al., 2015). There are different factors that can enhance students’ engagement like campus environment, association with peers or institution etc. but for this study authors have taken ECCAs as a source of student engagement.

Various ODL institutions have started offering extra or co-curricular activities for their students. Fontaine and Cook (2014) studied the co-curricular activities’ strategy of a distance learning school of pharmacy and health professions. The school required students to register with a professional association to get their field’s real-time experience. This model is specified to the medical profession only. Moreover, they have not included extra-curricular activities in this model.

Dare et al. (2005) gave two perspectives concerning student services in distance education: 1) Offering same services to the distance learner and campus-based students, 2) Providing different services to both type of learners considering their specific needs. But in the researcher’s opinion, the low involvement of ODL students in extra-curricular activities as premised by previous researchers (Ndudzo, 2013) might be the result of not realizing the different needs of ODL students as compared to campus-based students. The research on connection between the ECCAs and its impact on the ODL students is still in its early stage, but from the previous literature it can be concluded that researchers and professionals are aware of this gap. This study has tried to fill this gap by finding the relationship between the participation in ECCAs and student
engagement. Keeping in view the above literature following hypothesis has been developed:

**H1: Participation in Extra and Co-curricular Activities increases student engagement.**

### 3. EXTRA AND CO-CURRICULAR ACTIVITIES AT THE VIRTUAL UNIVERSITY OF PAKISTAN

Virtual University of Pakistan (VUP) is a federal University established in 2002. Virtual University is an ODL university having more than 200 campuses across Pakistan. VUP caters for the educational needs of students across the country and living overseas. Considering the need for out-of-the class activities and its impact on its students’ academic performance and grooming, VUP established its extra and co-curricular (ECCA) activities plan under the platform of ‘LIFE At VU’ in 2014. Since then, VUP has successfully conducted its annual activities named ‘student week’ every year, having many students participate in all the club and societies. This section provides the overall procedure of conducting ECCAs at VUP.

#### 3.1 Societies/Clubs

Currently, 15 societies/clubs are working at VUP to promote students’ physical, intellectual, ethical and leadership abilities. These societies/clubs cater to students’ extra and co-curricular needs from Photography to debates, from sports to dramatics, from entrepreneurship to voluntarism.

#### 3.2 How it works

The Virtual University of Pakistan is an online distance learning institution. It is critical to involve students in ECCAs to enhance their physical and mental growth and give them an experience of excitement and thrill associated with activities other than course work and studies.

For this study, the activities have been divided into two categories:

- Activities where no physical presence is required.
- Activities where the physical presence of the students is required.

#### 3.3 Activities with no physical presence

VUP designed its system utilizing information technology in a way that maximum students can participate. A web portal is created where students can submit their creative material online. Every student has been assigned a unique VU-ID that can be used to log in to the portal or to get registered in any competition or be a member of any club/society. Students who wanted to be part of Camera Club, Literary Club, IT Club or Society for the rising entrepreneur are the main focus of this portal. Here we will take the camera club as an example and discuss its functionality in distance learning institute.
3.3.1 Announcement of Competition

Every year during Student Week, Camera Club announces a competition where a topic is given, and all the students of VUP (national and international) are invited to submit three photographs on the given theme. According to the theme, a tab for photo competition (as can be seen in the below-given image) is available on the website (societies.vu.edu.pk) where students submit original photographs taken by them (Figure 1).

![Figure 1: Photographic Competition mode](image)

After the due date, initial screening is made, and shortlisted photographs (original, according to the theme) are uploaded on the website and voting is opened for all the students. Each student from VUP can vote for one picture. Meanwhile, the expert photographers make the evaluation. The result is declared with the percentage of experts’ opinion and voting of students, as shown in the given image (Figure 2).

![Figure 2: Photos of the winners of the photographic competition](image)
During this whole competition, the students are not required to visit any campus; students can submit their creative work online without the limitation of time and place.

The same procedure is followed for other societies where physical presence is not required like, essay competitions, poetry competitions, programming and idea competitions etc.

3.3.2 Activities where the physical presence of the students is required

Few activities need the physical presence of students like sports and performing arts etc. These activities need a different approach. VUP has its campuses in more than 100 cities that have been divided into five regions, and every region is further divided into sub-regions.

3.3.3 Announcement of Competitions

Every year during ‘student week’, competitions are announced in all the categories like debates, short play, singing and sports activities (cricket, badminton, table tennis etc.). For this study, we will take cricket as an example of physical presence-based activities in ODL.

After the competition announcement, all the sportsmen/cricketers must register themselves on society’s web portal (http://societies.vu.edu.pk/Pages/Home.aspx) under the relevant competition. Every campus manager can see the registered students of his campus. After the deadline, all the sub-regions’ students are called for trials where a sub-region team is selected. A tournament is conducted at each region where all the teams of sub-regions compete to represent a region. In the grand event conducted at the central level, five teams representing each region compete for the winning trophy of Student Week of the year. The same procedure is followed for debating competitions, Singing competitions, painting competitions, and all other sports activities. VUP has been conducting ECCAs successfully through this system since 2014 and has been able to engage thousands of students in various competitions.

4. METHODOLOGY

This is an explanatory study using a cross-sectional design. Unit of analysis is individual students of VUP. It is a quantitative study in which survey research has been employed using an online structured questionnaire.

4.1 Target Population

This study’s target population is all the students enrolled at VUP during the year 2013 to 2018. Virtual University started its extra and co-curricular activities in 2014, which is why the starting year has been set as 2013. Due to Covid-19, student week has been suspended since 2019, so 2018 has been selected as the end year.
4.2 Sampling technique and sample size

Purposive sampling has been used to collect the data. With the IT Department’s help at VUP, the online questionnaire link was sent through e-mail to all the students enrolled during 2013-18. An e-mail was also sent to all the students registered in any society at the web portal of “Life at VU”. Campus managers were also involved in getting a maximum response from the students. Around 1500 responses were received; after excluding the missing data and incomplete response and response of students who were not part of VUP during the year 2013-18, the data of 907 students were available for further analysis.

4.3 Data Collection

A survey questionnaire has been used to get the response. Different researchers have developed questionnaires to measure student engagement at the university level, while few authors attempted to measure engagement in ODL settings like Dixson (2015) and (Yang, 2011). But these questionnaires are focused on the content or procedures of the curriculum. Considering the study’s unique nature, which focuses on extra and co-curricular activities, none of the questionnaires used in ODL related research could be used. The questionnaire used for this study was developed by (Gunuc and Kuzu, 2015). This study is being conducted on the ODL students: psychological engagement has been measured using two dimensions: Valuing and Sense of belonging. The questionnaire consisted of 11 items.

4.4 Reliability Analysis

The questionnaire comprised of 11 items, 03 items measured valuing and 11items measured belongingness. Table 1 shows the instrument’s reliability, which has been .921, which is considered very good. This high-reliability score indicates that the instrument was consistent in measuring the underlying concepts.

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
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<tbody>
<tr>
<td>Cronbach’s Alpha</td>
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<tr>
<td>.921</td>
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</table>

5. RESULTS

The basic aim of this study is to measure the effects of ECCAs on student engagement. For this purpose, two groups have been identified. Those who have never participated in any ECCA and those who have participated in any such activity. Table 2 shows group statistics. Code “1” was assigned to those who participated in ECCAs, and code “2” was given to those who did not participate in the ECCAs. An Independent sample T-test has been applied to measure the differences in students’ engagement level with their institution. Table 3 shows the results of the T-test. Levene’s test shows that both groups came from populations with equal variances as p-value .377 is greater than .05. The T-test results exhibit a statistically significant difference in the overall engagement of the students who take part and who do not participate in the extra-curricular activities. This shows that taking part in ECCAs has a significant effect on students’ engagement in distance learning. Table 4 shows the T-test result of valuing.
Table 2: Group Statistics

<table>
<thead>
<tr>
<th>Have you ever participated in extracurricular activities (Student Week, Club/Societies) organized by VJ?</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement Mean</td>
<td>429</td>
<td>4.0772</td>
<td>.75843</td>
<td>.03662</td>
</tr>
<tr>
<td></td>
<td>478</td>
<td>3.9275</td>
<td>.71631</td>
<td>.03285</td>
</tr>
</tbody>
</table>

Table 3: Independent Sample Test

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene's Test</td>
<td>t-test</td>
<td>Lower</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>Equal variances not assumed</td>
<td>3.612</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>Equal variances not assumed</td>
<td>3.597</td>
</tr>
</tbody>
</table>

Table 4: T-test result of valuing

<table>
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</tr>
</tbody>
</table>

Participation in ECCAs does not affect the valuing of the students towards their institution. It implies that students appreciate their alma mater in any case, whether they participate or not in ECCAs. Table 5 shows the independent sample t-test regarding the students’ belongingness towards their institution.

Table 5: Independent sample t-test regarding the students’ belongingness towards their institution

<table>
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<td>t-test</td>
<td>3.597</td>
</tr>
</tbody>
</table>

It is evident from table 5 that participation and non-participation in ECCAs are highly significantly different phenomena. The mean score of those who participated in the ECCAs was 3.9018, while those who did not participate were 3.6213. The difference was highly significant, showing that participation enhances students’ sense of belongingness towards their institution.
6. DISCUSSION

It is a common belief that a healthy body keeps a healthy mind, and to act upon this universal advice, educational institutes conduct extra and co-curricular activities for their students. The conduct of such activities in traditional on-campus institutions is a norm and routine. But arranging these activities in a distance learning institute where students are separated by time and space is a critical challenge. The Virtual University of Pakistan accepted this challenge and initiated extra and co-curricular activities in the university in the year 2014. These activities ranged from indoor games like online gaming, painting, and badminton to outdoor games like cricket and football. Moreover, competitions like debating, drama and fine arts are also being held. Students from all over the country and overseas participate in these games and contests. Arrangement of all these activities, which are termed “Student Week”, has been a new trend in distance learning institutions. This is a unique practice that has made students more enthusiastic and connected.

This study also focused on the students’ reaction towards participation in ECCAs. The study results show that student participation in ECCAs has a positive effect on the overall student engagement with the university. For this study psychological engagement has been taken as an independent variable that comprises of two dimensions, Valuing and Belongingness. Valuing is defined as the feelings of students towards their institution and the value they associate with being part of that institution (Guncu and Kuzu, 2015). While Belongingness is defined as the feelings of students that they are accepted by other members of their institution (teachers, students) Goodenow, (1992) and Ndudzo, (2013) found that students’ engagement in ODL is driven by the communication between student and university and relationship between students. These ECCAs is a source of interaction between peers and universities. Same pattern has been found in our study. Table 5 shows that there is a significant difference in the Belongingness of students who participated in ECCAs as compared to those who did not. This explains that communication and interaction between students and university can increase students’ engagement and affiliation with their institution. Henrie et al. (2015) also stated that participation in society/clubs can increase Belongingness of the students. No significant difference in the Valuing dimension of engagement has been found in the participation or non-participation group. It shows that students give value to their university irrespective of their participation in any ECCAs.

When the composite variable Engagement comprising Valuing and Belongingness was tested, as shown in Table 3, it was statistically significant. Students who participated in ECCAs had a higher mean score of 4.0772 than those who did not participate who showed a mean score of 3.9275. This result confirms the proposed hypothesis that participation in ECCAs increases student engagement. If an institution wants to increase student engagement ECCAs are one of the many sources that can be used. These activities not only increase student engagement but also increase their self-confidence, employability skills and motivation that are the ultimate objective of an educational institution along with academic excellence.
7. CONCLUSIONS

This study found that extra and co-curricular activities in ODL can be conducted successfully. Students of ODL do complain of being socially disconnected; extra and co-curricular practices can mitigate these negative perceptions towards ODL. It was also found that participation in extra and co-curricular activities enhances students’ Belongingness to their institution that may ultimately result in student retention and lower the dropout rate in ODL. This study is an attempt to bring to light an important factor of student engagement in Open Distance Learning that has not met with research focus. This study has provided empirical evidence that ECCAs are equally important for conventional and non-conventional learners.

REFERENCES


MOOCs as a Catalyst for Lifelong Learning in India: A Case Study

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Knowledge Movement, Life Long Learning, Life Skills, Online Learning, MOOCs

Abstract

Providing educational opportunities to all has been one of the top priorities of higher education in the 21st century. However, education should also meet the requirement of the 21st century learners by offering need-based and skill-based courses which could provide them with maximum benefit at the completion of education. When the developed countries of the world are opting for more actionable educational goals through the optimum utilization of technological tools, the questions—whether quality education can be achieved at all, whether the disparity among the people in rural and urban areas, haves and have-nots etc. can be mitigated through education, whether the new educational interventions such as Massive Open Online Courses (MOOCs) are actually able to provide lifelong learning opportunities to the takers—become some of the very pertinent concerns in a country like India. Thus, the differences in the implementations of policies and services between the developed and developing countries should be meticulously studied so that the existing gaps in a country like India in providing modern forms education can be identified and meticulously discussed. In 2016, for providing lifelong learning opportunities, the Indian Govt. had implemented the SWAYAM where IGNOU, the National Open University of India, was entrusted with the responsibility to coordinate the offering of MOOCs for the lifelong learners of the country. This necessitates a detailed study on whether the courses under IGNOU, SWAYAM are actually able to offer lifelong learning opportunities and whether such initiatives have been able to meet the challenges of addressing the needs of the lifelong learners at the time of a crisis situation like the Covid-19 Pandemic. This paper is based on a Case Study done among four ODL institutions of India. A structured questionnaire in Google form was developed for collecting the data/information/feedback from the course coordinators who had offered MOOCs under IGNOU, SWAYAM for providing lifelong learning opportunity.
1. INTRODUCTION

Adopting essential skills and techniques through education is a lifelong process on the part of an individual. Therefore, in the 21st century, there emerged various educational systems and policies throughout the world. This has enabled millions of learners who are not able to leave their jobs or attend regular classes due to so many reasons. For the long-term benefits of the nation as well as for the well-being of its people, there is a need not only of quality education but also of the kind of education that makes the learners more competent in the workspace through the accumulation of different skills. Besides developing the power of rationality and critical thinking among learners, education is a prerequisite for the acquisition of knowledge, enhancement of skills, development of the right kind of attitudes and values etc. We therefore need such type of education that would provide opportunities to develop knowledge and skills required to lead meaningful lives.

India is a vastly populated country with a rich cultural heritage and knowledge systems. Even the NEP 2020 reiterates that the pursuit of knowledge (Jnan), wisdom (Pragyaa) and truth (Satya) has always been upheld in the Indian thought and philosophy as the highest human goal. However, history tells us that the aim of education in ancient India was not just the acquisition of knowledge or the preparation for life in this world or life beyond schooling, but, the complete realization and liberation of the self. It has also been seen that there have been so many scholars or individuals who contributed a lot in strengthening the ethos of the Indian civilisation without having any higher or formal degrees. They were acquainted with life skills that helped them to emerge as productive and skilful.

However, the modern-day India has its own specific challenges to meet. In order to emerge as a developed nation, human resource development is the prerequisite so that it can contribute economically and socially to the nation building process. For that, other than providing access to formal education, proper training should also be given to the students regarding handling the problems of personal life, forming study habits, maintaining relationships with peers and other members of society, handling pressure at work place etc. Such skills which enable a person to tackle various stressful situations in life and to lead a happier life are called life skills. The World Health Organization has defined life skills as “the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life.” According to WHO, life skills encompass personal, interpersonal, physical and cognitive skills that facilitate people to organize and manage their lives, and to develop the capacity to live with, and produce change in their environment. The focus on life skills, made by the World Declaration on Education for All and Framework For Action to Meet Basic Learning Needs (1990) is also notable. The Delors Commission Report (1996) (Dubey and Mitra, 2021) also suggests that education throughout life should be based on the four pillars: learning to know, learning to do, learning to live together and learning to be.

In this century, the emergence of various forms of online learning including MOOCs has created a knowledge movement in the entire world. While discussing the crucial role of MOOCs, Melinda dela Peña Bandalaria (2018) mentions that MOOCs are playing a significant role in transforming and empowering higher education across Asia and that the creation of the MOOCs platform and the presence of national providers of MOOCs offering open learning to all has been a continuous process since 2013. But the important point is that the different country-wise MOOC initiatives in South East Asia such as K-MOOC in Korea, J-MOOC in Japan, Thai-MOOC
in Thailand, OpenLearning.com in Malaysia, University Joint Alliance Platform in China and the MODEl in the Philippines etc. have enabled the participating open universities and other institutions to collaborate while offering open online courses for thousands of intending learners. This has not only well served the learners in their respective countries but has also facilitated monitoring of quality of this open learning mechanism and formalisation of national policies on the recognition of learning obtained after the completion of these courses.

Acknowledging the potential of MOOCs for transforming the society, the MHRD, Govt. of India in the year 2016, introduced Study Webs of Active Learning for Young Aspiring Minds or SWAYAM, where teachers from institutions such as the IITs, IIMs, and central universities offered online courses to the citizens of India. In order to ensure the quality of the contents produced and delivered through SWAYAM, several National Coordinators had been appointed: NPTEL for engineering, UGC for post-graduation education, CEC (Consortium for Educational Communication) for under-graduate education, NCERT and NIOS for school education, IGNOU for out of the school students and IIMB for management studies. Subsequently, the University Grants Commission (UGC) through its Credit Framework for Online Learning Courses through SWAYAM Regulation (2016), mentions that at least 40% materials from the total number of courses offered by an Indian University should be released in the form of MOOCs for the fast mobilisation and dissemination of knowledge and information among the prospective learners.

As per the report provided by the Minister of State (HRD), Dr. Satya Pal Singh in the Lok Sabha: “The Ministry of Human Resource Development (MHRD) has embarked on a major and new initiative called Study Webs of Active Learning for Young Aspiring Minds (SWAYAM), which provides one integrated platform and MOOCs (Massive Open Online Courses) portal for online courses, using Information and Communication Technology (ICT) and covering all higher education subjects and skill sector courses. If we see the trend of total enrolment in the various MOOCs under SWAYAM, the trend has significantly increased in the year 2018, when there were more than 39 Lakhs learners enrolled in more than 1600+ MOOCs provided through SWAYAM. It is to be noted that 60,000 persons completed the courses that year. In the year 2021, more than 1 crore 84 lac 70 thousand learners have been enrolled and 850924 have successfully completed the courses as a whole. As a platform of providing lifelong learning opportunities, till April 2019, IGNOU has 3 partnering institutes, 36 completed courses, 47529 student enrolments, 483 students registered for the examination and none of them successfully completed the certifications. In the year 2021 (till 15th April), the trend of enrolment and pass percentage display an upward motion as there are 111 completed courses, 226547 students enrolment, 1908 students registered for the examination and interestingly 1440 have successfully completed the courses under IGNOU platform (www.swayam.gov.in). Actually, compared to 2019, the trend of progression in terms of student enrolment, course offered and the success rate are comparatively better since during the Covid 19 pandemic and post Covid 19 (1st cycle) situations, IGNOU could provide better learning opportunities compared to the earlier periods.

Thus, SWAYAM is expected to help in achieving the three cardinal principles of the Indian Education Policy viz., access, equity and quality. It is important to note that since 2016, through SWAYAM, the Indian Government is intending to promote internationalised system of education and providing lifelong learning opportunities to the individuals to reach optimum productivity. But if we see the
courses offered through IGNOU, it seems that compared to the other national coordinators, the enrolment trend, the number of courses offered as well as the percentage of certification is less in IGNOU compared to other national platforms such as CEC, UGC, NPTEL, NCERT etc. This is also pertinent to see whether the courses offered through IGNOU is able to provide the life skills to the lifelong learners, whether the state open universities along with the Central university i.e. IGNOU are able to offer such courses for the desired learners and so on. Besides, through this paper, an attempt is made to explore the prosperity and challenges behind offering the courses under the IGNOU platform by collecting feedback from the selected course coordinators.

This paper discusses how modern educational interventions like MOOCs, as provided under SWAYAM in India, have initiated a positive and productive social transformation in the country by providing certain specific courses meant to promote lifelong learning, to enhance life skills and provide livelihood opportunities to thousands of learners. The paper also discusses in detail whether the courses offered under IGNOU, SWAYAM are actually able to offer lifelong learning and whether such initiatives have been able to meet the challenges of addressing the needs of the lifelong learners at the time of a crisis situation like the present Covid 19 pandemic. This paper is based on a case study done on four ODL institutions of India.

2. OBJECTIVES OF THE STUDY

1. To study whether the aspiring learners are able to access need-based quality education through the MOOCs under IGNOU, SWAYAM.
2. To explore at what level, MOOCs provide the scope to enhance skill and employability in the life-long learners in India.
3. To propose some measures for reducing the gap between the rich and the poor in accessing higher education, mitigating regional disparity and digital division between the haves and the have-nots with the help of MOOCs.

3. RESEARCH METHODOLOGY

This paper is based on a Case Study done in four ODL institutions of India. A structured questionnaire in the form of a Google Form was developed for collecting the data/information/feedback from the course coordinators who offered MOOCs under IGNOU, SWAYAM platform. For knowing the pros and cons behind offering the courses under IGNOU platform, a structured questionnaire was developed and it consisted of questions on the courses offered by the selected ODL institutions in India, trend of enrolment, rationale for enrolling, training of the course providers, learners’ pass percentage, challenges, strengths and weaknesses, provision for collaborative learning among peers through discussion forum etc.

4. NEED FOR SKILL BASED EDUCATION AND LIFELONG LEARNING

Skill Development means the development of knowledge, attitude and skills of the people so that they can promote social and economic development of their society. Besides, it also means to ensure the development of the quality of life, economic progress and enlargement of people’s choices (expansion of economic and social choices). Therefore, skill-based education in all educational levels can help in the economic growth of a nation by producing productive labour forces and also by providing ample
employment opportunities. The important fact is that India has a rich demographic dividend as the country has 54% of population below the age of 25, and 66% people under the age of 35 (Census 2011). The number of school-going people within the young population could be considered assets for the country. If the proper skill-based education could be provided to the members of this group of population, it could contribute a lot to the enhancement of positive social transformation through social and economic mobility and to the creation of a knowledge-enabled population in the country.

However, education is also supposed to enhance life skills among the learners. Life skills are skills that help individuals in dealing with the issues of daily life effectively using various adaptive practices according to the changing needs and requirements. The overall reflection of one’s behaviour is the sum of the appropriate combination of different skills. Logically, it is the psychological competency and steadiness of the concerned individual. The most appropriate intervention for the promotion of this competence of children in school is to enhance competencies through the proper use of available resources by the process of Life Skills Education and training. Life skill can change our mental set up and the style of functioning. This ability will enhance utilisation of human resources and increase productivity.

It is against the need for upgrading the education systems by integrating skill education that we can see the emergence of life skill-based education which is nothing but an interactive process of teaching-learning which enables the learners to acquire knowledge, develop attitudes and skills that would help the learners to adjust according to any kind of environment. Life skills are a combination of cognitive, personal and interpersonal abilities that assist individuals in making informed decisions, solving problems by thinking critically and creatively. They also help them to communicate effectively, build healthy relationships, empathise with others, and cope with as well as manage affairs of life in a healthy and productive manner. Therefore, lifelong learning is the key to learn individually or collectively in order to utilise the life skills which are necessary to live a life of dignity in the society in the true sense.

In the present knowledge society, there is no doubt about the fact that ODL and online education have provided various educational opportunities and have enhanced access to different need-based courses, knowledge and information for all those who would like to be engaged in lifelong learning for a better livelihood. It is also important to note that the Sustainable Development Goal 4 (SDG4) has made a reference to ‘ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all’ (https://sustainabledevelopment.un.org/sdg4). SDG4 is part of the 2030 Agenda for Sustainable Development, adopted by all UN Member States in 2015. Thus, Lifelong learning has today become essential for survival and for enhancing people’s quality of life, as well as for national, human, social and economic development. If a country has to compete globally and emerge as a developed nation, it has to improve the quality of its human resources through well-defined lifelong education policies and programmes.

The UGC ODL Regulations 2020 have also categorically referred to the use of e-resources for ODL and has stated that all Higher Educational Institution offering programme(s) in Open and Distance Learning mode shall take such measures as it is necessary to blend Information Communication Technologies (ICT) including those developed by National Mission on Education through Information and Communication Technology, with the present education system, for enhancing the effectiveness of the
teaching–learning process, administrative functioning and for maintenance of an updated set of information at all times with respect to the status of admissions and registration. This aids in managing teaching-learning activities with online support, in order to facilitate interactive learning with learner feedback, the use of Open Educational Resources (OER), Massive Open Online Courses and continuous as well as comprehensive evaluation, certification, and other aspects of learner support. The Regulation also states that a Higher Educational Institution may allow up to forty per cent of the total courses being offered in a particular programme in a semester through the Online Learning courses/Massive Open Online Courses and that education should promote development of life skills such as communication, cooperation, teamwork, and resilience. This should be considered a great opportunity for a country like India.

The development processes across the globe are confronted with a crisis never seen before due to the lockdowns caused due to the Corona Virus (Covid 19) pandemic since December 2019. The consequences of the crisis are most apparently being felt in the socio-cultural, educational, economic and political arenas of the society as a whole. Moreover, the pandemic has spread its tentacles across the country and has brought newer challenges for us. Due to the sudden nationwide lockdown, it seems that the situation becomes worse for those who are striving to get their basic sustenance of living. Lockdowns have paved way for job-cuts and pay-cuts thereby impoverishing thousands of people. The Covid Situation has also once again reminded us of the deep inequalities existing in our society and how the lower income groups are the worst sufferers of any disaster.

Against this background, the Open Universities with the advantage of having access to a larger population can play an effective role in the development of the requisite skills for empowering people, particularly women. The Open Universities can be harbingers of change and development if they can work fruitfully towards strengthening the deprived sections of the population by starting more and more online interventions in education. The need is therefore to plan proper training, soft skills and life skills which is only possible through MOOCs as we can experience from the latest offering of MOOCs under SWAYAM by some of the Indian Open Universities.

5. MOOCS AS THE CATALYST FOR LIFELONG LEARNING

The idea of sustainable education has the potential to create a knowledge-movement in every aspect of human life in the 21st century society. Besides, for promoting and facilitating sustainable education or lifelong learning opportunities, various educational pedagogical techniques or methods are evolving in a massive way so that anyone can access the world-class education at his or her own place and pace. In this context, in the modern industrial era, the modern interventions like MOOCs have provided the platform for opening up the minds of the people hungry of knowledge. The higher educational institutions, mostly the open and distance learning institutions, have the flexibility to equip young people with relevant tools that prepare the nation to become responsible citizens who value a democratic and pluralistic society. However, in reality, it seems that still in India, only 5% of the population within the age group of 19-24 has acquired some sort of skills through vocational education while the corresponding figure for a country like Korea is as high as 96% (World Development Report, 2018).
India has a rich demographic dividend as 54% of the population is below the age of 25 and 66% people under the age of 35 (Census of India, 2011). But it is equally a matter of concern that at the all India level; the adult (15+years) literacy rate is 69.3%. Again, if we consider the percentage of the population with at least some form of secondary education above the age of 25 and older, it seems that there are huge disparities between the sexes in India as female constitutes 39.0% and male 63.5%. In addition to that, in case of Labour Force Participation Rate, the percentage of male is 78.8% and female is 27.2% (HDR 2018). This proves that there is a lack of adequate skills among people, mostly among adult learners, in exploring their livelihood opportunities. However, in the second decade of the 21st century, it has been increasingly felt that everyone should be well-equipped with digital skills which are the prerequisite for getting jobs and livelihoods in a digital economy. Thus, online learning imparted through LMS and MOOCs are expected to help the learners to possess the relevant digital skills and knowledge of a subject that would further help them adopt inclusive and equitable education and lifelong learning even during an adverse time (Bordoloi, 2020).

Another fact is that a major percentage of people are general degree holders rather than professional and vocational skill holders. This has led to an increase in the educated unemployment as more than 90% of the Indian population is engaged in the unorganised sector, which also indicates the poor level of Workforce Participation Rate (WPR) in various parts of India. However, the Recognition of Prior Learning (RPL) can be made an important mission on the part of the Indian policy makers of education where traditional knowledge can be certified and given the credit so that a skill-enabled population can be created in the true sense. Through the RPL, people irrespective of their age, sex and geographical distance can get formal recognition of their traditional skills so that they can use such informal skills productively. Therefore, the education providers may launch some courses where people understand the scope of education in case, they consider upgrading their inherent knowledge and skills in their preferred areas to generate income. Finally, the Govt. of India came up with the National Skills Qualifications Framework (NSQF) as a competency-based framework that organises all qualifications according to different levels of knowledge, skills and aptitude. Under NSQF, a learner can obtain a certificate for the competency needed at any level through formal, non-formal or informal learning.

MOOCs, on the other hand, which made its global presence felt in 2012, are online courses that are designed for a large number of people that can be accessed by anyone, anywhere and anytime so long as they have an internet connection, and those are open to everyone without entry qualification. Those offer a full/course experience online for no cost at all. In fact, when it comes to popularising MOOCs all over the world, the year 2012 was declared as the year of the MOOCs by The New York Times. Today, in many countries, including India, MOOCs are being offered by the top universities that have opened new vistas for the aspiring learners to pursue education independently under the concept of lifelong learning. Although MOOCs are not the substitution for traditional courses, this has surely created an open gate for the learners to reach the esteemed professors and educators whom they would perhaps never meet physically.
In 2016, for providing lifelong learning opportunities, the Government of India had implemented the SWAYAM where IGNOU, the National Open University of India, was entrusted with the responsibility to coordinate the offering of MOOCs for the lifelong learners of the country. This necessitates a detailed study on whether the courses under IGNOU, SWAYAM are actually able to offer real lifelong learning opportunities and whether such initiatives have been able to meet the challenges of addressing the needs of the lifelong learners at the time of a crisis situation like the present Covid 19 pandemic.

6. ANALYSIS OF FEEDBACK RECEIVED

For collecting the feedback on the courses, the questionnaire was sent to only three state open universities (namely Netaji Subhas Open University, Uttarakhand Open University, Yashwantrao Chavan Maharashtra Open University) which currently offer MOOCs under IGNOU platform. Apart from these, the questionnaire was also sent to the three MOOCs coordinators from IGNOU. With respect to the accessibility and effectiveness of the courses in terms of skill development of the learners, the following are the feedback received from the course coordinators.

<table>
<thead>
<tr>
<th>Questions related to the MOOCs under IGNOU, SWAYAM Platform</th>
<th>Feedback of the course coordinators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regarding the trend of enrolment and pass percentage in the last three years</td>
<td>Enrolment has increased, but the pass percentage is approximately 10%.</td>
</tr>
<tr>
<td>Demographic profile of the learners in terms of age group and sex</td>
<td>Most of the learners belong to the age group of 26-35 and around 90% are male learners</td>
</tr>
<tr>
<td>Learners mostly belong to</td>
<td>50% in each from rural and urban sectors</td>
</tr>
<tr>
<td>Educational qualifications of the learners at the time of enrolment in MOOCs</td>
<td>100% learners were undergraduates when enrolling in the MOOCs</td>
</tr>
<tr>
<td>Regarding the learners prior experiences of MOOCs</td>
<td>On the basis of the learners data, 50% learners had prior experiences of MOOCs</td>
</tr>
<tr>
<td>Rationale for enrolling in the MOOCs</td>
<td>Professional development, personal interest are the two main reasons, followed by enhancement of knowledge and skills</td>
</tr>
<tr>
<td>MOOCs offered helped the learners in developing their life skills</td>
<td>30% strongly agreed that the MOOCs helped the learners develop their life skills, 40% agreed and others did not respond.</td>
</tr>
<tr>
<td>Regarding the credit transfer</td>
<td>30% agreed that MOOCs adopted by the learners helped them in credit transfer while majority were not sure how it helped the learners in their credit transfer.</td>
</tr>
<tr>
<td>Regarding the four quadrants of online learning</td>
<td>100% agreed that the four quadrants were provided to the learners while offering the MOOCs.</td>
</tr>
<tr>
<td>Use of OERs and live sessions in MOOCs</td>
<td>100% believed that the OERs and live sessions helped the students in finding the most relevant information as per their expectation.</td>
</tr>
<tr>
<td>Discussion forum in the MOOCs offered</td>
<td>As per the opinion of the coordinators, the discussion forum immensely helped the learners in collaborative learning and peer learning</td>
</tr>
</tbody>
</table>
Regarding the training of the course coordinators

The coordinators underwent rigorous training provided by UGC and IGNOU before launching the course in IGNOU platform.

Regarding the MOOCs offered by IGNOU, what were the most relevant for the learners during and post Covid 19 situation?

The course coordinators stated that credit transfer and skill enhancement through MOOCs were the most relevant issues for the learners during COVID 19 pandemic as well as in Post-COVID 19 pandemic.

Challenges faced by the MOOCs coordinators

Infrastructure, lack of awareness among the participants, digital division, shortage of electricity are the real issues behind the practical utilisation of the course for the wider benefits of the stakeholders.

Suggestions for improving the conditions for offering and adopting MOOCs in Indian context

- Sensitisation among the stakeholders regarding the MOOCs available in the IGNOU platform,
- Capacity building for teachers
- Need for wider publicity
- Formalisation of credit transfer might play an important role in adopting MOOCs in Indian context.

7. FINDINGS AND SUGGESTIONS

The study discovered that although the MOOCs should be launched for the greater benefits of the lifelong learners, the idea behind the formation of the SWAYAM platform has not been implemented properly. Considering the way Commonwealth of Learning (COL) has launched courses for the lifelong learners (e.g. Lifelong Learning for Farmers), it could be stated that the same modalities could be adopted by the SWAYAM in IGNOU platform for enhancing the productivity of the learners.

It has also been observed that as a national provider, IGNOU is the only institution that has launched majority of the MOOCs in the SWAYAM platform. Other than IGNOU, only 3 other state open universities provide MOOCs under that platform. Although IGNOU offers many relevant courses such as agricultural policy, awareness programme on solar water, pumping system, research methodology and statistical analysis, it is an urgent requirement to encourage other state open universities (as in India at present there are 14 state open universities) to offer and adopt the locally relevant courses for meeting the needs and requirements of the learners, particularly the young adult group for enhancing their life skills. At this crucial moment of the Covid 19 pandemic, need based courses for the lifelong learners for enhancing the life skills needs to be the priority particularly on the part of the open universities.

Again, it has also been observed that due to the sufficient infrastructure, the success rate of the MOOCs or the pass percentage of the learners is very few in the online courses than the tradition face to face teaching courses. In the Indian context, the digital division between the haves and the have-nots is yet another pertinent issue for which many lifelong learners, particularly from the weaker sections, have always been deprived of getting the opportunity to enhance their knowledge and skills. In this context, it is the duty of the educational providers to encourage the learners for collaborative and team teaching so that exchange and sharing of technological tools would help them immensely to have access to the right information on time.

Training should be provided to both the teachers and learners on the use of technology for academic purposes. Awareness programmes should be organised on the availability of the
learning resources on the part of the government so that the learners, irrespective of their age and geographical locations, can develop an interest for active participation in the courses offered in SWAYAM, IGNOU platform.

In this context, it could be stated that an organisation like BALIKA (Bangladesh Association for Life Skills, Income and Knowledge for Adolescents) that deals with many aspects related to the enhancement of life skills of the adolescents in Bangladesh in terms of providing the educational support, organising gender rights awareness programme, providing livelihood training etc., can be the suitable model for a country like India. The existing open universities in India can follow the same model for providing the learning support to the young adolescents in their own state by offering such type of courses that would eventually help the country as a whole.

8. CONCLUSIONS

At the present knowledge society, we need people who have the capability to adapt according to the situation which is fast changing in nature. Lifelong learning opportunity can provide the necessary inputs to the people for enriching their knowledge and skills so that they may lead a meaningful and productive life in the society. In the present techno-pedagogical world, it is necessary to use non-discriminatory and inclusive pedagogy to disseminate knowledge to the learners in an equitable way, with the objective of making education accessible to all. The proper applicability of online learning in the true sense would justify the presence of an equitable society for all. OERs and MOOCs in blended as well as online format have tremendously influenced the teaching learning transactions in the digital age.

In the Indian context, the long-term impact of the current study can be visualised in terms of how the courses available in IGNOU, SWAYAM would strengthen and standardise the whole education system across India. This study will also help in directing the Govt. to adopt some feasible policies in order to mitigate the gaps in terms of proper implementation of MOOCs and the benefits on the part of the learners in post-Covid 19 situations. In fact, through the study, a roadmap could be prepared for identifying the strengths and weaknesses of the courses offered so that quality learning opportunities could be provided to the aspiring learners. Besides, the study also helps to get an idea of how flexibility, in terms of opting out courses from the SWAYAM platform by the learners, will provide a new direction in education that would eventually lead to academic as well as educational transformation in a country like India.

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FACTORS AFFECTING LEARNERS’ PERCEPTION TOWARDS E-LEARNING DURING THE COVID-19 PANDEMIC

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Abstract
Technology plays a vital role in education all over the world. The outbreak of the Covid-19 pandemic has made universities and higher education institutions rely more on advanced technologies to conduct their respective study programs. E-learn is an online learning and teaching platform developed to support undergraduates at The Open University Sri Lanka (OUSL). Hence the objective of this study is to identify the factors affecting Learners’ Perception towards E-learning during the Covid-19 Pandemic. A questionnaire was distributed to a sample of 163 undergraduates attached to Faulty of Management Studies at nine regional centres across the country. The comparative analysis of learners’ perceptions of online learning at the Regional Centres was also conducted. The findings indicate that 67.1% of students have access to technology through mobile phones and are aware of supplementary learning methods used. Further, 53.9% students engaged with E-learning for the first time. That is mainly because of restrictions imposed due to the Covid-19 pandemic. Further, factors such as Performance Expectancy, Effort Expectancy, Social Influence, and Service Quality can be considered as the most influential factor on the intention to use E-learn platform at OUSL.

1. INTRODUCTION

The Open University of Sri Lanka (OUSL) was established in 1980 as the premier Open and Distance Learning Institution in Sri Lanka where students and adults could pursue their studies through Open and Distance Learning (ODL) methodologies. Faculty of Management studies offer management education from certificate level to PhD level through ODL methodology. E-learn is an online learning management system developed to support undergraduates in Open University Sri Lanka. Features of e-learning are to provide an opportunity for learning and teaching without restrictions of time or distance. This system encourages student-centered learning since users
can use it easily and they can access it at any time and place (Maxwell, 1995). It supports computers as well as mobile devices with internet. During the last few years, Universities and higher education institutes have started offering distance education courses for their students. E-learning system increases the efficiency and reduces the risks involved in any mode of activities. In most Sri Lankan universities, Moodle open source platform is used as the LMS. The Open University of Sri Lanka also uses Moodle as their E-learning system. Figure 1 shows the learning management system interface of the Open University of Sri Lanka which is currently in use. The features of E-learn include membership, classroom management, announcements, learning resources, Zoom links, learner groups, quizzes, learning records, grades, and grade processing systems of E-learn. (Moodle, 2019) (Figure 1).

![Figure 1: Sample LMS home page in The Open University of Sri Lanka](image)

During the pandemic, e-learning allows students to learn from home; it also allows learners to learn and update knowledge and skills using their mobile phones and computers, and this is reportedly known to reduce the time of teaching and learning by 50 percent. Learners have the liberty to adjust the time, place and contents to learn; meanwhile, the learning system can deploy best online teachers and deliver the contents supported by rich multimedia contents with latest updates. E-learning helps to deliver lectures to numerous learners, with an opportunity to engage and interact with experts and allow the experts to assess learners’ progress at the same time. Due to the fact that the Open University which has more than 24 study centres all around the country, the e-learning system provides a platform for those who do not like to attend a face-to-face class or engage in interaction with teachers and classmates in person. Despite all the benefits, if the learners do not use the e-learning system, the productivity thus aimed could not be acquired (Tarhini et al., 2017a); therefore, the success of implementation of the e-learning system depends on students’ acceptance of the system (Al-Qirim et al., 2018).

Although e-learning was reported to have less active participation of students, it is flexible for students because it allows them to access the system at any time from any place (Maxwell, 1995, Turban et al., 2015). However, previous studies (Dodge et al., 2009; Patterson and McFadden, 2009) state that e-learning has a higher drop-out rate than face-to-face programmes. During the current period of the pandemic, OUSL don’t have the ability to conduct physical lectures.
Therefore, it is imperative to investigate the Factors Affecting Learner’s Perception towards E-Learning during the Covid-19 Pandemic, such that all stakeholders could pay more attention to addressing these issues and assist students to learn better. Several models have been used in the study of e-learning to investigate the Factors Affecting Learner’s Perception towards E-Learning during the Covid-19 Pandemic.

2. RESEARCH OBJECTIVES

- To identify the factors affecting learner’s perception towards e-learning during the Covid-19 pandemic.
- To identify the most influential factor that has an impact on learners’ perception towards e-learning during the Covid-19 pandemic.

3. LITERATURE REVIEW

3.1 The Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT) is a technology acceptance model developed by Venkatesh et al. (2003) and others in user acceptance of information technology. The UTAUT aims to explain user intentions to use an information system and subsequent usage behavior. The theory holds that there are four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions. The first three are direct determinants of usage intention, and the fourth is a direct determinant of user behavior. The present research focuses on usage intention. The above mentioned three factors of usage intention (Performance Expectancy, Effort Expectancy, Social Influence) would help to provide insights into the factors that might influence the adoption of e-learning during the Covid-19 pandemic.

3.2 Performance Expectancy (PE)

Performance Expectancy is defined as “the degree to which an individual believes that using the system will help him or her attain gains in job performance” (Venkatesh et al., 2003) which gives an insight into the amount of belief an individual has about the use of a particular information system. It involves perceived usefulness in TAM (Technology Acceptance Model). Viswanath Venkatesh (2000) found that performance expectancy is an indication factor to predict the usage intention of new technology in operations. PE has been a predictor of intention to use a new system in different contexts such as internet banking (Alalwan et al., 2014), mobile banking (Alalwan et al., 2016), e-government (Sharma, 2015), social media (Sharma et al., 2016) and e-learning (Ali et al., 2018; Tarhini et al., 2017a). This study refers to PE as the degree to which a user believes that using an e-learning system would improve or increase the performance of education. According to the existing literature, it can be seen that PE has a significantly positive association with BI, to use e-learning system.

H1a: Performance expectancy that has a significant impact on learners’ behavior intention to use E-learn.

3.3 Effort Expectancy (EE)

Effort Expectancy is defined as “the degree of ease associated with consumers’ use of technology” (Venkatesh et al., 2012). It is the degree of comfort connected to the use of information systems (Venkatesh et al.,
3.4 Social Influence (SI)

Social influence is personal levels of recognition that people who are close or important to them believe that they should use technology or new systems. Social influence pertains to subjective norm in theory of planned behavior (TPB). According to previous research, the users tend to communicate with others to outline their technology acceptance (Magsamen-Conrad et al. 2015). SI has been validated in many studies (Riquelme et al., 2010) as a significantly influencing factor that determines people’s intention to use technological innovations like e-learning.

**H1c: Social influence factor that has a significant impact on learners’ behavior intention to use E-learn.**

3.5 Delone and McLean IS Success Model

IS success model was designed by W. H. DeLone and McLean (1992) and William H Delone and McLean (2003) and added ‘service quality’ as a new dimension to the model. Thus, the updated model includes 6 variables: (1) information quality, (2) system quality, (3) service quality, (4) use/intention to use, (5) user satisfaction, and (6) net benefits. The majority of previous research papers applied the IS success model, presented by William H Delone and McLean (2003) for online learning development and assessment (Wang, Wang, and Shee 2007). William H Delone and McLean (2003) present that updated IS success model can adjust to fit online learning’s challenge assessment. Thongsri, N et al. (2019) use System Quality (SQ), Information Quality (IQ) and Service Quality (SQ) to measure e-learning system. Preset research also uses those variables to measure the e-learning system of OUSL.

3.6 System Quality (SQ)

System quality refers to the quality of the information system that the user can use the system easily, availability of the system, speed of response (feedback), user-friendliness and Interface (William H Delone and McLean 2003). Quality of the information system will affect the intention to use the system (William H Delone and McLean 2003). Poor system quality may result in student dissatisfaction. If the learner finds that the system is difficult to use, he or she might not accept the system. Previous researchers have discovered that system quality influences intention to use the information system. Lee and Hsieh (2009) state that the system quality affects the use of mobile data services directly. According to McFarland and Hamilton (2006), the system quality has affected the perceived use and the actual use of the system.

**H1d: System quality that has a significant impact on learners’ behavior intention to use E-learn.**
3.7 Information Quality (IQ)

Information quality refers to the quality of data received when the information system is used by learners. Data quality consists of characteristics such as data relevance, data completeness, ease of understanding and being up to date. Quality of information will affect the intention to use the system and also the user satisfaction of the system (William H Delone and McLean 2003). Williams and Jacobs (2004), state that information quality is an important factor for education, especially for e-learning. Further, Byrd et al. 2006 also state that the assessment of information quality is an important dimension for online learning.

**H1e: Information quality that has a significant impact on learners’ behavior intention to use E-learn.**

3.8 Service Quality

Service quality is the user assistance provided and sincere interest shown in solving users’ problem by answering the questions raised by users whilst using the information system (William H. Delone and McLean 2003). A large number of previous studies focus on service quality. In the education context, findings prove that students are ready to take online learning applications if they find quality in the service provided. Further, Milosevic et al. (2015) state that service quality has a direct impact on the intention to use e-learning system among the students in Serbia. E. Park and Kim (2013) also state that service quality has a direct impact on acceptance of the Long-Term Evolution (LTE) service.

**H1f: Service quality that significantly impact on learner’s behavior intention to use E-learn.**

4. METHODOLOGY

This study is based on a quantitative methodology which uses a questionnaire to collect data, including personal and research information. A questionnaire in the form of a Google Form was developed and distributed among the sample. The sample of this study included all management undergraduates in the Open University of Sri Lanka. The Management faculty, approximately consist of around 4000 undergraduates. The study had to adopt a convenient sampling method, which is of non-probabilistic type. A sample of 163 completed questionnaires were thus assessed after the removal of incomplete questionnaires.

The pilot testing was conducted by piloting 35 learners selected randomly. After evaluating respondents’ feedback, the existence of reliability was identified. The Cronbach’s alpha was used to ascertain the reliability of the instrument (Table 1). According to the reliability test, Cronbach’s Alpha value for each variable is higher than 0.7 which reveals a high level of reliability.
Independent Variables 

**Individual Acceptance**
- Performance Expectancy
- Effort Expectancy
- Social influence

**E-Learn Quality**
- System Quality
- Information Quality
- Service Quality

**Dependent Variable**
- Intention to use E-Learn

**H1a**
- Performance Expectancy

**H1b**
- Effort Expectancy

**H1c**
- Social influence

**H1d**
- System Quality

**H1e**
- Information Quality

**H1f**
- Service Quality

**Figure1**: Conceptual Framework of the study [Source: Thongsri, N., Shen, L., and Bao, Y. (2019)]

**Table1**: Reliability

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy</td>
<td>0.808</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>0.722</td>
</tr>
<tr>
<td>Social Influence</td>
<td>0.818</td>
</tr>
<tr>
<td>System Quality</td>
<td>0.835</td>
</tr>
<tr>
<td>Information Quality</td>
<td>0.899</td>
</tr>
<tr>
<td>Service Quality</td>
<td>0.847</td>
</tr>
<tr>
<td>Intention to use E-Learn</td>
<td>0.892</td>
</tr>
</tbody>
</table>
5. DATA ANALYSIS

5.1 Demographic Profile of the Sample

Demographics are the most useful statistical characteristics of a population. Demographic data include gender, age, employee status etc. The part ‘A’ of the questionnaire covered the respondents’ demographic characteristics. The personal information will be helpful in contextualization of the findings and formulation of recommendations.

Table 2: Demographic Information

<table>
<thead>
<tr>
<th>Regional Centres</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anuradhapura</td>
<td>9</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Badulla</td>
<td>9</td>
<td>5.5</td>
<td>5.5</td>
<td>11.0</td>
</tr>
<tr>
<td>Batticaloa</td>
<td>4</td>
<td>2.5</td>
<td>2.5</td>
<td>13.5</td>
</tr>
<tr>
<td>Colombo</td>
<td>87</td>
<td>53.4</td>
<td>53.4</td>
<td>66.9</td>
</tr>
<tr>
<td>Jaffna</td>
<td>4</td>
<td>2.5</td>
<td>2.5</td>
<td>69.3</td>
</tr>
<tr>
<td>Kandy</td>
<td>17</td>
<td>10.4</td>
<td>10.4</td>
<td>79.8</td>
</tr>
<tr>
<td>Kurunegala</td>
<td>23</td>
<td>14.1</td>
<td>14.1</td>
<td>93.9</td>
</tr>
<tr>
<td>Matara</td>
<td>8</td>
<td>4.9</td>
<td>4.9</td>
<td>98.8</td>
</tr>
<tr>
<td>Ratnapura</td>
<td>2</td>
<td>1.2</td>
<td>1.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium of Study</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinhala</td>
<td>62</td>
<td>38.0</td>
<td>38.0</td>
<td>38.0</td>
</tr>
<tr>
<td>Tamil</td>
<td>9</td>
<td>5.5</td>
<td>5.5</td>
<td>43.6</td>
</tr>
<tr>
<td>English</td>
<td>92</td>
<td>56.4</td>
<td>56.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer Literacy</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>23</td>
<td>14.1</td>
<td>14.1</td>
<td>14.1</td>
</tr>
<tr>
<td>Good</td>
<td>130</td>
<td>79.8</td>
<td>79.8</td>
<td>93.9</td>
</tr>
<tr>
<td>Poor</td>
<td>10</td>
<td>6.1</td>
<td>6.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preferred Time for Login</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am-12pm</td>
<td>30</td>
<td>18.4</td>
<td>18.4</td>
<td>18.4</td>
</tr>
<tr>
<td>12.01pm-4pm</td>
<td>11</td>
<td>6.7</td>
<td>6.7</td>
<td>25.2</td>
</tr>
<tr>
<td>4.01pm-8pm</td>
<td>29</td>
<td>17.8</td>
<td>17.8</td>
<td>42.9</td>
</tr>
<tr>
<td>8.01pm-12pm</td>
<td>77</td>
<td>47.2</td>
<td>47.2</td>
<td>90.2</td>
</tr>
<tr>
<td>12.01am-4am</td>
<td>4</td>
<td>2.5</td>
<td>2.5</td>
<td>92.6</td>
</tr>
<tr>
<td>4.01am-7.59am</td>
<td>12</td>
<td>7.4</td>
<td>7.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Login Device _E-learn</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Phone</td>
<td>107</td>
<td>65.6</td>
<td>66.0</td>
<td>66.0</td>
</tr>
<tr>
<td>Desktop Computer</td>
<td>6</td>
<td>3.7</td>
<td>3.7</td>
<td>69.8</td>
</tr>
<tr>
<td>Laptop</td>
<td>47</td>
<td>28.8</td>
<td>29.0</td>
<td>98.8</td>
</tr>
<tr>
<td>Tablet</td>
<td>3</td>
<td>1.8</td>
<td>1.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status of Education</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time education</td>
<td>23</td>
<td>14.1</td>
<td>14.1</td>
<td>14.1</td>
</tr>
<tr>
<td>Part time education</td>
<td>140</td>
<td>85.9</td>
<td>85.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 shows the Mean and Standard deviation of Performance Expectancy, Effort Expectancy, Social Influence, System Quality, Information Quality and Service Quality. These variables have been measured by five-point Likert scale ranging from 5 to 1 (“strongly agree” and “strongly disagree”).

Table 3: Descriptive Statistics - Mean and Standard Deviation

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Level of influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy</td>
<td>3.7607</td>
<td>.74915</td>
<td>to a large extent</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>3.5276</td>
<td>.70644</td>
<td>to a medium extent</td>
</tr>
<tr>
<td>Social Influence</td>
<td>3.7347</td>
<td>.81351</td>
<td>to a large extent</td>
</tr>
<tr>
<td>System Quality</td>
<td>3.5414</td>
<td>.74653</td>
<td>to a medium extent</td>
</tr>
<tr>
<td>Information Quality</td>
<td>3.6457</td>
<td>.77221</td>
<td>to a large extent</td>
</tr>
<tr>
<td>Service Quality</td>
<td>3.4095</td>
<td>.77221</td>
<td>to a medium extent</td>
</tr>
</tbody>
</table>

According to Table 4, students in Badulla, Jaffna, Kurunegala and Matara are highly influenced by ‘Performance Expectancy’ whilst using the E-learn system. Students in Anuradhapura, Batticaloa and Colombo are highly influenced by ‘Social Influence’ factor, whereas Kandy students are highly influenced by ‘System Quality’ than the other factors. Batticaloa and Ratnapura students are highly influenced by ‘Information Quality’ than the other factors. Further, ‘Effort Expectancy’ and ‘Service Quality’ create a medium effect on the intention of using E-Learn.

Table 4: Mean and Standard Deviation (Regional Centers)

<table>
<thead>
<tr>
<th></th>
<th>Performance Expectancy</th>
<th>Effort Expectancy</th>
<th>Social Influence</th>
<th>System Quality</th>
<th>Information Quality</th>
<th>Service Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anuradhapura</td>
<td>3.3611</td>
<td>3.3704</td>
<td>3.5278</td>
<td>3.2778</td>
<td>3.4444</td>
<td>3.3056</td>
</tr>
<tr>
<td>Batticaloa</td>
<td>3.3125</td>
<td>3.3333</td>
<td>3.4375</td>
<td>3.2500</td>
<td>3.4375</td>
<td>2.8125</td>
</tr>
<tr>
<td>Matara</td>
<td>3.5938</td>
<td>3.2917</td>
<td>3.4688</td>
<td>3.0938</td>
<td>3.3125</td>
<td>3.0625</td>
</tr>
<tr>
<td>Ratnapura</td>
<td>3.2500</td>
<td>3.0000</td>
<td>3.1250</td>
<td>3.1250</td>
<td>3.5000</td>
<td>2.8750</td>
</tr>
</tbody>
</table>

5.2 Multiple Regression Analysis

The purpose of regression analysis is to find out the significant impact or influence of an independent variable on the dependent variable (Ndubisi, 2006). In this study, the dependent variable is the ‘Intention to use E-Learn’ and the independent variables are ‘Performance Expectancy, Effort Expectancy, Social Influence, System Quality, Information Quality and Service Quality’. Regression analysis was done in order to find the equation which describes the relationship between these variables (Table 5). The regression line is thus as follows:

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon \]
Table 5: Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R^2 Square</th>
<th>Adjusted R^2 Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.726^a</td>
<td>.682</td>
<td>.670</td>
<td>.48456</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), SER_IND06, SI_IND03, PE_IND01, EE_IND02, INT_IND05, STQ_IND04

Adjusted R-value of 0.670, in the model represents that 67% of the observed variability in intention to use E-Learn can be explained by the differences in the independent variables namely Performance Expectancy, Effort Expectancy, Social Influence, System Quality, Information Quality and Service Quality. Remaining 33% of the variance in intention to use E-Learn are related to other variables which are not explained by the model. R^2 values of 68.2% indicate the existence of numerous variables, which can have an influence on the intention to use E-Learn that could be referred as a scope for future research (Table 6).

Table 6: Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0.096</td>
<td>0.218</td>
<td>-0.440</td>
<td>0.660</td>
</tr>
<tr>
<td>Performance Expectancy</td>
<td>0.229</td>
<td>0.081</td>
<td>0.204</td>
<td>2.816</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>0.313</td>
<td>0.089</td>
<td>0.262</td>
<td>3.526</td>
</tr>
<tr>
<td>Social Influence</td>
<td>0.181</td>
<td>0.081</td>
<td>0.175</td>
<td>2.243</td>
</tr>
<tr>
<td>System Quality</td>
<td>-0.051</td>
<td>0.114</td>
<td>-0.045</td>
<td>-0.446</td>
</tr>
<tr>
<td>Information Quality</td>
<td>0.177</td>
<td>0.096</td>
<td>0.162</td>
<td>1.839</td>
</tr>
<tr>
<td>Service Quality</td>
<td>0.233</td>
<td>0.076</td>
<td>0.214</td>
<td>3.052</td>
</tr>
</tbody>
</table>

a. Dependent Variable: INT_DEP07

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon \]
\[ Y = -0.096 + 0.229X_1 + 0.313X_2 + 0.181X_3 + 0.233X_4 \]

The Table 6 indicates the coefficient of regression factor that has an influence on the Intention to use E-Learn. The coefficient of regression \(\beta\) is 0.229 for Performance Expectancy (PE) and the significant value is 0.005 (0.005<0.05). It indicates that if Performance Expectancy (PE) increases by one, then the Intention to use E-Learn increases by an amount of 0.229. As a result, Performance Expectancy (PE) positively and significantly has an impact on the Intention to use E-Learn. The coefficient of regression \(\beta\) is 0.313 and Sig. value is 0.001 (0.001<0.05) for Effort Expectancy. It indicates that if Effort Expectancy increases by one, then Intention to use E-Learn decreases by an amount of 0.313. The coefficient of regression of Effort Expectancy, has a
positive impact on the Intention to use E-Learn. The coefficient of regression β is 0.181 and Sig. value is 0.026 (0.026<0.05) for Social Influence. It indicates that if Social Influence increases by one, then Intention to use E-Learn increases by an amount of 0.181. Therefore, Social Influence has a positive impact on the Intention to use E-Learn. The coefficient of regression β is 0.233 and Sig. value is 0.003 (0.003>0.05) for Service Quality. According to this result, the coefficient of regression of Service Quality has a significant impact on the Intention to use E-Learn.

5.3 Hypothesis Testing

Table 07: Hypothesis Testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Performance Expectancy that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>ACCEPT</td>
</tr>
<tr>
<td>H1b: Effort Expectancy that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>ACCEPT</td>
</tr>
<tr>
<td>H1c: Social Influence that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>ACCEPT</td>
</tr>
<tr>
<td>H1d: System Quality that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>REJECT</td>
</tr>
<tr>
<td>H1e: Information Quality that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>REJECT</td>
</tr>
<tr>
<td>H1f: Service Quality that has a significant impact on learners’ behavior intention to use E-learn</td>
<td>ACCEPT</td>
</tr>
</tbody>
</table>

6. CONCLUSIONS

The outbreak of coronavirus has caused a major disruption to the education system across the world, with most institutions cancelling in-person classes and moving to online platforms. Sri Lankan higher education sector also made its move towards the adoption of e-learning systems during the pandemic. The Faculty of Management Studies, The Open University of Sri Lanka has made a remarkable transition to online education as a response to the COVID-19 pandemic. This study contributes to the theory and practice in many ways. Although most of the studies explore the same problem with certain variables, this study has attempted to incorporate two models such as the UTAUT (The Unified Theory of Acceptance and Use of Technology) model and Delone and McLean Information System success model.

According to this study, 'Performance Expectancy' was the most influencing determinant of 'Behavioral Intention' to use e-learning system. Alalwanet al. (2014) and Venkatesh. V (2000) observes that Performance Expectancy is an indication factor to predict the usage intention of new technology in operations. The present study also identified that 'Performance Expectancy' has a positive and significant impact on the Intention to use E-Learn. In addition, 'Effort Expectancy', 'Social...
Influence’ and ‘Service Quality’ also have significant impacts on the Intention to use E-Learn. The study also discovered that System Quality and Information Quality do not have significant impacts on the Intention to use E-Learn. Furthermore, future studies can test this result in different uncertainties by using different models. This study identifies different factors that influence the use of e-learn in different regional centres – for instance, Anuradhapura, Batticaloa and Colombo are highly influenced by ‘Social Influence’ factor, whereas Kandy students are highly influenced by ‘System Quality’ than the other factors. Based on this result, improvement in the information technology facilities throughout all regional centers by upgrading internet bandwidth and installing more Wi-Fi access points within campus (Samuseen, and Mohamed. 2019), could be recommended. Additionally, they can facilitate students to use e-learning systems by making arrangements with smartphone and laptop vendors to provide students the opportunity to purchase the devices through installment-payment plans or loans. All these would encourage students’ usage of e-learning systems (Kuruppuarachchi et al. 2017). Another recommendation is to conduct awareness programmes on e-learning during the student registration process as well as during the orientation programme.

ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to all the respondents and to all those who supported us in many ways to make this study a success.

REFERENCES


THE INTEREST OF HIGH SCHOOL GRADUATES IN OPEN AND DISTANCE EDUCATION

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Published online
31st December 2021

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Keywords:
high school graduates, Interest, open and distance education

Abstract
Having graduated from high school or its equivalents, in an ideal sense, is not an end in itself; it is, instead, part of a larger trajectory of academic life that opens up a new beginning in higher education. Transitioning from high school can be painstakingly arduous as high school graduates typically cope with major challenges in taking on different paths to success; be it involving productive employment, opting for academic rigor of college or resorting to early marriage. This transition also often marks the time period in which they encounter confusion as to attending conventional or open and distance institution. Flexibility and accessibility that are essential characteristics of distance learning environment at the Open Universities. The present study delves on students’ interest in pursuing tertiary education in an open and distance mode at the Open University. The study is a qualitative descriptive research within a population of 1,404 high school graduates. The census of populations allowed a wide range of data collection to provide treatments to all populations both in urban and rural schools within the regional government areas of South Sulawesi. The data set fits into relative qualitative descriptive analysis. A high proportion of students (1,131 individuals), which earned 80.55%, indicated interest in attending the Open University, while the remaining 279 students or 19.87% did not. The percentages for other questionnaire items that represent students’ interest in pursuing tertiary studies at the Open University are similarly favourable, including students’ recognition of the reputable existence of the Open University as the 45th Public University in Indonesia (98.29%), students’ recognition that the Open University is a Public University that runs open and distance education (96.15%), students’ recognition that studies at the Open University fit around regular responsibilities (89.03%), and students’ recognition that the Open University charges affordable tuition fees (85.47%). These findings point to a substantial number of high school graduates’ interest in engaging in distance learning environment at the Open University of Makassar for their educational needs.
1. INTRODUCTION

According to the Government Regulation of the Republic of Indonesia Number 66 of 2010 Article 118, distance education aims to promote the expansion and distribution of educational access and to improve the quality and relevance of education. The term “distance education” is distinctly conceptualized in the Law of Republic of Indonesia Number 12 of 2012 Article 31 Section (1): distance education embodies a remote teaching and learning process through which a various use of communication media is adopted. According to the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 24 of 2012 Article 2 Section (1), distance education contributes to an essential role that enables students who are unable to attend face-to-face classroom lectures, to implement education without lowering its educational tasks and challenges.

Distance education embraces a distinct form of education in which the major elements include, (1) education setting in which instructors and learners are separated in terms of distance, time, or both; (2) content delivery that supports both printed media and electronic devices which utilize audio-visual aids including computer applications to approach teaching and learning implementation, and (3) a new paradigm that advocates consequent implication on teachers embracing their main role as facilitators and learners as participants in their own learning trajectory. In that sense, distance education accounts for teachers’ responsibility to foster effective teaching strategies and instructional deliveries in a way that is both comprehensible and interesting to learners so as to encourage them to actively participate and to be authentically engaged. Educational endeavors that fail to boost student encouragement and involvement will most likely create prominent learning difficulties, which in turn escalate into student failure.

1.1 The Essence of Interest

A wide body of literature overwhelmingly sheds light on the conception of interest in a broad sense. Interest is largely perceived in a sense of preference or a feeling of liking (Slameto, 2010), attentiveness (Lin & Huang, 2016), focus, determination, effort, knowledge, skill (Ainley, Hillman, & Hidi, 2002), motivation (Krapp, Hidi, & Renninger, 1999), regulation of behavior (Wang & Adesope, 2016), and the outcome of an interaction between an individual and an object or an activity (Schiefele, 2001). Interest plays a decidedly pivotal role in, and profound impact on, each aspect of individual life in such a way that it activates one’s behavior and attitude. Education is no exception. Interest is a powerful motivational source that energizes learning and navigates academic trajectories. Etymologically, interest pertains to one’s effort and willingness to learn or a desire to seek knowledge. Similarly, the terminological sense of interest capitalizes on the conception of desire, liking and willingness for an object or an activity. According to Hilgar, interest manifests in a constant process through which one pays attention to and focus on an object that is of interest to him or her which comes with feelings of pleasure and satisfaction.

Andi Maprare (in Muhibbin, 2004: 15) contends that interest is a mental device that refers to the incorporation of feeling, expectation, conviction, prejudice, fear or other tendencies that navigate an individual toward a certain thought. In its simplest sense, interest is associated with a tendency of craving or longing for something. In a similar manner, H.C. Witherington (1992) explains that interest explores one’s awareness that an object, a person, a matter or a situation has something to do with him or her.

In Abu Ahmadi’s perspective (2003: 151), the term interest is applied to a broadening range of constructs that correspond to the relationship of
cognitive, conative and affective aspects of the mind that focus on a particular object. Within the relationship, affective feeling attributes to the strongest implication. Crow and Crow (in Abd. Rahman A., 1993:112) observe that interest may stimulate the power in movement to energize one’s tendency toward or attraction to another individual, an object or an activity, or an effective experience stimulated by the activity itself. Therefore, interest encompasses a subjective attitude causing a certain task or motivation to participate in the task. In a similar stance, Elizabeth B. (1978: 114) recognizes interest in the realm of wanting behavior and motivational sources that represent driving factors for actions according to one’s free choices. One becomes genuinely interested when he or she gains rewards. Consequently, one no longer remains interested when satisfaction alleviates.

The large array of aforementioned literature characterizes the key standpoint on interest, that is, interest commonly refers to preference and a sense of attachment to an object or an activity without directives. The fundamental understanding of interest lies in the acceptance of a relationship between oneself and something outside himself or herself. Interest grows to a greater extent when the relationship is stronger or closer.

1.2 Definition of Interest

Semi (1978: 5) postulates that interest is a driving force for one to engage in good activities. The foundation of interest not only provides insight into a mental state that shapes one’s attitude but also develops a more specific psychological perspective such as one’s tendency to perform a particular activity or one’s need to give selective attention to a particular task and become attached to it of his or her own accord. Heryana (1987) in Niku (2001: 11) claims that interest constitutes the inclination of learners towards one form of activity that captivates their attention in a way that they actively engage in that activity. Sugono D., et al. (2011) mention that interest is the general tendency of the human heart towards immense passion or compelling desire. Interest stems from a self-concept, innate tendency, and a basic nature of one’s character to engage in an activity of one’s own free will.

The key element of interest is constantly interlaced with that of human tendency to repeatedly give attention to and remember an object (a person, a thing or an activity) while fulfilling a desire to become absorbed in the experience where he or she seeks to learn about it, understand it and prove it even further. Interest is a forceful impetus from which one is able to afford reasonable progress toward the accomplishment of his or her desirable goals. Therefore, interest elicits intrinsic motivation as a potential source of one’s desirable act (Sudarsana U., 2014: 1.7).

Secondary education is a formal educational stage that comes after the completion of primary or basic education provided by different types of schools such as Senior High School (Sekolah Menengah Atas/ SMA), Madrasah Aliyah (Islamic Senior High School), Vocational High School, Vocational Madrasah Aliyah, and its equivalents. This is regulated by the Government Regulation Number 17 of 2010 Chapter I Article 1 Verse 12-13; secondary education takes the form of senior general high schools, one of which is Sekolah Menengah Atas (SMA) that continue formal basic education, that is, Sekolah Menengah Pertama or SMP (Junior High School), Madrasah Tsanawiyyah or MTs (Islamic Junior High School) and other schools of the same degree.

The graduates of upper secondary school or its equivalents are 12th grade students who have completed the last year of compulsory secondary education. 2020 marks the numbers of high school graduates at approximately 133,384 across 24 regencies and cities.
As the number of high school graduates pursuing higher education remains relatively high, greater attention has been paid to the potential of distance education for helping to address the large-scale demand for higher education in South Sulawesi. Universitas Terbuka Unit Program Belajar Jarak Jauh Makassar or UPBJJ-UT Makassar (Open University-Distance Learning Program Unit), which serves as the regional branch of the Open University in Indonesia provides a spectrum of world-quality education for all types of learners. To that end, UPBJJ-UT of Makassar highlights the importance of granting extensive opportunities for education and implementing flexible learning modes as well as providing and imparting knowledge to students and approaching them regardless of where they live so as to help accomplish universal access to quality higher education. This is in line with the mission of distance education regulated in the Law of Government of the Republic of Indonesia Number 17 of 2010; distance education seeks to enhance the expansion and equal access to education as well as improving educational quality and relevance.

2. RESEARCH METHODOLOGY

2.1 Research Design

The present study takes on a descriptive qualitative design, that is, descriptions of data in the form of words or sentences according to categories to obtain conclusions. A descriptive qualitative design simply measures and observes the real nature of a variable, symptom or condition without controlling or manipulating it using hypothesis testing. The descriptions are expressed in percentages which are subsequently interpreted in qualitative sentences.

2.2 Population

According to Nata Wirawan, (2016: 5), census is dedicated to collecting data from each individual member of the population that becomes the research object. It appeals to the entire population, without exception, for information gathering. All the members chosen for the research sample are referred to as population. Given that all the members are chosen for participation and observation in the study, data collection using census is demanding in terms of time, effort and cost, particularly when it deals with a large-scale population. However, approaching data using census is not possible in the event of the destructive nature in testing. Conducting a census has a wide range of merits that includes the true values of data that accurately reflect the characteristic parameters. The population of the study takes on 1404 graduates from 24 Public and Private Senior High Schools or other schools of the same degree in South Sulawesi.

2.3 Technique of Data Collection

Questionnaires were distributed to respondents following the presentation, socialization and promotion of the programs of the Open University in three areas, i.e., urban areas, suburban areas, and rural areas with a total of 24 Public and Private Senior High Schools and other schools of the same degree. The use of census was for monitoring all individuals within the population of interest.
2.4 Technique of Data Analysis

Sugiyono (2003:21) concludes that descriptive statistics seek to define or provide insight into the measurable object within sample data or population as it is, without appealing to analysis or general conclusions. The calculation of descriptive qualitative data fit into the relative frequency formula as shown below (Sudijono Anas, 1997):

\[ P = \frac{f}{N} \times 100\% \]

Description: \( f = \) Frequency  
\( N = \) Number of cases (the number of frequency or individuals)  
\( p = \) The number of percentage

3. RESULTS

Table 1 demonstrates the scores among the respondents regarding how well they recognize the Open University as the 45th Public Higher Education Institution in Indonesia. Based on the data analysis that fit into relative frequency for qualitative data, the rates of the respondents’ knowledge were described in percentages as Table 1 shows below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>1380</td>
<td>98.29</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>24</td>
<td>1.70</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>1404</td>
<td></td>
</tr>
</tbody>
</table>

In Table 1, the bulk of the respondents (98.29 %) claim to have recognized the Open University as the 45th Public Higher Education Institution in Indonesia, while the remaining 24 respondents, who made up 1.70%, do not. The overwhelmingly high percentage represents how the Open University is highly recognized in terms of its reputable existence by the majority of High School graduates in South Sulawesi.

Table 2 indicates the percentages that represent the respondents’ recognition of the Open University in terms of how it runs education and accommodates the learning environment. Similar to those in Table 1, the results in Table 2 are tremendously favorable with 96.15% of the respondents claiming to have recognized the Open University as a distance learning platform for higher education in Indonesia. The remaining 3.13% and 0.71% claim to have recognized and barely recognized it, respectively.
Table 2: Open University as a Distance Higher Education Institution in Indonesia

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>1350</td>
<td>96.15</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>44</td>
<td>3.13</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>10</td>
<td>0.71</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3 measures the respondents’ knowledge of the entry requirements to the Open University where written examinations are excluded. It is to be noted that 1100 respondents that make up 78.34% are highly aware, 260 (18.51%) are aware, and 44 (13.3%) are barely aware of this. Socialization regarding the application and admission to the Open University remains integrated to the framework of promotion concerning the General Programs at the Open University. Comprehensive information that captures the eligibility to gain admittance to the Open University will likely captivate the desirable segmentation within the student audience.

Table 3: Written Examinations Are Not Applicable for Admission Test at the Open University

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>1100</td>
<td>78.34</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>260</td>
<td>18.51</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>44</td>
<td>3.13</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1404</td>
<td></td>
</tr>
</tbody>
</table>

In Table 4, respondents were asked about one of the merits of pursuing academic degree at the Open University, that is, being able to earn a degree and still able to fit around their daily full-time or part-time responsibilities. 1250 respondents (89.03%) highly recognize this merit, indicating that distance learning mode is increasingly present in the current education. The remaining 136 (9.61%) and 19 (1.35%) moderately recognize and barely recognize this benefit respectively. These two categories may represent students who often have apprehensions over opting for higher education through distance setting.
Table 4: Studies at the Open University Fit around Regular Responsibilities

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>1250</td>
<td>89.03</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>135</td>
<td>9.61</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>19</td>
<td>1.35</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>1404</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5 summarizes the percentages concerning respondents’ awareness of how the Open University charges affordable tuition fees. 1200 respondents (85.47%) contend this is very well-known information, while the remaining 150 (10.68%) and 54 (3.84%) professed this is moderately and barely well-known information, respectively. The significance of the percentage may indicate that studying at the Open University is an economically viable option with respect to higher education.

Table 5: Affordable Tuition Fees

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>1200</td>
<td>85.47</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>150</td>
<td>10.68</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>54</td>
<td>3.84</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>1404</td>
<td>100</td>
</tr>
</tbody>
</table>

When it comes to the questionnaire item regarding the Open University’s capacity to cater to students’ needs, the resulting percentages are not so favourable in comparison to the aforementioned items. Among 1440 respondents, 750 (53.41%) perceive this as well-established information. The remaining 554 (39.45%) are moderately aware of this information, and 100 (7.12%) barely recognize it. This identifies the lack of awareness among students in Senior High Schools regarding the Open University, including its instructional supports that cater to individual needs. Socializing strategy and campaign development for promotional purposes are therefore of great importance to assuage students’ lingering doubts about the challenges in online learning and the quality of education provided by the Open University.
Table 6: Open University Tailors Distance Learning to Meet Students’ Diverse Needs

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>750</td>
<td>53.41</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>554</td>
<td>39.45</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>100</td>
<td>7.12</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1404</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 7 reveals information about the extent to which respondents recognize the educational access to the Open University in remote rural areas. At least half of the entire population, 715 respondents (50.92%), highly recognize that Open University education is consistently accessible for rural communities while 350 respondents (24.92%) discern this as common knowledge. And 339 (24.14%) profess little knowledge about it. The remoteness and availability of rural learners remain vital challenges when it comes to opting for tertiary studies via distance platforms. The Open University constantly strives to explore these challenges for students from rural backgrounds to reduce the wide gap between rurality and access to distance higher education. The Open University does this through its commitment to equal and inclusive education for all learners from diverse backgrounds.

Table 7: Access to the Open University in Rural Areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameters</th>
<th>Weight</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly recognize</td>
<td>4</td>
<td>715</td>
<td>50.92</td>
</tr>
<tr>
<td>2.</td>
<td>Recognize</td>
<td>3</td>
<td>350</td>
<td>24.92</td>
</tr>
<tr>
<td>3.</td>
<td>Barely recognize</td>
<td>2</td>
<td>339</td>
<td>24.14</td>
</tr>
<tr>
<td>4.</td>
<td>Don’t recognize</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1404</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of students who share common interest in pursuing post-secondary education at the Open University is sufficiently impressive, peaking at 80.55% (Table 8). The remaining 19.87% end up lacking personal interest in the practice of distance learning to earn higher education degrees. The surge of the Open University’s emergence as the leading distance university in Indonesia is subjected to a comprehensive course of promotional operations and marketing campaigns to give publicity and exposure to its existence, reputation and qualities of academic services.
Table 8: The Interest of High School Graduates in Studies at the Open University

<table>
<thead>
<tr>
<th>No</th>
<th>Interest</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interested in studies at the Open University</td>
<td>1131</td>
<td>80.55</td>
</tr>
<tr>
<td>2</td>
<td>Not interested in studies at the Open University</td>
<td>279</td>
<td>19.87</td>
</tr>
</tbody>
</table>

4. CONCLUSIONS

Key points that sum up essential insights into the present study are summarized below:

1. The proportion of high school graduates expressing critical interest in higher education trajectories in distance environment at the Open University is significantly higher than those who do not, peaking at 80.55%, and 19.87%, respectively.
2. The Open University stands as the 45th Public University in Indonesia and is well-regarded among the majority of high school graduates in South Sulawesi with a staggering 98.29%.
3. Similarly, the vast majority of respondents, peaking at 96.15%, exceedingly perceive that the Open University distinguishes its educational system from others as a distance higher education platform.
4. In terms of admission and eligibility requirements, 78.34% respondents recognize that the Open University does not call for written entry tests designed for prospective students to measure their competencies in particular subjects to establish admissibility to a program.

5. The recognition and understanding that the Open University accommodates learning that fits around regular responsibilities and takes place entirely remotely unaffected by the factors time and place, is very well apprehended among the bulk of respondents, peaking at 89.03%.
6. With a percentage of 85.47%, the cost affordability of higher education at the Open University is a commonly pervasive knowledge among the respondents.
7. At least more than half of the population (53.41%) is highly aware of how the Open University constantly seeks to tailor its academic services to better fit the needs of students who come from diverse backgrounds.
8. However, only half of the entire population (50.92%) recognizes that distance learning at the Open University remains constantly manageable for rural students and it is important to note this in overcoming the wide gap between rurality and access to distance higher education.

ACKNOWLEDGEMENTS

We express our gratitude to the Head of Unit Program Belajar Jarak Jauh Universitas Terbuka Makassar and the Principals of Senior High Schools and schools of the same degree for the support given in steering our body of work towards the completion of the study. We hope that the findings would benefit other researchers and particularly Unit Program Belajar Jarak Jauh Universitas Terbuka Makassar in evaluating strategies to enhance student admission rates.
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THE PROSPECT OF SUSTAINABLE EDUCATION DEVELOPMENT IN DISTANCE EDUCATION

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Abstract
This research highlights people’s responses to the prospects of development of continuing education (sometimes interchangeable with education for sustainable development) within the framework of distance education. The conception of the development of continuing education encompasses the opportunities to adult citizens to learn and to keep up with the development in their surroundings. Open and distance education is one of the myriad options for the development of continuing education in a planned way to improve the qualities of knowledge, insights, skills and professionalism, and fulfill personal, environmental and societal needs. The hallmark of tertiary education within distance setting is flexibility, that is, education is accessible regardless of time and place to the extent that it permeates remote areas. The nature of the study was qualitative descriptive within a population of 600 individuals from whom 187 samples were drawn, which made up 10% of the population. Selecting the group involved purposive sampling. The process of gathering the data was conducted using online questionnaires. Data analysis fit into relative frequency expressed in percentages. Results pointed to positive responses, suggesting great prospects for the development of continuing education in open and distance landscape in South Sulawesi. These prospects were attributable to a number of factors, i.e., (1) Universitas Terbuka is a public university (91.44%), (2) practicality (82.88%), (3) flexibility (81.81%), (4) flexible services (68.98%), (5) no-student-dismissal policy (71.65%), (6) accessibility (77.00%), (7) tuition affordability (54.01%), (8) flexible learning (81.81%), (9) no-admission-test policy (for diploma and bachelor degrees) (74.33%), (10) online connectivity (63.63), (11) online interactivity (66.31%), (12) online-access support service (67.98%), (13) print and non-print learning materials (81.81%), (14) online-registration services (72.19%), and (15) ICT integration (74.33%). Implications of the study relates to the consistency of Universitas Terbuka in maintaining its reputable existence and sustaining its academic and non-academic components for inculcating trust in society to pursue continuing education in the open and distance landscape.
1. INTRODUCTION

Universitas Terbuka (The Open University of Indonesia), commonly abbreviated as UT, has a majority of students ranging between the age of 25 and 44. The age group of < 25 peaks at 43.89%; 25-29 at 20.19%; 35-39 at 10.84%; 40-44 at 6.25%, and > 44 at 5.68%. The age group of non-teachers between 25 and 44 makes up 50.43%, and the occupational group of non-teachers makes up 55.75%. This indicates that in the last decade UT has become a desirable option for tertiary education for those between the age 25 and 44. This represents a significant phenomenon that should be encouraged and instilled in each Unit Program Belajar Jarak Jauh Universitas Terbuka (Open University Distance Learning Program) throughout Indonesia (Open University in Numbers-www.ut.ac.id).

In the Broad Guidelines of State Policy, education is a basic act of developing personalities and abilities that takes place inside or outside of schools, which becomes a lifetime experience. According to Ahmadi and Nur (2001: 70), education in its basic sense refers to a conscious and deliberate activity that relates to full responsibilities from adults to young students in a sustainable manner so that it creates interactions between them to build a solid foundation for students’ maturity to which they aspire. Education relates to realities in the future, where children navigate transitions in life. As Qodri (2004: 70) puts it, “Education needs to be designed for a better life in years to come.” Through education, students are equipped with life values and principles to navigate transitions in later years of their lives.

The government sets out its priority to promote continuing education as an effort to develop education, human resources, and people’s standard of living equally within the formulation of its visions and missions. The concept of continuing education refers to the process of constant learning in a never-ending journey to advance education to the highest degree to adapt to the ever-changing demands for competence qualifications. The development of continuing education incorporates the combination of environmental education and development education. This concept allows for one’s participation in developing knowledge, values and skills to take part in decision making about how to do things individually and collectively on both local and global scale without harming the future (Ali, 2009: 103).

The principle of the development of continuing education underlies a holistic concept through education where individuals assume responsibilities for creating and enjoying a sustainable future. This model of education is participatory in nature, and fosters responsible values, behaviours and lifestyles. This in turn promotes positive societal transformation for sustainable purposes (Website: http://ditjenppi.menlhk.go.id/dari-media/313-menuju-paradigma-baru-pendidikan-berkelanjutan.html). The development of continuing education aims toward enhancing basic education, reorienting existing education to address sustainable development, and encouraging community awareness, understanding and training (Ali, 2009: 104).

The implication that UT serves the implementation of open and distance education to address the development of continuing education is inextricably linked to public trust in UT’s preparedness for the acceleration efforts for the continuing education. Continuing education in UT is non-degree education to provide opportunities to connect knowledge and skills to students’ own interests. This program runs in one semester within a packet system, which includes the following:
1. Certificate Program in Indonesian Language for Non-Native Speakers (BIPA-UT)
The aim of BIPA-UT program is designed to equip students with the ability to communicate with standard Indonesian language both in formal and informal settings.

2. Rural Municipal Administration Government Certificate Program
The aim of this program is designed to improve knowledge, skills, expertise and attitudes among village government administrators in a way that they are able to perform their professional duties according to civil-servant ethical principles and personality codes in accordance with the standard competencies. Further, this program seeks to establish village government apparatus capable of becoming reformers and providing the “glue” that binds national unity and integrity, to inculcate positive attitudes in their work, and to nurture a spirit of dedication oriented toward community service, protection and empowerment. This program is expected to demonstrate similar visions and dynamics of mindsets among village government officials in carrying out government duties for the implementation of good governance.

The program equips village-scale government officials with knowledge and skills in the face of information technology advances across all domains of government. Statistics concerning governmental affairs identifies the initial ability of a government to connect with globalized world and international relations, as statistical technology is subject to constant change due to global demands.

This is a short-term program typically designed for regional government officials, particularly those in regency and sub-district divisions. The major scope and target of the program generally involve improving human resources skills of Regional Financial Accounting in regency and sub-district government divisions.

English Certificate Program: program for English targeting the general public who are passionate about improving English skills and resources for teaching in International-Standard Schools or Pilot International-Standard Schools.

5. Food Processing Certificate Program
This program seeks to provide the community with the basic tenets of processing and packaging raw materials into food products as well as fostering a spirit of entrepreneurship.

6. Accredited Certificate Program in Educational Planning and Financing Expertise
This program sets out key areas of planning and financing skills relevant to education, which includes presenting the concepts, principles and procedures of educational planning and financing. In a more specific sense, this program deals with conceptual framework, problem analysis, design, and implementation, as well as the monitoring and evaluation of educational planning.
7. Scientific Work Certificate Program for Teachers
This program is integral to the education for teachers’ professional expertise development intended to guide them to scientific-writing proficiency, including designing research proposals, conducting classroom action-based studies, analyzing and interpreting data and other skills relevant to writing experiences in a scientific landscape, and there are still other the development of continuing education.

(http://simpen.lppm.ut.ac.id/index.php?option=com_content&view=article&idid=4andItemid=3andnum=4)

2. RESEARCH METHODOLOGY

2.1 Types of Research
The study was constructed with a qualitative design in which the researchers sought in-depth understanding of a symptom or reality within a deep sense of exploratory investigation rather than examining surface features (Raco, 2010: 7). This study probed for intensive investigation based on scientific procedures to generate narrative conclusions, which fit into particular data analysis. Qualitative descriptive research does not aim for hypothesis testing, but rather describes the real nature of characteristics. The population of the study included the entire cohort of tutors of Basic Education that comprised 600 tutors at UPBJJ UT Makassar in the registration term 2020.2.

2.2 Sample of the Study
The study set out a sample of 187 tutors, which made up 10% of the population, using Isaac and Michael’s table. Purposive sampling was adopted given that not all members of the population met the certain criteria postulated by the researchers. These purposive samples were selected to meet these criteria to demonstrate representative samples for the purpose of the research (Sugiyono, 2017, 15). Purposive sampling is commonly applied to qualitative studies (Sugiyono, 2014, 156).

2.3 Data Collection Technique
According to Erickson (1968), Denzin and Lincoln (1994; cited in Anggito and Setiawan 2018: 7), qualitative studies generally delve into an activity and its impact on the participants’ lives, and describe them in a narrative manner. The instrument involved closed-ended questionnaires in which respondents were not allowed to present answers other than the pre-existing response options, with two check boxes of “yes” or “no” options. These questionnaires were distributed online and customized in Google Form or sent via Gmail.

2.4 Data Analysis Technique
Sugiyono (2003:21) posited that descriptive statistics focus on describing an overview of an object under observation through the data that are measured as they naturally occur, without generalizing the findings. The qualitative descriptive data fits into the formulation of relative frequency (Sudijono, 1997). A relative frequency is obtained by dividing the frequency of each case and multiplying it by 100 (Hadi, 2016: 309).

\[ P = \frac{F}{N} \times 100\% \]

Description: 
- \( f \) = frequency
- \( N \) = Number of cases
- p = percentage
3. RESULTS

3.1 Validity Results

Obtaining accurate and objective data is subject to validity and reliability testing (Hulu and Sinaga, 2019). An instrument has content validity if the questions reveal what they intend to measure in the questionnaire (Gunawan, 2018). In terms of reliability testing, a measurement device consistently measures something. If the testing process is repeated on the same samples; essentially the same results are obtained (Natanael, 2013). In SPSS, assessing validity and reliability may only require using the measure on a group of people at one time. Table 1 represents reliability values based on the Cronbach’s alpha. With 15 numbers of questions (N), the resulting alpha is 0.851.

3.2 Reliability Testing

The acceptable values for Cronbach’s alpha measurement range between 0.6 and 0.8 (Natanael, 2013). Accordingly, the reliability of each construct indicates good level of consistency (Table 1).

Table 1: Output SPSS on Measurement Reliability

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.851</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 2 measures whether or not each construct has an acceptable level of validity. A value higher than 0.2 is a required indicator for a valid construct (Natanael, 2013).

Table 2: Output SPSS on Corrected Item and Total Correlation

<table>
<thead>
<tr>
<th>ITEM_1</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEM_2</td>
<td>52.4600</td>
<td>12.253</td>
<td>.593</td>
<td>.837</td>
</tr>
<tr>
<td>ITEM_3</td>
<td>52.4600</td>
<td>12.702</td>
<td>.593</td>
<td>.846</td>
</tr>
<tr>
<td>ITEM_4</td>
<td>52.6600</td>
<td>11.943</td>
<td>.522</td>
<td>.840</td>
</tr>
<tr>
<td>ITEM_5</td>
<td>52.5600</td>
<td>11.762</td>
<td>.648</td>
<td>.833</td>
</tr>
<tr>
<td>ITEM_6</td>
<td>52.5000</td>
<td>12.500</td>
<td>.383</td>
<td>.848</td>
</tr>
<tr>
<td>ITEM_7</td>
<td>52.7800</td>
<td>11.685</td>
<td>.576</td>
<td>.837</td>
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<tr>
<td>ITEM_8</td>
<td>52.4200</td>
<td>13.106</td>
<td>.242</td>
<td>.854</td>
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<tr>
<td>ITEM_9</td>
<td>52.5000</td>
<td>12.500</td>
<td>.443</td>
<td>.844</td>
</tr>
<tr>
<td>ITEM_10</td>
<td>52.6800</td>
<td>12.304</td>
<td>.361</td>
<td>.851</td>
</tr>
<tr>
<td>ITEM_11</td>
<td>52.6400</td>
<td>11.174</td>
<td>.656</td>
<td>.831</td>
</tr>
</tbody>
</table>
In Table 2, Corrected Item-Total Correlation tells whether or not an item is valid. As a general rule, if the Corrected Item-Total Correlation stands at 0.2, the item indicates an acceptable level of validity. The question items as a whole reached < 0.2, and thus were applicable to further statistical analysis.

### 3.3 Description of the Results

The prospects for the development of continuing education within open and distance landscape are inextricably linked with public responses to the consistency and existence of Universitas Terbuka (UT) in Indonesia (Figure 1).

**Figure 1: UT as the 45th Public University in Indonesia**

Universitas Terbuka Indonesia was officially founded in 1984 under Presidential Decree Number 41 of 1984, making it the 45th public university in Indonesia. This notion was perceived highly by the large majority of respondents, peaking at 91.44%, while the remaining 8.50% revealed moderate perception. This highly-favorable perception secures UT’s existence among the long list of public universities in Indonesia by the general public, academicians, and governmental officials in South Sulawesi. Such recognition provides insights into the potential prospects for the continuing education development within the framework of open and distance education, as UT serves a distinctive role in society, i.e., making higher education open to all (Figure 2).
The foundational concept of Universitas Terbuka is designed to accommodate learning for those with busy schedules, without time and place barriers. The perception of this practical learning at UT peaked at 82.88%, with moderate perception peaking at 16.04%. This suggests commonplace understanding of the essential notion of learning at UT in the society, that is, the distinctive practicability enables students to attend to their coursework at any specific time and place which fit their busy schedules. Universitas Terbuka incorporates two distinctive tenets, i.e., “open” and “distance” into its education system. Both tenets are designed to accommodate higher education experiences for those who have not held college degrees due to geographical and demographic barriers. The principle of flexibility at UT comes with a number of benefits, i.e., no time limits for completing studies, no entry qualifications particularly years after last graduation, and, thus, no age restriction. The percentage of high perception of flexibility at UT peaked at 81.81%, with moderate perception peaking at 18.18%.

Figure 2: Practicality

Figure 3: Flexibility That Fits Learning in around Daily Responsibilities
The flexibility in regulatory schemes of program services at Universitas Terbuka has increasingly provided society with opportunities to take part in continuing education both for degree and non-degree programs (Figure 4). In this sense, students have the options to take up learning in either a semester-packet system or non-semester-packet system.

UT strongly addresses lifelong learning culture in a way that continuing education is applicable to the needs of the whole community. 129 respondents, which made up 68.98% of the samples, favourably acknowledged the flexible services at UT, with moderate perception hovering at 31.01%.

![UT Berikan Fleksibilitas Layanan](image)

**Figure 4: Flexible Services**

Universitas Terbuka sets no academic dismissal in its regulatory frameworks. When a student fails to meet the academic standards of the university, he or she still retains studentship for however long it takes to complete his or her study. Data in Figure 5 reveals 71.65% of high responses to no-academic-dismissal policy at Universitas Terbuka, with 62.56% indicating moderate responses.
Universitas Terbuka has constantly strived to mobilize education into remote areas, allowing rural students to take part in online-based learning, as its mission reads “reach the unreachable.” Services associated with online learning include information services, learning assistance, academic support, academic administration, library service and digital library (Figure 6). The increasing notion of accessibility of UT garnered strong responses among the respondents, peaking at 77%, with moderate responses peaking at 20.85%.

In Figure 7, data reveals that slightly more than half of the respondents, i.e., 54.01%, indicated high responses, 43.32% moderate responses, 5% poor responses, and 2.67% no responses. This points to the lack of public awareness of tuition-cost affordability at Universitas Terbuka. Tuition plans at UT cost relatively lower than those at conventional universities. These tuition plans are in accordance with the schemes of services they opt for. They are typically given services based on their individual need, time preparedness and budget.
Learning platforms in open and distance education conceptualize flexibility as priority in terms of implementing online tutoring and webinar-based tutoring as well as the aforementioned certificate programs for continuing education at UT (Figure 8). The responses are strongly favorable, peaking at 81.81%, with moderate responses at 18.18%. Flexibility is the hallmark of accelerating the prospects for UT to serve the sustainable education for the necessary societal development.

Unlike conventional universities, Universitas Terbuka offers open entry for admissions without admission tests. Written admission tests are only applicable to post-graduate programs (Figure 9). The notion of UT admission without entrance test garnered strong perceptions among the respondents, peaking at 73.33%, with moderate perceptions at 25.66%. The framework of the development of continuing education
within the context of open and distance education should be more accessible to all members of the society as UT’s policy making makes it easier for them to get into early admissions without overwhelming ordeals such as experiencing distress over competition.

**Figure 9:** No Admission Test

In Figure 10, the respondents claimed to have strong knowledge of the term Cyber University and the notion of Universitas Terbuka as the pioneer of Cyber University in Indonesia, with a percentage of 63.63. The remaining 36.36% accounted for moderate responses. Cyber University is a generic term employed by a number of corporates that run online programs, such as Seoul Cyber University, The Cyber University of Korea, and Thailand Cyber University. Others adopt the name “Open University”, including University of the Philippines Open University, Malaysia Open University, Hanoi Open University, and Universitas Terbuka of Indonesia. Since 2013, UT has navigated post-graduate programs toward fully-online settings. In 2016, bachelors degree programs have since become fully online as well. Today, a plethora of higher education institutions most notably the Open University has become the frontier to advocate OER (Open Educational Resources) movements across the globe (Darojat, 2018).

**Figure 10:** UT as Cyber University in Indonesia
Universitas Terbuka connects academic and non-academic domains with online interactive facilities. These facilities are overwhelmingly on the rise during the COVID-19 pandemic. As a result, respondents highly responded positively to these online interactive facilities at UT, with a percentage peaking at 66.31%. Moderate responses peaked at 19.25%, poor responses at 27% and no responses at 14.43% (Figure 11).

Expanding access to online learning is paramount to the educational system of Universitas Terbuka for all of its distant students, including those taking part in continuing education (Figure 11). The access connects them with resources and portals such as UT-TV, Radio-TV, Library Digital, Web Supplement, Guru Pintar Online (Online Smart Teacher), Online Customer Center, Wifi.id, Microsoft Office 365, and Open Education Resources. Their understanding of this access extends the opportunities for open and distance education to be the agent of the development of continuing education. Strong responses to this understanding peaked at 71.19%, moderate responses at 22.45%, poor responses at 10%, and no responses at 5.34%. The total percentages of both poor responses and no responses (15.34%) did not affect the use of online-based access to learning supports for enhancing knowledge, experience, skills and attitudes.

Figure 11: Online Interactive Facilities
Textbooks remain a substantial component of students’ learning trajectories at Universitas Terbuka (Figure 13). These textbooks contain important modules based on the number of credits students partake for a given course. These modules essentially guide them to probe into in-depth exploration of their learning to approach evaluation in webinar tutoring and final examinations. The provision of allocating print and non-print textbooks at UT received highly-acclaimed responses peaking at 81.81%. Moderate responses peaked at 10.69%, poor responses at 14%, and no responses at 7.48%. Both percentages of poor responses and no responses accumulated to 21.48%, indicating that UT as the agent of the development of continuing education remains highly favourable.
Since the registration term 2020.2, student registrations at Universitas Terbuka are available on sia.ut.ac.id (Figure 14). This online registration scheme enables students to navigate their way through registration on their own. This registration scheme in turn helps identify more opportunities for the prospects for the development of continuing education in open and distance landscape. Strong responses can be seen to significantly exceed other categories, which peaked at 72.19%, followed by moderate responses at 22.45%, poor responses at 10%, and no responses at 5.34%.

![UT Berikan Layanan Pendaftaran Online](image)

**Figure 14:** Online Registration Service

Universitas Terbuka has consistently adopted the application of information communication technology (ICT) to enhance education effectiveness and productivity (Figure 15). By 2020, UT became the frontier of education innovation, serving as the research center and innovation development of myriad technology-based learning modes as well as the dissemination of innovation. Within the focus of 2020 that supports the frontiers of education innovation, UT needs to reflect on its position and roles as a technology-based education platform or a cyber university that is networked, digital and virtual. 74.33% indicated strong responses to ICT integration into academic landscapes, while 10% and 5.34% generated poor responses and no responses, respectively.
4. CONCLUSIONS

From a demographic standpoint, the age group of students in Non-Basic Education programs at Universitas Terbuka ranging between 25 and 44 makes up 50%, and the occupational group makes up 55.75%. The large majority of respondents exhibited all-embracing perceptions of the variables under study, which included the reputable existence of UT as the 45th public university in Indonesia, practicability, flexibility, flexible services, no-admission-test policy, accessibility, tuition affordability, flexible learning, entry requirements, the pioneer of cyber education in Indonesia, online interactive facilities, online service supports, material textbooks, online registration services, and ICT integration. These components become the impetus and a positive force for open and distance education to be the potential landscape for the development of continuing education.

ACKNOWLEDGEMENTS

The researchers would like to extend gratitude and appreciation to the Head of Unit Program Belajar Jarak Jauh Universitas Terbuka Makassar for his encouragement, motivation and the opportunity to conduct this study. The researchers also gratefully acknowledge the efforts of the respondents in Basic Education programs for their participation in taking part in the questionnaires and returning them in a timely manner. The researchers strongly expect that this study can become a parameter or a reference to the improvement efforts of the development of continuing education within open and distance academic landscape.

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CONCEPT MAP, MIND MAP, MIND FRAMEWORK AND MATERIAL SUMMARY TO IMPROVE THE ACHIEVEMENTS OF DISTANCE STUDENTS

Muhammad Arifin Zaidin
Open University, Indonesia

Abstract
The present study uses the mediums of the concept map, mind map, mind framework and summary to measure their impact on student achievement in Indonesian Language at Elementary School. The study takes on a quantitative approach within a population of 130 undergraduate students of the Primary School Teacher Education Program at Makassar distance learning unit of the Open University from which 88 students were drawn using purposive random sampling. The quantitative data was collected using documentation and assignment technique. Results identify (1) a significant positive effect between the concept map (X1) and student achievement in Indonesian Language at Elementary School (Y) with a correlation coefficient of 0.764 at a significance level of 0.000 (p-value less than 0.05), (2) a significant positive effect between the mind map (X2) and student achievement in Indonesian Language at Elementary School (Y) with a correlation coefficient of 0.386 at a significance of 0.000 (p-value less than 0.05), (3) a significant positive between the mind framework (X3) and student achievement in Indonesian Language at Elementary School (Y) with a correlation coefficient of 0.335 at a significance of 0.000 (p-value less than 0.05), (4) a significant positive effect between the summary and student achievement in Indonesian Language at Elementary School (Y) with a correlation coefficient of 0.371 at a significance of 0.000 (p-value less than 0.05), and (5) a significant positive effect between the entire free variables (X1-X4) and student achievement in Indonesian Language at Elementary School (Y) with a correlation coefficient of 0.708. The implications of the study suggest that both partial and simultaneous effects of the free variables on the bound variable are so significant that the statistical and empirical findings are substantially instrumental as a reference for policy making process to enhance the overall learning qualities of students in Indonesian language within a distance environment.

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Keywords:
Concept map, mind map, framework, summary, learning, achievement
1. INTRODUCTION

The Core Tutor Team Training at the Central Open University is prepared to train regional tutors at the distance learning program unit of Open University level which are expected to strengthen and improve the practice of making reading records after students obtain reading material from 2009 to 2020 (until now) both through Orientation, Electronic Student Learning Skills, and Distance Learning Skills Training at Makassar distance learning program unit of Open University. The intensification and consistency of reading record activities that became the focus of Open University under the coordination of Vice Chancellor 1 is inseparable from the estuary of the acceleration of ease and smoothness of students understanding the contents of modules per book of subject matter independently and improving the quality of learning achievement.

Mind maps have also been used as reflective tools that allow for broader associations to be made to the material (Budd, 2004). Using mind maps also helps teachers vary their teaching methods which maybe more likely to reach diverse learners (Nesbit andAdesope,2006). Mind mapping (or idea mapping) has been defined as visual, nonlinear representations of ideas and their relationships’ (Biktimirov andNilson, 2006). Mind maps comprise a network of connected and related concepts. DePorter and Hernacki (2006: 152) revealed that mind maps use visual and sensory reminders in a pattern of related ideas, such as roadmaps used for learning, organizing, and planning. This mind map can arouse original ideas and trigger easy memories.

Making a summary can be compared to trimming a lush tree and leaving only the main trunk and branches that are important. The author of the summary must still adhere to the pattern of ideas contained in the original text (Fatin andCamalia, 2017: 255).

The results of one part of the reading record such as research by Harahap (2015) concluded that the use of concept maps influences learning achievement. Aziz (2012) concluded that the use of mind maps affects learning achievement. Putra, Margunnayasa, and Citra (2017) concluded that the ‘pikiran map’ has a significant effect on learning outcomes. Based on the background description above, the basis for an empirical study was set with the focus of the study whether the effectiveness of the module’s reading record affects the learning achievement of the undergraduate students of the Primary School Teacher Education Program at Makassar distance learning unit of the Open University.

2. LITERATURE REVIEW

2.1 Research Design

![Figure 1: Research design](image)

**Description:**
- \( X_1 = \) Concept Map
- \( X_2 = \) Mind Map
- \( X_3 = \) Mind Framework
- \( X_4 = \) Summary

Variable correlation to \( Y \)

Correlation of all four variables to \( Y \)
2.2 Population and Research Samples

The population of this research consisted all students (130) who enrolled in the Indonesian Language Education courses at SD Program S-1 PGSD in 2019. The sample of this study was determined as 88 undergraduate students, based on the Isaac and Michael table (in Sugiyono, 2014: 161) using purposive random sampling techniques.

2.3 Data Collection Technique

The assignment technique is intended to get data from the assignment of Indonesian Language Education tutors in elementary schools related to concept maps, mind maps, framework and summary derived from student modules, while learning achievements are obtained from the results of Indonesian Language Education final semester exams in elementary schools.

2.4 Data analysis technique

This study uses linear regression analysis techniques for the correlation of each independent variable to the dependent variable with the following formula (Sugiyono, 2010: 137).

\[ \hat{Y} = a + bX \]

Notes:
\( \hat{Y} \) = subject in the predicted dependent variable
\( a \) = price \( Y \) when price \( X = 0 \) (constant price)
\( b \) = regression coefficient
\( X \) = subject to the independent variable

3. RESULTS

3.1 Test Validity Questionnaire

From the results of calculations using SPSS 22, there is one invalid indicator, which is indicator 34 number of the variable summarizing the material, the indicator is then removed from the questionnaire before entering the reliability test. (Sanusi, 2010).

3.2 Questionnaire Reliability Test

Based on the calculation results, it can be seen the value of Cronbach’s Alpha (\( \alpha \)) obtained 0.906, it can be concluded that the reliability results are stated “Good”(Santoso, 2018).

3.3 Hypothesis test

The results of the first, second, third and fourth test of the hypothesis can be described as follows.

3.3.1 There is a significant positive effect between learning with concept maps (\( X_1 \)) with the presentation of learning Indonesian Language Education in Primary Schools (\( Y \)).

The statistical hypothesis is as follows.

\( H_0 = \) no influence of \( X_1 \) with \( Y \) (sig value > of probability value 0.05)

\( H_a = \) there is an influence of \( X_1 \) with \( Y \) (sig value < of probability value 0.05)
Simple correlation analysis of the concept map (X₁) with the learning achievement of Indonesian Language Education in Elementary Schools (Y) shows that the correlation coefficient rᵧ₁ of 0.764 (Table 1). Testing the significance of the correlation coefficient between the map (X₁) with the learning achievement of Indonesian language education in elementary school (Y) it can be concluded that the regression with the regression equation \( \hat{Y} = 36.519 + 0.598X₁ \) is significant (Table 2).

**Table 1: Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.764*</td>
<td>.584</td>
<td>.579</td>
<td>2.44921</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), concept maps  
b. Dependent variable: Learning Achievement

**Table 2: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>36.519</td>
<td>4.835</td>
<td></td>
<td>7.553</td>
</tr>
<tr>
<td>1</td>
<td>Concept Map</td>
<td>598</td>
<td>054</td>
<td>764</td>
</tr>
</tbody>
</table>

Testing the significance of the correlation coefficient between the map (X₁) with the learning achievement of Indonesian language education in elementary school (Y) can be concluded that the regression with the regression equation \( \hat{Y} = 36.519 + 0.598X₁ \) is significant.

3.3.2 There is a significant positive effect between mind maps (X₂) and Indonesian language learning achievement in elementary school (Y)

The statistical hypothesis is as follows.

Ho = there is no influence of X₂ with Y (sig value > of the probability value of 0.05)  
Ha = there is an influence of X₂ with Y (sig value < of probability value 0.05)

Simple regression analysis of the data scores on Indonesian language learning achievement in elementary schools and the mind maps score data produced a constant "a" of 95,324 and a regression coefficient of "b" of 0.386 so that the regression equation is \( \hat{Y} = 95,324 + 0.76X₂ \). Testing the significance of the correlation coefficient between the mind maps (X₂) with the learning achievement of Indonesian language education in elementary school (Y) it can be concluded that the regression with the regression equation \( \hat{Y} = 95,324 + 0.76X₂ \) is significant (Tables 3 and 4).

Simple regression analysis of the data scores on Indonesian language learning achievement in elementary schools and concept map (X₁) with the learning achievement of Indonesian Language Education in Elementary Schools (Y) shows that the correlation coefficient rᵧ₁ of 0.764 (Table 1). Testing the significance of the correlation coefficient between the map (X₁) with the learning achievement of Indonesian language education in elementary school (Y) it can be concluded that the regression with the regression equation \( \hat{Y} = 36.519 + 0.598X₁ \) is significant (Table 2).
Table 3: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
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<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>.386a</td>
<td>.149</td>
<td>.139</td>
<td>3.50451</td>
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</tbody>
</table>

a. Predictors: (Constant), mind maps

Table 4: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>95.324</td>
<td>1.521</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(-.076)</td>
<td>(.020)</td>
<td>(-.386)</td>
<td>(-3.880)</td>
</tr>
</tbody>
</table>

a. Dependent Variable: learning achievement

Simple regression analysis of Indonesian Language Education learning achievement score data in Elementary Schools and concept map score data produced a constant "α" of 95,324 and a regression coefficient of "b" of 0.386 so that the regression equation was \(\hat{Y} = 95.324 + 0.76X_2\).

Testing the significance of the correlation coefficient between the mind maps \((X_2)\) with the learning achievement of Indonesian language education in elementary school \((Y)\) it can be concluded that the regression with the regression equation \(\hat{Y} = 95.324 + 0.76X_2\) is significant.

3.3.3 There is a significant positive influence between the mind Framework \((X_3)\) with the achievement of learning Indonesian language education in elementary school \((Y)\)

The statistical hypothesis is as follows.

\(H_0 =\) no influence of \(X_3\) with \(Y\) \((\text{sig value} > \text{of the probability value of 0.05})\)

\(H_1 = \) there is an influence of \(X_3\) with \(Y\) \((\text{sig value} < \text{of the probability value of 0.05})\)

Simple regression analysis of Indonesian Language Education learning achievement score data in Elementary Schools and concept map score data produced a constant "α" of 81,369 and a regression coefficient of "b" of 0.335 so that the regression equation was \(\hat{Y} = 81,369 + 0.108X_3\).

Testing the significance of the correlation coefficient between the mind framework \((X_3)\) with the learning achievement of Indonesian language education in elementary school \((Y)\) it can be concluded that the regression with the regression equation \(\hat{Y} = 81,369 + 0.108X_3\) is significant.
### Table 5: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.335a</td>
<td>.112</td>
<td>.102</td>
<td>3.57966</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Mind Framework

### Table 6: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>81.369</td>
<td>2.528</td>
<td></td>
<td>32.187</td>
</tr>
<tr>
<td>1</td>
<td>Mind Framework</td>
<td>-.108</td>
<td>.033</td>
<td>-.335</td>
</tr>
</tbody>
</table>

a. Dependent Variable: learning achievement

### 3.3.4 There is a significant positive effect between summary (X) with Indonesian learning achievement in elementary school (Y)

The statistical hypothesis is as follows.

H₀ = there is no influence of X₄ with Y (sig value > of the probability value of 0.05)

Hₐ = there is an influence of X₄ with Y (sig value < of the probability value of 0.05)

Simple regression analysis of Indonesian Language Education learning achievement score data in Elementary Schools and summary score data resulted in a constant "α" of 81.369 and a regression coefficient of "b" of 0.371 so that the regression equation was Ŷ = 81.369 + 0.126X₄. Testing the significance of the correlation coefficient between summary (X) with the learning achievement of Indonesian language education in elementary school (Y) it can be concluded that the regression with the regression equation Ŷ = 81.369 + 0.126X₄ is significant.

Simple regression analysis of Indonesian language education learning achievement score data in elementary schools and concept map score data produced a constant "α" of 79.456 and a regression coefficient of "b" of 0.371 so that the regression equation is Ŷ = 79.456 + 0.126X₄. Testing the significance of the correlation coefficient between the summary (X₄) and the learning achievement of Indonesian language education in elementary school (Y) it can be concluded that the regression with the regression equation Ŷ = 79.456 + 0.126 X₄ is significant.

### Table 7: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.371a</td>
<td>.138</td>
<td>.128</td>
<td>3.52716</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Summary
### Table 8: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>79.456</td>
<td>2.761</td>
<td>28.776</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>-.126</td>
<td>.034</td>
<td>-.371</td>
</tr>
</tbody>
</table>

*a. Dependent Variable: learning achievement*

#### 3.3.5 There is a significant positive effect between all the independent variables \((X_1), (X_2), (X_3)\) and \((X_4)\) with the achievement of learning Indonesian language in elementary school \((Y)\)

The statistical hypothesis is as follows.  
\(H_0 = \text{there is no effect of } X \text{ with } Y \text{ (sig value> of the probability value 0.05)}\)  
\(H_a = \text{there is an influence of } X \text{ with } Y \text{ (sig value < of probability value 0.05)}\)

The output in the model summary table indicates the magnitude of the correlation \((R)\), the coefficient of determination \((R^2)\), the adjusted determination coefficient \(\text{Adjusted } R^2\) and the standard error. The correlation coefficient \((R)\) of 0.708, close to the value of 1. That is, the influence between independent variables \((X_1-X_4)\) with dependent variable \((Y)\) is very strong. The influence between the dependent variable \((X_1-X_4)\) with the dependent variable \((Y)\) is positive. That is, if the value of \(X\) rises, it will be responded to with an increase in the value of \(Y\). The coefficient of determination \((R^2)\) is 0.502, meaning that 50.2% of student achievement is influenced by factors of relevance of educational background to the course that is dated, readiness of the tutorial tutor, and tutor competency factor.

### Table 9: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.708(^a)</td>
<td>.502</td>
<td>.478</td>
<td>2.72917</td>
</tr>
</tbody>
</table>

*a. Predictors: (Constant), concept maps, mind maps, thinking frameworks, and summaries*

In accordance with the Coefficients\(^a\) table, it is known that the regression equation is \(Y = 47.939 + 0.399 X_1 + 0.333 X_2 + 0.056 X_3 + X_4 056\) (Table 10). From the equation it can be explained that the constant \((a) = 47.939\), meaning that if the concept map, mind map, frame of mind and material summary are the deciding factor in improving the quality of learning achievement of Indonesian Language education in elementary school, the quality of learning achievement of Indonesian language education in elementary school increases. This rejects the null hypothesis \((H_0)\), and accepts an alternative hypothesis \((H_a)\).
Table 10: Coefficients\textsuperscript{a}

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>47.939</td>
<td>6.311</td>
<td>7.596</td>
<td>.000</td>
</tr>
<tr>
<td>Concept Maps</td>
<td>.399</td>
<td>.061</td>
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<td>.000</td>
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<tr>
<td>Mind Map</td>
<td>-.033</td>
<td>.017</td>
<td>-.166</td>
<td>.056</td>
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<tr>
<td>Mind Framework</td>
<td>.056</td>
<td>.026</td>
<td>.171</td>
<td>.037</td>
</tr>
<tr>
<td>Material</td>
<td>.056</td>
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<td>.051</td>
</tr>
<tr>
<td>Summary</td>
<td>.056</td>
<td>.028</td>
<td>.166</td>
<td>.051</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Dependent Variable: learning achievement

4. CONCLUSIONS

The concept map (X\textsubscript{1}) has a significant level positive effect on the learning achievement of Indonesian language in elementary school (Y) strata one elementary school teacher education undergraduate input at distance learning open university of Makassar, with a correlation coefficient (R) of 0.764 and a correlation determination (R\textsuperscript{2}) of 0.584 or 58.4%.

The mind maps (X\textsubscript{2}) have a significant level positive effect on learning achievement of Indonesian language education in elementary school (Y) strata one elementary school teacher education undergraduate input at distance learning open university of Makassar, with a correlation coefficient (R) of 0.386 and a correlation determination (R\textsuperscript{2}) of 0.149 or 14.9%.

The mind Framework (X\textsubscript{3}) has a significant level positive effect on learning achievement of Indonesian language education at elementary school (Y) strata one school teacher education undergraduate input at distance learning open university of Makassar, with a correlation coefficient (R) 0.708 and the correlation determination (R\textsuperscript{2}) 0.502 or 50.2%.

All independent variables have a significant positive effect on learning achievement of Indonesian language education at elementary school (Y) strata one elementary school teacher education undergraduate input at distance learning open university of Makassar, with a correlation coefficient (R) 0.764 and a correlation determination (R\textsuperscript{2}) 0.584 or 58.4%.
ACKNOWLEDGEMENTS

Researchers thank the Head of Distance Learning Program Unit of Makassar Open University who provided the opportunity to conduct research. The researchers also thank the students who had been willing to fill out questionnaires. The results of the research can contribute to students in order to improve the quality of learning during further study at the Open University of Makassar.

REFERENCES


"I WILL SHOW YOU FEAR IN A HANDFUL OF DUST"¹— THE CHALLENGES OF TEACHING RESPONSE TO LITERARY TEXTS USING THE ONLINE MODE: STUDENT PERCEPTIONS

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Department of Language Studies, The Open University of Sri Lanka, Sri Lanka

Abstract

A multiplicity of potential interpretations embedded in literary texts pose serious challenges to the teaching practitioner in the ODL mode: how does one manage and disseminate such textual complexities in a ‘classroom’ which deviates from a conventional literature class? Or in other words, how far can Open and Distance Learning methodology succeed in teaching literary texts that demand interpretive competence? The tendency would be to (uncritically) assume that a traditional face-to-face classroom could deal with such challenges better. Yet one could not discount Palloff and Pratt’s (1999) argument that online learning—an essential element of Open and Distance Learning (ODL) techniques practiced at The Open University of Sri Lanka—has the potential to increase student responsibility and student interaction as opposed to traditional classrooms in a university setting. There is a dearth of research related to online teaching/learning of Literature in the Sri Lankan ODL context; and certainly not enough research to create an in-depth discourse on the topic. The present study then, is an attempt to understand how ODL methodologies could be used meaningfully in the Literature classroom. Using a specially designed online platform for English undergraduate students at The Open University of Sri Lanka, this study first monitors the progress of students interacting with the platform and thereafter, through semi structured in-depth interviews with these participants, the study attempts to locate, analyze and interpret their experiences with the online platform to ascertain the boundaries, benefits and the potentialities of the online mode of teaching literary texts. Going beyond the confines of the maxim that “Literature teaches itself,” this paper attempts to locate means by which the online mode could be used meaningfully to offer students of Literature learning experiences that are unique and individual as well as to help them pass their exams.

¹ Quoted from The Burial of the Dead, The Waste Land, T. S. Eliot

Keywords: Interpretive Competence, Learning Poetry, Literary Interpretations, Literary Texts, Teaching Poetry, Teaching Literature in ODL

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1. INTRODUCTION

Traditionally, teaching literature has always been a problematic event for teachers and students owing to the multiple interpretive possibilities of literary texts. Literary productions tend to defy compartmentalization and external structural impositions: one of the best examples to explain this teaching-learning conundrum succinctly is an insight shared by the literary critic Pierre Macherey. The speech of a book, he says, comes from a “certain silence” (Macherey 1966/2006) and this ‘silence’ informs us of the “precise conditions for the appearance of an utterance….its limits…real significance” (p. 97). For a practitioner of Literature pedagogy the issue at hand is how one could extract, explain, and interpret a text whose core seems to be suspended in a space called ‘silence’ – or what is not uttered. Even more pertinent is the question of how to surmount such challenges in a teacher-absent online teaching scenario. Teaching literary texts in a classroom (ODL or otherwise) would necessarily involve the dissemination and demonstration of active reading skills (such as ‘against-the-grain’ reading); interpretive competence; creating sensitivity to a text as well as raising awareness of its limits and the socio-political context that gave rise to it; appreciating theory and its relationship to a text; and most importantly, responding to a literary text in structured academic discourse. The tendency would be to (uncritically) assume that a traditional face-to-face classroom could deal with such challenges better than an asynchronous platform where the teacher is not literally standing in front of the students. Yet one cannot discount Palloff and Pratt’s (1999) argument that online learning—a popular ODL technique practiced at the Open University of Sri Lanka (OUSL)—has the potential to increase student interaction and student responsibility for their own learning as opposed to traditional classrooms in a university setting.

This study is an exploratory means of attempting to understand the rewards/limits of teaching literary texts through the online mode. Using an online component designed for undergraduate students studying English at The Open University of Sri Lanka (OUSL), this study monitors their responses to literary texts online, and conducts interviews with the participants to assess their perceptions and experiences with the online intervention. The study is motivated by what Kayalis (2010:54) succinctly articulates as “making literary teaching in distance education competent and meaningful, through constant experimentation and improvisation through all aspects of literary pedagogy including the use of digital tools”. Moreover, universities are under pressure to teach larger numbers, and budgets, especially for the Humanities and social sciences are being cut around the world in general, and in Sri Lanka in particular. Further, in light of the global Covid-19 pandemic, teachers of the Humanities at universities are required to create virtual classroom environments which are capable of fostering deep and often intimate discussions that are likely to promote trust and learning. As Bergstrand and Savage (2013) point out, despite the proliferation of online courses, universities and researchers have only begun to investigate systematically what they can and cannot teach effectively in this mode.
2. LITERATURE REVIEW

There is a dearth of research related to online teaching/learning of Literature in the Sri Lankan ODL context to recreate an in-depth discourse on the topic. There is one study of using the ODL mode with students of English Literature at OUSL, albeit with a different focus. Medawattegedara (2019) in a study of an online intervention with a group of OUSL students studying poetry of the First World War found the online component in this poetry course to have mixed results. He used the online platforms to familiarize students with complex socio-political context surrounding World War I. The students found the readings on the online forum helpful and 'interesting'. Yet, the online poetry engagement which they undertook after their exposure to the historical context became problematic owing to the complexity of the poetic expressions and thematic involved. This study found that although online learning of literature has its specific and subtle rewards, further research and exploration is needed in order to hone and moderate this medium as a tool for teaching literature. Although Poideleou (1987) argues that in the domain of literature, distance teaching offers the inconvenience of a dialogue between the teacher and the student which is limited to three exchanges only: the lesson, the essay and its correction, Medawattegedera’s (ibid.) study found more optimistic results.

3. RESEARCH METHODOLOGY

3.1 Participants

The group of participants in this study are students of the BA in English and English Language Teaching (BAEELT) programme which is a 4-year honours degree offered by the Department of Language Studies of the OUSL. This program, as the title implies, combines the study of both English literature and English language teaching. During their second year of study (Level 4) the students of this program enroll for a course titled "Poetry", whereby they read the Modern Poetry of T.S. Eliot, Phillip Larkin Robert Frost and Y.B. Yeats. This study is related to the teaching and learning of one of those poets, namely T.S. Eliot. His epic master-piece The Waste Land, a challenging text for students of English literature all over the world, no matter whether English is their first or second language, is one of the components of this course. Reading The Waste Land (TWL) is better achieved with a thorough knowledge of Greek classics, eastern and western philosophy, mythology and classical opera. The poem requires a specialized mode of reading and thus is not a popular text among students—at least until they surmount the initial difficulties of reading.

3.2 Sample

The selected students’ age range was 22-40 years. There were 09 female students and 01 male; English literature classes in Sri Lanka tend to reflect the same gender imbalance as any other such class worldwide. These students’ marks ranged from 55% (which is a B minus grade) and 70 (A minus grade). The rationale for selecting this range is to ensure that the responses given at the interviews were informed ones which a student struggling with literary texts might not be able to offer.
3.3 Online intervention

The present online component was planned as an intervention for teaching this very difficult and challenging component - Eliot's (TWL) - in order to assist students surmount these difficulties. Prior to this intervention, this course was taught in the traditional classroom, now, in the light of the increased prevalence of online teaching, referred to as the “face-to-face mode”.

This planned online intervention could be illustrated as shown in Figure 1 below:

![Diagram showing the steps of the online intervention](image)

**Figure 1**: Online Intervention teaching T.S. Eliot's poem *The Waste Land*

This intervention is connected and sequenced- in the sense that each stage is expected to be helpful for the challenges of the next stage. An assumption was made that if students followed the online course as per the design, the total experience would prepare them to face the Final Examination component successfully. The expected aims of this online intervention were pragmatic:

- To encourage students to engage with Eliot’s poem intensely prior to the CA component
- To locate the challenges faced by the students when engaging with the CA and discuss those challenges with the students
- To enable students to write meaningful answers at the Final Examination

3.4 Data Collection

This study had as its focus the information gathered from in-depth interviews conducted with a sample of ten (10) randomly selected students who had participated in the online component of Eliot’s poetry consistently. The interviews were conducted after they completed their Final Examinations. The onset of the Covid-19 pandemic in Sri Lanka\(^2\) did not affect the dissemination of this course owing to two reasons. First, the day schools were over by the time the country went into a lock down; second, the online

\(^2\) Sri Lanka’s first Covid-19 patient was discovered in February 2020, and the nation went into a nearly 3-month lockdown from March to June 2020.
writing components of this course (listed in Figure I) were not affected during the pandemic period because OUSL shifted their Day Schools (face to face lectures) to online mode (video conferencing). Though these interviews were to be conducted face-to-face, owing to the pandemic situation they were conducted via email and zoom. Further, although

the researchers wished to analyze the Final Examination scripts, that idea had to be shelved because though the students were prepared for a 3-hour written final examination, the Department of Language Studies was forced to change the structure of the entire examination at the last moment owing to the pandemic situation.

3.5 Data collection Instrument

The comprehensive, semi-structured and in-depth interviews were conducted as focus group discussions in a friendly informal manner and the students were briefed on the objective of the exercise prior to the interview. The interview schedule was based on the two themes listed below. The intention was to encourage free and open responses to the questions in keeping with the principles of a literature classroom where free expression, multiple interpretations and “sympathetic imagination” (Popper, 1957/2002: 18), are encouraged. Listed below are the questions in the interview schedule which are built around the objectives of the study.

Theme I: Learning Eliot’s Poetry Online
- Was the online component you read after the class helpful?
- If yes, how? If no, why?
- Do you think you could manage learning poetry entirely online?
- If yes, why? If no, why?

Theme II: Student Perceptions of the Online Intervention in Writing an Answer
- Would you say the Eliot online discussion forum on answering examination questions helped you answer the questions in the Final Examination better? If yes—how? If no, why?

3.6 Ethical Issues

Since this study takes its findings from the Course Evaluation which is an inherent part of online courses on Learning Management Systems it was not considered necessary to gain informed consent from the students. However, all participants remain anonymous and the findings of the study will be used to enhance the effectiveness of the course under consideration.

4. DISCUSSION

The findings of the study are presented as per the structure of the thematic interview schedule for ease of discussion and understanding.

4.1 Learning Eliot’s Poetry online

Unlike the usual mode of teaching Eliot’s The Waste Land, where the face-to-face Day School (DS) took precedence, in this exploration the order was reversed: the DS became the scaffolding through which the students were prepared for the online component. The idea was to evaluate whether students could be trained to become independent readers of a complex literary text with minimal teacher intervention. Let us quote a
specific example to make the point clear. Eliot’s long poem begins with an excerpt from the Greek myth, Sybil of Cumae. The DS interaction kept the explanation of this myth minimal; in other words, this myth was explained only as far as it added an immediate meaning to the overall poem. In the online component, this mythical aspect of the poem was explored in detail from a wider perspective. This enhanced meaning provided in the online component was meant to expand the knowledge already gathered in the classroom, and it was presumed that the model would actually work only if the students engaged with the online component intensely after the DS. A summary of the participants’ responses on student experiences with the online component is as follows.

All the ten students were of the view that the online component was “useful” for them as a “supplement” for the learning in DS. They all understood that the online component and the classroom were connected in time (they had to engage with it immediately after class) and in progressive learning (online component was planned as the next step of their learning ladder).

One student said:

“I did not read the online section on that day itself, though sir asked us to do. I had work at office and home. I only read it about two to three days later, and suddenly, the classroom came back to me”

Another student responded: “I remembered what we discussed in class vividly,” and another qualified her statement adding, “it was as if the classroom learning was recaptured in a very well-written note.”

The male student who had engaged with the online segment immediately after the class felt that the classroom was re-enacted as he read the online component. This frequently-occurring notion of “classroom re-enactment” experienced by them needs a careful analysis. On the one hand it could suggest that the ladder-effect of the experiment was lost because the students did not feel that the online component enhanced their learning which happened in the day school. On the other hand, the term ‘classroom re-enactment’ is an articulation that captures the desired effect.

The researchers asked the participants to explain some critical sections of the poems back to them and noted down the nature of their responses. At least four (04) students, out of the ten (10), articulated responses that were clearly influenced by the content disseminated by both the class and the online component. The rest of the students offered responses which were more influenced by the classroom discussion than by a combination of the classroom-online mode. The four students whose responses were influenced by both the modes of learning scored high-marks for the question related to TWL at the Final Exam.

When the participants were asked whether the online component could be used in place of the teacher, they had the following responses.

- The teacher has to be there. If you had asked us to read the online component and come to class, then most of us would not have done that.
- You made us read it by showing interesting ideas in the class, and that did it.”

Another female student suggested that though the online component was a safe mode of teaching during the pandemic, yet that did not mean that teacher should be taken out.

- “I like that I do not have to travel for classes, but, I always feel

3 Pre-text in a poem tends to offer an overall thematic support to the meaning of the poem
comfortable and cared for when a teacher is there to tell me things, ”

As the discussion progressed the students overtly asserted that Literature lessons should opt for both options— “one cannot replace the other,”

To the question "Would the online component with much more extensive details make you a more independent learner?" all the students replied in the negative. They rejected this notion immediately and spontaneously. One participant stated:

- "If a teacher could simply “animate” the online text in class, then life would be much easier," The others agreed.

4.2 Student Perceptions of the Online Intervention in Writing an Answer

In addition to issues concerning interpretation of texts, the other major issue that concerns a student of literature is articulation—i.e. articulating abstract ideas using the academic register. This online component took the initiative to help students with their academic writing. As indicated in Figure I, the best Continuous Assessment assignment response was uploaded to the forum with track-change edits. Thereafter, a mock exam question was uploaded and students were asked to write an introduction, or the first paragraph, as a response to that question. The best three answers were selected and were uploaded with edits. The process was repeated and the students who could not upload answers were encouraged to do so. Three such cycles were run before the actual Final Exam.

The participants were asked to speak about their experiences of the writing support given online. At the outset, they all said that the writing component was extremely useful. Though at the beginning of their degree study program they studied Academic Writing as a subject, they felt that they needed frequent feedback on their writing.

Some of the responses during the focus group interviews were as follows:

- “Writing for literature takes time to master. So this type of micro support is important,”
- “Application of the rules of academic writing to literature takes a while to learn, and this online component exposed our weaknesses in that aspect.” (This statement received the support of all the other participants)

Thus, the students felt that this online intervention in writing was overall, helpful. It must be understood at this point that any type of intervention with academic writing in this BA in English program would be appreciated by the students. Thus, the researchers extended the probe into specifics: what were the special features of the online writing intervention that they found helpful. The researchers elaborated that there had been two types of feedback from the tutors, language and conceptual. The participants felt that language edits, which were demonstrated on the best answers were helpful owing to their deeply felt need to master the English language with all its
intricacies. One student added that she saved the edited document to read it over and over so that she would be motivated to be careful when she writes. The majority felt that language edits were more closely linked to the world outside than conceptual editing. English mastered at the scale of general accuracy was one of their dire needs and this writing forum helped them achieve that.

“Learning to write in English without making errors is very important, because most of us are teachers. So when we look at the red coloured edits done to an answer, we learn a lot,”

“I work in the media and am expected to work independently. So it’s very important that I master general language skills,”

When asked about the importance of conceptual edits—where the feedback focuses on the quality of an argument, some of the responses were thus:

“Conceptual edits, help improve our thinking. In my answer I have written some terrible comments about Marie in Eliot’s poem. At the time of writing, it felt good to write that. But after the comments you made in red I was, let us say, woken up…that was new learning,”

(one of the students who was an intense participant of the online writing forum). Another student joined in to suggest that conceptual editing taught them new things about the poem. “When you challenge us about a viewpoint in the poem, then I see that there are many ways of looking at something. That makes me happy because the same text that you and I have read has given us two different ideas.”

“Both types of editing deal a major blow to our ego. Because without such feedback we feel we have mastered literature and writing.”

Researchers asked about the mode being online—would they prefer a face-to-face writing class, rather than an online intervention. Some of the responses were:

“Sir, in a class individual feedback would have been given and we would not have had access to many scripts like the online forum. Reading many edited scripts in an open platform gave us many learning experiences.”

In a normal class other student would not show us their script.

The male student said that the online forum gave them time to learn. “The fact that the edited scripts were there on the forum gave us ample opportunities to study and discuss them.”

The researchers gently urged him to narrate the nature of those discussions, and he answered that the discussions were primarily those focused on language and content.

When it came to language, students discussed the edits in detail, and what emerged in these discussions were how they were not aware of a specific language rule, how formal grammar lessons in the past failed to predict the errors they would make. Also if a specific language error (e.g. a misplaced modifier) was discussed, students who did not make the error also brought their own knowledge thus increasing their knowledge. In conceptual (content) edits the discussions were longer, because they offered fresh means of looking at the poem. As a result the students said that they ended up revisiting the poem—“that was good revision for the exam”
5. CONCLUSIONS

The online forum for a academically challenging literary work like *The Waste Land* was a leap of faith for these researchers who have been teaching this poem primarily through the mode of face-to-face lectures (Day schools). This online forum was designed very much prior to the pandemic crisis and it became critically important during the Covid-19 lockdown in Sri Lanka. The objective of this exercise was exploratory and the study attempted to investigate the advantages and limits of different modes of teaching literature. One of the important findings about teaching literature using the online mode was that Day Schools needed to take center stage: Day School is the main motivation for encouraging the students to engage with the online component (Whether these day schools are face to face or video conferencing day schools would be the topic of another study).

Although this experiment used a ladder-process to connect the Day School and the online component of the course, students did not view the process that way; rather they viewed the online course component as a summary of the Day School. Though the students viewed it as such, as teachers of literature, the researchers feel that such views expressed by students are an indication that they have engaged with Eliot's poem deeply and done extensive reading. At the same time, whether a poem as complex as *The Waste Land*, or for that matter any literary text, could—or should—be customized for evolutionary kind of learning is a theoretical issue that needs further research in this context. Literature in the online mode seemingly favours the self-motivated students who have cultivated the ability to sustain their interests in literary texts regardless of their complexity. Thus, a student who is struggling with literary texts could perhaps benefit more from a face-to-face classroom. Overall, students felt that deep need for a ‘human presence’ in their learning of literary texts. As for using the online mode for teaching writing, the students felt that the medium offered many an advantage like the exposition of an edited text for a wider audience for a lengthy period of time. This kind of effect is difficult to achieve in a Day School where individual feedback would remain with individual students and someone with more errors in his/her text—which is a good learning opportunity for the rest of the class—might not prefer to show the script to the rest of the class. At the same time, this writing exercise unwittingly crossed its own boundaries and became a literature class for students—for they learned much more about the poem through the writing class. This opens up new possibilities for the practitioner of teaching literature, whereby an online writing class could also be exploited to engage a student with a literary text.

In conclusion, this exploratory study demonstrated that both the traditional teacher-in-class sessions and online learning offers vast potential for a literature teacher. If ‘fear’ is an element that prevents literature teacher practitioners from using online forums for teaching, and if the loss of a ‘human presence’ is the ‘fear’ that haunts a learner of literary texts as he or she engages with a text over an online forum, this study demonstrated that those ‘fears’ were concerns that would not disappear easily. Over time and space, literary texts thrive on their complexity and concealed meanings, and perhaps, as Hebel (2010) suggests, it is up to the teacher practitioner of literature to exploit both online and traditional teaching methods to unlock such meanings without one overwriting the other. As students say, if an online writing session is also an opportunity to learn a poem better, then perhaps some of literature teachers’ own apprehensions about the teacher ‘absence’ in an online forum could turn to dust.
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AN ANALYSIS OF THE IMPLEMENTATION OF ONLINE TUTORIALS IN THE UNIVERSITAS TERBUKA (UT), INDONESIA

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Abstract
Universitas Terbuka (UT) provides learning services using face-to-face tutorials and online tutorials to serve students who live throughout Indonesia. This article analyses online tutorials, focusing on their implementation and constraints faced by the UT. Samples were taken from Agribusiness study program students who took online tutorials in 2017 (201 classes) and 2018 (234 classes) to collect data, and descriptive analysis was done. Online tutorials were conducted for eight sessions each semester. There were discussions in every session and assignments in the 3rd, 5th, and seventh. Tutors also gave feedback at every discussion and also on the assessment of each assignment tutorial. The results show that the implementation of online tutorials worked well when supported by an excellent infrastructure, especially internet access, student's willingness to study online, and the tutor's ability to become an excellent online facilitator for students. However, the number of students participating in the online tutorials was not as many as the number of students who had registered as tutorial participants. Also, there were some tutors who were less active in carrying out their duties as facilitators.

1. ONLINE TUTORIAL IN UNIVERSITAS TERBUKA

Universitas Terbuka (UT) assists all students spread throughout Indonesia by providing face-to-face tutorials and online tutorials. Face-to-face tutorials are held in 40 UT's Regional Offices, while the online tutorials are carried out by the UT Head Office. This article discusses only the implementation of online tutorials or e-learning (Keegan in Wihadanto et al., 2016).

The online tutorial is an internet-based tutorial service and is an alternative form of tutorial for UT students who have internet access. According to the Catalogue of UT Organizing Systems, 2019/2020, an online tutorial was developed using Moodle software and accessed through the address http://elearning.ut.ac.id. Tutors and students must have an e-mail address with username and also a password. Wihadanto (2016) stated that online
tutorials are a learning system that requires instructors (tutors/lecturers), learners (students), a learning strategy that follows the chosen and used platforms (i.e., Moodle).

According to Holmberg (in Wardani, 2000), there are three functions of the tutorial as follows.

1. Helping students to develop their ability to think,
2. Helping students interact academically with tutors and with fellow students. By interacting, students learn to solve various learning problems through additional explanations, information, discussions, and other activities.
3. Helping students to apply their skills acquired through assignments and discussions that tutors have given feedback.

In an online tutorial, the tutor has an essential role as a facilitator. Puspitasari (2013) explained that in the implementation of an online tutorial at UT, tutors must;

- have competence in their fields,
- have a high commitment because tutors have the task of preparing material to be delivered online (initiation material),
- have to prepare material to be discussed in discussion forums, giving motivation to students who take part in the discussion to stay active in communicating in each session, both with tutors and with other students who follow online tutorial, and
- evaluate all of the tutorial activities.

While for students to follow the tutorial must do the following steps:

1. Register online tutorials for courses that they followed.
2. Activate the online tutorial account through the e-learning.ut.ac.id page.

3. Fill out the form of willingness to follow the online tutorial.

Puspitasari (2013) and Wahyuningsih. (2014) state that the level of accessibility of students in the online tutorial was low. However, UT continues to develop and improve online tutorial services. The online tutorial score contribution is 30% towards the final grade to encourage students to be more motivated to participate in the online tutorial. One of UT's ways to improve the online tutorial service is enacting new rules by considering student interest in joining an online tutorial. Before 2018 all students who register in each semester will automatically be registered as online tutorial participants. However, only a few of the students actively participate in the online tutorial. From students who actively participated in an online tutorial, only a view of them participated in online tutorial activities. Since 2018, UT has changed this online tutorial service by inviting students to register on their own if they want to join online tutorials. This change assumed that students who register in the online tutorial are those who are serious about participating in them.

The main tasks of the tutors in online tutorial activities are as follows:

a. Develop a Tutorial Activity Plan and Tutorial Activity Unit for the course.

b. Develop eight initiation materials and three assignments concerning the main course. It also provides formative tests on each session and summative tests at the end of the session to see how students understand the materials provided at the time of the online tutorial. The material uploaded is linked to other learning resources to enrich the knowledge of the students.

c. Upload the initiation material and assignments to the UT website according to the schedule.

d. Each initiation material is required to create a discussion forum and hold discussions (can be in the form of questions and answers or add enrichment material) with students.
e. Must respond to student questions or statements in the discussion forum (no later than three days after student questions)
f. Must open online tutorial every day (even if there are no students who respond)
g. Check and assess the tasks done by students
h. Assess the activities of participants

In addition to these basic tasks, tutors must have the ability to access, analyze, evaluate, create and deliver messages (learning material) in various forms in line with their learning strategies using e-learning based on the Moodle platform. (Wihadanto, 2016).

Furthermore, in the Guidelines of Discipline and Ethics of Universitas Terbuka in following Online Tutorials, there are general provisions in this online tutorial activity that students should know:
(a) Actively follow Online Tutorial an active role in discussions, and submit the Assignments on schedule.
(b) Online tutorial’s final score comes from participation (20%), discussion (30%), and 50% from the assignments.

Special provisions that the students must follow are as follows:
a. They cannot provide usernames and passwords to other parties.
b. In communicating and interacting with tutors and students, reflecting learning and intellectuality, among others by (1) using good and correct Indonesian language; (2) promote manners, propriety, and civility; (3) avoid tangents to ethnic, religious, racial and inter-group and practical politics.
c. Uphold honesty and academic nobility, through (1) doing all online tutorial activities by themselves and should not be done by others; (2) avoid plagiarism, i.e., use all or part of the thoughts or findings of others without stating the source either in the investigation or the work of online tutorial tasks; (3) avoid giving "cheat sheet" to other students or plagiarizing the work of others in responding to discussions and tasks.

If the student violates the above provisions, then they will be subjected to the following academic sanctions. 1) Deactivation or deactivation of student participation in online tutorial courses from the fourth week onwards, for those who are not active in the initiation of online tutorial courses that follow. from the first week to the third week in a row. 2) Giving reminders or reprimands for those who practice plagiarism and do not heed the Indonesian language's propriety. 3) The awarding of an official reprimand and termination of participation in Tuton for all courses followed in one semester for those detected or known to use "JOKI" in the activities, discussions, and the tasks. 4) Giving a score of zero (0) for discussions and tasks or both for the plagiarized content.

This paper analyses and evaluates the implementation of the UT online tutorial in 2017 and 2018 by looking at student activities, namely student activeness in accessing, following discussions, and submitting 3 Tasks as well as tutor activities in managing tutorials, answering discussions, assessing and giving feedback on 3 Online tutorial's Tasks. The samples used in this study were students of the Agribusiness study program from the Faculty of Science and Technology who participated in online tutorials in 2017 (201 classes) and 2018 (234 classes). Data were analyzed using descriptive analysis. This study's results can provide input and improvement for the implementation of the online tutorial at UT in the following year.
2. RESULTS AND DISCUSSION

2.1 Student Activities in the Online Tutorial

The results showed that student activities in an online tutorial (which consisted of accessing and opening the online tutorial materials, participating in discussion forums, and working on three Tutorial Tasks) increased after changes in rules from 2018, where students have to register themselves in following the online tutorial, instead of all students automatically being registered for the online tutorial. It means that the students who register themselves to join the online tutorials are earnest or have a strong desire to participate in an online tutorial (Figure 1).

![Figure 1: Average Percentage of Students Accessing Online Tutorial, Discussions and Finishing the Tasks](image)

However, when analyzed in more detail, the online tutorial activities that students follow are still not up to the level as expected by UT. It can be seen that not all of the students who have registered themselves to participate in the online tutorial, took part in all activities. There were still many who only register themselves in the online tutorial, but do not actually participate.

The highest percentage of students who access and participate actively in the online tutorial has only reached 72% there still 28% of students not sufficiently active in the online tutorial. It is due to several reasons such as: (a) frequent internet disruptions, (b) the difficulty of allocating time to work and time to study, (c) students feel that the time given is too short (only 1 to 2 weeks for each session), and (d) some of the students had been assigned in areas where internet cannot be accessed.

This result corresponds with Wahyuningsih's (2014) finding that students' main obstacle in following the online tutorial is the problem in accessing the internet network. The issues that are often complained by the students are tutors' delays in presenting tutorial material and in responding to student questions.
2.2 Tutor Activities in Online Tutorial

Fifty-one courses from the Agribusiness study program offered online tutorials, and students can take more than one course. Each course has a class with varied numbers of students, although there are already restrictions on the number of college students to be 50. However, for certain subjects, the registered participants exceed the allocated maximum number. To address this condition, UT makes parallel classes, so that more than one tutor can facilitate. Figure 2 depicts number of the tutorial classes conducted in each semester in 2017 and 2018.

![Number of Tutorial Classes in 2017 and 2018](image)

The number of tutorial classes in every semester depends on the number of students registered. The number of tutorial classes determines how many tutors are needed. With 46 lecturers and no tutors outside UT, a tutor facilitates 2-4 classes on average. One tutorial class consists of 50 students, but it could be more or less than 50 students in reality.

Not all tutors engage in the same way in facilitating their classes. There are some tutors who do not open their online tutorial for 1 or 2 days in each tutorial session. It will undoubtedly be very detrimental to students, because students expect to immediately find out the discussion's feedback, their scores and the tasks. Some reasons of not-so-active tutors in implementing online tutorials are identified as follows.

1. Lack of commitment shown from several tutors who have to be reminded constantly to open their online tutorials. Also, there are some tutors who do not complete uploading of the initiation materials.

2. The tutors are responsible for many classes with varying number of students participating in each class. For specific subjects, the number of students registering could be more than 50. If the average number of students who actively participate in the discussion is 56%, then the tutor's task in answering discussions and giving feedback becomes even more severe, primarily if he/she is responsible for several subjects.

3. Assigning assignments to tutors that do not suit their field of knowledge.
4. As the tutor must first study the material, then has to answer and give feedback in an extensive student class tutorial, it indeed reflects on the tutor's activeness.

5. Difficulty in accessing the tutorial application. Several problems occur in the Moodle application system during the tutorial implementation; this certainly disrupts the work of tutors and students conducting discussions and completing the tutorial assignments.

6. The extension of registration time disrupt the assessment of everyday discussions. Tutors have to review the previous session because students are still permitted to register, even after the session were closed.

3. CONCLUSIONS AND RECOMMENDATIONS

The new rule that requires students to register themselves only if they want to take part in the online tutorial turns out to increase the number of participants who actively access online tutorials, participate in discussions, and do three tutorial tasks. Nevertheless, the overall number of students taking online tutorials is still less than the total number of students that register.

To improve students’ services, it is necessary to make additional dashboards about student activities, starting from course registration, online tutorial registration, and student activation status. Currently, the dashboard about student scores in the implementation of the online tutorial is available.

Students need to be given more time to be familiarize with new policies or rules before the tutorial starts, in order to have enough time to learn how to follow the online tutorial. It will make them stay active from the first session to the end. A large number of courses offered in online tutorials and the small number of tutors in the Agribusiness Study Program caused the distribution of tutorial classes to be uneven. This burden on the tutors disrupts their performance.

Tutors also need more time to get familiarized with the new policy on the developing tutorial kit (which relates to the format of the tutorial activity plan and tutorial activity unit) so that the tutor as an initiator of material development can do the required work according to the new policy. Online tutorials implementation has to be monitored throughout the day, starting from online tutorial preparation (course registration, online tutorial registration, student activation), online tutorial implementation (from the student's side and the tutor's side), and online tutorial reporting (from the tutor’s side). The evaluation is a must to do every semester so that there is an increase in online tutorial implementation quality. On the other hand, it is necessary to consider rewards and punishments for students and tutors.

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A STUDY ON THE CAUSES OF COMMON INACCURACIES FOUND IN THE COURSE MATERIAL OF OUSL

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Abstract

Since its establishment in 1980, the Open University of Sri Lanka (OUSL) has been offering adult education to a massive population of learners through its Open Distance Learning (ODL) mode. OUSL is on par with the other national universities of the island due to its legal status, organizational structure and the staff recruitment criteria. However, a major difference between OUSL and traditional universities is the teaching methodology where the imparting of knowledge is performed at OUSL through specially-designed course material instead of face-to-face instructions by a teacher. Since course material is considered the main source bridging the gap in the teacher-learner relationship in an ODL system, this study focuses on the inaccuracies found in the course material, which are written by academics. OUSL regularly conducts capacity building programmes on writing course material to meet the demands of all the Departments providing comprehensive knowledge on how the particular form of learning resources could aid the learner effectively. They lengthily discuss various areas, including the structure of a session, presentation, and the use of language. Further, each academic must attempt a sample session which would be critically analyzed and evaluated by the trainer. Despite such efforts, various shortcomings creep into the final product. As a result, this study investigated the common inaccuracies found in OUSL course material from various departments using a textual analysis method on a sample of one hundred sessions of the course material. Further, two course writers from the relevant departments were interviewed to discover the causes behind such inaccuracies. The results identified inaccuracies such as deviating from the stipulated structure, dull presentation, monotonous writing, and also grammatical errors. They further led to the discovery of several causes behind these inaccuracies such as academics being ignorant of the ODL system, not attending the capacity building programmes and prioritizing the content over other aspects of writing course material. Evidently, this study relied on mixed method data analysis. The relevant findings will hopefully pave the way for academics to rectify the common inaccuracies which are made when writing course material. They will further allow relevant authorities to make additional interventions in facilitating the process of course writing, if necessary, in strengthening the ODL system.
1. INTRODUCTION
The Open University of Sri Lanka (OUSL), as a national tertiary education institution approved by the University Grants Commission (UGC), shares certain similarities with the conventional universities in the island in terms of legal status, organizational structure, and staff recruitment. Simultaneously, having been catering to a massive population of adult learners, it differs from the conventional teaching system practiced in other national universities owing to its teaching methodology of which course material plays the main role. It is basically the resource that primarily bridges the gap between the teacher and the learner in the Open Distance Learning (ODL) system among other teaching-learning resources such as audio-visual and online material. As the pioneer ODL institution of Sri Lanka, from its inception in 1980, the OUSL has been prioritizing imparting knowledge via specially designed course material in place of the face-to-face instructions provided by the conventional university teacher. Accordingly, these course material, since they replace the onsite teacher, must perform the role of a conventional teaching-learning situation which includes actions such as guiding, encouraging, captivating, illustrating, elucidating, provoking, recalling, querying, discussing alternative answers, evaluating the learner's progress and providing fitting corrective or enhancement aid (Rowntree, 1990). Evidently, a course writer is burdened with the responsibility of producing study material that facilitates the learner in receiving knowledge inclusive of all processes mentioned above. Furthermore, writing course material is considered the foremost service that is expected of an academic employed in the ODL system, and the same rule applies to the job description of an OUSL academic.

Accordingly, in order to maintain a high standard in the course material, the OUSL regularly conducts capacity building programmes on writing course material to meet the demands of all the Departments and provides comprehensive knowledge on how the particular form of learning resources could effectively aid the learner. These include lengthy discussions on various areas such as the structure of a session, presentation, and the use of language. The programmes are conducted over a period of a few days paying special attention to the Departmental needs and attending to the relevant academics’ queries. In addition, a hands-on guide inclusive of two components - Bridging the Gap (1995) focusing on the ‘effective writing in distance education based on accepted principles’, and The House Style (1996) providing a comprehensive manual on the stipulated template - is available at the Centre for Educational Technology and Media (CETMe) which could be accessed by any academic. Once the training is over, each participant must engage in writing an entire session and produce it to the trainer, which would be critically evaluated by the latter.

However, despite such efforts, when the actual sessions which are prepared for learner-use are presented for the final editing, a considerable number of shortcomings are visible. This is a cause for concern since containing flaws in the main knowledge sharing resource is a clear drawback in the preferred teaching-learning process.

Despite such a situation, so far, there has been no solid research conducted within the OUSL on these shortcomings and their causes. As a result, this study investigated the common inaccuracies displayed in the course material written by the OUSL academics of various departments, as well as what may have caused them, and also what steps could be taken in rectifying these inaccuracies. It was also conducted with the hopes of the relevant authorities making additional interventions in facilitating the process of course writing, if necessary, in strengthening the ODL system.
2. METHODOLOGY

In order to study the common inaccuracies visible in the course material written by the OUSL academics, a textual analysis of hundred sessions of OUSL course material was performed, paying special attention to the structure of the session, presentation, and the use of language. The samples were selected randomly. However, it was made sure that they represented as many Departments as possible. Furthermore, two course writers from each relevant Department were interviewed to discover the causes behind such inaccuracies. Among them, there were academics who had produced well-written sessions. They extended their views on what helped them in writing better sessions. Evidently, this study relied on a qualitative method of data analysis.

3. RESULTS AND DISCUSSION

The textual analysis done on the hundred randomly selected sessions evidenced that despite the capacity building programmes conducted for all Departments, the standard of the writing of the academics varied. Among them, there were many course materials that had been written well following the stipulated guidelines proving the credibility of the training provided by the university. According to Reginald Melton (1997), instructional materials play a vital role in maintaining the expected standards of a study programme, and the latterly mentioned evidence this point.

However, the purpose of the current study was to concentrate on the poorly written sessions. The inaccuracies that were visible are discussed in depth under the sub-headings ‘Structure of a Session’, ‘Presentation’ and the ‘Use of Language’.

3.1 Structure of the Session

The OUSL, when writing course material, follows specially designed templates that are lengthily explained in the manual The House Style (1996) in which its preparation team has acknowledged the contribution made by Dr. Reginald Melton, Mr. Robin Kyd and Mr. Nigel Draper who are members of the original House Style preparation team of the Open University, United Kingdom. This manual aids the academics to recall the training they have received in the capacity building programmes provided by the university on writing instructional material. However, despite such efforts, there were several sessions that had been written minus the template, and this had made them deviate from the stipulated structure. Accordingly, there were discrepancies in the use of fonts and font sizes, spacing, alignment, and also an omission of compulsory headings and subheadings. A template is usually specified mainly to maintain uniformity among all course material belonging to a particular institution. Further, such practice helps the learner to be aware of how to peruse the material without much encumbrance. Hence, the non-use of the prescribed template in the sessions reflects badly on the standards of the relevant study programme as well as the university in general, while making teaching-learning process inconvenient.

3.2 Presentation

Another significant flaw that was visible lay in the presentation of some of the sessions. In the ODL system, the learner is expected to mainly engage him/herself in self-studying since attending face-to-face sessions is not a
must. Instead, he/she must primarily rely on the course material provided by the university. As a result, these materials should be able to arrest the attention of the reader. This could be done in various ways. As Rowntree (1993) suggests, one such way is utilizing a graphic approach in which lists, graphs, tables, and pictures perform the duty of summarizing and synthesizing lengthy explanations. These not only reduce the volume of the material but also minimize the boredom. However, there was a considerable number of sessions that included much verbose chained to long paragraphs that made them tedious and monotonous. Such writing makes the reader lose interest in the material or even drives him/her to be demotivated to follow the study programme altogether.

Another significant flaw that was visible during the textual analysis related to the presentation of certain sessions was their inability to replace the onsite teacher. As asserted by Rowntree (1990), actions such as guiding, encouraging, captivating, illustrating, elucidating, provoking, recalling, querying, discussing alternative answers, evaluating the learner’s progress, and providing fitting corrective or enhancement aid are regularities in a conventional teaching-learning situation. Therefore, when writing course material in an ODL platform, some of these are done using activities, summaries, review questions, and also by mentioning the learning outcomes, and these were some of the crucial segments that were noteworthy omissions in some of the sessions that were analyzed. Accordingly, this is a drawback that affects the ODL principles, which need to be rectified in order to gain the maximum benefits of the system.

### 3.3 Use of Language

Language plays a huge role in bridging the gap between the teacher and learner in the ODL system. However, several sessions in the data sample showed that some academics pay less attention to this aspect. Their writing seemed too formal and monotonous, which could be a complete dispiriting factor for the learner. Derek Rowntree (1993) insists that the language used in course material designed for the Open and Distant Learner must be reader-friendly, conversational, plain-speaking, and welcoming. The *Bridging the Gap* (1995) too stresses Rowntree’s standpoint. However, some academics have done quite the reverse with the use of more formal language, and they seemed negligent of the fact that their writing is a replacement for the onsite teacher.

A few sessions exhibited grammatical errors related to sentence structure, punctuation, and capitalization. However, these can be rectified at the editor’s table, unlike the rest of the mentioned flaws which need the attention of the subject experts.

As stated in the Methodology section, two course writers from the relevant Departments were interviewed to discover the causes behind the inaccuracies that were revealed from the textual analysis done on the hundred randomly selected course sessions. The revelations proved that several academics who had written sessions had never attended any capacity building programmes organized by the university; nor have they sighted a copy of *Bridging the Gap* and *The House Style*. Evidently, their sessions have been poorly written owing to their ignorance on how course material must be designed for the Open Distant Learner. Some of these non-attendees had in fact used the correct template. Yet, by not attending the respective training programmes, they had missed the opportunity of writing practice sessions and thereby getting them critically evaluated by the trainer. This, in turn, has made them commit certain other noticeable mistakes mentioned above. As for the reasons behind not attending the training programmes, they admitted not
making an effort to do so when they were organized by their respective Departments. However, they seemed to regret their actions since they now realize the value of the opportunity they had missed.

Seemingly, another cause has been these academics prioritizing the content of the sessions over other related aspects of writing course material. In fact, there were many who had attended the capacity building programmes but admitted having paid less attention to areas considered to be vital and concentrated mainly on the subject knowledge. Basically, they had viewed their writing merely as knowledge providing resources and not as learning resources related to the ODL system. Furthermore, when queried, several academics seemed to have been not so conversant with how the ODL system exactly operates. The demarcation between the teaching-learning processes of the ODL and conventional seemed blurred to them and this was another considerable issue that had led to the inaccuracies exhibited in their course writing.

Among the interviewed academics, there were many who had produced well-written sessions, and their views provided several ways through which the inaccuracies made by certain others in their writing could be rectified or even minimized. They basically revealed what worked for them in becoming good course writers. First and foremost, they vouched the support extended by the university in providing the opportunity to attend the capacity building programmes, which cater to individual departmental needs. They admitted being active participants in these programmes clearing their doubts on various aspects related to course writing through their trainer. Apart from that, they also vouched the importance of having copies of Bridging the Gap and The House Style, which they constantly refer to when writing course material. They also acknowledged the support extended through the programme, Certificate in Teaching in Higher Education (CTHE), offered by the Staff Development Centre (SDC) at the OUSL that helped them in expanding their knowledge on the ODL system. Especially, the academics who had received tertiary education at a conventional university revealed that even though they had read up about the open and distance learning system when preparing themselves for their job interview, it is the CTHE programme and the respective training programmes that exposed them to the related nuances, and also fine-tuned them to become true ODL academics. This included the training they received on writing course material for the Open Distant learner. They also stressed that the knowledge gained through these programmes need to be remembered at all times, if one is to render an utmost service to the university as an academic attached to the ODL system including writing comprehensive course materials which are of a high standard.

4. CONCLUSIONS

As the pioneer open and distance learning institution of the island, the Open University of Sri Lanka has recognized course material as the foremost teaching learning resource that aids in bridging the gap between the teacher and learner. As such, the university provides capacity building programmes intermittently to its academics on writing effective and comprehensive course material. Apart from that, they also have two manuals – Bridging the Gap and The House Style - that provide further guidance. However, despite these efforts, there is a considerable number of inaccuracies displayed in the material written by some academics and the current study investigated what these shortcomings were, and also the possible reasons that may have caused them.
In order to do so, a textual analysis was conducted on hundred randomly selected sessions written by academics from various departments of the OUSL and interviewed two academics representing each relevant department following a qualitative method of data analysis. The textual analysis exposed several inaccuracies included in the sample sessions such as deviating from the stipulated structure, dull presentation, monotonous writing and also grammatical errors which were discussed under the subheadings ‘Structure of a Session’, ‘Presentation’ and the ‘Use of Language’. The interviews conducted with the relevant academics revealed reasons such as academics being ignorant of the ODL system, not attending capacity building programmes and prioritizing the content over other aspects of writing course material to be the causes behind these inaccuracies. The academics who had produced well-written sessions mentioned that their success lay in following the capacity building programmes, referring to the manuals related to writing course material and also making a conscious effort in being aware of the role of an academic related to the ODL system. These revelations seemed solid methods that could be followed in rectifying the inaccuracies visible in the analyzed course material.

However, this study was conducted by focusing only on the course material written by OUSL academics. This same study could be expanded by looking at material written by other educational institutions that follow the ODL system. Despite this limitation, it is hoped that this study would help in minimizing and rectifying the inaccuracies that seem to appear in course material written in such institutions. Furthermore, it is hoped that this research would pave the way for relevant authorities to make additional interventions in facilitating the process of course writing in strengthening the ODL system.

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TOWARDS BLENDED LEARNING DESIGN AND DELIVERY WITH SPECIAL FOCUS ON UBIQUITOUS LEARNING ENVIRONMENT IN THE FIELD OF ODL: A CASE STUDY OF KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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Abstract

The last two decades have seen a magnum leap in the growth and development of the Open and Distance Learning (ODL) system. Living in today’s knowledge society, the vital role played by education in every sphere of human life could not be ignored. However, not many are fortunate enough to reap the benefits of higher and professional education due to unavoidable reasons. Providing quality education at a higher and professional level could be daunting. The ODL system has emerged as an answer to this challenge. Krishna Kanta Handiqui State Open University (KKHSOU), the first and the only state-governed Open University of India's North-East, has been playing a pioneering role in providing quality higher education in this part of the country. The present Covid-19 pandemic has thrown the academic community in to an unusual situation and forced them to shift focus to develop new methodology in teaching-learning in order to keep the door of learning open for a large number of students who have been deprived of their access to learning. These days the emphasis has shifted from e-learning to u-learning, which is an amalgamation of e-learning and m-learning that allows learning to take place independently of time and place. This paper intends to analyze the importance of blended learning to meet the requirements of the learners in the open mode. Two important blended learning frameworks, Complex Adaptive Blended Learning System and the Community of Inquiry were analyzed in the light of the instructional delivery mechanism, as opted by the KKHSOU.
1. INTRODUCTION
The last two decades have seen a massive shift in the growth and development of the Open and Distance Learning (ODL) system. From the Correspondence model to the Intelligent Flexible Learning Model, open and distance learning has indeed come of age. This has made the distribution of the learner support services relatively easy. However, a lot of issues still need to be addressed in order to provide hassle free services and learning to the learners. Blended learning is one of the ways in which an institution can make use of both online and offline learning platforms. Online learning platforms can include online discussion forums, e-books, online learning resources, social media etc. Offline learning platforms can include (not limited to) classrooms, face to face counselling, or tutorial classes. Blended learning makes use of both online and offline platforms to create an environment that is both interesting and effective to the learners.

2. OBJECTIVES
The main objectives of the present study are--
i. To assess the importance of developing a blended learning system with special reference to the ubiquitous learning environment

ii. To introspect the feasibility of building a ubiquitous learning environment specifically in the field of open and distance learning

iii. To analyse the pros and cons of having a blended learning system as far as distance education is concerned.

3. RESEARCH METHODOLOGY
The present study is basically a qualitative analysis of the importance of having a blended learning approach specifically focused on the ubiquitous learning environment. Document analysis of a few secondary sources (journals, books, magazines etc.) was done in order to substantiate the importance of blended learning with special reference to the ubiquitous learning environment.

4. THEORIES THAT SUPPORT THE BLENDED LEARNING PRACTICE
Blended learning had taken the world by storm, with many distance learning institutions and other conventional universities utilizing it extensively. In this research paper, the focus will be on two important frameworks – the Complex Adaptive Blended Learning System and the Community of Inquiry. Appropriate adjustments can be made in these two models keeping in view the needs and preferences of the learners. In the case of the Complex Adaptive Blended Learning System (CABLS), the learner occupies the central position with other components having an impact on each other. Apparently, there are six elements in the system, and each one has got its own subsystems. These elements are the learner, the teacher, the technology, the content, the learning support and the institution. This framework is expected to give a better idea to anyone who is new to the entire blended learning approach (Cleveland-Innes and Wilton, 2018.).

The second important framework is the Community of Inquiry (CoI) framework which talks about the important elements that are needed to create deep and meaningful learning. This model reiterates the fact that education experience occurs at the convergence of three presences: cognitive, teaching, and social. The cognitive...
state of mind of the individual, the teaching process and the environment in which the learning takes place are all interconnected to each other. Inquiry-based teaching and learning have come to occupy a very important place in the field of education. The art of asking questions during the teaching-learning process enhances the knowledge base of any learner. Through cognitive engagement learners can identify and have more control over their thought process rather than simply relying on textual books. Teaching presence can have a deep impact on social presence as well. This is because, whenever learning takes place in the presence of a teacher (either virtually or physically), then the social presence of the learner redoubles. Emotional presence is another important aspect of the Community of Learning framework. Here, a learner might express any thought or emotion while interacting with their peers or the major technological tools and techniques (Cleveland-Innes and Wilton, 2018.).

5. DELIVERING BLENDED LEARNING IN AN ODL SETUP WITH SPECIAL REFERENCE TO UBIQUITOUS LEARNING ENVIRONMENT: KKHSOU PERSPECTIVE

Blended learning makes use of online educational materials and opportunities for interacting online using traditional classroom methods. Established under the provision of the Krishna Kanta Handiqui State Open University, Act’ 2005 enacted by the State Legislature of Assam, Krishna Kanta Handiqui State Open University (KKHSOU) has used a number of lot tools and technologies in order to deliver hassle-free learner support services. As the first and the only State Open University of India’s Northeast, KKHSOU aims to develop and provide easily accessible modes of quality higher education and training with the use of the latest educational inputs and technology. Earlier the University used to offer Bachelor Preparatory Programme (BPP) and short-term engineering based vocational training programmes through selective Industrial Training Institutes (ISI) and Polytechnics. However, these programmes have been discontinued as of now.

An effective distance learning system uses a variety of technologies to support instruction. Keeping in view the CABLS framework, the following six elements are an integral part of the teaching-learning system of the KKHSOU (Figure 1). As it evident from the Figure 1, the learner occupies the main crux around which any distance educational system revolves. The learners’ role also changes as they get adapted to changes in the system and undergoing transformations from a passive to an active learner. Learners are provided with support services that enhance their entire teaching-learning process. Such support services can be online or offline support services. Often, such support services are well supported by technology which can be either synchronous or asynchronous in nature.

Instructors also play a pivotal role in providing the necessary support and guidance to the learners. Thus, the learner, content to be disseminated or delivered, the instructor/facilitator, and technology can be said to be the core components of any distance educational system that are interrelated. The teachers or the instructors in a blended environment also evolve along with the learners, as they too get adapted to the changing needs of the society.
Content is the requisite subject matter that needs to be provided to the learners. As far as the provision of learning materials under KKHSOU is concerned, self-study materials are given to the learners. These study materials are provided in the form of both online and offline. The hard copies of the self-learning materials are dispatched to the different study centres situated across the length and breadth of the state of Assam. These study materials are developed by adhering to a particular format adopted by the University. Along with the hard copies of the texts, efforts have also been made to distribute CDs containing the various concepts in audio/video-visual format. This is mainly done so as to keep the theme of blended learning intact. The content is also available as e-learning materials on the website of the University. Apart from these e-learning materials, videos have been recorded and uploaded in the YouTube channel of the University (See https://www.youtube.com/channel/UCGyolhFaB3OiRZqptioeFnw). The learners can access these HP content at anytime as per their convenience.

Another important element that is worth discussing here is ‘technology’. There is indeed a definite system in place in which study materials are distributed to the learners at various study centres including the university city campus. Online learning materials are shared through different discussion platforms and other asynchronous technologies. O’Connell (2016) has offered about seven sample configurations of blended learning out of which one such configuration is applicable in the case of KKHSOU. This is the ‘Blended Online Class’, which is also known as the ‘online driver model’. In this model, a major chunk of the class is held online while only a few activities like in-person lectures and other laboratory activities are held offline.

The present pandemic situation has apparently led to a closure of the different educational institutions (including universities and colleges). As such, the need to provide uninterrupted knowledge and information becomes all the more important in the present-day context. Goal No 4 of UNDP Sustainable Development talks about ‘Quality Education’. Thereby, a concerted effort needs to come from all (including the government, stakeholders, and people) so that there is an uninterrupted flow of information and knowledge across all sectors while keeping the quality of education intact.
Ubiquitous Learning Environment (ULE) refers to that environment in which the learners can become totally immersed in the learning process (Bomsdorf, 2005; Jones and Jo, 2004; Ma and Yu, 2019). Devices such as Web Pads, Tablets, Personal Digital Assistants (PDAs) and Smart Phones are used in ULE. In fact, this form of learning environment is intended to allow the learners to pursue their different academic work anywhere and at anytime. Ubiquitous computing comprises of the technologies human computer interaction, wireless sensor networks, context-based computing, mobile computing, cloud computing, artificial intelligence, distributed computing, natural user interface, physical computing, virtual reality, etc. When learners are exposed to such an environment, it becomes easier to acquire knowledge through interactive and active participation. If one compares the delivery mechanism of ULE and mobile learning, one will find that both of them are quite similar in nature. However, context awareness is one characteristic of ULE in which it can sense the learner's personal, environment situations and locations and understand the learner's environment through the database. Generally U-Learning consists of the main elements indicated in Figure 2:

**Figure 2**: Ubiquitous Learning
As evident from Figure 2, having a proper internet connectivity that is well supported by sensors, cloud and mobile computing, context-based computing, GPS, GIS and Artificial Intelligence is of utmost importance when designing a ubiquitous learning environment. This is because these elements form the crux
of a u-learning system. This system is designed in such a way that it continuously monitors and keeps track of the learner’s location and its surrounding area by way of sensors. The learner can be assured of the fact that his or her work will never be lost as it gets automatically stored in the database. One of the basic advantages of this system is that it adapts to the learning platform that is being used by the concerned learner.

KKHSOU provides a unique learning environment wherein online learning platforms are combined together with offline resources. Even though the ubiquitous learning environment has not yet been developed, the University utilizes a mixture of e-learning and m-learning systems to provide education. A blended learning system is in place, which utilizes both face-to-face learning and online learning. In fact, the city campus of the University has its own study centre whereby learners can avail various facilities like library services, counselling classes, pre and post-admission counselling etc. Moreover, a learner can access online classes without even having to be physically present for the offline tutorial classes.

It is also pertinent to mention here a few of the new media technologies that are widely applied for learning purposes by KKHSOU. These are the new media technologies that give a much-needed push to blended learning or, for that matter, ubiquitous learning to take off. Some of the commonly used tools and platforms are given below:

a) Learning provided through community radio (e-Jnan Taranga): The community radio of KKHSOU broadcasts a number of information on issues like health communication, public relations, economics of education, public administration, sustainable development, women-oriented issues, legal issues etc. The radio, which was launched on 20th November, 2010 serves as an important communication tool for dissemination of academic related issues. It covers an aerial distance of about 15 kilometers.

b) Provision of E-Resources: Links linking various e-resources like Journals, Dictionaries, Thesauruses, Encyclopedias and E-books are maintained by the digital library of the University. One can access the different online journals at JSTOR and JGATE databases also. Apart from this, one can gain access to the SAGE journals. Besides, the digital library of the University has also uploaded various administrative documents, conference/seminar proceedings, faculty publications, soft copies of the University journal (Journal of Open Learning and Research Communication), Annual Reports, Working Papers, PhD/MPhil dissertations etc. for the benefit of the learners as well as the teachers.

c) Learning Management System: A learning management system (LMS) by the name of eBidya has been set up where study materials of different subjects have been uploaded. The audio and audio-visual learning materials have also been uploaded in eBidya. Audio-visual lectures, references, learning materials belonging to each course have been carefully uploaded and it is expected that the system will be operational by the end of the present academic year. It is also worth mentioning here that there is another LMS by the name of e-Pragya that is the collaborative outcome between KKHSOU and Commonwealth of Educational Media Centre for Asia, New Delhi. This LMS has been developed as a part of the massive project- ‘Designing ICT based Intervention Programmes for School Teachers: A Profound Initiative by KKHSOU for Quality School Education’. The contents of both the Learning Management Systems have been delivered in four quadrants - e-tutorial, e-content, discussion forum and self-assessment.

d) Social media as an interactive platform: Information about the
functioning of the University, examination routine, course curriculum etc. are easily available through various social networking platforms like Facebook and Twitter. The members of the social networking sites can log in to the home page of the University and can post comments, queries or start a discussion on any topic of interest.

e) E-Mentoring of learners through online platforms: Mentoring of learners by way of creating different WhatsApp and Telegram groups has been the turning point of the year 2020. Although a need for creating such groups was in the pipeline for years, they came to fruition during the pandemic situation. Accordingly, WhatsApp and Telegram groups were created for learners belonging to different semesters of Bachelor, Master Degree, Diploma, and Post Graduate Diploma programmes. The response was overwhelming as a majority of the learners responded to the online mentoring wholeheartedly. Mentoring revolves around the scheduling of classes, academic discussion, examinations, declaration of results, administrative related news etc.

f) Availability of online classes: Online classes (through Google Meet) are regularly held by the faculty members from April, 2020 onwards.

Thereafter, pre-recorded programmes are uploaded on the YouTube channel of the University that can be accessed by anyone around the world. This has in a way cut down the digital divide and has brought learning to the doorsteps of the learners.

Accessibility of information through Android App: An Android App of the University has been developed and that is available free of cost in the Google Play Store. This is another important IT tool that has helped in browsing for different types of information of the University. However, this App can be used only on Android Devices (2.3.6 and above version).

5. DISCUSSION

After a thorough study of the different approaches in delivering the support services or for that matter learning, it can rightly be said that blended learning can definitely bring about a change in the way information is disseminated to the learners. Academicians and researchers have been harping on integrating technology to the best possible use. This is because technology helps in providing collaborative learning, helps in building a networked community, leads to development of cognitive skills and attitude and provides motivation (Based on John Keller’s ARCS model of Motivational Design). Motivation is important because very often it is seen that learners tend to drop out in the middle of their academic programmes owing to different issues. This is a burning issue that is very much common in the field of open and distance learning. Since the learners are not in physical contact with the instructors on a daily basis, so sometimes they become demotivated and disinterested in continuing their courses. These further compounds the dropout rate. As such, technology enabled media can bridge this gap leading to student persistence.
The distance educational system has passed through different phases by incorporating cutting edge technological tools and platforms (ubiquitous learning environment, virtual reality, augmented reality, mixed reality, artificial intelligence to name a few). The transition from e-learning to u-learning has been phenomenal. U-learning is similar to adaptive learning, where it monitors student activity, interprets the results, understands students’ requirements and preferences, and uses this new information to facilitate the learning process.

Looking into the way forward, we definitely have our task cut out for. In order to build a u-learning environment, a robust infrastructure must be in place in order to support the distant learners scattered in different parts of a locality. Since this type of learning is an interaction between humans and computers, it is expected that the learners must be well versed in utilising the system to its full potential. Referring to computers do not mean only the desktops and laptops. In fact, it can be any form of digital device. As it is commonly seen that most of the learners under ODL belong to the disadvantaged groups, so it becomes challenging to incorporate such an environment within the teaching-learning system.

RFID (Radio Frequency Identification) along with wireless technology is widely used in a ULE and has the potential to take the teaching-learning process to newer heights. As much as this technology have the capacity to seamlessly integrate e-learning and m-learning, there are also a few security concerns that needs to be looked into. Integrating an ULE into an academic atmosphere enhances the vulnerability of sensitive data being compromised. However, this does not mean that such an environment is not feasible in the ODL system. It definitely can be implemented provided the requisite resources are available. An integrated ULE helps learners to get the receipt of the assignments, to access grades and other handouts through personalised mobile technology, to get updates on the counselling schedules or examinations, and to take part in online class discussions through Web 2.0 software.

6. CONCLUSIONS
We have definitely come a long way from face-to-face interaction to the blended learning approach (Hybrid learning). More so, these days, blended learning has paved the way for ubiquitous learning environments. Even though KKHSOU has yet to achieve the ubiquitous way of providing learning, its blended approach is much to be appreciated for. As we move towards Web 6.0, our priorities have changed the ways in which we impart knowledge to the learners. Our knowledge of technology is of no use if the learner is unable to comprehend what we teach him/her. Therefore, a proper plan must be in place in order to lay down a learner-friendly technology-enabled learning system. The day will not be very far when a networked community connecting all the learners, instructors and stakeholders belonging to the ODL system will come to fruition.
REFERENCES


DIGITAL BADGE AS AN E-CERTIFICATE OF AN INFORMAL EDUCATION PROGRAM: A CASE STUDY AT OPEN UNIVERSITY OF JAPAN

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Abstract

In educational fields, “digital badges” mean electronic certificates of academic and credential records, such as certificates of completion and transcripts, which are expected to be one of the essential components for digital credential system (especially, in micro-credentials). After the pilot study for six years at MOOCs, the Open University of Japan (OUJ) introduced a “digital badge” as an electronic certificate (“e-certificate”) of the completion of the informal education programs. In the 2020 spring term, the “Programming at elementary schools” program consisted of two sets of several lectures, adopted the badges and in 2021 additional programs will be added to the digital badge initiative. As it is the first case of applying the “digital badge” to official education at OUJ, two digital badge systems were compared. One was server-based and “Open Badge version 2” (an open standard of IMS Global Learning Consortium) was the technical standard; the other was blockchain-based and “Blockcerts” (an open standard of blockchain technologies) was the standard. Each system has both merits and demerits such in usability, security and privacy, and portability. 47 volunteers from OUJ students were recruited and were issued with two kinds of digital badges each; 24 answers to the questionnaires were received. The results showed, (1) most of the volunteers had neither knowledge on the digital badge (“what is digital badges?”) nor skills (“how can I receive, store, and reuse?”), (2) they preferred both, the management function at the university portal, and personal wallet function at their own smart devices. In response to the survey results, OUJ improved the instruction documents and student portal. An issue remained is the development of a prototype is a prototype of digital transcripts based on international standards, such as IMS Global's Comprehensive Learner Records (CLR) and W3C's Verifiable Credentials (VC).
1. INTRODUCTION

In the midst of the Covid-19 Pandemic, e-learning and ICT-enhanced education spread rapidly in the world, and more teachers and students have been familiar with online learning. Now we should confront digital transformation (DX) in education considering Diversity, Equity, and Inclusion (DEI). With the advent of the aging society, people will need learning opportunities more often throughout life. The Lifelong Learners learn at different institutions and manage their own learning and credential records in autonomous and self-sovereign fashion. The digital badges and digital credential system enable a new social trust system based on human abilities and achievements.

1.1 The roles of the Open University of Japan in Lifelong Learning and Open Education

The Open University of Japan (OUJ) was established in 1983 as an authorized “correspondence” university which uses broadcasting (TV and Radio) in addition to conventional media such as mails, telephones, and face-to-face mode classrooms at 50+ regional study centers. The OUJ is managed under the auspices of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Internal Affairs and Communications (MIC). The OUJ is supported by MEXT as the national center for lifelong learning in Japan. As a unique open university in this country, OUJ has contributed to Japanese open education and Open Educational Resources (OER) movements (cf. Yamada and Yoshida, 2010). Furthermore, the OUJ started asynchronous online courses with a Learning Management System (LMS) in 2015, and the current number of online courses is 38 (undergraduate level) and 33 (graduate level) as of the 2021 Spring term.

The OUJ has Faculty of Liberal Arts for undergraduate education, and the Graduate School of Master’s and Doctoral Programs for graduate education. As of May 2020, the numbers of the enrolled students were 78808, 3995 and 68 in each level. The ratios of the regular students who learn for degrees were 72.6%, 21.8%, and 100%, respectively. A portion of the credits earned as a non-regular student are transferable to degrees.

1.2 Informal Education at the Open University of Japan

As a government-funded institution to promote open education, OUJ has afforded various opportunities to learn with no or low cost to Japanese people. Everyone can access the broadcasted materials through free BS-TV channels or the OUJ Open Courseware (that is, video streaming, not all materials). These materials are utilized for informal education at other educational institutions. In addition, OUJ has provided open seminars and events as social contribution activities.

When the additional BS channel (BS 232ch) was allocated instead of the terrestrial digital broadcasting channel in October 2018, one of the two channels was considered to use for non-credit courses and extension programs (called as “Lifelong Learning Channel”). The number of TV programs developed for the Lifelong Learning Channel was 218 in FY2019 and 190 in FY2020. In informal education, instead of the credits for degrees, the certificates of completion are issued. With the release of “Lifelong Learning Channel”, OUJ started “Internet Open Courses”, which are proprietary online courses with electronic certificates of completion (that is, a kind of Small Private Online Courses, SPOC). As the granularity of these courses or programs is smaller when compared with credit courses, some automation of certificate issuing was required.
2. TECHNOLOGIES FOR DIGITAL CREDENTIAL SYSTEM

In educational contexts, ‘digital badge’ means an electronic certificate of completion of educational program/course or acquired competencies/skills/knowledge (cf. The Mozilla Foundation et al. 2012). Mozilla Foundation’s “Open Badges” framework drastically improved the portability and the verifiability of the digital badges, and many institutions and corporates had adopted it. In 2017, the IMS Global Learning Consortium (IMS Global) succeeded the standardization activities and released the new version called as “Open Badges Version 2 (OBv2)” in 2018 (IMS Global, 2018). In addition, IMS Global developed the related technical standards, such as “Comprehensive Learner Record (CLR)” and “Competency and Academic Standards Exchange (CASE)” to prepare for the various needs in the digital credential ecosystem. For example, in a digital ecosystem, stackable badge issuing based on micro-credentials will be realized by the automatic process by Artificial Intelligence (AI) and Educational Internet of Things (IoT).

With the progress of Blockchain technologies, blockchain-based verifiable credential systems are proposed. Blockcerts is one of the examples. “Blockcerts is an open standard for creating, issuing, viewing, and verifying blockchain-based certificates. These digital records are registered on a blockchain, cryptographically signed, tamper-proof, and shareable.” (https://www.blockcerts.org/). The initial prototype was developed by the MIT Media Lab and Learning Machine, and now Hyland Credentials succeeds it (https://www.hyland.com/en/platform/product-suite/hyland-credentials). Using Blockcerts, several institutions such as MIT issued Digital Diploma and other certificates of completion.

3. DEVELOPMENT OF DIGITAL BADGES AT OUJ

In Japan, while central and local governments promote educational uses of ICTs at all school levels, various educational providers deliver informal education using e-Learning and ICT-enhanced education. Although such providers issue various certificates at the completion of the course or program, most of them were paper-based or PDF-based.

3.1 Pilot Study at OUJ-MOOC (since 2014)

In April 2014, as a founding member of JMOOC (Japan Massive Open Online Course Consortium. https://www.jmooc.jp/en/), OUJ opened two MOOCs as the first release from JMOOC. One of the courses was “NIHONGO STARTER (Japanese primer)”, which was based on the Japan Foundation (JF)’s standards for Japanese language learning and Common European Framework of Reference for Languages (CEFR); another was “Computer system”, which was remixed from an OUJ regular course (Principal Lecturer, Professor. Yoichi Okabe). The OUJ-MOOC platform was based on the CHiLO Book system, which was developed by a Japanese NPO, CCC-TIES. Considering the diversity of users’ ICT environments, we adopted a combination of eBook (specifically, e-pub 3.0 and iBook), traditional LMS (learning management system, specifically Moodle), and several social networking services (SNS) such as Facebook (for registration and learner community), YouTube (for video delivery) and Mozilla Open Badge (for certification, Open Badge version 1, Yamada et al., 2015). After OUJ closed OUJ-MOOC as a platform provider, the
courses were succeeded to Asian Learning Portal (managed by AAOU and UPOU, https://asianlearningportal.org/) and other JMOOC platform providers.

3.2 Official release of OUJ Badges at Informal Education Program

In 2018, with the introduction of an additional BS (Broadcasting Satellite) TV channel, OUJ started a new extension program focusing on the new target areas, which are called “Internet Open Courses”. To develop high-flexibility course delivery and participant registration, a new learning platform “AOBA” with the digital badge system was introduced. AOBA system is outsourced to a cloud service provider.

3.3 Distribution Model

While the course materials are delivered through BS-TV or Internet (i.e., video streaming), the evaluation is held only through AOBA online learning platform. As the courses are micro-credential-oriented, the course size is smaller. The extension program does not earn credit that is transferable to any formal courses at OUJ, but “certificates” are issued after the student fulfills the completion requirements. When a learner needs the certificate of completion, he/she must register and pay for each course in advance. Each online learner fulfills the course assessment criteria, and the learning platform automatically issues electronic certificates in PDF format and in a digital badge format.

This program was launched in April 2019, and the digital badges have been issued from 2020. Working in partnership with relevant organizations, OUJ plans to provide open access courses designed to develop professional skills that will help accelerate career development. These courses are intended to bring flexibility to learning pathways and to meet the needs of diverse members of a lifelong learning society. Anyone can enroll in these courses, whether OUJ students or non-OUJ students were.

3.4 Metadata Design

The AOBA digital badges are technically based on IMS Open Badge Version 2 (OBv2). The metadata information is described in the PNG image file (Figure 1). The metadata items used are shown in Table 1.

The information on the issuer organization is described in the Profile part. “A Profile is a collection of information that describes the entity or organization using Open Badges. Issuers must be represented as Profiles, and recipients, endorsers, or other entities may also be represented using this vocabulary. Each Profile that represents an Issuer may be referenced in many BadgeClasses that it has defined.” (The Mozilla Foundation et al., 2012). The information on subjects, courses, or programs is described in the BadgeClass part. “A collection of information about the accomplishment recognized by the Open Badge. Many assertions may be created corresponding to one BadgeClass” (The Mozilla Foundation et al., 2012). The information on recipients is described in the “Assertion” part. “Assertions are representations of an awarded badge, used to share information about a badge belonging to one earner”. (The Mozilla Foundation et al., 2012)
Table 1: The metadata items used in OUJ-AOBA digital badge system.

<table>
<thead>
<tr>
<th>OUJ-AOBA metadata</th>
<th>IMS O8v2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issuer</strong></td>
<td>Profile</td>
</tr>
<tr>
<td>Issuer Organization [J][E]</td>
<td>Profile-name</td>
</tr>
<tr>
<td>Address of Issuer [J][E]</td>
<td>--</td>
</tr>
<tr>
<td>Country of Issuer</td>
<td>--</td>
</tr>
<tr>
<td>Correspondences</td>
<td>Profile-email</td>
</tr>
<tr>
<td>Location of Issuer Web Page</td>
<td>Profile-url</td>
</tr>
<tr>
<td><strong>Subjects/Courses/Programs</strong></td>
<td>BadgeClass</td>
</tr>
<tr>
<td>Title of Subject [J][E]</td>
<td>BadgeClass-name</td>
</tr>
<tr>
<td>Abstracts of the subject [J]</td>
<td>BadgeClass-description</td>
</tr>
<tr>
<td>Goals of the subject [J]</td>
<td>--</td>
</tr>
<tr>
<td>Location (url) of Syllabus Information</td>
<td>--</td>
</tr>
<tr>
<td><strong>Recipients</strong></td>
<td>Assertion</td>
</tr>
<tr>
<td>Student Number</td>
<td>--</td>
</tr>
<tr>
<td>Name [J][E]</td>
<td>--</td>
</tr>
<tr>
<td>email address [hashed]</td>
<td>Assertion-recipient&gt;</td>
</tr>
<tr>
<td>Address [J]</td>
<td>--</td>
</tr>
<tr>
<td>The academic term issued</td>
<td>Assertion-issuedOn</td>
</tr>
<tr>
<td>Expiry date</td>
<td>Assertion-expires</td>
</tr>
</tbody>
</table>

*J: in Japanese, E: in English, --: not available*

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**Figure 1**: An image of a digital badge issued to certify the completion of "Elementary School Programming Education Program" for the teachers. Various metadata information is embedded in the image file (PNG format in OUJ-AOBA badges).

As the information on the issuer institution (Profiles) and on the subject (BadgeClass) is originally open to the public, there are no serious issues on the data protection. However, the one on the recipients (Assertion) is a kind of personal data, and security management is indispensable.
3.5 Implementation

This program was launched in April 2019, and the digital badges were issued from 2020. A badge image of the program is shown in Figure 1, and the numbers of the badges issued are shown in Table 2. In 2020, the first series of open online certification courses were developed for the “Programming Education Program,” intended primarily for elementary school teachers. In 2021, eight new courses are planned to be provided with digital badge issuing services (two for school programming education, five for mathematical/data sciences and AI, etc.). OUJ Validator site, which is indispensable for the digital credential ecosystem, is planned to be launched in 2021 for the secondary consumers of the badges.

Recipients can confirm the information using the AOBA Student Portal. OUJ digital badges are based on Open Badge version 2 (OBv2, IMS Global Learning Consortium), and the information contained in OBv2 badges issued by other institutions can also be displayed (Figure 2).

![Figure 2: An example of the metadata description embedded in an OUJ-AOBA digital badge](image-url)
Table 2: The list of OUJ extension courses in which issued the digital badges and the numbers of the badges issued.

<table>
<thead>
<tr>
<th>Course title</th>
<th>Academic year (from April to March)</th>
<th>Number of badges issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary School Programming Education: An Introduction</td>
<td>2020</td>
<td>366</td>
</tr>
<tr>
<td>Teaching Method of Scratch Programming</td>
<td>2020</td>
<td>206</td>
</tr>
</tbody>
</table>

4. AN EVALUATION STUDY FROM USERS’ VIEWPOINTS

From the viewpoints of an issuer organization, it was necessary to consider both the digital badge baking application (“Baker”) and the automatic badge issuing function of LMS (Learning Management System). The Baker application can ‘bake’ each badge instance by giving badge graphic design (i.e., PNG or SVG image) and metadata items (for example, CSV file). The latest version of major LMSs, such as Blackboard, Canvas, and Moodle, are compatible with OBv2 and can generate them automatically.

At the initial launching of the OUJ-AOBA system, two prototypes of digital badges were developed by different digital badge systems and compared with the usability. The purpose of the survey is which features of the prototypes are evaluated by the badge recipients, that is, the first users of the issued badges.

4.1 Comparison of Specifications

The badge image and the metadata information are similar. The badge prototype A based on the IMS Open Badge version 2 (OBv2) was generated by an OBv2 Baker and sent by e-mail to the recipient. The badge prototype B was generated and managed by a Blockcerts-based platform which is the proprietary cloud service of Learning Machine (Currently, Hyland Inc.). Characteristics of the two systems are shown in Table 3.

When a recipient achieves each goal of the badge operation (behavior), assumed activities are different between two digital badge systems (Table 4). As the survey focused on the usability of digital badges, the questionnaire consisted of six items on “ease-to-receive and manage digital badges” and five items on the awareness on digital badges.
Table 3: Comparison of specifications of two digital badge making/management systems

<table>
<thead>
<tr>
<th></th>
<th>Prototype A</th>
<th>Prototype B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical standards</td>
<td>IMS Open Badge version 2</td>
<td>Blockcerts</td>
</tr>
<tr>
<td>based mainly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Badge Baker</td>
<td>Based on Open-Source Software</td>
<td>Integrated environments by Learning Machine platform</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of badge baking</td>
<td>Very small</td>
<td>Charged by recipient/institution</td>
</tr>
<tr>
<td>Delivery to recipients</td>
<td>By e-mail</td>
<td>More secured communication using Blockchain</td>
</tr>
<tr>
<td>User devices</td>
<td>PC or smart devices</td>
<td>Smart devices</td>
</tr>
<tr>
<td>Wallet</td>
<td>None</td>
<td>Included</td>
</tr>
<tr>
<td>Validator</td>
<td>Use English public validators provided by IMS Global and Badgr</td>
<td>Included</td>
</tr>
<tr>
<td></td>
<td>(as of April 2021, OUJ is preparing for Japanese version</td>
<td></td>
</tr>
<tr>
<td></td>
<td>under the collaboration with IMS Japan Society)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Comparison of users’ activities to achieve the goals in two digital badge making/management systems.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Prototype A</th>
<th>Prototype B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive and Manage badges</td>
<td>1. Receive badges by e-mail.</td>
<td>1. Receive invitation from the vendor.</td>
</tr>
<tr>
<td></td>
<td>2. Store in an adequate folder</td>
<td>2. Download the badge file and the wallet application</td>
</tr>
<tr>
<td>Display the metadata</td>
<td>1. Visit a public validator site.</td>
<td>1. Touch “Display” button on the wallet</td>
</tr>
<tr>
<td>description</td>
<td>2. Input the badge’s location or drag and drop the badge file</td>
<td></td>
</tr>
<tr>
<td>Verify the badge</td>
<td>The same above</td>
<td>1. Touch “Verify” button on the wallet</td>
</tr>
<tr>
<td>Share the badge with others</td>
<td>1. Send the badge by e-mail or upload it to blog and SNS</td>
<td>1. Touch “Share” button on the wallet</td>
</tr>
<tr>
<td></td>
<td>2. Choose the media to share</td>
<td>2. Choose the media to share</td>
</tr>
</tbody>
</table>

4.2 Method

The participants selected were 382 persons who completed the FY2019 Open Online Certification Courses. However, only 47 of them accepted the invitation and both two digital badges (Prototype A and Prototype B) and the survey instruments were sent to them by e-mail. A five-point Likert scale was used in the questionnaires.
4.3 Results

4.3.1 General Evaluation

Each participant was asked to choose Prototype A, Prototype B, or Both as a general evaluation. The numbers of their choices were 7, 16 and 1, respectively.

4.3.2 Evaluation of “ease-to-receive and manage digital badges”:

The results of the questionnaire on “ease-to-receive and manage digital badges” are shown in Figure 3. Although they prefer Prototype B as a general evaluation, the scores of Prototype B were not higher than those of Prototype A in these questions.

Figure 3: “Ease-to-receive and manage digital badges”: Comparison between Prototype A (OBv2) and Prototype B (Blockcerts).
4.3.3 The awareness on digital badges

The results of awareness survey are shown in Figure 4.

![Awareness on Digital Badges Diagram]

| Q1 | As the authority of the issuer is indispensable for a digital badge as the certificate of completion, it is meaningful to download it from a web page of the issuer (OUJ). |
| Q2 | Whether the certificate of completion is in PDF format or in a digital badge format, there are no differences if it is sent electronically, not by surface mail. |
| Q3 | From the viewpoint of lifelong learning, learner (yourself) is the hero. Learners should manage and utilize their own digital badges lifetime. |
| Q4 | Micro credential and nanodegree are attractive because we can earn and stack small credits with short courses. |
| Q5 | Digital badges used in college admission and job-seeking are not “certificates of completion” but “e-transcripts”. It is indispensable for e-transcripts to secure the information. |

Figure 4: The awareness on digital badges

4.4 Discussion

Although the subjects were considered to fall into the advanced ICT literacy group at OUJ, the evaluation of Prototype B (Smart device oriented) was not higher than that of Prototype A (conventional e-mail/Web-oriented) in the questions of “ease-to-receive and manage digital badges”. One of the reasons was the age composition of OUJ students. Elderly students were more familiar with the conventional ICT devices and tools. The results also suggested that, while they need some link to the OUJ website to authorize their own badges, they showed only weak approval to self-sovereign management of their own credential records.
After getting the results, the downloaded and displayed functions of the digital badges were added to OUJ-AOBA Student Portal, and OUJ Badge Validator (Japanese/English bilingual version) is under development for an open service to the public (as of April 2021).

5. PROSPECTS AND ISSUES REMAINED: TOWARD MICROCREDENTIAL SYSTEM IN LIFELONG LEARNING

The usability study showed both the current weakness of the digital badges and future possibilities in lifelong learning. The implementation of electronic certificates into the official extension program was a small step toward the full digital credential system at OUJ. However, the visibility is still low and both the badge issuers and the recipients have not been ready for the secondary uses and badge circulation.

5.1 Digital Credential Ecosystem

Considering the further dissemination of digital credential systems in the lifelong learning society, we should examine both new value-added services using digital badges and sustainable infrastructure in the communities, that is, innovations towards digital transformation (DX) in education and human capacity building areas. The digital badges have several features, such as automatic issuing by the system, metadata describing the acquired knowledge and skills, and self-sovereign management of lifelong academic/credential records. These functions will promote personalized learning, transparency of educational services, stackable accreditation based on micro-credentials and nanodegrees, and staff workload reduction through Robotic Process Automation (RPA).

Reflecting on the status quo of digital credential system at OUJ, it is seen that while the institution can issue digital badges by using a baker application or a LMS, and students can receive them with their personal devices, the visibility of these in the institution and Japanese society is still low and there are few opportunities to use them in everyday life. We should make a variety of circulations of digital badges in which more stakeholders participate. We also need to use various cases such as proof of volunteer activities at the college admission or a certification of skills at recruiting. To realize this, collaboration and exchange of credential data should happen through students’ blogs or SNS, colleges’ academic credential systems and corporates’ Human Resources Management (HRM) systems.

A digital ecosystem based on interoperable technical standards is considered as one of the solutions for sustainability and distribution. By sharing technical standards and curriculum standards, the merge of digital transcripts and credit-transfer will be realized in a more reliable and automatic fashion. One of our issues that remains to be addressed is to develop a prototype of digital transcripts based on international standards, such as IMS Global’s Comprehensive Learner Records (CLR) and W3C’s Verifiable Credentials (VC).

ACKNOWLEDGEMENTS

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A STUDY ON THE EFFECTIVENESS OF LEARNING SINHALA AS A SECOND LANGUAGE VIA THE ONLINE MODE

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Abstract
A language is traditionally taught in a face to face (f2f) environment but due to the current pandemic situation, there is an emergent need to transition the teaching and learning methodologies related to Second Language (L2) to Distance Learning (DL) mode. Although this transition provides a positive impact, in literature, there are contradictory statements related to learning of L2 via online. Hence there is a necessity to prove if the online learning platform for learning an L2 is effective or not. This study was conducted with special reference to the first year Tamil medium undergraduates of the Faculty of Management and Finance, University of Colombo. The study attempted to identify the effectiveness of learning an L2 in an online context. Zoom video conferencing tool was used to deliver the course as the students were familiar with its technology. It observed the learning patterns of the users who were enrolled in the L2 – Sinhala course offered via an online environment. The sample size (n = 20) included students who were not proficient in the Sinhala language. Both qualitative and quantitative analyses were conducted to examine the performance of the students. The marks obtained by the students for the formative and summative assessments were analyzed. Interviews and questionnaires were used to record the involvement and the feedback from the students. It was evident that the learning outcomes of the L2 – Sinhala course could be achieved effectively via an online environment as well.

1. INTRODUCTION
Second Language (L2) learning and teaching is referred to the teaching or learning a non-native language that is used for the purpose of communication, outside the environment it is commonly spoken. In the usual scenario it is understood that the second language the learner intends to learn is usually acquired by the learner who is residing in the environment in which the respective second language is spoken. Over the years the term Second Language Acquisition (SLA) is the general term that tests the capacity in which an individual can acquire the ability to learn another language other
than that of the first language that the respective individual is exposed to (Moeller, and Catalano, 2015). Unlike other domains, the teaching and learning of a Second Language is said to trigger the transition of stepping out of the familiar thinking process that the learning of the First Language (L1) has created (Nunan, 1999). Therefore, this requires carefully catered pedagogical procedure and technique that make the transition easy for the learners to acquire the respective second language.

The main aspect that is accomplished in Second Language teaching is the goal of having competency in the communicative process. The development of such a skill should trigger the fluency of the respective Second Language that the individual is learning. The fundamental notion of such skill development is demonstrating a smooth interaction and maintaining the communication, despite the limitations of speaking the language (Zhou and Niu, 2015). Also, it is observed that compared to the teaching of grammar, the communicative language teaching approach compels the exposure to raw materials and contexts which are available in the society the individual resides in, and that itself provides the platform and the exposure is an awareness that triggers the ability to acquire the Second Language the individual intends to learn (Warschauer, and Meskill, 2000).

The authors, Zhou and Xiao (2015), emphasize two approaches. One is the structural approach based on the belief that language learning is established by teaching the learners to get familiarized with the forms of language as a medium and the meaning that they incorporate. And this itself would be a trigger to learn the language they have acquired. The other is the communicative approach which is based on the concept that exposes the learners to realize the language first hand and to mediate the meanings for a purpose (Zhou and Niu, 2015).

In the context of teaching and learning, both these approaches are being utilized, and the aspect of establishing this on learners is the crucial issue which requires a systematic approach. The transition of teaching and learning a Second Language through the online platform must be catered to the respective Second Language. These techniques are different to each and every language that exists and it is the teacher’s responsibility to deduce the technique to make the teaching and learning experience effective. It is stated that the cognitive approaches with regard to the communicative language are based on the view of the construction of a mental model of language systems and not the formation of a habit, and therefore, it is understood that the technologies which support the learning and teaching process of Second Language provide the learners maximum opportunity to learn the Second Language in an efficient manner (Warschauer, and Meskill, 2000).

Sinhala and Tamil are considered as National Languages in Sri Lanka and therefore there is a necessity of having proficiency in both Sinhala and Tamil languages by every Sri Lankan. The Faculty of Management and Finance of the University of Colombo has been offering a non-credit course for the first year Tamil medium undergraduates to enhance their Sinhala language proficiency and Sinhala medium undergraduates to enhance their Tamil language proficiency since the year 2016 with the intention of addressing the said necessity. Twenty (20) Tamil medium students who were following Sinhala as a Second Language course during the 2020/21 academic year were examined for this study. This course unit was being offered in the context of face to face teaching-learning. However, due to the Covid-19 pandemic, the same course unit was offered on the online platform. When it comes to the online platform, the Zoom application is used as a teaching-learning tool. This tool was selected as it helps in providing the experience of synchronous learning to
students. As the students were familiar with the Zoom video conferencing tool, it was easy to build interaction between the teacher and the students. Therefore, this study is based on the Zoom video conferencing tool though there are several other tools that can be used for online teaching and learning.

There were no pre-requisites for this course and the basics of the Sinhala language were taught. Accordingly, it is supposed to develop the Sinhala listening, speaking, reading, and writing skills of the students through this course.

The aim of this study is to observe the effectiveness of teaching Sinhala as a Second language via the zoom video conferencing tool. Accordingly, the research problem is “Can Zoom video conferencing method be used effectively to teach Sinhala as a Second Language for Tamil medium undergraduates as an alternative for face to face teaching and learning context?

The research questions are as follows:

1. What are the challenges faced by the learners when learning Sinhala as a Second Language in the Zoom video conferencing tool?

2. What are the strengths of using the Zoom video conferencing tool for learning Sinhala as a Second Language as an alternation for the face to face teaching – learning context?

3. Were there any specific language skill/s found to be challenging to improve in the context of online learning and teaching?

According to the literature related to Second Language teaching and learning via online mode, it can be seen that there are plenty of studies done targeting English language teaching and learning. However, there are only a limited number of researches conducted based on teaching and learning Sinhala as a Second Language. Among them, studies related to teaching and leaning Sinhala via online mode is very rare to find. The Sinhala speech community is mainly prevailing within the territory area of Sri Lanka, and as Sri Lankans, we have a responsibility to conduct researches on the Sinhala language which is considered as the mother language of many Sri Lankans. The Sinhala language can be taught to foreigners via online mode, and it would be beneficial economically and culturally as well. Therefore, there is a practical validity of this research. It is expected that this research will lay a foundation for such further studies in the future.

2. METHODOLOGY

Data was collected for this study by examining the first year Tamil medium undergraduates who had registered for the Second Language Sinhala course in the academic year 2020/2021 in the Faculty of Management and Finance, University of Colombo. In the academic year 2019/2020, the lectures were conducted in a face to face context, but due to the COVID-19 pandemic, there was no possibility to conduct lectures in the same way. Therefore, the zoom video conferencing method was used as an alternation to continue the teaching and learning process.

Twenty students (10 females and 10 males) were selected as the participants of the study by using the probability sampling method. Questionnaires, In-depth interviews, and participation observations were deployed in this study. Questionnaires were distributed via emails and interviews were conducted via telephone calls. All students had filled the questionnaires and participated in the interviews. The results received through the interviews supported strengthening the responses received via questionnaires. In addition to the interviews and questionnaires, participation observations were also deployed to observe students’ learning behaviour.
To evaluate the effectiveness in teaching Sinhala as a Second Language via the Zoom video conferencing tool, the marks obtained by the students at their Continuous Assessment Tests (CATs) and the Final Examinations were also used. The students’ reading and spoken skills were tested at the continuous assessments and writing skill was tested at the final examination. Accordingly, both quantitative and qualitative data were used for this study.

3. RESULTS AND DATA ANALYSIS

This section will address the research questions.

1. What are the challenges faced by the learners when learning Sinhala as a Second Language in the Zoom video conferencing tool?

This question was included in the questionnaire distributed and also in the interviews conducted. 63% of the students who participated in this research have mentioned that there were connectivity problems. During the interviews too, the students emphasized the same issue. The students were always encouraged to switch on their video options and microphones in Zoom but it could be observed that some students did not do so. 79% of the students have stated that it is convenient for them to switch off the video option in the Zoom. The students have pointed out that switching on the video option in Zoom consumes extra data. Some students have mentioned that it is a bit difficult to focus on the lecture when the video is switched on because they used to look at other participants, and they have to think of their own appearance as well.

However, from the teacher’s side, it was found to be very uncomfortable and less-effective when the students cannot be seen. Some students tend to switch off the microphone option in the Zoom too. Some of the students who switched off microphones during the lesson mentioned that there are background noises in their surroundings and therefore they have to switch off the microphones. 48% of the students mentioned that they log on to the lesson through their smart phones and, therefore, it is difficult to concentrate on the lesson as they cannot see clearly, when the teacher shares the screen.

2. What are the strengths of using the Zoom video conferencing tool for learning Sinhala as a second language as an alternation for face to face teaching – learning context?

According to the data collected through questionnaires and interviews, the main strength of having lectures via Zoom mode was a less of time waste. They have said that they waste a lot of time while traveling to attend the lectures physically. The days and the time slots allocated for this lecture series were already fixed. However, there were two occasions where we changed the regular time according to the convenience of the participants. It could be observed that the students were happy about the flexibility in scheduling the lectures. According to the responses collected through the questionnaire, 100% of the students have mentioned this flexibility as strength of the lectures conducted via Zoom. 69% of the students who participated in the research have mentioned that they enjoy learning with new technology rather than taking part in traditional face to face classes.

As there is a recording option in Zoom, each lecture was recorded and shared among the students. The majority of the participants had mentioned that these recordings were helpful as they could
listen to them repeatedly, especially during the period they were getting ready for their formative and summative examinations.

3. Were there any specific language skill/s found to be challenging to improve in the context of online learning and teaching?

To enhance someone’s language proficiency, it is essential to improve listening, speaking, reading, and writing skills. The aims and objectives of the said course focus on improving all these four skills. According to the responses received by the participants, it was observed that improving writing skills is challenging in the online learning and teaching context. In a face to face context it is easy for the teacher to observe very often how the students write letters. However, in an online context it is a bit challenging. To practice writing letters, the students were asked to write given letters and words and upload them as a scanned document or an image, but it was difficult to make the corrections there. Therefore, there is a challenge to improve the students’ writing skills via online, and there is a need to find some methods to overcome the issue.

To test whether the students have achieved the intended learning outcomes of the course, a continuous assessment test as well as a final examination were held. The continuous assessment test was focused on the testing of reading and the spoken skills, and it was conducted on the online platform itself. According to the decision made by the University administration, the final examination was held physically. When observing the answer scripts of the participants, two common mistakes done by the students in Sinhala writing could be identified.

They are:

1. Using ද instead of ව (eg: දුරිත්තේ වෙළෙත්ත / වසන්ත ශ්‍රීපාදේ instead of සුබ වන්නෙල්ලට වෙළෙත්ත and දුරිත්තේ වෙළෙත්ත instead of වන්නෙල්ලට වෙළෙත්ත)

2. Using ද instead of ව (ඤණහිස්තලේ වන්මත්තේ instead of වන්මත්තේ / වන්නෙල්ලට වෙළෙත්ත instead of දණහිස්තලේ වන්මත්තේ)

In further researches, it is worth testing whether these mistakes are common in the face-to-face context as well. It could be observed that all students have passed the final examination. Among 20 participants, 13 have scored above 80, 4 have scored above 70, 2 have scored Above 60, one has obtained 50 out of 100 marks.

4. CONCLUSIONS

According to the findings discussed above, it can be seen that there are some challenges in using online platforms in teaching a Second Language. They are not limited only to the context of Second Language learning but also common to most of the other subjects too. There are advantages of using online platforms to teach a Second Language. There are some challenges in improving students’ Sinhala writing skills via online platforms, and there is a need to find some new methods and use them. But as a whole, the students have achieved the intended leaning outcomes of the course. Accordingly, it is observed that Sinhala as a Second Language could be taught effectively on the online platform as well.

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USING ZOOM TECHNOLOGY FOR SECOND LANGUAGE TEACHING IN CHALLENGING SITUATIONS: THE OUSL EXPERIENCE DURING COVID-19

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Keywords:
COVID-19 pandemic, Open Distance Learning, Zoom Technology

Abstract
Language teaching has always been a widely discussed topic in Open Distance Learning. In the current pandemic situation, the need arose to ensure undisrupted language teaching. As a solution, the electronic educational resource, zoom, came into the limelight. In this context, the need to investigate the experience of the practitioners on the current use of zoom and its scope in language teaching was strongly felt. Thus, the present study focuses on the experience of The Open University of Sri Lanka (OUSL) in teaching languages through zoom during Covid-19, and how it can be used more effectively to meet future language teaching requirements. The two samples selected consisted of eight teachers and nine zoom session observations. A variety of language courses in Sinhala, Tamil, and English conducted by the Department of Language Studies and the Department of English Language Teaching, were considered. The instruments adopted in the current study were questionnaires and observation checklists. The data was analyzed qualitatively. The results derived from the data collected through the teachers’ sample indicated mixed findings. The majority were positive in applying the zoom technology due to convenience in various aspects. However, a minority stressed the issues like difficulty in establishing rapport with the massive number of students and the inability to enhance all language skills. The observation data revealed that, despite wide experience in teaching, the technology was under-utilized by most of the teachers. Although zoom is a useful and versatile delivery method, the need for well-trained teachers with regular monitoring was felt essential. In conclusion, zoom technology, as a fully online delivery method, served the purpose to a satisfactory level in response to the current challenging situation. However, integrating zoom technology with other modes of delivery such as face-to-face sessions and e-learning would ensure effective and efficient future delivery of language courses.
1. INTRODUCTION

The concept of distance education was introduced to Sri Lanka in 1976 with the establishment of the Sri Lanka Institute of Distance Education (SLIDE). The objective of the SLIDE was to provide education at tertiary level, mainly in the fields of Mathematics, Science, Management, Science and Technical Studies for the learners who could not gain entrance to the institutions of higher education due to socio-economic factors and many other reasons. “Even though conventional universities expanded with consequent increases in the investments therein, they still could not cope with the increase in demand for higher education” (Kotelawele and Samarasundara, 1987. p. 731). Hence, the Open University was set up to fulfill the needs of those who had lost an opportunity for higher education due to various reasons.

The Open University of Sri Lanka was established under section 18 and section 23 (1) of the Universities Act No.16 of 1978. The OUSL became fully operative in 1980, under the OUSL ordinance No. 3 of 1980. It incorporated within its system, the External Services Agency (ESA) and the Sri Lanka Institute of Distance Education (SLIDE). At the inception, the academic programs of the OUSL were conducted by two boards of study, the Board of study for Management, Science and Technology and the Board of Management for Humanities and Social Sciences. These two boards were serviced by the Library, the Audio-Visual Section, Computer Unit, the Printing Press and the Regional and Study centres administered by the Regional Education Service.

National policy on education stresses the fact that higher education must focus on the student-centred learning, which allows independent thinking that leads to new knowledge and innovation (National Policy on Education-2009). It further states that the government has recognized that the education system must provide an adequate degree of competence in the use of the English Language in the world of work and in the technological international environment of the 21st century. All those initiatives are geared towards achieving this end in English Language Education in Sri Lanka.

As observed by Raheem (2014), the new trends in language teaching are more focused on the authentic language use, and the incorporation of technology has become an integral part of education in the 21st century. Distance Education faces specific challenges in catering to a large student population distributed over vast geographical boundaries, thus enhancing the outreach becomes a necessity. Further, "the distance mode education places huge demands on the students in the form of requirement to engage in self-learning and to use more innovative, interactive and experimental methods for learning" (Satharasinghe, 2012). In line with those concepts, the Department of Language Studies and the Department of English Language Teaching are taking measures to make language interactive and interesting. Incorporation of AV materials, multimedia and online learning are a few of those steps.

The Covid 19 pandemic has necessitated higher education to rely more or entirely on technology-based learning, specifically, online learning. This situation common across the world has created many challenges as well as opportunities for teachers and learners. However, students have expressed stress related to online learning and difficulties when completing college work (Hermida, 2020). In spite of the stress and difficulties created by resource limitations, it can be observed that the pandemic situation has accelerated the process of technology aided second language learning.

Thus, online learning, specifically ‘zoom’ sessions became a mandatory requirement in the context of OUSL as a measure of addressing the pandemic...
situation. This has created a learning environment associated with the new learning and teaching experiences to the learners as well as teachers. As such, this research was conducted to explore the second language learning experience in the pandemic state in order to develop strategies and methodologies for learners and teachers to cope with the situation and to be better equipped to deal with similar experiences in the future. Hence, this study focuses on the perceptions of teachers and observations of language experts on the ‘zoom’ experience in OUSL pertaining to second language learning.

2. LITERATURE REVIEW

As pointed out by White (2003), there is relatively little published research in distance language learning and most of these exist as accounts of practice or descriptions of language programmes. In particular, there is an absence of the kind of ‘close’ research to investigate what language teachers and learners actually do and how this relates to the development of language skills. It should be further noted that the immense variability within and across different distance learning settings define and create the learning spaces specific to the context.

Materials in DE is a defining factor which influences the success of the learning outcomes. Further, learner traits are a significant attribute in the learning outcome, given the diverse nature of the learners and their requirements. Shankar (1997), in a research conducted on the ‘processes of language learning and the problems faced by learners in comprehension’, claims the many problems in comprehension are due to drawbacks in the materials as well as the inadequacies shown by the learners. The study further suggests that the problems faced by the learners could be addressed effectively through modifying the materials and also by directing the distance learners towards an autonomous and skillful mode of learning. This emphasises the complementary nature of materials and learner traits in DE and the necessity to balance both aspects to enhance the efficacy of the learning process. Online learning can play a significant role in developing learner autonomy, thus promoting the learning process. Learner support is an integral part of a distance education context. The nature, suitability and effectiveness of learner support can have a huge impact on the quality of the learning outcomes. Support can be in the form of academic support and administrative support. The academic support includes the additional materials and methodological support, whereas the administrative support can include other resources, information, and infrastructure facilities. Kumar (1999) observes a mismatch between the support provided and the needs of the English language learners in a distance mode university. This study claims that understanding the needs of the Open University learners is essential in order to decide and design a support component in the programme. Furthermore, it is stressed that this understanding can only be achieved through face-to-face interaction with the learners. The study also emphasizes the need to cater to the requirements of learners of varied needs and proficiency levels. This relates to the current study in terms of additional support and flexibility that can be provided through online resources and zoom application to second language learning.

A study based on the technology acceptance model to gain insights into the user reactions to technology adopted for language learning (Alfadda and Mahdi 2020) reveals a strong correlation between students’ actual use of zoom and students’ attitudes and behavioral intentions. Further, the study reveals a positive co-relation between students’ computer self-efficacy and experience.
3. RESEARCH METHODOLOGY

The research was conducted as a case study since it explored the current situation of second language teaching under the COVID 19 pandemic at the OUSL. The method of convenient sampling was adopted in order to collect data representing four second language programmes in Sinhala, Tamil, and English offered by the Department of Language Studies and the Department of English Language Teaching, OUSL.

The Programmes in Sinhala and Tamil, offered to the general public, consist of 2 courses at Beginner and Basic competency levels each at all Regional Centres. Furthermore, the Advanced Certificate in English for Business and Professional Communication is the first step of the ladder system to the B.A. offered by the Department of Language Studies. It consists of stage 1 and 2 and caters to all Regional and Study Centres. On the other hand, the Programme in English for General Academic Purposes is a service programme offered to undergraduates of all 6 Faculties of the university through the Department of English Language Teaching. This programme runs in two cycles per year in all Regional and Study Centres. The two samples selected constituted of eight teachers and nine zoom session observations. These were selected from a mix of language courses conducted through zoom at different competency levels. The teacher sample identified were females in an age range between 30 and 60 years and teaching experience ranging between 5 and 30 years. Out of the eight, four were internal while the rest were external teachers.

The instruments adopted in the current study were questionnaires shared as Google forms and Observation checklists. The questionnaire consisted of six open-ended unstructured questions aimed at eliciting the teachers' views on using zoom technology as a delivery method in language teaching. The questionnaire was thus designed in order to encourage unrestricted opinions.

The observation checklist consisted of five sections: delivery of session, achieving lesson objectives, preparation for the lesson, efficient use of zoom application and observer's views, and was marked asynchronously by watching the video recordings of the sessions. The zoom sessions were conducted using premium accounts where a maximum of 300 participants could be accommodated. However, the number of participants at a particular session varied. The data were then analyzed qualitatively, taking into consideration the number of participants involved.

4. RESULTS AND DISCUSSION

The results obtained through the two instruments used in the present study will be discussed under the relevant subheadings: Responses of the teachers; and Finding from the observation checklists.

4.1 Responses of the teachers

Question 1: According to your experience, do you think that "zoom" was a good method of delivery in language teaching? Please explain your answer in terms of convenience, cost effectiveness, enhancing competence, and successful preparation for examinations.

In response to Question 1 above given to the teachers, more than 85% of the teachers have stated positive sentiments regarding the convenience of the method of delivery whereas less than 30% have commented negatively on the cost effectiveness due to high internet data charges. The rest have
either remained neutral or commented positively. In terms of enhancing competence, a minority (42%) have indicated that due to reasons such as inability to focus on all language skills and correct task sheets as well as difficulty in establishing rapport the targeted competence level could not be achieved. However, the majority (58%) was of the opinion that by using innovative and effective methods of teaching especially in developing oral/aural skills the required level of competence could be achieved. Commenting on the success of preparation for examinations the majority 58% have not responded while 30% have commented negatively due to inadequacy of time allocated for exam preparation and restrictions in providing oral and written feedback to students and the rest of the comments (12%) were made positively.

Question 2: According to your experience, what are the draw backs in using "zoom" as a method of delivery in language teaching? Please explain your answer in terms of tutor/student familiarity with technology, availability of facilities such as internet, device, and environment conducive for learning/teaching.

The majority (75%) of the respondents addressing the issue of technology commented negatively, the main reason being unfamiliarity with technology resulting in poor interaction and inability to connect successfully. The rest were of the opinion that technology was not a drawback, the majority of the users being sufficiently competent.

With regard to the availability of the facilities, the majority of the students had highlighted that though there were devices with them, they had to deal with various issues like connection issues, power or technical failures, and the non-conducive learning environment

Question 3: What can you say about the tutor-student interactions during a zoom session?

Answering the above question, some of the comments made were negative highlighting the inability to maintain eye contact and interaction being limited due to the massive numbers in a class and the majority of learners being passive. In addition, the unfamiliarity with zoom technology seems to have given a negative experience to some teachers in the form of students attempting to answer simultaneously and some dominating the session. The use of games and activities seemed to be minimal while group work had proved to be complicated.

Question 4: In your view, if the zoom is to be used regularly in the future, how can the delivery of language courses through zoom be improved?

The majority of the respondents were of the opinion that language teaching through zoom can be improved with the use of effective and efficient techniques such as slides, group discussions, online quizzes, and screen sharing, and by introducing intensive training on the use of such applications in order for both teachers and students to be confident users. The significance of adopting preplanned lessons and suitable online material to maintain the constant attention of the learner was pointed out. However, a single negative response was noted, which highlighted that zoom is not appropriate for 2nd language teaching and learning at certificate level.

Question 5: If there are any other comments you would like to make with regard to your zoom experience at OUSL, please write them here.

Both benefits and drawbacks of the application were pointed out, and more importantly, several significant recommendations were suggested under this section. The peer reviewing facility which was made possible as a
result of recorded sessions and the use of slides, which was not a possibility in face-to-face teaching conducted at schools were highlighted as benefits while technical issues such as inconsistent power supply and unstable internet facility, the issue of passive learning which can be demotivating, and the continued use of material designed for face-to-face teaching were pointed out. The recommendations included conducting a survey to collect feedback from students and replacing the printed books with suitable online material. A controversial comment, which claimed that many students did not join the sessions which they would have, if offered face-to-face, made by a respondent, is worth noting.

**Question 6:** Do you think that zoom technology will be more effective in combination with other modes of delivery i.e. face to face sessions and e-learn? Please give your opinion on this.

For convenience of analysis, the responses for the above question were categorized as: (a) face-to-face alone, (b) zoom with face-to-face, (c) zoom with e-Learn, (d) all three. 75% presented the opinion that a combination of all three modes of delivery was preferable, with one specifying the order of preference should be (a), (b) and (c). However, 25% commented on the importance of (a) alone.

### 4.2 Findings from the observations

The observation checklist was designed with 5 sections categorized according to themes. The data analysed qualitatively are presented below in the form of **Table 1**: Section 1-Delivery of session

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mostly</td>
</tr>
<tr>
<td>1</td>
<td>Was teacher visible during lesson?</td>
<td>28%</td>
</tr>
<tr>
<td>2</td>
<td>Were sufficient opportunities presented for students to interact with teacher?</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Was learning facilitated through student centered activities?</td>
<td>14%</td>
</tr>
<tr>
<td>4</td>
<td>Were instructions clear and simple?</td>
<td>57%</td>
</tr>
<tr>
<td>5</td>
<td>Were teaching aids used appropriately?</td>
<td>14%</td>
</tr>
<tr>
<td>6</td>
<td>Were student interest and motivation maintained throughout lesson?</td>
<td>17%</td>
</tr>
<tr>
<td>7</td>
<td>Was appropriate instructional material used to support learning?</td>
<td>14%</td>
</tr>
<tr>
<td>8</td>
<td>Did the teacher adhere to the allocated time?</td>
<td>29%</td>
</tr>
<tr>
<td>9</td>
<td>Were appropriate introduction and closure to lesson given?</td>
<td>14%</td>
</tr>
</tbody>
</table>
Table 2: Section 2- Achieving lesson objective

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Response</th>
<th>Mostly</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Was the students’ learning process monitored appropriately through questioning</td>
<td>29%</td>
<td>57%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Was assessment conducted and feedback conveyed during lesson?</td>
<td>72%</td>
<td>14%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Was prescribed section covered appropriately?</td>
<td>14%</td>
<td>57%</td>
<td>29%</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Section 3- Preparation for the lesson

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Response</th>
<th>Mostly</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Did the teacher adhere to a well-defined lesson plan?</td>
<td>14%</td>
<td>57%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Were visual aids clearly and attractively designed?</td>
<td>29%</td>
<td>14%</td>
<td>57%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Section 4- Efficient use of zoom application

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Response</th>
<th>Mostly</th>
<th>To some extent</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Was the teacher familiar with technology?</td>
<td>43%</td>
<td>43%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Did the teacher use technology efficiently and comfortably?</td>
<td>57%</td>
<td>14%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Was the voice of the teacher audible and clear?</td>
<td>86%</td>
<td>14%</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Was the lesson delivered smoothly without technical disruptions?</td>
<td>57%</td>
<td>43%</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

Section 5: Observers’ views
The analyzed responses to the questions under the above section are presented below.

Q1. According to your impression can day schools be replaced by the zoom lessons?
The majority (43%) was of the view that day schools should not be replaced by zoom sessions. However, a similar number indicated neutral observations in this regard while a minority (14%) indicated that it was possible.
Q2. Can zoom technology be used as one among other methods of language delivery?
In response to this question all the observers indicated that zoom technology can be used as one among other methods of language delivery.

Q3. If you have any overall comments to make, please write below:
One of the greatest opportunities presented to language learners through group work/pair work for collaborative learning appears to be limited in the use of the zoom delivery method which impacts negatively. Therefore, it is believed that a mixture of delivery methods where collaboration between zoom and other interactive platforms would be beneficial for the learner in the case of Second language learning.

Proper instructions should be given to teachers and regular monitoring of teaching through zoom technology is necessary to ensure that teachers are uniform in their delivery method. To ensure uniformity in content it is necessary to oversee the teaching process used by multiple teachers. Certain discrepancies were observed in the teaching aids used which could be minimized by producing them collectively and ideally approved by the department.

Certain sessions were observed to be monotonous when delivered through zoom technology. An energetic language teacher should be versatile and innovative in their delivery method especially since most often beginner learners consider their teachers as role models. Just as in face to face delivery, it is important to take time to encourage learners’ responses by providing feedback in delivery through zoom. Intense training should be given to the teachers on the tactics that can be followed to prevent the loss of interest and focus and to give the students a maximum experience of language learning through zoom technology effectively. It is necessary to make students aware of the etiquettes to be followed when attending the zoom sessions.

5. CONCLUSION AND RECOMMENDATIONS
This study attempted to find the success of an online delivery method in the context of second language teaching, in an emergency situation. The data revealed that certain measures have to be implemented and several issues need to be addressed if this mode of delivery is advocated as a permanent fixture.

The success of a delivery method depends on the teaching materials, type of learners, size of the class and most importantly the aims of teaching and the desired skills to be acquired. In the context of language teaching these features are more so relevant. For example, the total population in English for General Academic Purposes is over 4,000 and they are at mixed competency levels. Catering to these massive numbers through zoom is challenging and therefore, proper training for both teachers and students in online delivery is a vital requirement if it is to be successful. A second language teacher should be an energetic versatile personality especially when the delivery takes place virtually. Therefore, the teachers should be...
encouraged through training to deliver the session in a student friendly manner retaining their interest throughout. Further, the designing of a common deck of slides as teaching aids should be facilitated through monitoring and moderation in order to maintain uniformity. Moreover, to avoid teachers using inappropriate teaching environments, the facility of language labs could be provided by the Regional Educational Services of the OUSL.

In addition, the students should be properly guided on the etiquettes of engaging with technology for educational purposes in order to prevent embarrassing situations created by misconduct. Providing technical support in the first language would encourage the students to confidently engage in learning using technology, thereby minimizing the tendency of students to drop out due to the unfamiliarity with the language of instruction. To minimize the difficulties faced due to inconsistent power supply and unstable internet connections, the students should be able to access free Wi-Fi zones provided by the university.

As indicated by the results, the combination of delivery modes i.e. face-to-face, e-Learn and zoom was much preferred by the majority of respondents, which can be due to the fact that language learning cannot be solely based on one delivery method unlike in any other subject. Learning a language requires authentic engagement with a situation which can be best achieved through face-to-face interaction. On the other hand, the delivery of the lesson through zoom would ensure uniformity across the regions. But at the same time, the theoretical input can be successfully imparted to the student through an online platform. Therefore, a successful language learning experience can be considered as one where all delivery modes are combined.

It should be acknowledged that the zoom technology emerged as a solution to an unanticipated emergency situation and it served its purpose well. Unlike in the face-to-face mode of delivery, zoom presented the opportunity for research through readily available data, self-evaluation, peer feedback, the use of experts in the field for delivery of lessons across the country, ease of monitoring, maintaining uniformity and avoiding discrepancies, lesson being available for later viewing at multiple times and learning/teaching with cost effectiveness, at the convenience of home. Having exposed to its benefits, if the proposed adaptations are incorporated, it is clear that this technology can be adopted on a regular basis or in emergency situations in the context of second language teaching in distance education.
REFERENCES


CHALLENGES AND OPPORTUNITIES OF E-LEARNING VIA ZOOM

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Challenges, E learning, Zoom, Opportunities

Abstract

UNESCO has recently suggested the implementation of online teaching and learning via new technology for the higher education sector due to the seriousness of the Covid-19 pandemic. The Open University of Sri Lanka (OUSL) which promotes ODL mode of teaching has also transferred the teaching and learning to the online mode. The lectures-day schools, oral presentations, supervision, consultations, counseling etc. are conducted via zoom. Therefore, the main purpose of this study is to investigate the challenges and opportunities of the e-learning via zoom faced by both students and teachers at OUSL. The Focus Group Discussions were conducted via zoom with thirty students covering all the streams such as Communication, Society and Culture, Politics and IR and Economics and all three levels (Level 3-5) of the BA in Social Sciences degree program (10 students from each level). Two students from each Study or Regional Center were also selected. Personal interviews were conducted with five teachers. The qualitative data were analyzed thematically. It was found that the common challenges for both these parties were: technical issues, unstable coverage, background noises, less face-to-face interactions, high charges of internet data etc. Non-availability of laptop or mobile phone or internet connection and less IT knowledge are specific issues of the students from outside Colombo and adult students. It was reported that delivering lectures etc. via zoom is time saving, user friendly and convenient for everyone during this crisis. It was also found that the university teachers are practicing innovative teaching and learning practices such as combing and using other social media and advance platforms like WhatsApp groups, Facebook groups, emails, and e-learn platform to share the zoom links and ppt presentations etc. and conduct Q and A sessions, classroom discussions etc. It was reported that, students were encouraged to be active in the e-classrooms by conducting group and individual activities/exercise on problem-based learning, Q and A sessions etc. It was suggested that more affordable, convenient and data saving system, app and tools can be introduced to practice innovative teaching and learning via zoom.
1. INTRODUCTION

The Covid-19 outbreak has made a serious impact on socio-economic, cultural, political and educational sectors, locally and globally. This has a negative impact on the whole education system from primary education to higher education. In this context, UNESCO has suggested to implement online teaching and learning via new technology for the higher education sector due to the seriousness of the Covid-19 pandemic (UNESCO report on COVID-19 and higher education: Today and tomorrow, 2020).

According to UNICEF report in 2021, the Covid-19 pandemic has also made a serious negative impact on socio-economic, cultural, political, educational sectors in Sri Lanka. In this context, the government and private schools, universities and other education institutions also face some challenges with the traditional mode of education. Therefore, The Ministry of Education has introduced some alternative teaching and learning mechanisms through new technology. As a result, the circular no PS/GPA/33/2020 was issued by the ministry on the 29th of October 2020 to facilitate the students with alternative learning opportunities though online solutions. Therefore, the learn zoom facility has been given to the academics who are attached to the state universities to conduct the academic activities. The Telecommunications Regulatory Commission and University Grants Commission reached an agreement with all internet service providers in Sri Lanka to provide free access for university learning management systems and remote learning facilities through the Lanka Education and Research Network (LEARN).

In this context, The Open university of Sri Lanka (OUSL) which promotes ODL has also transferred teaching and learning to the fully online mode. The lectures-day schools, oral presentations, supervision, consultations, counselling etc. are conducted via zoom. Therefore, the Department of Social Studies which is under the Faculty of Humanities and Social Sciences at the OUSL has given the opportunity to all the students including the undergraduate students to submit their CAs and final assessments etc. to the e learn platform. Apart from that, other online platforms, zoom, emails etc. are used to interact with the student. All the day schools, oral presentations etc. were mainly conducted via zoom during the first and second waves of COVID-19. The Department of Social Studies has facilitated the students with online learning during the Covid-19 pandemic to do the academic activities without postponing. The department has introduced the guidelines for conducting the alternative assessments as well as for conducting zoom lectures in order to maintain the quality of teaching, learning and assessments. Due to these changes that have taken place in the mode of study, students have communicated to the respective teachers about their positive and negative concerns on online day school delivery.

In this context, the main issue investigated in this study is what are the challenges and opportunities in the e-learning via zoom faced by both students and teachers at the OUSL. In this context, the main purpose of this study was to investigate the challenges and opportunities of the e-learning via zoom faced by both students and teachers. The specific objectives are to identify the innovative teaching and learning practices in e-learning via zoom, and find out the alternative and optional online solutions for an effective e-learning and teaching.
2. LITERATURE REVIEW

2.1 E-learning

The term "e-learning" has been defined by various researchers and scholars in different ways. The Commonwealth of Learning has defined e-learning in 2015 highlighting the fact that e-learning is basically based on the digital technology. Accordingly, “eLearning is an umbrella term that refers to the use of any digital device for teaching and learning, especially for delivery or accessing of content. Thus e-learning can take place without any reference to a network or connectivity. The digital device used by the learner to access materials needs to be connected to a digital network, either a local area network or to the Internet (or even to a cell phone network if a Tablet is used as a terminal or access device).”

Therefore, it is clear that e-learning is always facilitated by ICTs and digital technologies. Fernández et al (2011) note that there are four basic and essential characteristics of e-learning platforms: interactivity, flexibility, scalability and standardization or the capacity to use courses carried out by a third party. It’s important to maintain these essential and important factors in the online platforms to facilitate both teachers and students in e-learning. According to Moore and Kearsley (2004), e-learning is a different from regular school or university education that requires a different course design, teaching, special forms of instructions as well as organizational and administrative arrangements and support.

E-learning has become more popular specially during COVID-19 pandemic as it is essential to identify alternative mechanisms to conduct the teaching and learning during this pandemic. In this context, both teaching and learning, assessments, tests etc. are conducted on different LMS platforms. Oliveira et al (2020) note that the e-learning has been identified as one of the best alternative methods of learning during a crisis like Covid-19 pandemic. Moreover, it was stated that different forms of free platforms such as Google Classroom, Edmodo, Zoom, FB messenger, Google meet, We Chat, Schoology, and Moodle have been used for e-learning purposes.

However, e-learning is also conducted as an alternative method of education at schools and universities in Sri Lanka. Karunarathne et al (2020) note that since the lectures and exams cannot be physically conducted due to the COVID-19 pandemic, some alternative methods are used to conduct the lectures and assessments on online platforms. Moreover, zoom, Microsoft Teams, Google meet are mainly used to conduct the online classes in many of the government and private higher educational institutions in Sri Lanka.

2.2 Challenges and opportunities in e-learning

It was reported that there are some challenges and opportunities in e-learning at the local and international levels. Naresh and Reddy (2015) note that e-learning provides more opportunities for teaching and learning in India. But there are some challenges such as lack of infrastructure, less trained instructors, lack of financial support, government policies and less student readiness. Oliveira et al (2020) also note that it is evident that both teachers and students in Philippine have positive attitudes in using the e-learning classrooms. Both these parties were benefited by e-learning during the COVID 19 pandemic, but one major problem is the lack of training of both teachers and students. The second major issue is the lack of resources like unstable internet connection, technical issues and lack of internet access.
Their knowledge regarding e-learning activities are above the average level. Further, they are willing to use e-learning to assist their learning activities. This indicates that the overall confidence level of the students regarding their abilities to some challenges and opportunities of e-learning in Sri Lanka are also investigated. Karunarathne et al (2020) note that the students and teachers have a positive perception of e-learning during COVID-19 and it’s believed that e-learning provides them more benefits and alternative opportunities for learning. In other words, the majority agreed that e-learning is an effective and a flexible alternative learning and teaching method during COVID-19 pandemic. It was also found that the most of the students have some challenges in e-learning such as technical issues, lack of internet connectivity, higher changes, IT literacy, health issues like eye issues that limit the e-learning.

Rameez (2020) also notes that a lack of online teaching and learning skills among staff and students is a critical factor that affected the smooth functioning of teaching and learning process in many of the state universities in Sri Lanka during the Covid-19 pandemic. Based on the literature review, it’s found that no research has been conducted specializing e-learning via zoom and its implications etc. in Sri Lanka though several researches have been conducted on e-learning. This study was conducted to fill in the gap in this research area.

2.3 Theoretical framework

The Technology Acceptance Theory (TAM) is the main theoretical framework for this study since this study investigates the challenges and opportunities of e-learning via zoom (Figure 1). This explains that how as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), assistance to adopt the innovation process and changing user's Attitude (A), Behavioral Intentions (BI) and Actual Computer Usage Behavior. The TAM also suggests that perceptions of usefulness and ease of use are mediated by some external variables including individual differences, system characteristics, social influences, and facilitating conditions (Malhotra and Gallwta 2009).

![Figure 1: Technological Acceptation Model (TAM) (Source: Davis et al. 1985)](image-url)
In this context, e-learning via learn zoom was introduced as an innovation in early March 2020 to both students and teachers in the higher education in Sri Lanka. Therefore, both students and teachers have adopted to this e-learning via zoom understanding the benefits and ease of use of this alternative learning solution during Covid-19 pandemic. Then the behavioral and attitudinal changes have occurred to use the learn zoom in order to conduct the online teaching and learning as explained in the TAM theory. After adopting this innovation by both teachers and students, it’s found that there are challenges and opportunities in e-learning based on the socio-economic, cultural and educational characteristics of different individuals, system characteristics, facilitating conditions such as institutional support and ICT infrastructure etc.

3. RESEARCH METHOD

The samples were selected from the Department of Social Studies (SSD) of the Open University of Sri Lanka which is one of the state universities that promotes ODL to empower the heterogenous communities throughout the country. The Department of Social Studies is a multi-disciplinary department integrating disciplines of Economics, Politics and International Relations, Communication studies, Sociology and Youth Studies. Due to the COVID 19 pandemic situation, SSD also has to fully transfer the teaching and learning process from hybrid mode (traditional face to face and online interaction on e-learn LMS) to fully online mode (teaching and learning via zoom and assessments via e-learn LMS). Based on the comments and feedback given by both students and teachers, it’s found that there are some opportunities and challenges in fully online learning.

The samples were selected from the Bachelor Degree in Arts in Social Sciences which is offered by the SSD. This programme has the highest number of students compared to the other programmes offered by SSD. This is a three-year multi-disciplinary degree programme which has four stream specializations such as Economics and Development studies, Society and Culture, Communication studies and Politics and International Studies offered by SSD since 1995. This programme which is offered in English medium has currently more than 2000 students.

This study used a qualitative approach to obtain data using Focused Group Discussion (FGD) and Interview method. FGD is a structured discussion which is used to obtain in-depth information (qualitative data-insight) from a group of people about a particular topic (Omar, 2018). Therefore, the Focus Group Discussions were conducted via zoom with thirty students covering all the streams: Communication, Society and Culture, Politics and IR and Economics and all three levels (level 3-5) in the BA degree programme (10 students from each level) to investigate the challenges and opportunities in e-learning. The purposive sampling was used to select the students. Two students from each study or regional center were randomly selected for these FGDs since the students have registered for the BA Degree in Social Sciences in 15 different centers though out the country: Colombo, Kandy, Batticaloa, Matara, Kurunegala, Jaffna, Anuradhapura, Rathnapura, Badulla, Vavuniya, Puttalam, Hatton, Kalutara, Manner and Ampara.
The personal interviews were conducted with five teachers representing all the streams to investigate the challenges and opportunities in e-learning via zoom. These teachers were selected not only from Colombo regional center, but also from some other regional centers (purposive sampling). The qualitative data were analyzed thematically.

4. RESULTS AND DISCUSSION

The Technology Acceptance Theory (TAM) as the main theoretical framework of this study helps to investigate the challenges and opportunities of e-learning via zoom as discussed in 2.3. It was found that delivering lectures etc. via zoom is time saving, user friendly and convenient during this pandemic. It was also found that the common challenges for both these parties were technical issues, ethical issues, unstable coverage, background noises, less face-to-face interactions, high charges of internet etc. irrespective of the stream specialization. Non-availability of laptop or mobile phone or internet connection and less IT knowledge, English language barrier were specific issues to the students in outside Colombo and adult students. The students in level 3 have lack of technical and IT knowledge compared to level 4 and 5 students. Some regional/ study centers arranged NAC centers to facilitate students to participate in zoom sessions when there was no lockdown during COVID-19 or any other unavoidable circumstances. It was also reported that the students who are having families and children are struggling to attend the zoom sessions from their homes with the internal issues/disturbances. Some teachers have also highlighted the same issue. Karunarathne et al (2020) also highlight that both students and teachers have positive attitudes towards the e-learning even though there are some issues connected to the e-learning and teaching due to the individual factors, technical issues, infrastructure issues etc.

Apart from the main purpose of this study, the specific objectives were also achieved. Therefore, it was also found that the university teachers are practicing some innovative teaching techniques and methods to conduct the zoom sessions interactively and effectively for the students. It was reported that, teachers use some specific features and facilities which are available on zoom to maintain the interaction and effectiveness of the e-learning via zoom. These strategies are: allowing students to ask administrative or subject specific questions on chat, screening ppts, sharing lecture notes, categorizing students into different groups/classrooms on zoom and asking students to prepare for the group activities during the lecture, asking questions from the students during the lecture and also asking students to read out the content of the ppt to maintain the interactivity with the students. It was reported that, students are encouraged to be active in the e-classrooms by doing group and individual activities/exercises on problem-based learning, Q and A sessions etc. Karunarathne et al (2020) also note that it’s important to apply innovative teaching and learning techniques and methods to maintain the liveliness and interactivity of the online learning.

It was also found that the university teachers combine and use some other social media and advance platforms like WhatsApp groups, Facebook groups, emails, and e-learn platform to share the zoom links and ppt presentations etc. and conduct Q and A sessions, classroom discussions etc. It was also found that socially teachers from regional centers use and combine the social media platforms to interact with the students for these purposes due to less student numbers and less department representation at the region. Oliveira et al (2020) also suggest that Facebook and other social media can...
be combined with formal e-learning to maintain the interaction with the students. Therefore, creating WhatsApp groups, creating FB page for the department can be facilitated and motivated students for their formal e-learning process. In other words, necessary information, updates etc. can be given on these social media platforms to the students.

But some teachers and students mentioned that Zoom is not user friendly or convenient compared to some other online platforms like Microsoft Teams and Google hangouts. These platforms provide more flexible features and options like white board facility and unlimited participation etc. while zoom has inflexible white board facility and limited participation- 500. However, while Microsoft Teams facility was given to some schools without any charge, the higher education institutions are not entitled for this facility.

It was reported that, the teachers get support from Center for Educational Technology and Media -CETMe to upload the recorded zoom lectures to the digital archive and opencast. The students highlighted that, this helps students who miss the lectures due to various reasons to listen or watch these recorded lectures. But it was also reported that some lecturers do not upload the recorded lectures due to some ethical concerns. Some teachers highlighted that there are some issues connected to the misbehavior of students during the online lectures on zoom. It was also highlighted that there are issues connected to the payments of zoom day schools for teachers as the system itself generates the reports of day schools with technical errors sometimes.

5. CONCLUSIONS

According to the findings of the study, some challenges and opportunities are identified in e-learning via zoom. Therefore, it’s suggested that more affordable, convenient and data saving system, apps, tools, features and other online platforms can be introduced to practice innovative teaching and learning rather than only using zoom. More online and social media platforms can be used and combined to promote innovation in learning and teaching. The learners prefer online learning mode rather than other mode of learning during this pandemic. Therefore, more importantly the quality of learning process should be improved and interactivity should be maintained in the e-learning.

In this context, the government or responsible authorities or university should develop the social and IT infrastructure facilities in each part of Sri Lanka to avoid technical issues, network coverage issues etc. There should be a mechanism to facilitate students to buy educational supportive tools such as laptops, PC etc. for the e-learning. Rameez (2020) notes that it is important to improve the infrastructure facilities to continue the online education offered by the state universities. It is also a very important fact that e-learning helps higher education institutions to conduct the lectures, assessments and other activities without delaying the academic schedule.

The university or department should develop a proper mechanism to support students who have lack of IT and computer literacy and knowledge. Therefore, NAC centers also can expand their facilities and services for this. The SSD has recently suggested to establish a help desk with a voluntary student participation. The purpose of establishing this is to help students who are having lack of IT literacy and affordability issues. It’s also important to introduce a common policy including the guidelines and instructions for conducting zoom day schools by the university to avoid technical, and ethical issues as well as the issues connected
to the computer literacy and knowledge and payments of online day schools.

Conducting a workshop or a training programme for both students and teachers by the department or faculty or IT division in the university is another alternative solution. Some workshops were recently conducted on zoom to train university staff by the IT division. This should be conducted for the students as well by the university to empower them with zoom usage, technology, benefits etc. in order to create a better learning environment.

REFERENCES


PROMOTING LEARNER-CENTEREDNESS IN CREATIVE ARTS EDUCATION: THE USE OF FLIPPED CLASSROOM APPROACH AND TECHNOLOGY-INTEGRATED BLENDED LEARNING

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creative Arts, online/e-learning, remote/distance learning, learner centred teaching, self/individual learning

Abstract
Since 2011, the University of Visual and Performing Arts has been providing distance learning opportunities for students via e-learning through the Centre for Open and Distance Learning (CODL). The UVPA is the only university in Sri Lanka that provides degree programs exclusively in Creative Arts. These art forms are traditionally taught face-to-face (f2f) in authentic learning environments employing hands-on activities. Thus, remote teaching using electronic platforms has been a challenging experience for teachers and learners. However, research indicates that the e-learning methods can enhance the effectiveness of learning as they provide flexible access and individualized learning opportunities to students, especially when pre-recorded material is posted in the Learning Management System (LMS) used by the CODL for these (External) Degree and extension courses. Responding to the Covid-19 pandemic lockdown, the UVPA offered all courses and programs online from November 2020, and this prior experience and knowledge of teaching online assisted the expeditious transition. Technological Pedagogical Content Knowledge Framework is the technology integration framework used to design and deliver audio/video recorded content, and learner-centred pedagogical approaches were employed with flipped classroom approach as the main teaching method. A program evaluation was conducted in January 2021 among 425 third- and fourth-year Bachelor of Performing Arts (Music) students, using an online questionnaire to collect feedback about their online learning experiences. Qualitative comments received were coded to identify the common themes that emerged, and the results are presented as a case study. Findings indicate that most students benefitted from having access to the pre-prepared learning material in their LMS, and they prefer to continually have this convenience in the future when f2f teaching resumes. These new insights recommend the use of blended learning in which students learn via electronic and online media as well as traditional f2f teaching to develop future-ready skills.
1. INTRODUCTION

The University of Visual and Performing Arts (UVPA) currently has four Faculties: Dance and Drama, Music, Visual Arts, and Graduate Studies, with twenty-two departments. The UVPA established the Centre for Open and Distance Learning (CODL) to provide external and extension courses for external students. Since 2011, the UVPA has been providing distance learning opportunities for students via e-learning through the CODL. The UVPA is the only university in Sri Lanka that provides degree programs in Creative Arts exclusively, and these art forms are traditionally taught face-to-face (f2f) in authentic learning environments employing hands-on activities. Therefore, remote teaching using electronic platforms has been a challenging experience for teachers and learners. However, research suggests that e-learning methods can improve learning effectiveness because they provide students with flexible access and individualised learning opportunities (Yanuschik et al, 2015; Badli, Andrea, & Shafqat, 2008), particularly when pre-recorded material are posted in the Learning Management System (LMS) used by the CODL for the Bachelor of Performing Arts (BPA) General (External) Degree and other extension courses.

The pandemic has posed enormous challenges to the global teaching and learning environment in higher education, and like other universities in Sri Lanka, the UVPA abruptly changed its educational environment in favour of distance learning. As a result of the Covid-19 pandemic lockdown, the Faculty of Music began offering 2018/2019 academic year second year, the third year, and final year courses online from November 2020. Although the Faculty of Music has started using new technologies such as Zoom and the Learning Management Systems (LMS) before the pandemic lockdown, they had little or no experience with live/real-time online teaching and learning. Due to various internet-related delays and the strength of the internet connection (Joseph, Nethsinghe & Cabedo-Mas, 2019; 2020), the Faculty discovered that conducting online practice sessions for music vocal and instrumental performing activities through zoom technology is extremely difficult. Faculty used the flipped-classroom approach to reduce these delays by turning learning materials into video-recorded lectures, slideshows, and written guidelines, and then upload them to the LMS before starting the live Zoom online teaching sessions (Joseph, Nethsinghe & Cabedo-Mas, 2019; 2020). While the idea of a flipped classroom (Baker, 2000) is not new in education, it is a novel approach for students and staff of the Faculty of Music at UVPA.

The flipped classroom is a “pedagogical approach in which direct instruction moves from the group learning space to the individual learning space and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter” (Flipped Learning Network (FLN), 2014). As explained by the FLN, the flipped approach provides a learner centered experience to individuals. Online teaching and learning necessarily require a certain level of Technological Pedagogical Content Knowledge (TPACK) (Koehler, Mishra, & Cain, 2013), which is primarily associated with designing and organizing for better learning experiences and creating distinct learning environments using digital technologies. The TPACK framework, which addresses the complex, multi-faceted and situational nature of teaching knowledge, seeks to identify the nature of the know-how needed by teachers to integrate technology into their teaching.

The goal of this research is to investigate the perceptions and learning experiences of students in the Faculty of Music, after applying online delivery and to improve the effectiveness of current practices addressing any related issues.
2. METHODOLOGY

A mixed-method approach was employed for this investigation. The students were given access to use online teaching and learning via zoom and the LMS during their first four weeks of the academic year, and the participants were asked to answer an online questionnaire posted in the LMS. A questionnaire designed using Google forms comprised of fourteen questions was used in this research to collect data from the participating students. The most popular and commonly used method for gathering primary data is the questionnaire (Walliman, 2006; Flick, 2018; Farquhar, 2012).

Participants in this study were undergraduate students of the 2018/2019 intake, pursuing a Bachelor of Performing Arts (BPA) in Music from the academic year levels three and four. Random sampling was used as the sampling method.

3. RESULTS

In the entire participant cohort (425), 35.8% were third year students and 64.2% were fourth-year students. All participants engaged in the online learning activities. The participant response rate was 32%. No duplicate submissions were identified. All questions were compulsory to answer.

When asked about the device used for participating in online sessions, 90.5% rated that they use a smartphone, 26.3% rated that they are using laptops, 2.9% indicated that they use tablet devices, and none of the participants were using desktop computers. Most participants (86.9%) were using mobile data connections to join zoom and LMS sessions. Participants were asked about the experience of internet delay while connecting Zoom online classes and 35% of participants rated yes, 56.2% rated sometimes, and 8.8% rated no.

Participants were asked if they use “zoom recorded lecturer video materials accessible through LMS” and 54% rated yes, but 46% rated no. Participants were asked about the use and the satisfaction of pre-prepared video and audio instructional learning materials on LMS, and 85.2% rated satisfied, but 14.8% rated not satisfied. When participants were asked whether they prefer to continually use prepared learning materials posted in LMS in the future when face to face teaching resumes, the majority of the participants (97.1%) rated yes, but 2.9% rated no. When asked about the satisfaction of the new online learning experience, 73% rated yes, but 27% rated no. Figure 1 illustrates how participants experienced problems while connecting to online sessions.
Problem experienced

As seen in Figure 1, the biggest issue experienced by the participants was the connection (signal) problems, and 73.7% have indicated that they have faced such difficulties. This reference to signal indicates that they use wireless devices and systems such as Wi-Fi. Connecting to the internet was the next considerable issue, and 44.5% have indicated experiencing internet connection problems. It is also important to point out that the students have also experienced electricity disruptions and 10.9% have rated power failure. The power failures can result in issues with charging their devices, including internet connection problems as the signal towers fail to transmit during power failures, which can be pointed out as a common issue in some parts of the country.

A 5-point (1-5) linear scale was used to measure the overall satisfaction about the pre-prepared audio and video learning resources in LMS during the pandemic session, where and 1 indicated ‘very dissatisfied’ and 5 indicated ‘very satisfied’ state. Figure 2 demonstrate the overall satisfaction levels of students.

Figure 1: Experienced Problems

![Experienced Problems](image)

Figure 2: Satisfaction Level

![Satisfaction Level](image)
As seen in Figure 2, although very few (2.9%) participants were extremely dissatisfied, the majority of the participants (more than 85%) were satisfied with having access to pre-prepared audio and video learning resources in the LMS.

The following tables provide information from the qualitative content analysis. Participant responses (137) were coded to identify what, if any, of the three major themes appeared among participants’ feedback. Educational value, Personal value, and Infrastructure were identified in the qualitative data as the major themes. The final codes and categories used for defining themes are shown in Table 1.

**Table 1: Codes, Categories, and Themes**

<table>
<thead>
<tr>
<th>Codes</th>
<th>Categories</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>developing our knowledge</td>
<td>course value</td>
<td>Educational value</td>
</tr>
<tr>
<td>recommended for future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>new initiative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>flexibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>difficult to do practical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>convenience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>video materials</td>
<td>instructional value</td>
<td></td>
</tr>
<tr>
<td>audio materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>new learning experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>different experience</td>
<td>attractiveness</td>
<td>Personal value</td>
</tr>
<tr>
<td>motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>outside noise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>easy to understand</td>
<td>influence</td>
<td></td>
</tr>
<tr>
<td>can use many times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>signal problem</td>
<td>technical</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>connection problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>power interruption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>technical support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>disconnect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>connection lost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>smartphone</td>
<td>device</td>
<td></td>
</tr>
<tr>
<td>no laptop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no device</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Every respondent spoke about one or more of the three themes; the percentage of respondents who spoke about each theme is shown in the Table. The Education values theme was discussed under two categories: course value and instructional value. Under the course value category, topics
such as developing their knowledge, recommended for future, the initiative, flexibility (accessibility anywhere, anytime), convenience, were discussed by the students as benefits. Difficulties of doing practicals was the negative aspect surfaced.

The Personal value theme was created using the attractiveness category and influence category. Using flipped materials as many times as necessary until they felt confident has also been discussed as gained personal values.

The infrastructure theme was created from the technical category and device category. Under this theme, participants have discussed various problems they faced during online sessions. It is important to highlight that these issues require attention from the stakeholders for essential improvements (Table 2).

**Table 2: Themes Frequency**

<table>
<thead>
<tr>
<th>Qualitative Theme</th>
<th>Frequency</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational value</td>
<td>88</td>
<td>64%</td>
</tr>
<tr>
<td>Personal value</td>
<td>90</td>
<td>66%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>98</td>
<td>72%</td>
</tr>
</tbody>
</table>

The majority of respondents (72%) discussed the technological infrastructure-related aspects of online teaching and learning. Specifically, many respondents discussed the issues related to internet connections while doing online activities. Undergraduate students of the Faculty of Music live all over the country, and most do not have the opportunity to access stable internet connections. As a result, they faced many difficulties of not being able to fulfil their online teaching and learning activities. This is certainly a considerable barrier to make online teaching and learning successful. Many undergraduates have only a smartphone to access materials which is not an effective device for online learning. Some students do not have the luxury of obtaining an electronic device due to poverty. For a subject like Music, a proper device is essential to record audio and video content as well as to edit some parts according to the needs of the user. Such applications require a high-speed internet connection to upload and download data, including a great amount of storage space in a device.

The other challenge for students is that troubleshooting internet connection issues take time. Not all learners and teachers have access to appropriate settings to learn and teach. Background noises create a huge disturbance for synchronous teaching of music. Results also indicated that student perception is high about the pre-prepared learning materials, and they prefer to continually use such resources in LMS in the future when face-to-face teaching resumes. The results showed that the attitudes of respondents towards the use of the LMS, and flipped materials in teaching were positive, and the students have gained new learning experiences from this engagement. The educational values of the experience were discussed by 64% of the participants, and 66% have discussed personal values. Both themes, the educational and personal values indicate the benefits of learner-centred approaches under different codes and categories, as pointed out in Table 1. In summary, a range of benefits of online teaching and learning have been identified from this data analysis that the UVPA can consider to effectively deliver programs in Visual and Performing Arts.
5. CONCLUSIONS AND RECOMMENDATIONS

After granting the university entrance, students generally wait for one more year to enter the university as there are limited spaces available at the UVPA for studying Music. Hence, the UVPA could introduce online teaching and learning for selected subjects to minimize this gap. It should be noted that online teaching and learning is not appropriate for all Creative Arts courses, and appropriate subjects should be selected carefully. Based on the results of this study, the UVPA administration should consider increasing student and faculty participation in online teaching and learning. The UVPA should also consider important facts such as teaching values, attractiveness to students, regulation of online learning, faculty resources, technology, new pedagogical training, and infrastructure to achieve long term success and to increase student access to online teaching and learning, as this research indicates that participants were motivated and satisfied by the opportunities surfaced in this pandemic situation.

This study examined how undergraduate students at the Faculty of Music of the UVPA adopt and participate in sudden changes in an educational environment in favour of distance learning. Participants were also strongly influenced by using flipped approach and materials posted on the LMS. This study acknowledged the student satisfaction with online learning and preferences for continuing teaching and learning online when face-to-face delivery resumes as a blended approach. According to Bryan and Volchenkova (2016) “Blended Learning is an integrated learning experience that is controlled and guided by the instructor whether in the form of face-to-face communication or his virtual presence”. In other words, blended learning refers to the practice of delivering instruction and learning experiences through a combination of face-to-face and technology-mediated learning (Cleveland-Innes & Wilton, 2018; Bonk & Graham, 2006). The Flipped classroom approach is also a model used for Blended Learning. These learning materials prepared for flipped delivery, especially for traditional Sri Lankan Music subjects, were created by authentic experts at the UVPA, and if these materials are preserved properly, the university could use them in the future for the next generations. Through these flipped and blended learning methods, the UVPA can contribute to preserving intangible cultural heritage in Sri Lanka.

It is evident that teachers continue to be an important part of blended learning, and they should possess the required technical skills and the knowledge of new pedagogies including subject expertise. Adopting new pedagogical practices such as flipped classrooms model, blended learning approach, and modern technologies can result in a significant enhancement in any educational context. Therefore, we highly recommend providing professional learning for developing skills and knowledge, access to modern technology, improving technology infrastructure, and appropriate resources, including funding for all stakeholders within and beyond the UVPA.

Future research on this topic using a large, random sample of students from a variety of different Creative Arts subjects such as Dance, Drama, and Visual Arts would provide generalizable recommendations for the university. Research that includes interviews with UVPA students would provide an opportunity for an in-depth discussion of student perceptions and satisfaction. These suggestions and recommendations could be highly beneficial for stakeholders.
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SRI LANKA’S STATE UNIVERSITY EDUCATION SYSTEM AND ITS CONTRIBUTION IN CREATING FEMALE DECISION MAKERS: A SOCIOLOGICAL ANALYSIS

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Culture, Development, Gender, Society, State University Education, Visionary leadership

Abstract
Integrating females’ concerns into development planning is needed to translate well-understood ideas about unequal predicaments into proposals for counteracting actions as well as regarding policy and actions. Since 1970, several countries have been made remarkable changes in development. Therefore, it is important to have insights on this research topic and the research problem of: “what is the contribution of the current state university education system in Sri Lanka in creating female leaders with a vision who can lead the development process?”. The main objective of this study was to understand the contribution of the state university education to include females in the process of development as visionary leaders. Literature-based research has been conducted to collect data. Thematic analysis has been used as the data analysis method. Most of the South Asian countries have not shared and participated in gains of development equally among females and males. Traditional gender roles, controls imposed upon them by their households, the division of labor based on gender, and the emergence of public and private spheres have effects on the knowledge and understanding of different types of work in professional circles. Higher education increases female’s say in decision-making. However, the potential of that varies at different levels like within the household, the community, at the workplace, and on a national level. Although the proportion of females engaged in higher education is higher than the male counterparts in Sri Lanka, the employed females often face inequalities and discriminations than male counterparts especially at the decision-making level. Development can be seen as a process of expanding the real freedoms of social, economic, political, and civil rights that people enjoy. Females participating in the process of development cannot be considered as their primary role in the economy. Their overall quality of life also has to be taken into consideration.
1. INTRODUCTION

1.1 Background

Integrating women’s concerns into development planning is needed to translate well-understood ideas about unequal predicaments into proposals for counteracting actions as well as regarding policy and actions. Women's agency is extremely important in the contexts of policy and action. As Sen (1992) explained, it is important to consider women's role in social prosperity and change (Sen, 1992 cited in United Nations, 1992, pp. 1-3). According to Banerjee (1985), in the two decades since 1970, several countries and areas of the Asia and Pacific region have made remarkable changes in the fields of economic and social development. However, most of these countries have not been shared the gains from development, equally within men and women. The relative deprivations suffered by women are largely due to the traditional roles and controls imposed on them by their households (Banerjee, 1985 cited in United Nations, 1992, p. 27).

Boserup (1970) made the first systematic study of women's experiences and expounded a thesis that, in the third world countries of this century, as economies move from subsistence production to commercialization to large scale industrialization, women’s productive activities have tended to become marginalized (Boserup, 1970 cited in United Nations, 1992, p. 31). Further, as explained by Boserup and Lijjencranz (1975), women’s traditional skills become obsolete, and they were not given equal opportunities with men to acquire modern skills and capital equipment (Boserup and Lijjencranz, 1975 cited in United Nations, 1992, p. 31). Therefore, it's significant to investigate the research topic of “Women visionaries for development: Sri Lanka’s state university system and its contribution in creating female decision makers - A Sociological Analysis” as the research topic of this research. Education is a process by which the society deliberately transmits its accumulated knowledge, skills, and values to its other generations. Besides, education is a fundamental right expected to be enjoyed by every citizen guaranteed by the Constitution of Sri Lanka and many countries of the world as well (Wijesinghe, 2016).

Following the above discussion; “What is the contribution of current state university education system in Sri Lanka when forming women leaders with a vision of leading the development process?” has been constructed as the research problem of this study.

To examine further on the above research problem, the general and specific research objectives were constructed as below,

1.2 General objective

- To understand the contribution of the current state university education to include women in the process of development as visionaries who could lead the development process of the country.

1.3 Specific Objectives

1. To critically understand the orientation of the development agenda in the current development discourse in Sri Lanka.

2. To examine the contribution of women in the state university education system of Sri Lanka as visionary leaders in the process of development.

3. To examine the nature of gender aspects that affect the inclusion of women in the process of development within the state university education system in Sri Lanka.

Based on the above research problem and research objectives, the following research questions have been constructed.
1.4 Research Questions

1. What is the contribution of the state university curriculum regarding the inclusion of women in the current process of development in Sri Lanka?

2. What are the social and cultural factors that have penetrated the Sri Lankan education system affecting women’s inclusion in the current development process in Sri Lanka?

3. What is the orientation of current development discourse in the country?

4. Are there any mismatches between the current development agenda of the country and the state university system of the country?

5. What is the relationship between the state university education system and forming female visionary leaders at the decision-making levels?

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

Based on the literature reviewed, the theoretical and the conceptual framework of the study could be illuminated as below. To construct a scientific inquiry about the data gathered, it is important to analyze those data using the concepts and theories, which have been used in the discipline. Therefore, in this research study, Gender, Sociology of Development, and Sociology of Education-related concepts and theories have been analysed. As the main concepts relevant to the study, it has considered, the state university education system in Sri Lanka, visionary leadership, decision maker, and development. The main concepts of the research have been defined as follows.

The universities in the country that are funded by the state and which give non-paying education to the students have been considered as state universities in Sri Lanka (University Students Charter of Sri Lanka, 2012).

Visionary leaders are the ones who navigate the directions of particular organizations, communities, or a country. A visionary leader is a person who has a clear idea of how the future should look. They set out concrete steps to bring a vision to life, and then they lead a team of people in that direction. A visionary leader is an individual who sees the potential of how the world should exist and then takes steps to get there. The ability to see the potential for change combined with the ability to lead others creates a visionary leader (Lucas, 2020).

The concept of gender is important to understand the female and the male-related social and cultural constructions of the society. Furthermore, private and public dichotomy, gender-related roles and status, femininity and masculinity, double day of work and triple role of women have been used in the research to analyze the data gathered. Feminist theories are significant, and under that, in a discussion about women, development, and education, it’s significant to have more insights on liberal feminism. Discussing the development-related matters as a very recent concept, the ‘capability approach’ has been discussed. Knowledge production and gender relate matters related to that also have been discussed. Gender, university education and development are the main focused areas of this study.

Women’s studies involve the study of gender as a central aspect of human existence. Sex is biological, being born as a male or female, while gender is a social construction. Gender is related to what it means to be a woman or a man in society. Gender involves the way society creates, patterns, and rewards our understanding of femininity and masculinity. Gender can be defined as the way society organizes understanding of sexual differences. Feminist studies explore our gendered
existence; it explores how we perform femininity and masculinity and how this interacts with other aspects of our identities, such as our race, ethnicity, socio-economic status, and sexuality (Shaw and Lee, 2007, p. 1).

Women studies are generally associated with feminism as a paradigm for understanding self and society. There is an agreement on two core principles underlying any concept of feminism as below:

1. Feminism concerns equality and injustice in all aspects of women's lives.
2. Feminism is inclusive and affirming of women; it celebrates women's achievements and struggles and works to provide a positive and affirming stance toward women and womanhood (Shaw and Lee, 2007, p. 9)

The emergence of public and private spheres is important to understand interrelations and to reveal the ideological dimensions within the society. The artificial nature of the division itself has become apparent and manifest. Much of the impact on sociology on feminist research is found in the study of the inter-linkage between the public and private spheres of social relations and in the reconceptualization of central sociological categories such as ‘work’, ‘sexualities’, ‘class’ concerning the all-pervasive nature of structured gender relationships of unequal power (British Sociological Association edited by Morris and Lyon, 1996, p. 1).

World Health Organization defines (2020) ‘gender role’ as socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women (Lumen Learning, 2020). By the concept of ‘double day of work’, the burden of wage work life, as well as the domestic work, of women have been described. In most societies, this idea has evolved as the ‘triple role of women’, which explains the heavy workload and responsibilities that have to be involved in wage work, and domestic work, as a mother and a wife. Reproductive, productive, and community managing roles of women are defined as the triple roles of women. These values affect the way of women and men set priorities in planning programs or projects. These forms can enhance or limit women’s chances of taking advantage of development opportunities (European Institute for Gender Equality, 2020).

As explained by Baxandall and Linda (2007) adopt a gender perspective to view the development process and utilizing the capabilities of both men and women in the development process is needed. To identify and analyze those, it’s very significant to have insights into the concept of development and Feminists theories. Any movement that takes improvement of the lives of women as its’ political agenda is called feminism. There have been emerged few feminist waves. Among those, liberal feminists believe in the viability of the current system and work within this context for change in such public areas as education and employment. Liberal feminists attempt to remove obstacles to women's full participation in public life. Their strategies include education, federal and state policies, legal status (Baxandall and Linda, 2007 cited in Shaw and Lee, 2007, pp. 9-10). Therefore, when discussing women’s education and their participation, it’s important to have insights into liberal feminism.

There are many definitions of development. Besides, most importantly, a remarkable debate about development has been discussing in most societies. To have a proper development, it is significant to enhance all the main 3 aspects of development as below:

- Economic Development
- Social Development
- Environmental Development

Earlier it was believed that economic development is the main thing to be
achieved in the development process. Eventually, that debate has improved and changed. Now scholars, researchers, and thinkers on development emphasize the importance of the fulfilment of all the three main aspects of development as mentioned above to have more sustainable and effective development.

Considering the debates on development it’s important to discuss the concept of the ‘Capability Approach’ introduced by Amartya Sen. The concept of “capability” refers to the alternative combinations of functioning that are feasible to achieve. Capability is a kind of freedom: the substantive freedom to achieve alternative functioning combinations (Sen, 2000, pp. 74-75). In analyzing social justice, there is a strong case for judging individual advantage in terms of capabilities that a person has, and that is the substantive freedom he or she enjoys to lead the kind of life he/she has reason to value (Sen, 2000, p. 87).

3. RESEARCH METHODOLOGY

This research is based on secondary data, which have been used to study the research problem. Referred secondary data have been mentioned in the reference list. Considering women’s leadership as visionary leaders in development. Because of this vastness of study area in this research, only administrative leadership has been discussed. In this research, two main factors have been studied through the above research problem. Those are,

- Either women’s contribution to development in the administration sector has not been highlighted or
- Women have not made a significant contribution.

Qualitative research methodology has been used in this research. Therefore, thematic analysis has been used as the main qualitative research method in analyzing data.

4. DISCUSSION

The free education system Sri Lanka was introduced in 1945 by Dr. C.W.W. Kannangara, who was referred to as the ‘Father of Free Education of Sri Lanka’ (Alawattegama, 2020). According to the University Grants Commission of Sri Lanka (2014), as a result of the free education policy, State Universities that allow students to engage in higher education free of charge were also established. This research mainly focused on the state university education. The higher education of the country expanded rapidly over the past seven decades. Currently, the Ministry of Higher Education and the University Grants Commission of Sri Lanka govern the state-funded university system of the country. At the moment, Sri Lanka has 15 state universities with at least one state university for each province. These state universities depend on state funding to meet about 96% of their annual expenditure. Students have been selected to those state universities based on their competencies in the General Certificate Advanced Level Examination every year. In Sri Lanka, 50% of students enrolled in state universities came from underprivileged families. Higher education in Sri Lanka could be identified as an important avenue for social mobility (Wickramasinghe, 2018, pp. 9-10).

Murtaza (2012), Ali et al. (2011), Jeffery and Basu (1996); Jeffery and Jeffery (1996), Jejeebhoy (1995) and Bhatt and Sharma (1992) have found that the need for girls’ education is accentuated throughout the world because it is argued that investing in girls’ education is the key to reducing poverty and changing the subjugated position of women in the society (Murtaza, 2012; Ali et al., 2011; Jeffery and Basu, 1996;
4.1 Impacts of Development on Women

Because of the invisibility of women’s issues and the state’s patriarchal attitudes and priorities, little has been done so far to relieve women of this exclusive burden or to assist them in fulfilling their responsibilities. In the process of development, some of these deprivations of women become fewer irksome, and the process is not automatic. To eradicate these deprivations, some conscious actions of the state and the society in each society are needed. These measures could be of two kinds; either they could attempt to give women some autonomy from the household or, they could reduce some of the imperatives for households to impose such controls on their women (United Nations, 1992, p. 28).

Considering how women could integrate with the process of development as explained by Banerjee (1985), three broad angels have to be considered as below:

1. Their relative share in the benefits that accrue from social and economic development.
2. How far they have been able to participate in modern economic activities on equal terms with men.
3. To what extent have developmental activities had an impact on women’s special needs and problems (United Nations, 1992, p. 28).

As explained by Sen (1991), there are more than one dimension that affect the impact of the development of women. Considering the women in the process of development, it is not just the women’s role in the economy, it also has to consider their overall quality of life as well as “capability of function” (Sen, 1991 cited in United Nations, 1992, p. 32). Boserup (1970) claimed that women’s failure to share equally in the benefits of development, such as growing educational opportunities means that, they cannot compete on equal terms with men in the job market. On the other hand, women’s relatively poorer economic prospects in adulthood may lower their status within families and in society. Women have been marginalized because their household-based subsistence activities have become increasingly subsumed into the wider market-based activities. Besides women have lost their traditional access to productive assets and therefore, have become dependent on men for their own and their children’s sustenance (Boserup, 1970 cited in United Nations, 1992, p. 32).
4.2 Women’s Role in Development

Maillaseux (1984), and Mies, Delwolf and Thomsen (1987) have explained why economic development had this kind of effect on women. Several scholars have argued that the general deterioration in women’s position in the course of capitalist development occurs because of systematic undervaluation of women’s crucial role as housewives in the process of development (Maillaseux, 1984; and Mies, Delwolf and Thomsen, 1987 cited in United Nations, 1992, p. 33).

With the changes of society and economy and of capitalism later, gender-wise division of labour has become exploitative of women when workers start selling their labour power for a wage to an employer. The day-to-day reproduction of this labour-power takes place through the household work done by the housewife within the family, therefore this becomes crucial inputs for the production system. However, within the family, that housewife’s labour is not considered as a cost to herself or the family. As a result, neither the housewife nor the worker perceives this contribution by housewives as a contribution to the capitalist system. As a result, women get burdened with the double load of housework and wage work; their options in the labour market are constrained, and they cannot take a full share of the benefits of development (United Nations, 1992, p. 33). Currently, it has extended as a triple role of work too.

There is a tendency to romanticize gender relations in the pro-capitalist era as being merely complementary and hierarchical. Therefore, subsequent discrimination against women is attributed to the forces of economic development. As each economy began to grow, it was the women who remained trapped in their traditional roles. However, Rosaldo (1980) claimed that it is a reflection of the relation of power between men and women (Rosaldo, 1980 cited in United Nations, 1992, p. 34).

4.3 Higher Education, Women’s Participation and Visionary Leadership in Development within Sri Lanka

Here it’s important to consider about GAD (Gender and Development) approach. This approach tries to challenge socially constructed gender roles and relations. Women are supplying a great contribution to the economy of the country. GAD gives a broad interpretation of the concept of gender. It considers both the private and public spheres related to the concept of gender. It has considered about power relationship within gender and division of labour, emphasizes the need of considering the practical and strategic needs of both female and male while emphasizing on the importance of making a social reform through considering both female and male.

A study by Yashiro (1980) about male and female wage differentiation in Japan concluded that due to culture-specific biases on the part of employers as well as the rest of the society against employing women in executive or decision-making positions (Yashiro, 1980 cited in United Nations, 1992, p. 70). According to Yashiro (1980) cultural forces and conventions operating in each country are the reasons that lie behind this unequal wage and payment differentiation. As explained by Banerjee (1985), discrimination regarding earnings of men and women could be arising largely because, conventionally, men are regarded as superior workers (Banerjee, 1985 cited in United Nations, 1992, p. 70).

Banerjee (1985) further explained that cultural traditions could be affecting women’s educational qualifications. Because of this reason, when considering women’s participation in the process of development, we can note two types of trends in developed and
under-developed countries. In under-developed countries, most of their workforce has slight education, and a large part of work consists of traditional or repetitive tasks. In those countries, unequal qualifications among men and women may not be a major consideration. Different to that, two tendencies appear rapidly in industrializing countries as follows:

- Most modern industries including service, use tools and techniques which require some informed decision-making.
- Fast-growing large arena of mainly manufacturing jobs, which have repetitive, as well as manual, requires to improve worker’s productivity through experience (Banerjee, 1985 cited in United Nations, 1992, pp. 70 -71).

Likewise, in the political sphere, the presence of women in the administrative apparatus of Asian countries is not significant (Wijesinghe, 1981, p. 253). Assuming that the state sector is a large employer in these countries, most of these countries have shown low end while the Sri Lankan positions of women in administration more closely approximate South-East Asian standards. Even though Sri Lanka has shown a comparatively higher rate of women’s employment, even Sri Lanka says nothing of the level of employment; that is whether they are currently at higher levels where both policy making and direction of plan administration can be influenced. Casual evidence suggests that women’s presence in senior positions in Sri Lanka is not very significant (Wijesinghe, 1981, pp. 253 - 255).

The higher levels of education in Sri Lanka and the countries of East and South-East Asia thus reflect the importance of public interventions both historically and at the margin. Gender disparities even in 1965 were much lower at all levels of education in East and South-East Asia compared to South Asia except for Sri Lanka. There is a close relationship between higher levels of female education and labour force participation rates. The significance of higher visibility of women in the labour force of East and South-East Asia, compared to South Asia except for Sri Lanka, and their growing presence in administration and professional occupations reflects the investments made in female education. It may thus be concluded that the East and South-East Asian countries, including the socialist states, as well as Sri Lanka, have over the years invested in education, have attempted to correct gender disparities through education to reduce discrimination against women, and now have a more skilled female labour force, who are economically active. The improved economic performance of the South-East Asian region may be related is no small measure to the quality of its labour force, including its women (Wijesinghe, 1981, pp. 261 - 262).

In contrast to such macro-level initiatives of the East and South-East Asian societies and Sri Lanka to integrate women in development, the South Asian approach to target programs of skill enhancement to women seems to have produced fewer results (Wijesinghe, 1981, p. 270).

An adequate conception of development must go beyond the accumulation of wealth and the growth of gross national product and other income-related variables. The development has to be more concerned with enhancing the lives we lead and the freedoms we enjoy (Thematic Group on Challenges of Social Inclusion: Gender, Inequalities, Human Rights of the Sustainable Development Solutions Network, 2013, pp. 14-15).

Gender inequalities, low income, illiteracy, and ill health, hunger and undernourishment, other hand inequality in education and inequalities in the participation of economy have impacts on basic capabilities; consideration about these interconnections is important to have a holistic analysis.

According to Weber (2019), when examining higher education, the material meaning of the question of science as a profession also includes Weber’s remarks on the requirements that university teaching demands of the newcomer. The young scientific generation must remember “that the task before him/her has a double aspect. ‘He/she must qualify not only as a scholar but also as a teacher” (Benetka and Schor-Tschudnowskaja, 2019, p. 2).

The cheap form of skepticism towards the mass university is far from what Weber (2019) understood as “the affair of an intellectual aristocracy” in the context of teaching at universities. The general tendency to subordinate science to the concept of economic efficiency ultimately destroys the meaning and purpose of academic teaching. Further, along with the far-reaching decline of the length and the depth of university studies due to recent university developments in school-like institutions; university candidates have come to terms with the fact of introductions to a variety of teaching areas are nothing than the expert’s suggestion on what students are then expected to deepen in self lead small and medium-sized study groups (Benetka and Schor-Tschudnowskaja, 2019, p. 3).

Higher education has to be analyzed along with its social surroundings too. Although in the country, a considerable number of women have been engaged in state higher education, there are visible significant patterns regarding that matter. Most of the female students are engaged with liberal Arts and Commerce streams, while their involvement lacks in Science and Technological streams compared to their male counterparts. Besides, most importantly, although a considerable number of women are degree holders, their participation in the economy as active participants in the process of development is fewer than their male counterparts (Table 1). There are significantly fewer rates of women, mainly in the decision-making levels where we could experience a patriarchal hegemony.

Table 1: Economically Active Population by Gender and Sector in Sri Lanka - Year

<table>
<thead>
<tr>
<th>Sector</th>
<th>Male %</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>65.7</td>
<td>34.3</td>
</tr>
<tr>
<td>Urban</td>
<td>68.2</td>
<td>31.8</td>
</tr>
<tr>
<td>Rural</td>
<td>65.5</td>
<td>34.5</td>
</tr>
<tr>
<td>Estate</td>
<td>59.8</td>
<td>40.2</td>
</tr>
</tbody>
</table>

2020

The progressive national economy is one of the main goals in the current development agenda in Sri Lanka. It’s aimed to create an environment that provides youths and local entrepreneurs opportunities where they can utilize their skills, talents, and business acumen to be the world leader in any field of their choice. According to the current development agenda in Sri Lanka, it is aimed to empower people through their economy. They hope that it could lead to strengthen and expand the national economy. It seems that the current
development agenda of the country is more focused on economic development. At the same time, they are concerned with sustainable development, considering the significance of it to ensure environmental sustainability, to make a happy family and law-abiding society, and national security (Sri Lanka Podujana Peramuna, 2020).

Women play a critical role in child care, the well-being of the family and in the social, political and economic development of the country. We believe that citizens, families, communities and societies are shaped through the guidance and nurturing of women. Therefore, harnessing the contribution of women is vital to our short- and long-term development plans. We will build on the high levels of literacy and education of women to be equal partners in development but also to harness their skills to prepare the next generation to face the challenges ahead (Sri Lanka Podujana Peramuna, 2020, p.27) (Figure 1).

![Figure 1: Undergraduate Enrolment in State Universities by Academic Programme and Sex, Sri Lanka- Year 2018](source)

As we can see, in this regard, ‘family’ has been getting special attention in the current Sri Lankan development agenda. It has been strongly believed that the current vision and unshakable leadership will strengthen these aspects. Although it has been emphasized national leadership to strengthen development, it is important to have insights on how we enhance correct leadership and vision in other spheres of the processors and institutions which are connected to development too. As a critique, it can be noted that the current development agenda of the country over-emphasizes and over-sensitizes the existing gender roles in the country, and it also includes prejudices, which are connected to gender in some points. Especially, it over-emphasizes the role of the motherhood and the role of women especially with regard to childcare. It highlights the gender roles of women,
while the gender roles of men are not highlighted. Few main aims in the current state university education policy are to create graduates, who are well disciplined, possesses the knowledge and skills required by the employment market, and to make technocrats and assistance for entrepreneurship (Sri Lanka Podujana Peramuna, 2020). Female unemployment rates are higher than those of males in all levels of education. The problem of unemployment is more acute in the case of educated females than educated males”. And this tendency was observed constantly over the results of previous survey rounds of the country as well (Department of Census and Statistics, 2020).

4. CONCLUSIONS

Division of labour and accumulation of labour have effects on the knowledge and understanding of different types of work in professional circles, especially at the decision-making level. The different forms of gender inequality can impose diverse adversities on the lives also of men and boys, however, most significantly the majority of women and girls have been facing gender-based inequalities than men and boys. In understanding the different aspects of gender inequality, we have to look beyond the predicament of women and examine the problems created for men as well, by the asymmetric treatment of women.

Education is not merely regarded as the most contributing factor in overcoming the social, cultural, and religious barriers faced by women, but it also plays a significant role in bringing them into mainstreaming development. According to research, higher education increases women’s participation in decision-making at the household, community, workplace as well as on national level. Although a considerable number of women are included in the higher education sector in the country, their involvement in the development process as visionary leaders is lacking, mainly due to socio-cultural factors, and it is needed to enhance further. While the broad meaning of the development goes beyond economic aspects, it is necessary to have a holistic approach and consideration regarding the inclusion of women with higher education qualifications as visionary leaders in the process of the development at both micro and macro levels.

REFERENCES


H5P INTERACTIVE VIDEO CONTENT IN MOODLE TO IMPROVE LEARNERS’ ENGAGEMENT IN ONLINE LEARNING

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H5P, Interactive video, Learner engagement, Online learning

Abstract

The use of online learning content has increased expeditiously at all levels of education globally. Especially after Covid-19, many formal and non-formal educational institutions have shifted their teaching mode from face-to-face to online learning. To ensure inclusive and equitable quality education traditional means of education are not adequate. Open universities are instrumental in widening the access of people to education and promoting lifelong open and distance learning. One of the key factors that enable and maintain the success of open universities, which mostly offer courses in various modalities including eLearning, is the use of Free Open Source Software (FOSS). One of which is MOODLE. One of the great concerns of the teachers while using online content is the learners’ engagement, especially in the case of recorded videos, as synchronous interactive teaching is not feasible for teaching a large number of students online. Interactive videos play an important role in an e-learning system which allows learners to interact with learning content while watching the video. In this empirical study, an interactive video on Geographical Information System (GIS) is developed using the H5P module of MOODLE Learning Management System (LMS), which was created by a community of educators to make online learning interactive. This empirical study examines the influence of interactive video on learners’ engagement and satisfaction in e-learning video content. In the first phase of this study, the satisfaction and success level of MOODLE was analysed based on the Delone and Mclean Information Systems Success Model which looks into the system quality, information quality, service quality, user satisfaction, intention to use, and net benefits. In the second phase, H5P interactive video content was developed and implemented on MOODLE. Results of the survey and H5P interactive video implementation showed that the value of video for learning effectiveness was dependent upon the condition of interactivity. Students in the e-learning class that provided interactive video achieved significantly better engagement and a higher level of learner satisfaction than those in other settings.
1. INTRODUCTION

One of the United Nation’s sustainable development goals is Quality Education, which means “ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all (UN., 2015)”. Formal educational institutes are struggling to achieve this goal of quality education. However, the formal education system is inadequate and not able to meet this challenge of ensuring inclusiveness and equity in education. To meet this challenge, open and distance learning universities are instrumental in widening the access of people to education and promoting lifelong.

1.1 Open and Distance Learning

Open and Distance Learning (ODL) is the type of education system in which the students need not to attend the regular classes at the university/institute. The learning process usually takes place without the learner’s physical meet up with the tutor (Moore, Dickson-Deane, and Galyen, 2011). This is useful when face-to-face learning is not possible for the learner or the available resources are not enough to meet the expenses of physical learning. This mode of learning has gained popularity especially after the COVID-19 pandemic situation. This makes distance learning a different area when compared with the traditional formal education system where both the student and tutor need to be physically present. ODL is an emerging area where many approaches are applied to improve the overall quality of the system. The quality of this system needs continuous improvement as the learner and tutor are physically far away. Thus, the transactional distance needs to be removed or minimized. Overall improvement needs the deployment of advance technologies and innovative strategies. The continuous growth of ODL has created many opportunities for educators, researchers, tutors, and students (Dabbagh and Bannan-Ritland, 2005).

Many studies have been conducted which explored the problems and the issues faced by students in ODL from an institution point of view, and different technological solutions to those problems have also been suggested in these studies. Mir (2017) highlighted the importance of systemic support to students in ODL and suggested an online-integrated student support system which can reduce the administrative problems of ODL students. Beldarrain (2006) pointed out that the researchers are always concerned about the problems faced by the distance educators and the students, which needs to be addressed through emerging tools and technologies. The relationship between technology and learning in distance education has been proved by research (Dabbagh and Bannan-Ritland, 2005).

Emerging technologies such as Web 2.0 are creating new opportunities for distance educators and learners in real time which is improving the efficiency and overall effectiveness of ODL. These technologies when implemented will change the already established models of learning, create new models and will also assign new roles to the students and the instructors. Chickering and Ehrmann (1996) have analyzed the issue and provided some principles in ODL including fast communication between the learner and the tutor, prompt feedback and quick delivery without focusing on the delivery method which will be a challenge without using innovative tools and techniques.
1.2 Learning Management System

Learning Management System (LMS) becomes mandatory in ODL due to the geographic distance between the student and the educator. Since it has been adopted and implemented by many ODL institutions, the interest in utilizing it as a Virtual Learning Environment (VLE) or a Learning Management System (LMS) for eLearning is increasing. In ODL students face more administrative and technical problems as compared to face-to-face students. LMS is a type of information system whose success can be measured using the Information System (IS) success model.

According to Wu and Wang (2006), DeLone and McLean’s IS success model is one multi-dimensional model used in many different fields. However, the concept of measuring the success of information systems is still not much mature. This model is based on six dimensions. This study primarily adapted to the Delone and Mclean Information Systems Success Model, which looks into the system quality, information quality, service quality, user satisfaction, intention to use, and net benefits. The model was recently proven to be valid and reliable (Sirsat and Sirsat, 2016). Each dimension of this model has been briefly discussed below.

1.2.1 System Quality
System Quality measure focuses on the usability of the system and it also covers the performance characteristics of system under investigation. System quality may cover access, convenience, customization, data accuracy, ease of learning, ease of use, response time, reliability, interactivity, system accuracy and system features etc.

1.2.2 Information Quality
This measure of success is more related to the output required by the user and the output generated by the IS. The more these two aspects are closer, the higher the success rate will be and higher the satisfaction of the user.

1.2.3 Service Quality
In this measure of success factor, technical support or help provided by the IT department is covered. This may include assurance, empathy, flexibility, interpersonal quality and responsiveness of support team.

1.2.4 User Satisfaction
It covers the level of satisfaction while using an IS. It is a very important measure of success. User satisfaction is not an isolated measure. It is interlinked with other measures like service quality.

1.2.5 Intention to Use
This measure indicates the frequency of usage or the user’s intention of utilizing the system. This also includes actual use, daily use, nature of use, number of transactions etc.

1.2.6 Net Benefits
This measure is the summary of all previously mentioned measures. This is closely related to the benefits of all stake holders involved.

1.3 H5P Content for Interactive Learning

H5P is an Open Source HTML5 based module created by a community of educators to make online learning interactive. It supports active learning, which is a proven and very popular method of teaching used in online learning. Integration of H5P contents in any online course makes it interesting and collaborative in nature. It provides the opportunity for learners to interact and critically think about what they are learning on computers without physical and/or live presence of the teacher. Another great benefit of H5P is that it allows you to easily share and reuse content (Singleton and Charlton, 2020). H5P supports following interesting activities or content types (See Figure 1).
All the above activities can easily be integrated with any MOODLE course. For example, Image Hotspots can create multiple information areas within a single image. The content types are not limited only to the above-mentioned ones, for they include other contents like Image pairing, Image Slider, Interactive Book and Virtual Tour (360).

Figure 1: H5P Content Type Large Resources – I (https://h5p.org/)

1.3.1 Interactive Video

This HTML5-based interactive video activity allows the users to add or embed an existing video and add interaction within that video. For example, asking a multiple-choice question or fill in the banks during the video on a specific time. It makes the video engaging and interactive and serves the feature of synchronous class in an asynchronous/recorded video.
2. METHODOLOGY

In the first phase of this study, the success factors of MOODLE, a Learning Management System deployed at Allama Iqbal Open University (AIOU), Pakistan were examined using an online questionnaire. The questionnaire included seven sections: demographic and general details, information quality, system quality, and service quality, intention to use, user satisfaction, and net benefits perceived by the students and the teachers. The structure of the instrument was based on the DeLone and McLean success model and modified success model by Rana, Dwivedi, and Williams (2013). The questionnaire was placed and shared online on the LMS for a period of one month with all the active students and tutors through different means whichever available and feasible. The survey was open for all the students and teachers of AIOU who are using or have used the MOODLE platform (Figure 3).

![Success Factor Measures](https://example.com/success_factors.png)

**Figure 3: Success Factor Measures**
All these questions were multiple-type, closed-ended and seven-point likert scale type questions except two open-ended questions for the general remarks (Table 1). Likert scales (1-5) with anchors ranging from “Strongly Disagree” to “Strongly Agree” were used for all non-demographic based questions. (Rana, Dwivedi, and Williams, 2013).

Table 1: List of Questions under each measure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Quality</td>
<td>Q1: My LMS provides very precise information that I need.</td>
</tr>
<tr>
<td></td>
<td>Q2: My LMS provides very sufficient information.</td>
</tr>
<tr>
<td></td>
<td>Q3: My LMS provides very up-to-date information.</td>
</tr>
<tr>
<td>System Quality</td>
<td>Q4: My LMS is very user-friendly.</td>
</tr>
<tr>
<td></td>
<td>Q5: My LMS is very easy to use.</td>
</tr>
<tr>
<td>Service Quality</td>
<td>Q6: Whenever I have a query or have to answer a query, my LMS is very helpful in it.</td>
</tr>
<tr>
<td></td>
<td>Q7: I feel safe in communication while using my LMS.</td>
</tr>
<tr>
<td></td>
<td>Q8: My LMS gives me individual/personalized attention.</td>
</tr>
<tr>
<td>Intention to Use</td>
<td>Q9: My learning OR teaching is dependent on my LMS.</td>
</tr>
<tr>
<td></td>
<td>Q10: My frequency of using my LMS is very high.</td>
</tr>
<tr>
<td>User Satisfaction</td>
<td>Q11: I am satisfied with my LMS.</td>
</tr>
<tr>
<td></td>
<td>Q12: My LMS meets my expectations.</td>
</tr>
<tr>
<td>Net Benefits</td>
<td>Q13: My LMS has made my learning or teaching easier.</td>
</tr>
<tr>
<td></td>
<td>Q14: My LMS saves me a lot of time.</td>
</tr>
</tbody>
</table>

In the second phase of this study, the H5P Interactive video content type was used to develop an interactive video. A YouTube video on the basics of Geographical Information System (GIS) was embedded overlaid by Multiple Choice Questions (MCQs) as shown in the Figure 4.

Figure 4: H5P Interactive Video
3. RESULTS AND DISCUSSION

3.1 Survey Respondent Demographics

Table 2 represents the survey respondents’ distribution based on their occupation and location type whereas Table 3 represents the survey respondents based on gender and age group. Location or area type was included as the connectivity may vary from area to area. The other parameters include gender and age group.

Table 2: Respondents distribution occupation and location type wise

<table>
<thead>
<tr>
<th>Role / Location</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Tutor / Resource Person</td>
<td>93</td>
</tr>
<tr>
<td>Rural / Village</td>
<td>10</td>
</tr>
<tr>
<td>Suburban / Less Populated</td>
<td>9</td>
</tr>
<tr>
<td>Urban / Cities</td>
<td>74</td>
</tr>
<tr>
<td>Student</td>
<td>640</td>
</tr>
<tr>
<td>Rural / Village</td>
<td>253</td>
</tr>
<tr>
<td>Suburban / Less Populated</td>
<td>37</td>
</tr>
<tr>
<td>Urban / Cities</td>
<td>350</td>
</tr>
<tr>
<td>(blank)</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>733</td>
</tr>
</tbody>
</table>

The data shows that the students participated actively when compared to tutors, and that is obvious if we compare this with the total strength of students and tutors of AIOU. The group which actively participated is females between the age of 21-30.

Table 3: Respondents distribution gender and age group wise

<table>
<thead>
<tr>
<th>Gender / Age Group</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>408</td>
</tr>
<tr>
<td>31-40</td>
<td>55</td>
</tr>
<tr>
<td>41-50</td>
<td>16</td>
</tr>
<tr>
<td>Less than 20</td>
<td>11</td>
</tr>
<tr>
<td>More than 50</td>
<td>5</td>
</tr>
<tr>
<td>Male</td>
<td>238</td>
</tr>
<tr>
<td>21-30</td>
<td>147</td>
</tr>
<tr>
<td>31-40</td>
<td>50</td>
</tr>
<tr>
<td>41-50</td>
<td>21</td>
</tr>
<tr>
<td>Less than 20</td>
<td>3</td>
</tr>
<tr>
<td>More than 50</td>
<td>17</td>
</tr>
<tr>
<td>(blank)</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>733</td>
</tr>
</tbody>
</table>
3.2 Survey Results

3.2.1 System Quality

System Quality measure focuses on the usability of the system and it also covers the performance characteristics of the system under investigation. System quality may cover access, convenience, customization, data accuracy, ease of learning, ease of use, response time, reliability, interactivity, system accuracy and system features etc (Figures 5 and 6). Result shows that 64% users agree that MOODLE is user-friendly and 58% users agree that MOODLE is easy to use.

![Figure 5: System Quality - Q1](image1)

![Figure 6: System Quality - Q2](image2)

3.2.2 Information Quality

This measure of success is mostly related to the output. The output is required by the user, and the output is generated by the IS. More these two are closer, higher the success rate and the satisfaction of the user (Figures 7, 8 and 9). Result shows that 61% users agree that MOODLE provides precise information what they need, 66% users agree that MOODLE provides sufficient information and 67% users agree that MOODLE provides up to date information.
Figure 7: Information Quality - Q1

Figure 8: Information Quality - Q2

Figure 9: Information Quality - Q3
3.2.3 Service Quality

In this measure of success factor, technical support or help provided by the IT department is covered (Figure 10). This may include assurance, empathy, flexibility, interpersonal quality and responsiveness of support team. Result shows that 63% users agree that MOODLE gives them individual or personalized attention.

![Figure 10: Service Quality - Q1](image)

3.2.4 User Satisfaction

It covers the level of satisfaction while using an IS. It is a very important measure of success. User satisfaction is not an isolated measure it is interlinked with other measures like service quality (Figure 11). Result shows that 59% users agree that they are satisfied with MOODLE. This parameter is however, very relative in nature, and there could be multiple factors due to which the user satisfaction may vary depending on their personal experiences with the teacher, connectivity or user experience.

![Figure 11: User Satisfaction - Q1](image)
3.2.5 Intention to Use

This measure indicates the frequency the usage or the user’s intention in utilizing the system. This also includes actual use, daily use, nature of use, number of transactions etc (Figure 12). Result shows that 57% users agree that they frequently use MOODLE.

![Figure 12: Intention to Use - Q1](image)

3.2.6 Net Benefits

This measure is the summary of all previously mentioned measures. This is closely related to the benefits of all stakeholders involved (Figure 13). Result shows that 66% users agree that MOODLE has made their learning or teaching easier.

![Figure 13: Net Benefits - Q1](image)

5. CONCLUSIONS AND RECOMMENDATIONS

This research shows that users are somewhat satisfied with MOODLE as a Learning Management System whereas their less agreement is shown in intention to use which reflects their lack of interest in the learning content which can be improved by using interactive video H5P content. This study also shows that H5P is very easy to use and one can easily convert existing static or recorded video content into an interactive video content which can help in boosting the interest of the learners by engaging them in different on-spot questions while the video is running.
REFERENCES


TUTORS’ REFLECTIONS ON ONLINE FACILITATION DURING MOVEMENT CONTROL ORDER IN MALAYSIA: A CASE STUDY OF AN ODL INSTITUTION

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Keywords:
Movement control order, online facilitation, Open distance learning, Tutor reflection

Abstract
The Covid-19 pandemic caused the Movement Control Order (MCO) to be implemented in Malaysia on 18th March 2020. Its implementation has disrupted the delivery of courses in all educational institutions, including those at Open Distance Learning (ODL) institutions. Tutors in ODL institutions are essential for the successful delivery of these courses as they facilitate students’ effective learning online. This study reports the findings based on the reflections of 32 tutors who facilitated the delivery of online courses during the MCO. Their responses were collected through open-ended questionnaires which were distributed through Google Forms. These responses were then summarized and coded thematically. Findings demonstrated that tutors were quick to adapt to the challenges faced during MCO and went the extra mile to help students achieve the targeted learning outcomes, meet assignment submission deadlines and work with students throughout the learning process regardless of time and space. Results also showed minor differences in the challenges faced by senior and junior tutors, as well as in the strategies used. Tutors were responsive and took measures to overcome the challenges they faced. Although the different age groups had similar challenges, they were solved independently.

1. INTRODUCTION
The Malaysian government enforced the first movement restrictions termed as the “Movement Control Order” (MCO) on March 18, 2020. This was after the first cases of COVID-19 were reported starting in January 2020. Consequently, all public and private higher education institutions (HEIs) were forced to suspend face-to-face lectures and tutorials, which were then conducted online through diverse platforms. This inadvertently led to many challenges for online facilitation that conventional institutions of higher learning were not prepared for compared to Open Distance Learning (ODL) institutions of higher education like the one where the researchers conducted this study.

ODL institutions were already equipped with the needed infrastructure and information such as a comprehensive...
Learning Management System (LMS), online assignment submission and assessment management system and resources like an e-library to cater to the needs of students enrolled for online distance education programmes. The pre-MCO practice in the ODL institution where this study was carried out is where online facilitation is the norm, while tutorial sessions are conducted face-to-face by tutors in various regional centres. Although some tutors were familiar with conducting their tutorials via platforms like Skype and Zoom, most relied on face-to-face tutorials to build rapport, conduct discussions, and explain assignment tasks. However, the MCO disrupted these practices, and a majority of tutors were suddenly faced with new challenges to deliver courses effectively in the ‘new normal’ context while ensuring course learning outcomes were achieved. They had to review and think of alternative strategies to conduct all their tutorials online.

Hence, the objectives of the study were to investigate the following based on tutors’ reflections of their online facilitation experiences:

1. To identify challenges faced by tutors in online facilitation during the MCO period.
2. To identify the strategies used by tutors to address the challenges in online facilitation during the MCO period.
3. To investigate the differences in challenges faced by senior tutors and junior tutors as well as the strategies used during the MCO period.

The objectives of the study led to the following research questions

1. What are the challenges faced by tutors in online facilitation during the MCO period?
2. What are the strategies tutors used in online facilitation during the MCO period?
3. What are the differences in challenges faced by senior tutors and junior tutors, as well as the strategies used during the MCO period?

2. SIGNIFICANCE OF THE STUDY

The study is of significance as the pandemic situation will most likely remain for a long time to come. Furthermore, even if the movement restrictions are removed or relaxed, students may still request that classes be conducted online as they fear for their safety and that of their family members. Therefore, the findings from this study will allow a better sharing of learning experiences among tutors who will be conducting online facilitation going forward. ODL tutors would be able to learn from each other and improve their practices. Tutors could also have a better sense of self and their value to know that others might be facing the same challenges that they are facing, which in turn could help in building their self-confidence and self-efficacy. The ODL institution can also use the findings to assist the tutors in terms of training for online facilitation, media platform functions and usage, and student-tutor engagement.

3. LITERATURE REVIEW

Distance learning is known by many terms like online distance education (Garrison, 1987), e-learning (Keis et al., 2017), blended learning (Deschacht and Goeman, 2015) and virtual learning (Allam et al., 2020). It is a form of education where key practices include students experiencing online facilitation through one or various media platforms like Skype, Zoom, Google Meet, etc., to communicate with their lecturers or tutors in order to facilitate the transfer of knowledge. In ODL institutions, most classes are conducted by tutors in
real-time, and therefore they play many important roles. They also face challenges while tutoring, and these challenges are probably magnified during the MCO period. The following section discusses some of these challenges that have been reported in the literature.

3.1 Challenges in Online Facilitation

A study by Chung, Noor, and Vloreen Nity Mathew (2020) on a group of university students reported that the challenges faced by learners are poor and unstable internet connectivity, as well as limited broadband mobile data as learners cannot afford strong and adequate bandwidth plan. Even though these are challenges faced by the learners, they also become an issue that tutors will have to manage if their students are unable to access the online tutorials, especially for synchronous sessions. According to another study conducted by Yusuf and Ahmad (2020), there were several challenges faced by lecturers in a tertiary institution when conducting online teaching. The first was when learners started to lose focus during online teaching and learning. This could be attributed to the long hours and also the distractions that were present when they were at home. The second problem was related to learning platforms that are less than satisfactory. Among the bugs encountered, issues related to login and logout due to the limited time allowed for a session, or other problems like difficulties in opening and viewing files. The third challenge was the difficulty of getting access to online classes due to the lack of a basic learning tool like a laptop or camera. When the poor internet connectivity results in extension of online class duration, it may lead to the first challenge stated above and also may interfere with the scheduling of classes that come after. Internet connectivity problems give rise to students’ lack of motivation and thereafter lead to them skipping classes. This study would be able to confirm whether tutors still face these challenges during the MCO or whether they are now exacerbated, as well as whether there are some new challenges. The next section look at some of the best practices and strategies used in the online facilitation of students’ learning.

3.2 Best Practices for Effective Online Facilitation

In a study conducted by Ooi et al. (2016) on a group of tutors in an ODL institution, several best practices that were implemented by the tutors were highlighted, which included bonding relationships, acting as a co-learner, and effective use of technology. Bonding relationships meant that tutors took the initiative to build rapport, like remembering the names of their learners and creating the feeling of a community by developing a sense of belonging through the learning management platforms (LMS). Acting as a learning partner saw the tutors not considering themselves as the ‘know all’ but rather as a partner learning together with the students, which made the tutors approachable. The tutors would not take the role of a ‘sage on the stage’, but more like a ‘guide on the side’. Lastly, effective use of technology showed that the tutors used technology to engage with learners in and out of the classroom through various communicative methods and platforms like WhatsApp messaging, emails, and phone calls. Another study by Maddix (2012) suggested that one of the best practices for effective online facilitation is through discussions. The study found that when integrated properly during online classes, discussions are a very powerful tool to make classes engaging and interesting.

Other studies that have investigated the features of successful online facilitation include those conducted by Mwalongo, (2011) and Downing and Dyment.
(2013). These studies took on the perspectives of outcomes rather than inputs of successful online facilitation. One indicator was when participants were active and responsive in posting meaningful responses regularly. Another hallmark was that there was a genuine sharing of the participants’ views and comments. Thirdly, it was not just the students but also tutors and other members of the learning community actively participating and engaging in learning on the learning management system. Finally, they found a general positive attitude towards online community participation. This study hopes to reveal the strategies used by tutors to facilitate students’ learning online and especially during the MCO situation. These would be most useful for other tutors to know if they too are grappling with the same challenges. The subsequent section looks at some literature related to the age factor of teachers and technology usage.

3.3 Tutor’s Age and Use of Technology

From the above discussions, it is apparent that the use of technology is an inseparable component in the online facilitation of students’ learning. The literature is replete with studies that have demonstrated the correlation between age and technological skills and knowledge, including self-efficacy and willingness to use technology assisted teaching methods among teachers. (Saleh Mahdi and Sa’ad Al-Dera, 2013; Erişti, Kurt and Dindar, 2012; Dias and Victor, 2017; Purcell, Buchanan and Friedrich, 2013). According to Stosic (2015), older teachers might not have had the required training to use the latest technology compared to younger teachers. A secondary indicator of age would be teaching experience. DeCoito and Richardson’s study (2016) reported less technology use by experienced teachers, compared to higher technology use by teachers with less teaching experience. Margolin et al. (2019) reported similar findings of teachers having more years of experience who needed training in IT skills and technology. Therefore, this study attempted to verify if age was a factor that might have impacted the kind of challenges that tutors faced and the strategies used during online facilitation.

3.4 Conceptual Framework

From the above discussions, we can conclude that tutors play a critical role in creating successful online facilitation. This forms the basis of the conceptualization of this study with the tutor as the focus of the study. The ODL institution in this study has many tutors from various backgrounds thus bringing with them different sets of experience. They would each face different challenges when conducting their online facilitation during MCO. The researchers would like to identify the challenges they face when conducting online classes during the MCO period. In the process there would be common problems that the tutors face (possibly among them, poor attendance, students not prepared for tutorials, on engagement in LMS discussions etc.). From there, the researchers would explore the strategies that tutors have used to overcome and/or address these MCO challenges. The conceptual framework is summarised in Figure 1.

Ideally the study’s findings would include the challenges faced during the MCO. The best practices to be reported would comprise the strategies that saw a high rate of adoption by the group to address the challenges mentioned, as well as unique strategies that were mentioned to be effective by individual tutors.
Tutor Variables
- Age
- Experience
- Challenges

Best practices/
Strategies

Challenges
during MCO

Successful
online
Facilitation

Figure 1: Conceptual Framework of the study

4. METHODOLOGY

A qualitative research design was used in this study. This approach provides researchers an opportunity to explore and elicit human behaviours subjectively through reflecting on individual opinions, thoughts, and feelings. Qualitative studies provide details about human behaviour, emotion, and personality characteristics that quantitative studies cannot provide (Madrigal and McClain, 2012). The research instrument utilized was an open-ended questionnaire developed based on past research literature.

The study employed a convenience sampling technique that resulted in the recruitment of 32 tutors. These tutors were sampled from a pool of active tutors who were employed by the Education Faculty of the Institution where the study was conducted. They were engaged in the courses coordinated by the researchers for the current semester. The questionnaire was lodged in Google Form and emailed to the research subjects. The number of completed and viable questionnaires was 26, indicating a return rate of 81%. The blank spaces allocated in the Google Form allowed the participants to provide their answers and express their thoughts and suggestions based on the open-ended items in the questionnaire. The responses collected were then analyzed thematically. The analysis included a comparison between the two age groups that were aligned to the study’s definition of senior and junior tutors. The cut-off point was 50 years of age: senior tutors were those aged above 50 years old, while junior tutors were aged 50 years and below.

5. RESULTS AND DISCUSSION

5.1 Demographic Profile of Tutors

Out of the 26 respondents who participated, six (23%) were males and 20 (67%) were females. The age of the respondents ranged between 26 years to more than 50 years, and among them five (19.2%) were in the range of 26-30 years, two (7.7%) were in the range of 31-35 years, one (3.8%) each was in the range of 36-40 years and 41-45 years, two (7.7%) were 46-50 years and 15 (57.7%) were more than 50 years. The seniors group, therefore, made up 57.7% of the sample, while the junior group made up 42.3%. As for their level
of education, six (23.1%) had a Bachelor's degree, 16 (61.5%) had a Master's degree, and four (15.4%) had a Ph.D.

They have had experience using different teaching and learning multimedia platforms like Microsoft Teams, Zoom, Skype, Video Conferencing, Google Classroom, WhatsApp, Google Meet, Google Drive, and Telegram. In summary, the majority of the respondents were females and were aged more than 50 years old. The majority of them had a Master's degree and had 1-3 years of experience tutoring using multiple multimedia platforms. It was interesting to note that among the junior tutors, the highest academic qualification was a Masters degree, while all the senior tutors were Master degree holders. Among those seniors, there were two with PhD qualifications.

5.2 Challenges Faced by Tutors in Online Facilitation during the MCO Period

There were five main themes gleaned for this research question on challenges faced by tutors. Three challenges faced equally by both junior and senior tutors were poor internet connectivity-induced network disruptions, lack of and passive student participation, and poor tutorial attendance. Junior tutors faced additional challenges of administrative duties while senior tutors regarded operating unfamiliar multimedia platforms as a challenge.

5.2.1 Poor Internet Connectivity-induced Network Disruptions

An overarching challenge that was faced by both senior and junior tutors was the issue of network interruptions due to poor internet connection. This challenge had been a persistent issue even before the MCO and was magnified during the MCO period. Junior tutors commented that ‘Students who are from rural areas might not have good connection or devices’ (J1), ‘Slow internet,’ (J8), ‘Network interruption’ (J3), ‘No internet line and some students also facing the same problem’ (J4) while senior tutors mentioned ‘unstable internet connectivity’ (S7, S9), ‘Students that have bad internet line or some even have no line’ (S10), ‘bad connectivity’ (S15). Tutorial sessions were disrupted when the call dropped due to poor internet connectivity, and the call ended as tutors were the hosts. Tutors then had to login to the multimedia platform and invite all students to the call again. This caused valuable tutorial time to be lost and tutorials were extended beyond the scheduled time as lamented by J1 ‘Tutor will take longer than the normal 2 hours tutorial session to guide them’ and S14 ‘Time wasted for students to come into the meeting again’. This challenge resonates with the studies of Chung, Noor, and Vloreen Nity Mathew (2020) and Yusuf and Ahmad (2020), who highlighted that poor internet connectivity was a challenge during online facilitation.

5.2.2 Lack-of and Passive Student Participation

The lack of and passive student participation was also another challenge faced by both junior and senior tutors before and during the MCO period. The tutors mentioned that students were not actively participating during online discussions despite being provided prompts and leading questions; they seemed to only want to be spoon fed. Among the junior tutors, J2, J5, and J11 all faced this issue, and J5 pointed out that ‘they (students) will be quiet throughout the session and expect the lecturer to explain everything and answer everything’, ‘students seemed to be waiting for input and do not participate in the discussion. Prompts and signpost questions too do not seem to get them to interact.’ (S3), ‘Students do not ask as many questions as they do during face-to-face sessions. Our discussions in class were much better when we had face-to-face sessions. I also had more responses from them...’
than on online tutorials.’ (S13), ‘decreased participation from students’ (S15). The tutors revealed that students tend to mute their microphones and turn off their video cameras, and in doing so, as they claimed, would reduce the usage of data and provide better internet connectivity. However, this inadvertently made it hard for tutors to gauge the students’ reactions to the tutorial as stated by J10 ‘…tutor cannot see all the students so you (tutor) are not able to gauge their (students) reactions to the tutorial (whether positive or negative) by their facial expressions. The same problem exists with the chat option on the LMS forum?’ The response by S8 that ‘students are mostly passive and sometimes I feel like I’m talking to myself’ also revealed that the students’ passive responses made the tutor feel isolated. This challenge mirrors the results of Yusuf and Ahmad’s (2020) study, where one of the six challenges found in their research was the lack of participation of students during online classes.

5.2.3 Poor Tutorial Attendance

Poor tutorial attendance was another challenge faced by both junior and senior tutors before and during the MCO period. ‘Low attendance’ (S3), ‘student absence during the appointed time’ (S6) and ‘lack of students’ attendance’ (S9) are just examples of the responses which are also faced by J5 and J9. As tutorial attendance is not compulsory following university policy, the number of students attending tutorials is usually less than the number of students enrolled for the course. Tutorial timetable conflict with health issues, work, or family commitments are the usual reasons given by students for their inability to attend tutorials, and this is normal for ODL studies as the students are mostly working adults and struggle to juggle between work, family, finance and health which are very real issues. However, this is still very challenging for tutors as students’ absence does not allow them to be able to gauge the level of understanding the students have on the subject, which in turn makes it hard for them to better prepare the tutorial to help these students. This finding also supports Yusuf and Ahmad’s (2020) study, where one of the six challenges found in their research was poor student attendance in online classes.

5.2.4 Administrative Role

Based on the responses from the respondents, junior tutors proffered administrative work as one of the challenges they faced during the MCO period. They felt that there was more administrative work they needed to take on in their role as tutors during online facilitation as compared to before the MCO. They found themselves ‘updating announcements, information and notes’ (J6), ‘updating forums’ (J11), ‘reminding students to attend the class, summarize the in-class discussion in the WhatsApp group to those who were not able to attend the tutorial classes, mainly through messaging’ (J7), ‘checking assignments, checking whether students already submitted their assignments, mark attendance and getting course material to teach students.’ (J4). They may have regarded these tasks as a burden because, before the MCO, some of these were either done by the administrative staff of the regional centres or could be done physically in a face-to-face tutorial. However, due to the MCO period, all of these tasks had to be conducted online, either through the multimedia platform or the LMS. It was interesting to note that this issue was only raised by junior tutors but not raised by the senior tutors. This is also a new finding not reported in previous literature reviewed.
5.2.5 Operating Unfamiliar Multimedia Platforms

Another challenge that arose was difficulties faced by the tutors in operating the multimedia platforms. This issue is particularly a challenge for senior tutors as they were unfamiliar with the operations of Microsoft Teams and other multimedia platforms. S1 mentioned that ‘It was very difficult as I am not familiar with the platform used’. The senior tutors also needed to learn to create and post links of the multimedia platforms before the tutorials and to familiarize themselves with the operations of the multimedia platforms like muting participants and chat discussions. S1 even ‘download [sic] Microsoft Teams and do a trial’ before the tutorial and S12 felt that the technology was challenging but worked hard to overcome it. All these were not needed previously, when they had face-to-face tutorials. These responses are similar to what was reported in Stosic (2015), DeCoito and Richardson (2016), and Margolin et al (2019). Although the university provided instructions and guides via PDF, they felt that it was not as effective as an actual, physical workshop, where they can experience operating the platform hands-on. It is interesting to note that this issue was raised by the senior tutors but not raised by the junior tutors who were more technologically inclined.

5.3 Strategies Tutors Used in Online Facilitation during the MCO Period

Three themes emerged from the responses of both groups of tutors as they found solutions to overcome these challenges they faced while tutoring during the MCO period. They included using multiple devices, creating discussion topics, and recording their lesson for asynchronous learning.

5.3.1 Multiple Online Channels and Devices

Besides upgrading their internet packages for better connectivity like S14 did, both junior and senior tutors found using multiple devices as a way to overcome the challenges of poor internet connectivity-induced network disruptions and operating unfamiliar multimedia platforms which they faced while facilitating students learning online. These multiple channels and devices included WhatsApp, emails, Telegram among others to contact students. J3 ‘used more than one device’ while J8 used ‘WhatsApp, videos, documents, emails’ to communicate with her students. S6 revealed that ‘I write to them online and I call them and remind them on WhatsApp.’ S3 ‘...shared the link via LMS and WA [WhatsApp] chat group to ensure that they [students] are in the loop’ to ensure that students felt connected especially during the MCO period. Both junior and senior tutors were motivated to keep in contact with their students and utilized all the communication technology that was available to them in order to keep the communication line open between the students and them. A similar finding was reported in Ooi et al.’s (2016) study, that tutors would use multiple channels and devices for online facilitation. This shows the commendable commitment of the tutors going the extra mile in order to keep in contact with the students and to ensure that students understand the content of the course and achieve the course learning outcomes.

5.3.2 Discussion Topics

To address the challenge of lack and passive student participation, both junior and senior tutors created discussion topics before posting them together with their PowerPoint slides to allow group discussions to take place. J9 did the following: ‘let the students steer the tutorial, encourage students to ask and to answer questions, Re-direct questions to other students, be fair
and do not pick on specific students, refer to specific sections of the course materials when asking questions’. As using multimedia platforms like Microsoft Teams and Zoom for tutorials brings students from all regional centers together, group discussion could take place, and the tutors could assess their students’ understanding by listening to students discuss answers to the discussion questions and topics. This also allowed students from different regional centres to interact with each other and build a sense of community with each other as mentioned by S15 who felt that this had ‘encourage discussions among students and provide a platform for students to share their ideas and thoughts while building rapport.’ This method supports the findings of Maddix (2012), who also showed that discussions are a good way to facilitate online learning.

5.3.3 Recording Lessons for Asynchronous Learning

To address the challenge of poor attendance, both junior and senior tutors started recording their tutorials to encourage asynchronous learning. As students had missed the tutorials for various reasons during this MCO period, the tutors started recording their tutorials through multimedia platforms like Microsoft Teams which is equipped with the recording function at the click of a button. The recording was then posted on the LMS after tutorials to allow students who were absent to view the tutorial at another time as mentioned by S5 ‘recording the sessions and sharing with my students’, and J4, ‘Using the meeting apps that can record online tutorials, if student miss the session, student can see the recorded online tutorial later’. J6 said that ‘now I’m using Microsoft teams so I will record the tutorial and share the link to students with the PPT and notes. Will give them a call if they do not understand any topic or assignment.’ This initiative to record the tutorial session ensured that no student was left behind and if the students needed further assistance, they could contact the tutors for help. Some tutors took the initiative of personally contacting the absentees as S10 mentioned, ‘Ask them to listen to my recorded lecture, or talk to them personally on the phone’.

6. IMPLICATIONS OF THE STUDY

The findings from this study revealed several implications that will be useful for various stakeholders to take heed of in order to be successful in online facilitation in the ODL mode of study during the MCO period. Firstly, during the MCO period, tutors would need to be proactive when planning for online tutorials before the sessions start, especially senior tutors. They need to run testing sessions before the session in order to be familiar with the different functions available to them on the multimedia platform. This would help them ‘iron out’ the kinks before the actual tutorial in order that time is not wasted during tutorials. Tutors also need to familiarize themselves with multiple devices like WhatsApp, Telegram, email amongst others in order to keep in contact with their students to ensure that no student is left behind. Besides that, tutors need to plan discussion topics to gauge students’ understanding of the topics taught.

The implications for students during this MCO period include investing in IT devices and time management. Students should utilize all the devices that they are familiar with in order to stay in contact with their tutors. They also need to manage their time wisely as they are working adults and need to juggle between work and study. Finally, for higher education institutions (HEIs), HEIs should consider providing data plan subsidies for students, invest in zoom accounts and provide training for tutors on how to operate multimedia platforms. Data plan subsidies to students who need financial assistance
would allow them to study better with one less thing to worry about. Training for tutors on how to operate the various multimedia platforms would also reduce tutor anxiety and smoothen the transition process as tutors move from the face-to-face mode of tutorials to online tutorials.

7. CONCLUSIONS

There were many challenges that both groups of junior and senior tutors faced during the MCO period. Most of these challenges were similar for both groups, but each group had an additional challenge that the other did not raise. Although age was not a particularly significant factor that impacted the kind of challenges that tutors faced and the strategies used during online facilitation, senior tutors did mention they had challenges learning new technology as opposed to the junior tutors. The tutors were quick to adapt and found ways to overcome these challenges.

Both groups encountered challenges related to poor internet connectivity-induced network disruptions, lack of and passive student participation of students, and poor tutorial attendance while tutoring during this MCO period. Junior tutors faced additional challenges of administrative duties while senior tutors found operating unfamiliar multimedia platforms a challenge. In order to overcome the challenges of poor internet connectivity-induced network disruptions and poor tutorial attendance, the tutors took the initiative to upgrade their internet packages, contact their students through various communicative devices like WhatsApp, email, and Telegram amongst others.

To solve the issue of passive student participation, both groups of tutors created discussion topics and discussed them on the LMS as well as during tutorials to encourage the students to interact through the LMS and during tutorials online. Finally, to solve the challenge of students missing out on tutorials when they could not attend the sessions, both groups of tutors started to record their online tutorials and post them on the LMS after class so that all students get benefits from it. This is particularly commendable for the senior tutors who many identified themselves as technologically challenged but went to great lengths to learn to use these technological devices and the functionalities of these multimedia platforms in a short time in order to facilitate the learning process online for the students.

The question of administrative duties was the only challenge with no solution given by the junior tutors. However, it can be assumed that they overcame them easily as time went on. Findings demonstrated that tutors were quick to adapt to the challenges faced during MCO and doubled their efforts to help students achieve the targeted learning outcomes, meet assignment submission deadlines and work with students throughout the learning process regardless of time and space. Results also showed only minor differences in the challenges faced by senior and junior tutors, as well as the strategies used. Tutors were very responsive and took measures to overcome the challenges they faced. Although the different age groups had similar challenges, they were solved independently, and that is a hallmark of a responsible tutor.

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DEVELOPMENT OF INTEGRATED AUGMENTED REALITY WITH MODULE FOR STUDY PROGRAMS IN BIOLOGY

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Universitas Terbuka, Indonesia

Abstract

The Open University’s printed teaching materials are the primary resources that students must possess. The teaching material is used as an initial orientation for learning before students enter online classes or online tutorials (TUTon). Augmented Reality (AR) media can be used to help visualize abstract concepts for the recognition and understanding of an object (Azuma, 2011). AR applications are designed to provide users with more detailed information than real objects. AR media development is suitable for visualizing abstract concepts for introduction and understanding in the BIOL4318 Animal Physiology course. This AR integrated module presents material virtually with three-dimensional objects through the use of AR media. In addition, by presenting the use of AR which is interactive and integrated in the printed module, it fosters interest in learning. The first step taken before the development of AR is the analysis of the AR media needs of the BIOL4318 module. The results of the analysis of the materials in the modules, namely (a) Anatomy of Frogs, (b) Respiratory System of Birds, (c) Digestion of Raising Animals, (d) Insect Secretion System, and (e) Endocrine System in Humans are discussed in this study. The 5 materials were then developed into Android-based AR media which were integrated with the animal physiology BIOL4318 module.

1. INTRODUCTION

During the last ten years, the world of national education has experienced a change from conventional education, which relies on face-to-face learning to a more varied learning mode in line with the increasing access and capacity of information and communication technology (ICT). Currently, there are ICT-based learning programs, for example, blended or hybrid learning, e-learning, online learning, digital learning, and virtual learning. Changes in the old paradigm of higher education from knowledge creation and transmission in a semi-isolated space to the re-creation and connecting knowledge in open space are necessary. On the other hand, universities are also encouraged...
to be efficient so that they can no longer rely on regular classes and conventional learning. Therefore, a blended learning system, online learning, and collaboration with other universities are needed.

The ‘Cyber University’ is a generic term used by several universities that carry out online programs, such as Seoul Cyber University, The Cyber University of Korea, and Thailand Cyber University. Besides, other universities offer online programs using the name ‘Open University’, such as the University of the Philippines Open University, Malaysia Open University, Hanoi Open University, and the Open University of Indonesia – Universitas Terbuka (UT).

The UT has organized a Distance Education (PJJ) system since 1984; since 2013, UT has organized a fully online program at the postgraduate level. A fully online program for the undergraduate level has been held since 2016.

UT continues to improve the quality of its products and services to students and stakeholders to realize UT as a cyber university. UT strives to improve the quality of learning by utilizing technology. UT printed teaching materials or Basic Material Book (BMP) as the primary teaching material are supplemented with non-printed materials such as UT Radio, UTTV, OER, and Online-Based Enrichment Materials (MPBO). Learning assistance services are also expanding by offering tutorials via TV, tutorials via the internet which is better known as online tutorials (Tuton), and webinar tutorials. The webinar tutorial (Tuweb) is a face-to-face tutorial using web seminar facilities via the internet network, which is carried out synchronously (real-time) (Tim UT, 2016).

Currently, the primary UT teaching material that students must have is BMP. The BMP can be obtained in printed form, Digital Teaching Materials (BAD), or the Virtual Reading Room (RBV). In the context of distance learning systems, from a student's point of view, the learning process is a way of overcoming difficulties using technology or limited interaction with the teacher. Conversely, from the teacher's point of view, the focus on distance learning is how the teacher delivers learning material appropriately to students even though they are not physically in the same place (Belanger and Jordan, 2000). The characteristics of students in distance learning contexts (PTTJJ) are that most adult students are self-starters (Simonson, Smaldino, and Svaček, 2014). This means that they only need a slight interest in the subject matter, but soon they will immediately focus on learning it.

According to (Raajan, 2014) mentions that Augmented Reality (AR) was first used in 1957-1962 by a cinematographer named Norton Heilig, who was named Sensorama. AR can help visualize abstract concepts for the recognition and understanding of an object (Azuma, 2011). AR applications are designed to provide users with more detailed information than a real object. Availability and technological developments, the application of AR is an alternative. Many universities are passionate about exploiting new visualization methods to improve current teaching models, and one of the most promising technologies currently in existence is augmented reality (AR). In technical terms, AR is an amalgamation of computer graphics, vision, and multimedia, which enhances the user's understanding and perception of the natural world through virtual information (Abbas, 2015).

This research aims to analyse the needs of AR media and how to design and develop an AR media program that is integrated with the UT module to help students visualize material or abstract concepts for introduction and understanding. The discussion of the material will be presented virtually with three-dimensional objects through the use of AR media. Furthermore, presenting AR, which is interactive
and integrated into the BMP module, fosters student interest in learning. The research limitation of the researchers took the case in the BIOL4318 Animal Physiology course.

2. METHODOLOGY

This study aims to develop Android-based AR learning media and modules that are integrated with AR media. The method used to solve this research problem is the Multimedia Development Life Cycle (MDLC). MDLC is concept, design, material collecting, assembly, testing, and distribution (Figure 1).

2.1 Concept

In this stage, several steps that need to be considered include:

1. Determine the purpose of the application, which is to present animal physiology material to be more exciting and interactive and help understand and facilitate learning of animal physiology concepts through AR media, to foster student interest in learning.

2. This application is used for learning media for animal physiology which will be integrated with modules for animal physiology courses in the biology study program of the Open University.

3. This animal physiology AR media learning program runs and is operated on an Android operating system device.

2.2 Design

At this stage, a detailed application specification is made in an application design and is put into the script. The script's development describes each material display, 3D and animation, and the frame-by-frame process. At this stage, the researcher also looks for reading literature and other reference sources that support and are related to the topic/learning material that the researcher makes to get an accurate theoretical foundation in developing AR media manuscripts.

2.3 Material Collecting

At this stage, the researcher searches, purchases, and develops the necessary 3D models related to the material. Apart from 3D models, researchers collect icons, clip art, or graphics. While the audio required according to the script is done by audio recording.

Figure 1: Diagram Multimedia Development Life cycle

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2.4 Assembly

The assembly stage (manufacture) is the stage where all multimedia objects or materials are assembled. Making the application follows the appearance of the script that has been developed frame by frame. All objects, materials, and animations using programming languages are created and combined into one complete application. This stage uses much software such as Unity 3D, EasyAR, C programming language, Blender, and Adobe Photoshop.

2.5 Testing

This stage is also called the alpha testing stage, where the author and the research team carry out testing. In testing this application, checking the conformity of the program with the frame-by-frame script. Marker-based object accuracy. The next test is testing the application on several mobile devices.

2.6 Distribution

In this stage, the application that has been tested and declared is by the script is then distributed to the lecturers of the UT biology study program.

3. RESULTS

3.1 Concept

The concept stage is to determine the purpose and who is the user of the program (Identification Audience), the type of application, application objectives, and general specifications. The basic rules for the design are also determined at this stage, such as application size, targets, etc. The module used in this research is the animal physiology module, a module that discusses material related to the functions of the organs and processes that occur in the body (Goenarso, 2016). AR can also replace learning modules that have not been received by users or students in virtual or virtual form (Mustaqim, 2017). Students can still see and use the module like the original module, but in a virtual form.

In studying this module, students are expected to master the concepts of Animal Physiology well and apply these concepts in the environment. This course consisted of 9 modules, namely the process of life in cells, nutrition and digestion, blood and circulation, respiration, osmoregulation and excretion, thermoregulation, muscle and movement, nerves, hormones, and their functions. Based on the results of the needs analysis, there are five media developed in Augmented Reality media. The benefits of using learning media, it can clarify the presentation of messages and information (Azhar, 2013). If enriched with AR media, the five materials will facilitate and provide more understanding of the material for students.

Module 2 contains descriptions of various digestive activities, especially invertebrate animals, including humans. The digestive system in livestock, namely cows, was chosen to be supplied in the form of AR because it has a different system from vertebrate animals in general. The expected competence is that students can explain the structure/anatomy of the digestive system.

Module 3 describes two main topics: the functions of transport and non-transport of blood and the circulatory system (cardiovascular system). In particular, one of the competencies that are expected to explain the pattern of the cardiovascular system in vertebrates and invertebrates. The material determined AR media about frog vertebrates which include an
explanation of the circulatory system in frogs.

Module 4 is related to respiration. The expected competence is to explain the mechanism of inspiration-expiration in mammals, birds, reptiles, amphibians, fish, and invertebrates. An example of an animal that is provided in the AR form is breathing in birds.

Module 5 is about excretion and describes the mechanism of osmotic regulation of body fluids, which occurs through the excretion of compounds and osmosis of water from or outside the body. The expected competence is to be able to explain various excretory organs in animals and animal excretory mechanisms. In this module, particular excretory organs with a more complex structure, one of which is Malpighi in insects, are presented in AR media.

Module 9 hormones and their functions highlights the importance of studying the endocrine system or hormones, not only because we have it ourselves or because our body's metabolism is hormonal controlled, but it is also essential to understand more about the growth and development of animals (including invertebrates). The expected competencies include knowing the hormone-producing glands in humans and explaining the characteristics of hormones and the general work environment.

Five material or discussion topics are raised to be developed into Augmented Reality learning media. The five materials, namely
a. Frog anatomy: brain, lungs, urogenital system, digestive.

b. Digestive system: rumen, reticulum, omasum, abomasum

c. Bird respiratory system: inspiration and expiration while flying, inspiration and expiration on land

d. Insect accretion system: the process of insect excretion, Malpighi vessels, middle stomach, back stomach (intestines and rectum), anus

e. Human endocrine system: endocrine system, hypothalamus, pituitary, thyroid gland, suprarenal, pancreas, testicles, ovaries

Users of this learning program are students, aiming to make it easier for students to understand learning concepts and foster interest in learning in animal physiology courses. The application made is expected to be used for various types of smartphones with various specifications.

3.2 Design

After determining the five materials to be developed into AR media, the next step is designing. Design or designing makes detailed specifications regarding the application architecture, style, appearance, and material/material requirements for application manufacturing. At this stage, the design and creation of a script or storyboard for each AR are carried out, namely, frog anatomy, cow digestion, bird respiration, insect integument system, and human endocrine system. Here is the AR script of Frog Anatomy (Figures 1 and 2).

3.3 Material Collecting

Material collecting is the stage of collecting materials according to the needs that are done. These materials include, among others, clip art images, photos, animations, videos, and others which can be obtained free of charge or by ordering from other parties according to the design. Meanwhile, the audio is recorded by itself following the transcript written in the AR script. The recording was carried out by researchers at the UT Multimedia Development Center (P2M2) recording studio. At this stage, the design of a 3D model is carried out from the material that has been developed. Of the 5 AR materials, 2 of them were self-developed, while the other three were
purchased from Turbosquid and Skechfab. 3D AR material development is also adapted to the AR script. Making AR markers is also done at this stage (Figures 4-6).

<table>
<thead>
<tr>
<th><strong>VISUAL</strong></th>
<th><strong>AUDIO</strong></th>
<th><strong>INTERAKTIVITAS</strong></th>
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<tbody>
<tr>
<td>Tampilan awal ketika Uters masuk dalam materi Anatomi Katak adalah</td>
<td>Narator: Hallo Uters, selamat bermain pada materi anatomii katak,</td>
<td>UTERS memilih tombol &quot;AR Mode&quot; untuk melihat AR Anatomi Katak:</td>
</tr>
<tr>
<td>Ditegging gambar 3D katak berputar</td>
<td>Tunggal kiri bawah untuk tombol ke menu AR Mode (Scan Marker AR)</td>
<td>Tampilan 3D Katak di tengah berputar</td>
</tr>
<tr>
<td>Tombol kanan atas X (untuk keluar)</td>
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**Figure 1:** AR script of frog anatomy (first frame)

<table>
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<th><strong>VISUAL</strong></th>
<th><strong>AUDIO</strong></th>
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<tr>
<td>Tampilan awal ketika Uters masuk AR Anatomi Katak</td>
<td>Narator: Hallo Uters, silakan klik pada tubuh katak untuk melihat anatomii katak</td>
<td>UTERS klik badan katak lalu muncul anatomii katak</td>
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<td>Muncul 3D tubuh Katak unta</td>
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<td>Lalu jika di klik kataknya</td>
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<td>Akan muncul</td>
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<td>3D Anatomi Katak</td>
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**Figure 2:** AR script of frog anatomy (Second frame)

### 3.4 Assembly

The assembly stage involves making all multimedia objects or materials, making applications based on storyboards, flowcharts, and navigation structures that originate at the design stage. At this stage, the storyboard is combined with the materials that have been collected. The materials are then assembled and combined using several applications, namely Unity 3D, Easy AR, and Adobe Photoshop.
Unity 3D is an integrated tool for creating 3-dimensional objects in video games or other interactive contexts such as architectural visualization or real-time 3D animations. Unity is not designed for the design or modelling process because unity is not a design tool. Scripting features provided supports three programming languages, JavaScript, C#, and Boo. Making AR requires another application setting, namely EasyAR, which is integrated with Unity 3D. EasyAR SDK is an Augmented Reality Engine. The EasyAR used, namely the Basic SDK, is free for commercial use. There is no limit or watermark mark. It supports AR based on Image Target, supports smooth and recognition of more than 1000 local targets, supports videos based on codec HW, supports transparent video and video streaming, supports QR code recognition, and supports simultaneous multi-target tracking.

Figure 3: AR Frog Anatomy

Figure 4: AR Marker Frog Anatomy and Digestive system
3.5 Testing

After the application is made, it is time to test the ability and performance of the application, whether it is as expected. Here again (recompile) whether all media elements, links, buttons, animation, and other features appear based on the storyboard can function correctly. As an example of the testing performed in the image below, the AR display of the ruminant digestive system in cattle displays 3D cattle digestion which consists of 4 parts, namely the rumen, reticulum, omasum, and abomasum. Each section can be selected clicked and will display a pop-up explaining the details of each section. Besides, there is also an audio explanation of the stages and explains each animation process of cow rumination displayed (Figures 7 and 8).
There are also many entries that need to be improved as a whole program, namely:

1. Replace the application icon with the UT logo and the AR Name of the application "AR-Animal Physiology."
2. The cover display on the program disappears before the user clicks the "enter program" button
3. Creation of a common creative display
4. Making usage views
5. Unbeatable 3D AR size, should not be too big
6. The pop-up display does not work on the Vivo V17 mobile device
7. The font selection on the pop-up menu is less legible
8. A popup box that blocks the 3D view as the background

The application results after testers and after that all states and errors again (Figure 9).
3.6 Distribution

The application will be stored in a storage medium; this stage can also be called the evaluation stage for developing finished products to make them better. The results of this evaluation can be used as input for the concept stage of the following product. This stage is carried out before the evaluation stage. The evaluation stage, which was planned to be carried out with students, was due to the pandemic situation, and various considerations were not carried out. The trial was conducted by Biology lecturers using a variety of smartphones (Figure 10).

Figure 9: Insect Excretion System AR Application Display

Figure 10: Distribution and application testing
From the questionnaire filled out by respondents during the trial, several inputs related to the appearance and ease of access were obtained.
1. The download process is not a problem as long as the internet signal is stable, but because the application is quite large (68 Mb), it will take up many quotas.
2. Installation for the Android operating system is OK, not yet known for other operating systems (Windows, iOS, etc.).
3. Easy to operate, but some instructions are confusing.
4. This application is easy and fast to install.
5. AR object displays attractive and intuitive to see.
6. The depiction of objects is quite straightforward but needs to be clarified in small parts.
7. Descriptions on AR objects are easy to see and are appropriate, but additional descriptions of each organ or organ system can still be added.

Due to pandemic constraints, this activity was carried out online in the early stages of the study, namely conducting an analysis of media needs on the eyes of animal physiology. Following are the results of the analysis of the needs of animal physiology media.

4. CONCLUSIONS
From the results of the research that has been done, Augmented Reality-based Animal Physiology learning media has been successfully developed. Android users can use this application by installing the application files that have been created. This file is executed by scanning the markers that have been created. From the test results, it can be concluded that this application can run well. There are several error problems in displaying applications that occur on two devices that are tried, and some improvements are needed in terms of applications and the addition of some material such as:
1. Add additional information and descriptions of each organ or organ system according to the respondent’s input.
2. The bird marker should be replaced with a dove.
3. For the topic of bird breathing, the breathing process is less visible.

In further research, this animal physiology AR media will enter the trial phase involving students as users and into integrated learning with modules for students taking animal physiology courses. Some suggestions that can be considered for research in the use of augmented reality media are as follows:
1. The effectiveness of AR media in the BIOL4308 Animal Physiology course needs to be proven by looking at student learning outcomes at the end of the semester.
2. The Biology Study Program needs to consider other learning strategies to help students achieve course competencies.
REFERENCES


DEPRESSION, ANXIETY AND STRESS AMONG UNDERGRADUATE STUDENTS IN THE OPEN UNIVERSITY OF SRI LANKA: A CROSSSECTIONAL STUDY

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Abstract

Mental health of university students is recognized as an important issue globally due to the high prevalent rates of depression identified among new university entrants. In the context of Open and Distant Learning (ODL), these issues become more prominent when compared with conventional university students as distance learners are required to manage their work-life balance while studying. Some students who are unable to manage their work effectively may experience negative outcomes such as dropouts, emotional distress, relationship problems, impaired work levels, burnout and even physical health problems. Therefore, to explore the levels of emotional distress of ODL students in Sri Lanka, a cross sectional study measuring levels of depression, anxiety and stress was conducted with undergraduate students from five faculties at The Open University of Sri Lanka (OUSL) from November 2018 – February 2019. DASS-21 scale developed by Lovibond and Lovibond (1995) was used to measure depression, anxiety and stress while socio-demographic characteristics, history of illness and medical history on psychological illnesses were also recorded. This study received ethical approval (ERCSSH/18/02) before data collection began at all nine Regional Centres of OUSL. Results indicated ‘normal’ levels of depression and stress among participants while anxiety levels were at the moderate levels of ‘psychological distress’ for 50% of the participants, consistent with previous studies. Confirmatory Factor Analysis (CFA) was conducted and three factors were derived confirming the original factor structure. Cronbach alpha for all three subscales of DASS-21 reached 0.8, confirming the high level of reliability. Further studies to explore specific causes of student anxiety levels and the role of ODL study mode are recommended. Since ODL students learn independently with minimal face-to-face contact, it is recommended that ODL institutions and student associations should work together to improve student mental health which is essential for students’ holistic health.
1. INTRODUCTION

According to the World Health Organization (WHO), mental health has been given equal levels of importance as physical health (WHO, 2015). This definition states that health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). Therefore, when investigating mental health issues, the data across the globe shows that mental and substance use disorders are the leading cause of disability worldwide and that they can lead to many socio-economic problems and optimal individual functioning.

Among the mental health issues, depression, anxiety and stress related problems are identified as most common due to the prevalence rates worldwide (Gloster et al., 2008; WHO, 2015). Depression is known as the ‘common cold of mental health and it affects about 121 million people worldwide. Usually the symptoms are depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, poor concentration, and in severe cases suicidal ideation (Goldberg and Lecrubier, 1995). It is estimated that by the year 2020, depression will be the second most common cause of disability worldwide (WHO, 2015). Anxiety or having anxious feelings accompanied by tension, worried thoughts and subsequent physical changes, like elevated blood pressure (Shamsuddin et al., 2013) is another common mental health problem presented in mild, moderate and severe levels across all ages as in primary care settings, depression and anxiety are among the most common diagnosable mental health disorders (Shamsuddin et al., 2013). Hence, importance of recognizing and treating depression and anxiety cannot be understated as these conditions can result in a substantial reduction in perceived quality of life. In addition to these two disorders, stress or stress related issues have taken a forefront because even at mild and moderate levels elevated stress levels can interferes with normal life, causing fatigue, inability to concentrate, or irritability (Dyrybe, Thomas and Shanafelt, 2006). When considering the profile of individuals who are more likely to suffer from such mental health issues, the university students or student community has been highlighted in recent findings as a significant group that requires further research and understanding. Especially, the mental health of university students is recognized internationally as an important public health issue (Higuchi et al, 2016; Al Saadi, Addeen, Turk, Abbas and Alkhatib, 2017) and the health of university students has been the subject of increasing focus in recent years in many countries (Bruffaerts et al., 2018). Depression, anxiety and stress can have a detrimental effect on an individual as well as the society. At university level, it can lead to negative outcomes including dropouts, increased suicidal tendency, relationship problems, impaired ability to work effectively, burnout and exacerbate existing physical health problems (Shamsuddin et al., 2013; Dyrybe, Thomas and Shanafelt, 2006; Bruffaerts et al., 2018). At conventional universities, the entrance to the university is when students first start to become responsible for their own life decisions health or otherwise. It has been stated that first-year students especially need to adapt to a new learning environment and cope with academic and social demands of professional training (Uehara, 2010; Bayram, 2008) if they are to succeed at this environment. High academic expectations can be stressful and sometimes pose a risk to students’ physical and mental health (Shamsuddin et al., 2013). The most common psychiatric problems found among students are depression, anxiety and stress related illnesses (Bayram, and Bilgel, 2008).

Previous research studies have indicated high prevalence of depression among new entrants (Song et al., 2008; Wong, Cheung, Chan, Ma and Tanget,
This type of data provides directive to researchers to for conducting studies on psychological wellbeing of undergraduate students, so the outcomes will provide evidence-based data to develop interventions and improve their quality of life at university level (Ibrahim et al., 2013). Among the many studies conducted with university students on their psychological and mental health problems, few studies have examined psychological distress related to medical (Jafari, Nozari, Ahrari and Bagheri, 2017; Rekha, 2012; Liyanage, 2017) and non-medical undergraduates (Kuruppuarachchi, Kuruppuarachchi and Wijerathne, 2002). However, studies that investigate distress using validated psychometric assessments for measuring level of depression, anxiety and stress among undergraduate students are limited in Sri Lankan university system. According to a study that used a validated psychometric scale measuring university students’ emotional distress, it is recommend that without providing results from a confirmatory factor analysis, the validity of use for Asian population cannot be confirmed (Oei, Swang, Gog and Mukhtar, 2013). Hence the need for conducting such research is warranted in this region among university students using psychometric scales.

2. OBJECTIVES

- To assess the levels of depression, anxiety and stress, and associated factors among the undergraduate students.
- determine the association between depression, anxiety and stress with demographic characteristics among undergraduate students.
- To assess the reliability and validity of the Depression, Anxiety and Stress Scale-21 (DASS-21) instrument to measure the level of psychological distress among undergraduate students.
- To provide recommendations and develop a framework to address these issues based on the results.
3. RESEARCH METHODOLOGY

3.1 Study Design

A cross-sectional study measuring levels of depression, anxiety and stress, and associated factors among the undergraduate students was conducted.

3.2 Participants

All participants who were available during the data collection phase from November 2018-February 2019 were approached by the researchers and the sample consisted of students registered at the Open University of Sri Lanka in all five Faculties (Education / Engineering and Technology/ Health Sciences/ Humanities and Social Sciences/ Natural Sciences) studying at nine regional centers (Colombo, Kandy, Matara, Jaffna, Anuradhapura, Badulla, Kurunegala, Rathnapura and Batticaloa).

3.2.1 Inclusion Criteria

- Students who are registered to follow an undergraduate programme in any faculty/regional centers at the Open University of Sri Lanka
- Students registered for undergraduate programmes in their second year of study who have completed one year of study in the university

3.2.2 Exclusion Criteria

- Students pursuing certificate/diploma/master’s degree, or any other higher degrees were excluded.
- Students who register as new entrants to undergraduate programmes at the Open University of Sri Lanka

3.3 Ethical approval

Ethical approval was obtained from the Ethics Review Committee for the Social Sciences and Humanities, Faculty of Arts, University of Colombo (ERCSSH/18/02). Permission was obtained from the Vice Chancellor, The Open University of Sri Lanka to conduct this study in all regional centers. Participants were provided with information sheets and written informed consent was also obtained.

3.4 Material

The study included two questionnaires and the details of these are given below.

3.4.1 Demographic questionnaire

Participants’ socio-demographic characteristics, including age, sex, ethnicity, marital status, employment status and history of illness or taking medicine for psychological illnesses were collected using a questionnaire developed by the researchers.

3.4.2 Depression Anxiety and Stress Scale (DASS-21)

DASS-21 was developed by Lovibond and Lovibond (1995a) by selecting the items from DASS-42 (to reduce the administration time of the scale. This scale was developed to ‘measure emotional distress’ in three dimensions - Depression which includes common symptoms such as loss of self-esteem, low mood, lack of energy; Anxiety arising from the fear of future negative events and Stress identified by the consistent state of over arousal and low tolerance levels with frustrations in life (Lovibond and Lovibond, 1995a) and it has been administered across cultures (Oei, Sawang, Goh and Mukhtar, 2013).

DASS- 21 contains 7 items for each scale and the result of the assessment is multiplied by two for scoring (Lovibond and Lovibond, 1995a). This scale measures symptoms of depression, anxiety, and stress and comprises of three subscales respectively (Lovibond and Lovibond, 1995a). Each item is scored on a 4-point Likert scale and respondents were required to indicate the presence of these symptom(s) over the past week on the scale. The scoring was allocated from 0 to 3 (0: did not apply at all over the last week, 1: applied to some
degree, or some of the time; 2: applied a considerable degree, or a good part of time; 3: applied very much or most of the time). The scores for each sub scale are taken to identify the levels of depression, anxiety and stress as higher scores indicated severe levels and lower scores related to mild levels or not being symptomatic. DASS-21 has previously reached satisfactory reliability and validity levels (Antony et al. 1998; Clara et al., 2001; Crawford and Henry, 2003).

A study performed comparing clinical versus a non-clinical sample using DASS-21 showed Cronbach’s alpha for reliability coefficient value of 0.94 for depression subscale, 0.87 for anxiety subscale and 0.91 for stress subscale (Antony et al., 1998). Henry and Crawford’s study (2005) showed that Cronbach’s alpha reliability coefficient value was 0.88 for depression subscale, it was 0.90 for the stress subscale and it was 0.93 for the entire scale. However, it should be noted that DASS-21 has no ‘direct implications’ to categorize individuals like the Diagnostic Statistical Manual of Mental Disorders (5th ed.; DSM–5; American Psychiatric Association, [APA], 2013) or ICD (World Health Organization [WHO], 2004, 2010) which classifies and provides diagnostic criteria for mental health disorders and diseases. This study used medium of instruction of many courses at OUSL is English, it was deemed suitable to use the English version Since DASS-21 is original English version was used for this study as the, but the researchers also made the DASS-21 Sinhala translation (Aththidiye and Ismail, 2012) available for those requesting it as it has been already validated for University student population.

3.4.3 DASS-21 scale scoring

Subscale scores for depression, anxiety and stress were summed as per the DASS manual and were multiplied by 2 to take final score of DASS-21 (Lovibond and Lovibond, 1995a). DASS scores were then categorized as ‘normal’, ‘mild’, ‘moderate’, ‘severe’ and ‘extremely severe’ as per the DASS manual and participants with normal to mild range were classified as “psychologically normal (Lovibond and Lovibond, 1995a). Those who reported moderate to extremely severe scores were classified as “psychologically distressed”. However, as DASS-21 measures the dimensional quality rather the categorical conception of psychological disorder. Therefore, the results are not considered as equivalent to diagnostic criteria which observes several criteria. The descriptive analysis was conducted to recognize the mean (M) ± and standard deviation (SD) scores. Cronbach’s alpha coefficient was calculated to assess the internal consistency and reliability of the DASS-21 of this study population. Statistical analysis was performed using SPSS Version 22.0 for the Windows.

Confirmatory Factor Analysis (CFA) for DASS-21 was also conducted using IBM SPSS Amos version 24.0. This analysis was used to determine whether English version of DASS-21 was a reliable and valid instrument in measuring level of psychological distress in the sample Sri Lankan undergraduates of this study. Hu and Bentler’s (1999) guideline of goodness of fit indices indicated a good fit between observed data and the target model and this was used for a model evaluation and cutoff criteria. This criterion following Hu and Bentler’s guidelines (1999) are as follows; (a) standardized root mean square residual (SRMR) values close to 0.08 or below, (b) root mean square error of approximation (RMSEA) values close to 0.06 or below, (c) comparative fit index (CFI) values close to 0.90 or greater and (d) Tucker–Lewis index (TLI) values close to 0.90 or greater.
4. RESULTS

Overall, 1096 students completed the questionnaire and provided written consent to participate in the study. Table 1 describes the characteristics of the study sample. The sample contained 322 males (29.4%) and 774 females (70.6%). Majority of the participants were employed (71.7%), unmarried (59.7%), Sinhalese (87.3%), Buddhists (84.8%) and were below 30 years of age (67.6%). Questionnaires were administered in all the regional centers with the limitation that attendance for day schools are not compulsory and timetable schedules are different in each of the five Faculties. The sample consisted of students representing the Faculty of Humanities and Social Sciences (39.0%); Health Sciences (32.9%); Engineering Technology (16.6%) Natural Sciences (10.9%) and Education (0.5%).

Table 1: Demographic characteristics of the participants (N=1096)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-30</td>
<td>741</td>
<td>67.6</td>
</tr>
<tr>
<td>31-40</td>
<td>282</td>
<td>25.7</td>
</tr>
<tr>
<td>41-50</td>
<td>58</td>
<td>5.3</td>
</tr>
<tr>
<td>51-60</td>
<td>15</td>
<td>1.4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>322</td>
<td>29.4</td>
</tr>
<tr>
<td>Female</td>
<td>774</td>
<td>70.6</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>440</td>
<td>40.1</td>
</tr>
<tr>
<td>Unmarried</td>
<td>654</td>
<td>59.7</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinhala</td>
<td>957</td>
<td>87.3</td>
</tr>
<tr>
<td>Tamil</td>
<td>96</td>
<td>8.8</td>
</tr>
<tr>
<td>Muslim</td>
<td>42</td>
<td>3.8</td>
</tr>
<tr>
<td>Other</td>
<td>01</td>
<td>0.1</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddhist</td>
<td>929</td>
<td>84.8</td>
</tr>
<tr>
<td>Hindu</td>
<td>87</td>
<td>7.9</td>
</tr>
<tr>
<td>Christian</td>
<td>38</td>
<td>3.5</td>
</tr>
<tr>
<td>Islam</td>
<td>42</td>
<td>3.8</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>786</td>
<td>71.7</td>
</tr>
<tr>
<td>Unemployed</td>
<td>306</td>
<td>27.9</td>
</tr>
</tbody>
</table>
4.1 DASS-21 Scale analysis

Basic descriptive statistics for DASS-21 scale for the current sample is provided in Table 2.

Table 2: Mean and Standard Deviations for DASS-21 Subscales

<table>
<thead>
<tr>
<th>Sub scale</th>
<th>Mean (SD)*</th>
<th>95% CI for mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Depression</td>
<td>10.72 (7.9)</td>
<td>10.25</td>
</tr>
<tr>
<td>Anxiety</td>
<td>10.24 (7.45)</td>
<td>9.80</td>
</tr>
<tr>
<td>Stress</td>
<td>12.88 (7.83)</td>
<td>12.41</td>
</tr>
</tbody>
</table>

* Range 0-42

The overall mean of the stress subscale indicated a highest mean value (12.88) than depression (10.72) and anxiety (10.24) as the range of scores were minimum of 0 to a maximum of 42. Each sub scale had seven items and the cut-off points given in Table 3 will provide a detailed analysis of the above-mentioned mean values for each scale. When considering the mean values for each subscale (Table-2) with the cut-off scores (Table-3) recommended by the DASS scale manual (Lovibond and Lovibond, 1995a), depression and stress levels of this sample remain within the "psychologically normal" levels as normal to mild level scores are recognized as not symptomatic. However, anxiety levels in the sample have a mean value of 10.24 and this value falls into the 'psychologically distressed' at marginal levels as 10-14 score range for anxiety is labelled as moderate levels of anxiety and those with moderate to extremely severe are identified as 'psychologically distressed'.
Table 3: Recommended cut-off scores for conventional severity labels

<table>
<thead>
<tr>
<th>Severity Levels</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0-9</td>
<td>0-7</td>
<td>0-14</td>
</tr>
<tr>
<td>Mild</td>
<td>10-13</td>
<td>8-9</td>
<td>15-18</td>
</tr>
<tr>
<td>Moderate</td>
<td>14-20</td>
<td>10-14</td>
<td>19-25</td>
</tr>
<tr>
<td>Severe</td>
<td>21-29</td>
<td>15-19</td>
<td>26-33</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>28+</td>
<td>20+</td>
<td>34+</td>
</tr>
</tbody>
</table>

Distribution of participants based on the dimensions of DASS-21 for this sample are shown in Table 4. Depression and stress within the distressed levels in the current sample are much less as its 34% and 20% respectively. However, depending on the cut-off scores for anxiety, exactly half of the study population (50.96%) could be identified at ‘psychologically distressed’ relating to anxiety related emotions they reported while from those distressed most are at moderate levels than severe or extremely severe levels. Since this could be explored through their existing mental health conditions, responses by participants to the question “have you ever suffered from a mental disorder?” the results showed that 22 (7.4%) males and 40 (5.5%) females answered they were suffering from a mental disorder. Furthermore, for the question asking them about taking medication for mental health problems there were 7 males (3.3%); and 9 females (2.0%) who answered that they are taking medicine for mental health problems.

Table 4: Prevalence of psychological distress and distribution of participants based on the DASS-21 scoring criteria

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>717 (65.42%)</td>
<td>537 (49.04%)</td>
<td>873 (79.66%)</td>
</tr>
<tr>
<td>Psychologically Distressed</td>
<td>379 (34.56%)</td>
<td>559 (50.96%)</td>
<td>223 (20.34%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>267 (24.35%)</td>
<td>313 (28.58%)</td>
<td>151 (13.78%)</td>
</tr>
<tr>
<td>Severe</td>
<td>69 (6.29%)</td>
<td>97 (8.86%)</td>
<td>54 (4.92%)</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>43 (3.92%)</td>
<td>149 (13.51%)</td>
<td>18 (1.63%)</td>
</tr>
</tbody>
</table>

4.2 Confirmatory Factor Analysis of DASS-21

Reliability and factor structure of DASS-21 was analyzed and reliability results are shown in Table 5 and 6 respectively, while the CFA diagram shows the factor structure in Figure 1.

Table 5 displays the results for items-internal consistency and reliability. Cronbach’s alpha coefficient for all three subscales were 0.8 indicating acceptable reliability. Furthermore, means of subscales were examined to see the differences between two samples, which indicated applicability issues related to certain groups.
Table 5: Item reliability estimates for DASS subscales

<table>
<thead>
<tr>
<th>Subscales</th>
<th>No of items</th>
<th>Item-consistency</th>
<th>Reliability (Cronbach alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>7</td>
<td>0.64-0.90</td>
<td>0.8</td>
</tr>
<tr>
<td>Anxiety</td>
<td>7</td>
<td>0.57-0.98</td>
<td>0.8</td>
</tr>
<tr>
<td>Stress</td>
<td>7</td>
<td>0.80-1.01</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Table 6: Fit Indices for DASS 3- Factor Scale

<table>
<thead>
<tr>
<th>Factor</th>
<th>CMIN/DF</th>
<th>GFI</th>
<th>NFI</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSE</th>
<th>RMR</th>
<th>SRM</th>
<th>AIC</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4.863</td>
<td>0.880</td>
<td>0.892</td>
<td>0.890</td>
<td>0.912</td>
<td>0.059</td>
<td>0.03</td>
<td>0.05</td>
<td>1036.440</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Figure 1: CFA Model for 3- Factor Model of the DASS

Confirmatory factor analysis (CFA) was conducted and three factors were derived confirming the original factor structure (Figure 1). The exogenous variables indicate depression, anxiety and stress while the endogenous variables are categorized as item 1 to 21. Cronbach alpha for depression was...
0.82 while stress scale achieved 0.80 and anxiety 0.79 as indicated in Table-5 confirming high level of reliability.

Goodness of fit statistics was assessed based on absolute fit test: $X^2$, CMIN/df ratio (4.863); $p$ value (< 0.001); and relative fit tests: GFI (0.88); TLI (8.89); and RMSEA (0.059). The RMSEA similarly suggested that the fitness of the model in question. The value of 0.059 exceeding the figure 0.05 suggested as a cut-off for accepting the model fit. An RMSEA of 0.059 indicated an adequate model fit to the sample, and CFI and TLI did not satisfy the cut-off criteria. The regression weights related with moral value indicators are not significantly vary from zero.

5. DISCUSSION

The results from the current study indicated that levels of emotional distress related to depression and stress are at normal levels for this sample while scores reported for anxiety indicated moderate levels of psychological distress among participants. More than half of the participants were identified with moderate levels of anxiety symptoms although this scale is only a screening tool for identifying and these results should not be taken at diagnostic levels. However, identification of psychological distress with a highly reliable screening tool as DASS-21 should be considered as good opportunities for implementation of prevention and promotion of better mental health and well-being among university students. Since there were students who reported severe to extremely severe psychological distress, although the number is proportionately small, these students need further attention from the relevant authorities at all levels from academic to welfare in all centres of the university.

In previous research (Kuruppuarachchi, Kuruppuarachchi and Wijerathne, 2002; Liyanage, 2017), using Sri Lankan University students, there were many tools that have been widely used but they were not psychometric tools that were validated to the Sri Lankan context. However, most of the standardized instruments are designed to measure and evaluate these disorders separately and DASS-21 due to administrative ease also is unique and given that the three constructs are assessed by one single scale (Talwar et al, 2016). Moreover, this study has shown that DASS-21 seem to be a suitable screening tool for use within tertiary educational settings as confirmed by previous research from other Asian countries (Talwar et al., 2016, Bruffaerts et al., 2018, Chen et al., 2013).

In comparison with psychological distress reported with the use of DASS scale in other countries, a web-based survey that utilized DASS-42 and collected data from nearly eight thousand students studying in their first year in Hong Kong universities showed moderate severity to higher levels of anxiety being most commonly reported (42%) while stress (27%) and depression (21%) were at lower levels compared to anxiety. The current study also showed results to confirm this trend as anxiety symptoms being the most common type of emotional distress to be reported by students in higher education in Asian countries. Since the present study also aimed to investigate the reliability and underlying factor structure of the DASS-21 and to examine its measurement invariance, the analyses that were conducted confirmed its original three factor structure with reliability statistics which further confirmed it. The internal consistency values of the three scales and total scores of the DASS-21 were consistent with those reported by several other studies (Lovibond and Lovibond, 1995a; Henry and Crawford, 2005; Talwar et
On a methodological level, this study has taken a step towards analyzing the data to confirm reliability and factor structure of DASS-21 for a university student population in an Asian country. This addresses the need raised by a previous study (Oei, Swang, Gog and Mukhtar, 2013), as they recommended using CFA to establish the factor structure within an Asian population. The results from the CFA for this study confirmed the original three-factor structure and the RMSEA levels suggested adequate model fit to the sample. Furthermore, similar to previous studies conducted in Sri Lanka with university students, psychological distress has also been indicated by several other studies in Sri Lanka (Kuruppuarachchi, Kuruppuarachchi and Wijerathne, 2002; Liyanage, 2017). Hence, there is a growing need to increase awareness of this issue for prevention level programmes as well as promotion and maintenance of mental health of students at tertiary education setting who can be under extreme distress due to the type of programme they study (e.g. medical, engineering) and to the type of mode they engage in studies (e.g. distant learning).

5.1 Limitations

This study has several limitations. First, as this study was cross-sectional, the relationships found could not be interpreted as causal. Second, response rate was less than 50% of those available for the study at these locations and this was mainly due to the timetable schedules of the five Faculties as some students were not available due to study periods and examinations. Third, as the sample was only a thousand students from the total student population in the university including the regional centres, the results cannot be generalized to the whole sample as it can only be taken as an indication of the psychological distress related to depression, anxiety and stress among this limited sample of students.

5.2 Implications and Future Research

The strength of the present study is that it explored the level of depression, anxiety and stress among undergraduate students in their year two of the degree programmes. This is important as by year 2 of their study programme, they should have adjusted to the life as a student at a distance learning institute and any elevated depression, anxiety or stress levels should have been normalized after their initially heightened emotional distress. It was important to exclude the students at year one of their studies as distant learning introduces many new experiences to adult students as many are not familiar with the system and may not have existing strategies to manage them, even with the support provided by the university. To the best of our knowledge, there has been little, or lack of research published on psychological distress in relation to undergraduate students in the Sri Lankan higher education system using validated psychometric questionnaires and considering the above-mentioned matter. Although this study could be extended to other universities in Sri Lanka, due to the nature of the Open University’s unique identity as a distant learning institute it would better to clarify associations between the different programmes of study and psychological distress of students within this University through an online questionnaire. Despite several limitations, the present study helps to elucidate the level of depression and psychological health which could inform policy and intervention level actions to be taken on mental health within student community in OUSL.
6. CONCLUSIONS

Overall, the results from this study provided evidence to confirm the utility of DASS-21 as a reliable scale to use as a screening tool for symptoms of common mental health issues related to depression, anxiety and stress among Sri Lankan undergraduate students. The study also confirmed the convergent validity of DASS-21 in comparison to previously studied samples of medical and non-medical university undergraduates. Therefore, it is recommended these results could be a prompt to ensure appropriate and timely action plans to be created and implemented by relevant authorities including student associations.

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REVIEW OF THE PREVAILING TRENDS IN ONLINE LEARNING AMIDST THE COVID-19 PANDEMIC: EMPIRICAL STUDY OF THE HIGHER EDUCATION SECTOR IN SRI LANKA

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Keywords:
COVID-19 Pandemic, Online Learning, Learner Engagement, Sri Lanka

Abstract

The purpose of this study is to review the prevailing trends in online learning amidst the Covid-19 pandemic in the higher education sector in Sri Lanka. It has been observed by most of the higher education institutes in Sri Lanka, who replaced traditional pedagogical approaches with online learning, that the learners’ engagements have not been satisfactory in the online platforms irrespective of the fact that so many measures have been taken to develop and expand online learning. Quantitative research approach based on cross-sectional research design was used in the study. Data was collected via electronic survey using a questionnaire and it consisted of multiple choice, likert scale, and open-ended questions. It was distributed via Google form among the private and public sector university undergraduates in Sri Lanka, who are engaged in learning activities in the higher education sector in Sri Lanka. Data was gathered on topics like the demographics, access to technology resources, study habits, living conditions etc. Descriptive statistics were calculated, and parametric tests conducted. Results revealed that many of respondents have prepaid internet subscription and that the majority have used mobile data connection for online login. Challenges existed in their incapability for technological adaptation. Many had environmental challenges to learn from domestic spheres at different geographical locations which did not support frequent online accessibility. This leads to poor communication between educators and learners and their engagement was negatively affected. Development of IT infrastructure and affordable package systems at concessional rates were suggested by many participants. Further, the inclusion of interactive attributes of online learning tools and delivery patterns of lecturers were suggested in order to enhance the quality of online learning.
1. INTRODUCTION

The life is a process of learning from the moment a person is born to the moment he dies. The current world population is 7.8 billion (World Health Organization, 2021). People are learning continuously irrespective of the fact that many unprivileged persons could not attend schools. Learning is a main part of a person’s lifestyle and his/her behaviour is dependent on the knowledge a person possesses. The on-going COVID-19 pandemic has greatly damaged the life style of the people around the world, specially the way they pursue education. “The COVID-19 is a disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), originated in Wuhan city of China, has already taken on pandemic proportions, affecting across all the continents mostly spread among individuals during close contact now resulting in millions of death” (Remuzzi and amp; Remuzzi, 2020, p.1225). The latest updates by the WHO as on 05.02.2021, the total confirmed cases of COVID-19 are 103,631,793 and number of confirmed deaths falls at 2,251,613 (WHO, 2021). The virus has spread around 223 countries, areas or territories with lightning speed. Most of the countries around the world have closed educational institutions to control the spread of the COVID-19 virus, considering the safety of students, educators and all associated stakeholders. There is a severe short-term disruption that has been felt by families across the globe. Education at home has brought a lot of upheavals not only to students but also to their parents’ productivity; hence, Burges and Sievertsen (2020) emphasize that parents have a responsibility to understand the prevailing situation and encourage children to continue their studies. COVID-19 is a serious global pandemic which has penetrated each and every continental in the world at the end of second decades of 21st Century. The novel coronavirus has negatively impacted the social and economic activities of the world. When the COVID-19 pandemic rapidly spread all around the world, schools, colleges and universities have suspended in-person teaching in order to maintain social distancing. Online learning at present has increased students’ retention and ability to grasp information at a faster pace (Li and Lalani, 2020). The Government organizations and technology-led start-ups have introduced online courses. Those are free and some have a very minimal fee; which is helping students and educators to temporarily cope with stress due to lockdown and shutdown of all workspaces. One such is Byju’s, a Bangalore, India–based digital educational platform founded and started by Byju Raveendran, who has announced to give free access to children from its learning app (Lewis, 2020).

As this disease, “COVID-19” is new, the challenges are also new (Shereen et al., 2020). It is very disappointing to hear that gathering and working at one place like offices, shopping malls, colleges, banks will escalate the spread of this virus. WHO has recommended social distancing (Hageman, 2020). Avoiding close contact leads to nearly total closure of schools, shops, colleges, universities etc. All these factors led to a sudden increase in online classes as the only alternative to traditional classes. With more than 25% of the total number of students in higher education receiving instruction online, an ever-increasing online student numbers is projected (Allen and Seaman, 2010).

Learners at online platforms can share their knowledge and experiences with increasing higher order thinking and greater personal satisfaction (Engstrom, et al., 2008). According to Ascough (2007) and Liu et al. (2007), a welcoming teaching and learning community is central to online student knowledge acquisition, which in turn leads to meaningful learning experiences.
During this lockdown era the closing of educational institutions hampered the education system and therefore the teaching-learning methods. Understanding the novel trends in teaching-learning methods amidst this crisis is imperative. The academics should be creative with effective interventions to ensure the smooth running of teaching and learning platforms. Therefore, the aims of this study are to look at the trends in online education, patterns of students’ engagement, students learning interest and enthusiasm towards online forums and classroom community in on-line courses conducted in the higher educational sector in Sri Lanka. The outcomes of this study resulting in comprehending of online trends may enable and strengthen scholars, learners and relevant stakeholders.

2. LITERATURE REVIEW

2.1 Beginning of E-Learning or Online Learning in Higher Education

Internet revolution has made online learning as an alternative option to face-to-face learning. As a form of distance education, online learning can be defined as “any class that offers its entire curriculum in the online course delivery mode, thereby allowing students to participate regardless of geographic location, independent of time and place” (Richardson and Swan, 2003, p. 69). Most, if not all, aspects of a course, including discussions, assignment submission, and communication with the instructor, tends to be facilitated through online course management platforms such as Moodle, Blackboard, Web board, and supplemental communication technologies such as Elluminate, Skype, and others. Given this context, online courses are different from their on-campus counterparts in several aspects (Muilenburg and Berge, 2005).

The internet has become a medium of delivery for online teaching. To date, online learning has received considerable attention as a means of providing alternatives to traditional face-to-face, instructor-led education (Douglas and Van Der Vyver, 2004). Educational institutions now implement online learning technologies as a part of their growth strategy for delivery of teaching and learning to domestic and overseas students. Goodfellow (2004) describes the “e-learning revolution”, as “an inexorable process of penetration of technical processes into all aspects of course development, production, delivery, quality assurance, assessment, validation etc.” “As these technologies pervade educational organisations, there is a critical factor in the process which is reshaping and transforming higher education teaching and learning, impinging on both organizational structures and individual functions” (Conole, 2004, p. 5).

2.2 E-learning in Sri Lanka

Sri Lanka is a country in the developing world with a high level of print and digital literacy. According to the Department of Census and Statistics, the digital literacy rate of Sri Lanka is 46% in 2019 (DCSSL, 2019). The Central Bank of Sri Lanka states that the country’s print literacy as 92.5% in 2018 (CBSL, 2020). Human capital of ICT has potential itself to gain benefits from the emerging global knowledge. Primary and secondary schools are free and accessible for all, but far from everyone leaves secondary schools with career opportunities. When it comes to higher education the situation is different and the actual intake to tertiary education for the year 2018/2019 was 31,902 while the number of students left out of the university system was 29,841 in 2019 (From the Open University of Sri Lanka 6,795, external degrees in Government
universities 6007 and internal degrees in Government universities 17039) (UGCSL, 2019). During the last two decades the country’s use of information and communications technology (ICT) has increased and the infrastructure has improved not only in the urban areas but also in rural areas. There are many reasons to pursue online teaching, learning, and student assessment. Online courses make learning accessible to students who cannot be on campus during regular hours or at all (Lei and Gupta, 2010). Instructors can use online courses to accommodate increasing class sizes and reduce the associated high instructor workload (Earl, 2013). These assessments can be completely online (such as online exams) or just require online submission (such as essays). Assessments can be either formative, designed to monitor students’ progress in a low or no stakes environment, or summative, designed to evaluate students against a standard or criteria (Dixon and Worrall, 2016).

2.3 Personalized Learning

Personalised learning involves extending the educational concepts of differentiation (teaching tailored to the learning preferences of different learners) and individualisation (teaching paced to the learning needs of different learners) to connect to the learner’s interest and experiences and meet the needs, abilities and interests of every student through tailoring curriculum and learning activities to the individual. The ultimate aim of a personalised learning environment is to create an educational system that responds directly to the diverse needs of individuals rather than imposing a ‘one size fits all’ model on students (Bates, 2014).

Personalisation of a learning environment allows for a personal learning experience as it allows the learner to access content that meets his needs (Childress and Benson, 2014). In a traditional classroom setting, such personalisation is not possible. Thus, the personal learning environment is a radical shift from traditional learning, providing learners with content adapted to meet their needs (Childress and Benson, 2014).

2.4 Artificial Intelligence (AI) in Education

From the very beginning of computer science, researchers like Alan Turing considered the possibility for a computer to play chess, as a test of the machine’s intelligence. Thus, he published “Intelligent Machinery” in 1948 and “Computing Machinery and Intelligence” in 1950, both of which will inspire future scientific research in Artificial Intelligence AI (Turing, 2009). Literally, AI means the use of technological devices aimed at reproducing the cognitive abilities of humans to achieve objectives autonomously, taking into account any constraints that may be encountered (Benko and Lanyi, 2009). Artificial intelligence (AI), in which machines exhibit aspects of human intelligence (Syam and Sharma, 2018), is set to radically transform the marketplace. It is part of the fourth industrial revolution, along with other transformative technology such as three-dimensional printing and the internet of things (i.e. extending connectivity into devices such as security systems and electric appliances to provide the ability to send and receive information over the internet). The potential for disruption by AI is particularly high in services.

AI support of online learning is especially important with the growth of Massive Open Online Courses (MOOCs), where enrolment in the most popular MOOC platforms averages over 40,000 students (Ferenstein, 2014).
2.5 Virtual Reality (VR) in Education

VR is an interactive experience within a computer-generated three-dimensional environment that can be a representation of either a real-life or an imaginary environment (Freina and Ott, 2015; Ke et al., 2016). The term “virtual” means computer-generated, while the term “reality” refers to the similarity of objects or of the environment to the physical world (Cheng, 2014).

Another significant advantage of VR technology is that it allows the creation of virtual worlds that mimic real-life situations and events, not otherwise possible to simulate, offering users a safe space with room for error to be trained and learn. For instance, simulating in physical space fire situations, earthquakes or terrorist attacks is impossible due to the high danger and cost (Bailenson et al., 2008; Freina and Ott, 2015). However, using VR technology, it is possible to offer the opportunity to develop a virtual world that represents real-life events, allowing fire-fighters or terrorism response units to be trained in dealing with chaotic crisis within a safe yet stressful environment (Bailenson et al., 2008; Freina and Ott, 2015). Most importantly VR offers the possibility of visualizing events and situations, allowing the users to step inside the event or situation and examine it from different perspectives, maximizing in-depth understanding of the conceptual framework (Marks et al., 2017). VR technology not only allows to make the unseen visible (Marks et al., 2017) but also makes possible to overcome the restrictions of time and physics and be transferred for instance to the past experiencing historical eras such as the world wars (Eschenbrenner et al., 2008). An important aspect of using VR-based training systems is the fact that knowledge acquired within a VI can be applied to the real context but also the opposite (Huang et al., 2013).

2.6 Internet of Things (IoT) in Education

The Internet of Things (IoT) “is not a single technology; rather it is an agglomeration of various technologies that work together in tandem” (Sethi and Sarangi, 2017, p. 1). Mitew (2014, p.5) clarifies the parameters in more detail. IoT stands for the connection of usually trivial material objects to the internet – ranging from tooth brushes to shoes or umbrellas. At the very least, this connectivity allows things to broadcast sensory data remotely, in the process augmenting material settings with ambient data capture and processing capabilities. Once connected, each thing acquires a network address making it uniquely identifiable. The object usually has some sort of layered sensing capacity allowing it to dynamically register changes to its environment and transmit that information over the internet.

Digital technologies such as multimedia projectors, interactive smart boards, and content management had already revolutionized teaching and learning systems. Content management tool, a centralized software application, which provide course creation, delivery, management, tracking, reporting, and assessment, made reality of distance education and online courses. Educational systems embracing learning environment methods rather than focusing only on the learning content, in a peer-learning environment is quite important (Kamar and Ali, 2017).

Abbasy and Quesada (2017) says IoT is transforming traditional education system into a scalable, adaptable with rapid dynamic changes, flexible and more efficient e-learning with a topology where the huge number of physical and virtual interacting objects are involved in the process of learning. Making IoT in learnings systems would open up new pathways to proffer effective learning. It helps to create energy-efficient and cost-efficient education system through automation of common tasks outside of
the actual education process. The influence of IoT can be seen in many aspects of education from student engagement in learning and content creation, helping teachers in providing personalized content and improve student outcomes (Wellings and Levine, 2009).

## 2.7 Opportunities in Online Learning

Online media can ensure multiple benefits for both students and teachers in supporting teaching and learning (Graham and Misanchuk, 2004). Different studies reveal that online courses have been found to be conducive to students who favour self-regulated learning (You and Kang, 2014). In a study conducted by Kirtman, a student responded to online coursework by stating, "It is more self-guided so I can spend more time on the concepts that I need help with and less on concepts that I can pick up quickly" (Kirtman, 2009, p. 110). Self-regulated learners have a tendency to use various "cognitive and metacognitive strategies to accomplish their learning goal" (You and Kang, 2014, p. 126).

Another benefit of e-learning is reduced off-task behaviours of students. Cooney (1998) and others (Bonk, Hansen, Grabner-Hagen, Lazar, and Mirabelli, 1998) discovered that students in computer conferencing environments stay on task more than 90% of the time. Students in these studies were so task driven that they often failed to interact beyond basic task requirements. To nurture student interpersonal skills and knowledge, therefore, instructors might consider using tools that foster socially related interactions, such as coffee houses and icebreaking activities. In contrast to the above asynchronous learning studies, a recent study of student synchronous training in the military found that students were off-task about 30% of the time (Orvis et al., 2002). These findings, in fact, approximated what had been the norms of face-to-face training.

## 2.8 Challenges in Online Education

Online learning process has many challenges coming from internal and external factor of the user. These challenges will have negative impact on learners expected outcome or quality of engagement. With COVID-19 pandemic, it has become clearer that education system is susceptible to external dangers (Bozkurt and Sharma, 2020). Ribeiro (2020) rightly noted that this digital transformation of instructional delivery came with several logistical challenges and attitudinal modifications.

Inequality in the socio-economic status of students, some rely on the computer and free internet in school (Demirbilek, 2014), and due to the closure of schools, the migration process of these set of students is expected to be slow. It becomes undeniable that students with low socioeconomic background will definitely find it difficult to migrate as early as expected since they cannot come to school due to the pandemic. Fishbane and Tomer (2020)’s research findings on what students with no internet access are to do during this Covid-19 pandemic show that as the level of poverty increases in the community, the rate of internet accessibilities declined rapidly and by implications, students with no or low socio-economic power to afford broadband connection are most vulnerable to fall behind or encounter additional challenges to meet up with others in online learning.
3. RESEARCH METHODOLOGY

3.1 Population and Sample Design

This research adopted quantitative method. Quantitative methods include the techniques associated with the gathering, analysis, interpretation, and presentation of numerical information (Johnson and Turner 2003). According to Saunders et al (2014), the target population is the full set of cases taken into consideration from the total population. The present study focuses on learners who are engaging in certificate courses, diplomas, undergraduate and postgraduate of higher educational institutes in Sri Lanka. When the sample size is high, its representativeness will be higher hence would be able to expect reliable results (Saunders et al., 2009). The sample size of this study is 429 respondents.

3.2 Research Instruments and Data Analysis

In this study primary data was collected for addressing the problem of lower engagement to academic programs via online. The secondary data was collected for purposes other than the problem at hand. The primary data gathered by using a self-administrated questionnaire. The data was gathered during the months of November 2020 amidst in COVID-19 second wave in Sri Lanka. Questionnaire was distributed via Google Form covering nine (09) provinces in Sri Lanka and the questionnaire consists of multiple-choice, Likert scale and open-ended questions related to the prevailing trends in online learning in Sri Lanka. The data collected from questionnaire were analyzed and evaluated with the descriptive statistical analysis covering frequencies, mean, range, and percentages by Statistical Package for Social Sciences (SPSS-25) and Microsoft Excel. In addition, tables, charts and graphs were used to demonstrate the observation for the purpose of interpretation.

4. RESULTS AND DATA ANALYSIS

The observations were mainly presented as tables, figures and exhibits enabling reader to covert textual materials into tabular or pictorial form. Attempts were made to design and integrate graphic aids into research report to enhance readers' comprehension and figure out trends in online learning at present.

4.1 Demographic characteristics of the respondents

Participants for this research study were taken from higher educational institutes in Sri Lanka. Majority of them are undergraduates representing 83.9% out of total respondents (Table 1). The second highest percentage of 5.6% of As depicted in the above Table 1, 81.6% of the sample was in the age range between 20 and 29, out of 429 respondents. The second highest percentage 15.2% of respondents was in the age range between 30 and 39. The total responses received from the individuals above 40 years were 14, marking a percentage of 3.2%. In the respondents are students of Master Degrees Programs. There were four age categories of the respondents who are between the ages of 20-29, 30-39, 40-49 and 50 above.

sample, gender distribution among female and male was 70.4% and 29.6% respectively. This indicated that more than two third of the respondents were females. Seventy-six percentage of (76%) unmarried individuals was observed with regard to the marital status, 15.8% of the sample was married and 8.2% had children. Out of
429 respondents 75.8% were Sinhalese, Tamil and Muslim representation was 17% and 7.2% respectively. A significant gap was depicted between degree programs and the other educational programs regarding the sample’s online engagement. A frequency of 360 individuals who followed undergraduate degree programs was observed, with an indication of 83.9%. A total of 38 respondents (8.9%) were enrolled in certificate, diploma and higher diploma programs. 31 (7.0%) respondents were following postgraduate study programs such as Post Graduate Diploma, Masters and PhD.

Table 1: Profile of Demographic Factors

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Marital Status</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>350</td>
<td>81.6</td>
<td>Single</td>
<td>326</td>
<td>76.0</td>
</tr>
<tr>
<td>30-39</td>
<td>65</td>
<td>15.2</td>
<td>Married</td>
<td>68</td>
<td>15.8</td>
</tr>
<tr>
<td>40-49</td>
<td>11</td>
<td>2.6</td>
<td>Married and having kids</td>
<td>35</td>
<td>8.2</td>
</tr>
<tr>
<td>&gt;50</td>
<td>3</td>
<td>0.7</td>
<td>Total</td>
<td>429</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>429</td>
<td>100%</td>
<td></td>
<td>429</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>302</th>
<th>70.4</th>
<th>Certificate</th>
<th>09</th>
<th>2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>127</td>
<td>29.6</td>
<td>Diploma</td>
<td>09</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>429</td>
<td>100%</td>
<td>Higher Diploma</td>
<td>20</td>
<td>4.7</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Sinhalese</td>
<td>325</td>
<td>75.8</td>
<td>Postgraduate</td>
<td>06</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Tamil</td>
<td>73</td>
<td>17.0</td>
<td>Masters</td>
<td>24</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Muslim</td>
<td>31</td>
<td>7.2</td>
<td>PhD</td>
<td>01</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>Total</td>
<td>429</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Empirical Data

4.2 Assessment of adoption of technology

Based on the gathered data, majority containing 56.2% of the sample stated the ownership of a single device. Respondents who mentioned the ownership of two devices were denoted 39.6%. Three or more devices were owned by percentages of 2.6% and 1.6% respectively. Amongst the participants, a greater part 71.3% marked the possession of mobile phones while only 8.9% possess desktops. 52.9% of the aforementioned sample stated the utilization of laptops used in online sessions. Tablets were considered as the least preferred appliance as the usage of tablets was 1.9%.
Table 2: Assessment of adoption of technology

<table>
<thead>
<tr>
<th>Device Ownership</th>
<th>Frequency</th>
<th>Percentage %</th>
<th>Devices Used in Online Sessions</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>One device</td>
<td>241</td>
<td>56.2</td>
<td>Desktop</td>
<td>38</td>
<td>8.9</td>
</tr>
<tr>
<td>Two devices</td>
<td>170</td>
<td>39.6</td>
<td>Laptop</td>
<td>227</td>
<td>52.9</td>
</tr>
<tr>
<td>Three devices</td>
<td>11</td>
<td>2.6</td>
<td>Mobile</td>
<td>306</td>
<td>71.3</td>
</tr>
<tr>
<td>More than three devices</td>
<td>7</td>
<td>1.6</td>
<td>Tablet</td>
<td>8</td>
<td>1.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequently Used O.S.</th>
<th>Frequency</th>
<th>Percentage %</th>
<th>Frequently Used Browser</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 10</td>
<td>217</td>
<td>50.6</td>
<td>Google Chrome</td>
<td>401</td>
<td>93.5</td>
</tr>
<tr>
<td>Windows 8</td>
<td>36</td>
<td>8.4</td>
<td>Safari</td>
<td>32</td>
<td>7.5</td>
</tr>
<tr>
<td>Windows 7</td>
<td>32</td>
<td>7.5</td>
<td>Internet Explorer</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Android</td>
<td>209</td>
<td>48.7</td>
<td>Firefox</td>
<td>25</td>
<td>5.8</td>
</tr>
<tr>
<td>iOS</td>
<td>54</td>
<td>12.6</td>
<td>Opera</td>
<td>18</td>
<td>4.2</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1.2</td>
<td>Other</td>
<td>23</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: Empirical Data

Among the Windows users, the most prominent operating system was Windows 10 (50.6%) and Windows 7 and 8 were utilized by only 7.5% and 8.4% sequentially. Android as an operating system was utilized by 48.7% of the sample and iOS was used by only 12.6% of the respondents. The least of 1.2% mentioned several other operating systems used during their online sessions. The most renowned web browser was Google Chrome with more than 400 responses (93.5%) while all other browsers were preferred by less than 10% respondents. For instance, Safari, Internet Explorer, Firefox, Opera and other browsers were marked by 7.5%, 7%, 5.8%, 4.2% and 5.4% sequentially.

4.3 Online Trends Amidst in Covid 19 Pandemic

4.3.1 Nature of Online Engagement of learners

The nature of online engagement of learners has been changed after COVID-19 pandemic. This may be simply because of the concept of social distance applied by the country where higher educational institutes initiated online academic programs. See Figure 1.
This Figure 1 evidences the fact that, number of online learning hours have been clearly increased after the pandemic. There is a clear increase from 0-2 hours of engagement per day before COVID-19 pandemic and it has lifted into higher range of hours used for different online activities. Majority of the learners have used 2-4 hours per day for their studies and other online activities. 10% of the learners have used 8-10 hours where 7.69% had engaged more than 10 hours for online activities.

According to the Telecommunications regulatory commission of Sri Lanka (TRCSL) Sri Lanka has a very vibrant telecommunication sector with around 32.5 million mobile subscribers, 2.5 million fixed subscriber and 7.2 million broadband subscribers by 2018 end (TRCSL, 2018). There are five main broadband service providers in Sri Lanka (Figure 2). They are Sri Lanka Telecom PLC, Mobitel (Pvt) Ltd, which is a fully wholly owned subsidiary of Sri Lanka Telecom, Dialog Axiata PLC, CK Hutchison Holding Limited, and Bharti Airtel Limited.

These telecommunication companies play a crucial role in providing their services. The respondents of this study had demonstrated their preferences of each above services providers as follows. See figure.2 below. Majority of the learners have used Dialog service packages as a whole it is 44%. The second highest service provider is Mobitel and it occupy 27%. The third highest is the Sri Lanka Telecom (SLT) it records 21%. It is recorded that many users get services of multiple service providers.

Majority of 73.3% respondents use one method of following to get access to online: through the Prepaid Mobile Data, Post Paid Mobile Data, Public Wi-Fi, Office Network, and Wi-Fi access through broad brand Connections. However, out of them, the rate of using prepaid mobile data account for 43.8%, Wi-Fi access through broad brand Connection account for 23.1%, and use of post-paid account for 7.2%. Other methods of access were insignificant.

The summary of the respondents’ statistics as per the Table 3 explained that 83.4% of the highest respondents were accessing only from home and proves that home is the most secured zone to access for online learning. A significantly higher rate of 96.7% accessed their academic activities from home and other places which are flexible for them such as work places or free Wi-Fi Zone. Total preference of access for online activities at the workplace was shown by 15.8% of the sample. However, it should be noted that 13.3% of respondents access their online activities by preferring to
the two locations of both at home and at the workplace. Furthermore, it also validated that out of the other access preference (at work places, free Wi-Fi Zone, boarding place, main campus) the undergraduates had responded 86.5%, diploma students of 84.6%, Advanced level respondents 80.2% have highly preferred access at home for their online studies.

Figure 2: Broadband usage (Source: Empirical Evidences)

Table 3: Accessibility to Online Activities (Source: Empirical Data)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>At home</td>
<td>358</td>
<td>83.4</td>
</tr>
<tr>
<td>At home, At work place</td>
<td>54</td>
<td>12.6</td>
</tr>
<tr>
<td>At home, At work place, Free Wi-Fi Zone</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>At home, Free Wi-Fi Zone</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>At work place</td>
<td>12</td>
<td>2.8</td>
</tr>
<tr>
<td>At work place, In the main campus or higher educational institute you attached</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Boarding place</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>429</td>
<td>100</td>
</tr>
</tbody>
</table>

4.3.2 The purposes of using online services

The analysis of online usage of the respondents revealed multiple preferences. Those are reflected in the following Figure.3. In order to maintain the social distance during the COVID–19 pandemic, people were encouraged to do more online activities and services. The COVID–19 pandemic has created opportunities for work from home, online studies, online shopping, banking etc. This study has examined how the pandemic has changed the way of individuals’ use of e-commerce and digital solutions.
According to this study, 76.6% of individuals had used the online services to their learning and knowledge development. The second largest of 48.3% had used online services for gaining knowledge around the world. The third largest preferences of 43.3% respondents had used online banking services.

4.3.3 The Daily Logins

The following statistics show the internet users in Sri Lanka who access selected social networks during the COVID-19 pandemic. Facebook, Twitter and YouTube Videos allow users to post and share their images online and directly engage with their followers on the social network (Figure 4).

![Graph showing daily logins](Image)

**Figure 4: Daily logins (Source: Empirical Data)**
The highest usage of the respondents 68.9% had used YouTube videos and 66.9% of the respondents had utilized Facebook as their daily logins. Instagram is a photo sharing social networking services that facilitates the users to share and edit photos and videos. Further, social websites such as Instagram has been preferred by 27.9% respondents, whereas LinkedIn has been used by 12.2% of respondents. WhatsApp is an instant messaging services and unique app for the users. Following these, Twitter has been used by 4.5% and WhatsApp has been used by approximately 3.0% of the respondents. Other than the above, a few daily logins such as BBC and CNN News were occupied by 9.5% respondents. Other News web sites as Reuters, Google News, News Link and Radio Station World have been view by 19.7%. The TED Talks has been viewed by 3.4%.

4.4 The Trends in Video Conferencing

Web conferencing software is allowed to the participants to attend audio and video meetings (Figure 5). It enables the participants to share files, screen sharing, instant messaging and video conferencing. Figure 5 demonstrates the percentages of the most popular video conferencing tools that used in online education during COVID -19 outbreaks. It is clear from the chart that many scholars tend to use different types of video conferencing tools to engage in online education. The highest percentage 94.70% was recorded as usage of Zoom Meetings. There is a considerable increase 23.80% in WhatsApp and 15.30% in YouTube respectively. Moreover, trends of using some other web conferencing software were as follows. Team Viewer and Google Hangout 1.8%, Skype 2.3%, Google Meet and Google Classroom 4.6%, LMS/Moodle 8.5%, Microsoft Teams 15.8%. It is evident that, the usage of above were significantly lower than usage of Zoom Meetings.

![Figure 5: The Trends in Video Conferencing (Source: Empirical Data)](image-url)
4.5 The Utilization of Online Resources and Portals in E-Learning

Online resources and E-portals offer a profound platform for online learning. Learning resource portals are gateways to so many online resources available across the world (Figure 6). It offers materials and links for the resources in terms of training and learning. Accordingly, the online resources and portals including twelve major categories which are suitable for learners’ requirement of E-learning were identified. The Google 82.4% is the largest segment and Zoom, Moodle, Books, Pluralsight; Emerald, Insight, Microsoft Teams, Neptal and Cousera 1.6% are the smallest segments that were using as online resources and portals for Online Learning. Nevertheless, YouTube Channel accounted for 25% of online resources and portals matching for learners’ requirement of Online Learning and experienced more than a third. The Spoken Tutorial, Microsoft and Udemy indicated 6.0%, 6.0%, and 2.0% respectively.

![Figure 6: The utilization of online resources and portals in E-Learning (Source: Empirical Data)](image)

4.6 The Interest of Online Learning as compared to Classroom Learning

The graph demonstrates the percentages of how learners feel online learning as compared to classroom learning during the COVID-19 outbreak period. Overall, the learners are interest towards online education comparatively classroom-based teaching (Figure 7). However, the importance of online learning can be seen some significant differences.

The highest proportion of learners (50.60%) preferred the effective use of personal time and the smallest proportion of learners (14.20%) preferred the ability to enhance learner engagement. The percentages of learners who responded as capable to manage social distance was 47.40%, ability to enjoy place flexibility was 34.9%, relatively low cost on specific expenditure was 22.70%, and improve virtual communication and collaboration was 22%. In general, these statistics demonstrates that during the period of COVID-19 period the learners have a preference of using online learning comparative to the classroom-based teaching.
4.7 Advantages of Online Learning

The most significant advantage highlighted by the respondents was flexible time management in online learning which is recorded as 65.1% preferences. The second preferred advantage was comfortable at home while learning online, which account for 54.4%. The third advantage is recognized as low cost of online learning which is stated as 29.3%.

Ability to access learning management systems (LMS) has been preferred by 24.9% of the respondents while easy access to related information was stated as 24.5%. Further, the other advantages highlighted by respondents were quick self-assessment, group learning and personal guidance which accounted for 18.1%, 17.0% and 11.6% respectively.

Figure 8: Advantages of Online Learning (Source: Empirical Data)
The main difficulties that respondents encountered in online learning were domestic barriers which represent 23.3% (Table 4). The second highest barriers accounting for 12.4% is the financial constraints for Internet connection. The third significant issue referred as 9.8% of the respondents is problems related to the content of the course. Further, lack of self-motivation and lack of technical skills account for 8.6% and 8.2% respectively. However, there were some other barriers also taken together which account for 22%.

**Table 4:** Online difficulties faced by online participants *(Source: Empirical Data)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic barriers</td>
<td>100</td>
<td>23.3</td>
</tr>
<tr>
<td>Domestic barriers, Financial constraints for Internet connection</td>
<td>11</td>
<td>2.6</td>
</tr>
<tr>
<td>Domestic barriers, Institutional Problems</td>
<td>11</td>
<td>2.6</td>
</tr>
<tr>
<td>Domestic barriers, Lack of self-motivation</td>
<td>14</td>
<td>3.3</td>
</tr>
<tr>
<td>Financial constraints for Internet connection</td>
<td>53</td>
<td>12.4</td>
</tr>
<tr>
<td>Institutional Problems</td>
<td>19</td>
<td>4.4</td>
</tr>
<tr>
<td>Lack of self-motivation</td>
<td>37</td>
<td>8.6</td>
</tr>
<tr>
<td>Lack of technical skills</td>
<td>35</td>
<td>8.2</td>
</tr>
<tr>
<td>Lack of technical skills, Financial constraints for Internet connection</td>
<td>12</td>
<td>2.8</td>
</tr>
<tr>
<td>Problems related to the content of the course</td>
<td>42</td>
<td>9.8</td>
</tr>
<tr>
<td>Other barriers</td>
<td>95</td>
<td>22</td>
</tr>
</tbody>
</table>

### 4.8 Purpose of making online payments

The learners’ behaviour of online payments demonstrates many insights. In order to observe the patterns of this an important question was raised related to purpose of online payments (Figure 9). The highest preference of 51.7% has been marked for purchase goods from online. The second highest of 50.6% was account for pay monthly bills via online banking. The third purpose of online payments was related to transfer of funds which stated 34.7%. The subsequent main purposes were online payment course fees, hotel reservation and share purchase or online trading which accounted for 32.4%, 10.9% and 7.3% respectively.
4.9 The most preferred Online Bank

The Bank of Ceylon (BOC) is the most preferred online bank occupying 28.8%. It is one of the well-established public bank in Sri Lanka (Figure 10). The second preferred online bank was Commercial Bank which stated 21.5% of preferences. The third placed is occupied by the Peoples Bank which stated 18.6% of preferences. The other three banks which offer online banking facilities are Sampath bank, Hatton National Bank (HNB) and National Saving Bank (NSB) which accounted for 17.0%, 9.8% and 5.9%.
5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

Educational institutes in Sri Lanka have taken measures to implement online lecturing replacing traditional classroom-based pedagogical approaches. Therefore, learners of the respective higher educational institutes are now using online learning to a certain extent. However, the expected levels of quality of engagement as well as the absorption of expected learning outcomes are still doubtful because a majority of learners did not have previous experience of online learning pedagogy. Four hundred twenty-nine (429) learners participated in this study and 83.9% of them are undergraduates. Majority of the learners 71.3% are using mobile phones for online login. This reflects that, even though mobile phone is not the standard login device, learners have no option to use a computer. Further, mobile phone is not an appropriate equipment for online learning, simply because it's display is relatively small and hence learners may encounter issues. Apart from that interactivity of learners through the mobile login is very low.

The most interesting fact is that the number of online learning login hours have tremendously increased after COVID-19 pandemic. This is evident of the fact that learners have got accustomed to online learning. Out of the total respondents, approximately 39% (166) learners' login 2-4 hours per day and approximately 8% learners (33) spent more than 10 hours per day. However, more login hours do not itself reflect quality of learning. Sometimes learners may spend time inefficiently in the internet as they are unable to go out of the home during the COVID-19 pandemic.

According to the Figure 2, broadband usage, the highest preferences of 44% has given to Dialog Axiata PLC by the respondents. It may be the reason that, Dialog Axiata PLC has different and flexible broadband packages. The second highest of 27% is preference to Mobitel (Pvt) Ltd. and the third is 21% of preference to Sri Lanka Telecom PLC. The SLT is the parent company and Mobitel (Pvt) Ltd. is fully owned subsidiary of SLT, and considering both together, it has shown the highest preferences (48%) from the respondents in relation to the broadband services preferred. These two companies together have offered diversified packages in order to cater to the online requirements of the customers.

According to Table 3, accessibility of online activities 96.7% is from home. This demonstrates that learners have been restricted their movement into their homes during the pandemic period. Further, this may help learners to join their academic activities online with a free mindset. Figure 3 is further evident on this matter as 76.6% of learners have stated that they use online services for learning and knowledge gaining and 48.3% log in with the purpose gaining knowledge around the world. This may be due to the reason that the internet provides ample opportunities for information retrieval all around the world. Interestingly 25.4% of learners attempted to find jobs though online sources. Apart from that, online shopping trend is 36.7%. This gives clear evidence that social distancing has been maintained by respondents while looking for learning and other opportunities.

Figure 4 demonstrates the daily logins, where 68.9% of YouTube viewers were the highest preference online login. This may be due to the reason that video-based learning is a latest trend of self-learning. Many institutes as well as individual academics have uploaded video-based lessons into YouTube and those are freely available for any viewers. This trend has won the heart of many YouTube viewers. Facebook is the second largest occupying 66.9% of preferences by the respondents. Facebook is freely available for any
person irrespective of their differences of professions or personal backgrounds. Many of them excel their pictorial reflections to their family relations, peers, communities and business stakeholders. Instagram occupied 27.9% of the preferences by the learners. Instagram is one of the latest trends among professional communities to share information.

Figure 5 shows the trends in video conferencing. The Zoom is the winner among all the video conferencing tools at present taking place, with 94.8% highest preferences. WhatsApp is the second highest gaining 23.6% of the preferences and Microsoft Teams is the third highest, gaining 15.6% preferences. WhatsApp has been ranked as a good video conferencing tool among learners at present because of it is simply operations and ability to communicate images, audios and videos easily. Microsoft Teams is being used among many institutions to conduct webinars and online lectures at present.

5.2 Conclusions

The analysis clearly demonstrates the fact that the number of participants’ engagement in online platforms has been increased. However, digital illiteracy may lead to technical difficulties. In order to overcome technical difficulties following remedial actions are suggested. These includes using video recording, video-based guidelines, creation of group of students, (Eg. WhatsApp groups) for easy communication for common guidelines and guidelines via virtual teacher or pre-recorded videos. The main device of online learning was the smart phone, even though smart phone may not be ideal for that purpose. Online learning from smart phone may be distracted from incoming calls, limited space for visualization and difficulties in interactivity with the lecturer and peers, and difficult for immediate responses. However, learners can enjoy location flexibility or place flexibility with smart phones. As 63.6% of learners had used prepaid mobile data for online access, it is evident that the learners are concerned about the cost of online learning. Further, very limited access via public Wi-Fi was observed. Hence concessionary data packages and strengths of public Wi-Fi should be increased by authorities.

The major challenge of online learning was observed as domestic barriers, as 43.3% of learners had mentioned that they undergo domestic barriers. Limited space at home, sudden intrusion of people and pets, background sound and interruptions, login problems, issues with installation of software, problems with audio and video are some of the common barriers which learners encounter at home. However, possible...
The arrangement of a separate room or convenience place at home with minimum background interruption may help effective online learning. Further, enabling learners to watch and listen to recorded lectures at a later time, scheduling lectures at late evening and provision of video-based technical assistance will immensely help. The second main barrier faced by learners is the cost of online learning. This mainly covers the online variable cost on service bills. However, if learners had to spend a fixed cost on acquisition of computers, mobile phones etc. the cost of finance will be further escalated.

The Government of Sri Lanka, and the five main internet service providers in Sri Lanka should intervene here to offer concessionary online packages and affordable data charges. Even education service providers like universities and higher educational institutes should offer favorable financial assistance and IT infrastructure to their learners. Majority of (76.60%) online learners' purpose is learning and knowledge enhancement. However, they seem to be unknown of free web sources, which may lead to wasting of time and unnecessary hanging on with less effective web sources. Educational institutions around the world has uploaded many free educational sources. These are readily available on the internet. (E.g. are Byjus.com/ Aptuslearn.in/ udemy.com/coursera.org/swayam.gov.in / Zoom class room/Google classroom/guruq.in /khanacademy.org etc.) Further, online educational applications are available for mobile phones also, which can be used for release of stress and improve individual skills like, language, mathematics and ICT. Apart from that, online scheduling, time management etc. can easily be done through the sources like Google, but it appeared that learners may not use them effectively. When it comes to online lecturers like zoom meetings, as it is the main online communication forum at present, students' lack of technical know-how may be appeared. Therefore, instructions of online attendance are very useful. In addition, creating a collaborative and an interactive learning environment by the lecturers is an essential ingredient to motivate the learners. Online payment ability is one of the most important elements observed in this study. The learners have demonstrated their skills on the online payments especially during the COVID 19 pandemic. Majority of learners, 51.70% had used online banking facility to purchase consumable items and 50.6% of them had paid their monthly utility bills. However, only 32.40% of learners had made online payment of their course fees. This trend is very significant as social distance is very important during the pandemic situation and human interaction can be largely limited via online banking system. But certain challenges should be addressed as online payment cannot be reversed easily. Therefore, demonstration videos and simple guidelines may play a key role in educating the users.

5.3 Recommendations

The learners have clearly stated why they preferred online learning amidst COVID-19 pandemic. These findings pave the way for recommendations. The Government can create strategies and provide guidelines on which service providers and educators can implements action plans. Learners who engage in online learning have given first priority for effective use of personal time management. The second mandatory requirement is maintaining of social distancing capability. Then third priority is to place flexibility. By taking the above matters into consideration, educators should design their academic programme and internet service providers should offer online services at affordable rates. There is a mandatory requirement for educators and a learner to shift to online learning pedagogical approaches during the pandemic as
in-person teaching is still uncertain. Online courses should be dynamic, interesting and interactive, relevant, student-centered and group based. Personal attention should be provided to students so that they can easily adapt to online learning environment. Positive arguments related to online learning pedagogy are accessibility, affordability, flexibility, life-long learning, and independent learning. Therefore, online education should be promoted in such a way that learners get the maximum benefits. Even assessments should be done online. Educators must get students feedback for overall evaluation of online learning and global trends need to be carefully adopted.

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USING AN EFFECTIVE STUDENT FEEDBACK SYSTEM TO IMPROVE THE QUALITY OF TEACHING LEGAL SUBJECTS

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Distance Education, Law teaching, Student feedback

Abstract
An effective student feedback system has an important role in improving learner-teacher interaction in the ODL system. Particularly, when a law degree programme is conducted within an ODL context, student feedback can be used as an effective tool for assessing the productivity of the programme as well as the quality of the teaching. This research focuses on the effectiveness of the existing student feedback system which is adopted in the LL.B Degree Programme in The Open University of Sri Lanka (OUSL). An analysis of the existing feedback system revealed that all OUSL students are given a common feedback form which is not compulsory. Accordingly, it has been identified that the Law students are unable to specify the subject-related issues of understanding case laws or legislations that are unique to the LL.B Degree Programme. The main objective of this research is to critically analyze the adequacy and effectiveness of the existing feedback system. Accordingly, this paper is based on two arguments. The first is that the existing common feedback system does not provide an adequate space for law students to highlight their specific issues which are unique to the LL.B Degree Programme. Secondly, the optional nature of feedback requirement hampers the true objective of the feedback system which could negatively impact the productivity of teaching Law. The research will be carried out following the qualitative research method based on a comprehensive analysis of primary and secondary literature. Comparative analysis will be conducted with India and Singapore to evaluate the recent trends in the student feedback systems in law schools. Finally, this paper will suggest how the effectiveness of the student feedback form can be enhanced in distance education. The findings of the research will propose to obtain students feedback online and make it compulsory for the learners to fill it as a prerequisite to generate their admissions for the final examination.
1. INTRODUCTION

Feedback serves as a door for student-teachers to open in order to obtain a variety of data about themselves through their own eyes and through the eyes of others (Akkuzu, 2014)

Traditionally, the term ‘teaching’ implied the transmission of knowledge or information to the students by the teacher. However, this approach has changed gradually and today, it is well established that teaching is a much more interactive process rather than delivering information (Tiberious et al, 1989). In this context, an effective feedback system can be used as a tool to enrich and enhance the teaching-learning process. As Mag (2019) clearly points out, “if it is used appropriately, feedback is an essential component of assessment for both teaching and learning and it can lead to substantial visible learning gains”.

In an Open and Distance Learning (ODL) process, feedback has been identified as a key component of teaching and learning. A learner in an ODL context may not have direct interaction with the teacher when compared with the learners engaged in the conventional learning process. Therefore, it is obvious that a continuous student feedback system is essential to evaluate the effectiveness and the quality of the teaching methods used in an ODL context. Particularly, students who are engaged in law degree programs through the ODL model might face a lot of difficulties to understand complex legal concepts, law reports and textbooks without the direct assistance of the teacher. Thus, a law teacher in the ODL model is required to utilize different teaching techniques in order to build up a productive interaction with the law students.

However, the experiences gathered about the students’ feedback system of the Open University of Sri Lanka (OUSL) revealed that all the students attached to the OUSL are given a common feedback form without specifying the unique features of their registered degree programs. Moreover, it is noticed that there is no compulsory requirement for students to submit the feedback and only the students who are coming to the physical classes receive hard copies of the feedback form on the last day school of each module. This research focuses on the students’ feedback system utilized for law students engaged in the LL. B Degree Programme in the OUSL.

Accordingly, this paper aims to put forward two arguments relating to the exiting student feedback system utilized in the OUSL, LL. B Degree Programme. The first one is, the existing common feedback system does not provide an adequate space for law students to highlight their specific issues unique to the LL. B Degree Programme. Secondly, the optional nature of feedback requirement hampers the true objective of the feedback system which could negatively impact the productivity of the teaching of law. Therefore, this paper intends to suggest recommendations for ensuring an effective student feedback system for the LL. B Degree Program in the OUSL.

2. RESEARCH METHODOLOGY

This research is qualitative study based on a comprehensive review of literature and an investigation of comparative experiences of student feedback systems in other selected countries. Both primary and secondary sources of literature have been analyzed to identify the importance of students’ feedback in the ODL system. Most importantly, the structure of the existing feedback form of the OUSL was carefully analyzed while comparing it
with feedback structures of several law schools in India and Singapore. The researchers have selected two courses in Level 6 of the LL.B Degree Programme to evaluate the students’ participation ratio for supplying feedback. The similarities of socio-cultural backgrounds and infrastructural facilities provided for the higher education system have been the reasons for selecting India as one of the comparative examples. In addition to that, the researchers have selected Singapore based on its prestigious place in higher education in Asia.

3. RESULTS AND DISCUSSION

3.1 Student feedback as an essential tool for law teaching in the ODL context

Teaching and learning within an Open and Distance Learning (ODL) context is much more challenging for both learners as well as teachers. As Saummya and Singh (2020) highlights, ODL is an amalgamation of the concepts of “open learning” and “distance learning” which have two different meanings. On the one hand, the term ‘open learning’ enshrines the openness and accessibility to learning opportunities and on the other hand ‘distance learning’ implies a kind of flexible learning method taking place via the use of audio/video, print or online media or any combination of the same (Saummya and Singh, 2020). Therefore, unlike conventional universities, the ODL system affords opportunities for a large number of students to enroll with the learning experience without considering their geographical distances and age barriers.

As stated earlier, findings of many studies revealed that “feedback is a vital informative tool that allows students and teachers to review their teaching performance critically” (Akkuzu, 2014; Eksi, 2012). Therefore, obtaining students’ feedback is a routine practice in most educational institutions (Husain and Khan, 2017). As mentioned, unlike the conventional teaching process, teachers and learners are physically separated in an ODL setup. Therefore, both parties are required to develop a healthy interaction throughout the teaching and learning process in order to accomplish the intended programme outcomes as well as the course learning outcomes.

As Mag (2019) opine, “feedback plays a decisive role in learning and development, within and beyond formal educational settings”. Hence, it can be argued that, in an ODL context, students’ feedback on how they feel and value the teaching strategies and methods could be an important tool for restructuring ODL teaching approaches (Mag, 2019).

Teaching some professional specialties such as law through the ODL method is much difficult compared to other subjects. As Selvaras (2019) correctly points out, legal education involves developing critical knowledge, analytical skills and problem-solving skills of the students by applying legal concepts to real world problems. According to Khan and Bashir (2018), effective communication with the students is the hallmark of teaching law. As they further describe, "Teaching methodology must instill everyday practical life experiences and examples from case laws. Creativity is to creating activity, interactive discourse and participatory approaches should be fostered in teaching techniques. Body language and gestures may also be resorted to in communication. Personal conviction and self-belief is the corner stone of teaching (Khan and Bashir, 2018)"

Hence, when it comes to the ODL system, developing the aforementioned critical, analytical and problem-solving skills without adequate face-to-face
interaction with the students is a really challenging task for law teachers. On the other hand, law students in the ODL context are also struggling to deal with hundreds of law reports, statutory provisions and legal textbooks with the limited assistance of the teachers compared to other conventional law students. In this context, students feedback become an important source in order to identify the satisfaction or dissatisfaction of the law students (Mag, 2019).

3.2 Analysis of the existing students feedback system in the OUSL

It is notable that in the ODL context, opportunities to obtain spontaneous or informal students’ feedback is limited (The working group for distance learning in legal education, 2011). Therefore, an effective formal feedback system is vital to obtain clear and direct feedback from the students. In this section, this paper will analyse the pros and cons of the existing students feedback system in the OUSL.

The OUSL is the only national institution that accommodates the ODL system in Sri Lanka (Selvaras, 2019; Gunawardane and Lekamge, 2010). The Department of Legal Studies of the OUSL offers four years LL. B Degree Programme for the candidates who are eligible through an entrance examination. Currently, more than 4000 students are studying law under the LL. B Degree Programme enrolling through nine regional centres located in all the provinces in Sri Lanka. According to the existing students’ feedback system of the OUSL, the student feedback form of course units consists of seven sophisticated sections as mentioned in Figure 1.

The statements are framed in user-friendly manner so that merely a tick has to be inserted in the correct column. The learner has to first provide details of the programme, course title, age, gender and employability before proceeding to the aforesaid sections. In the section of printed course material statements are given in a manner to evaluate whether updated course materials are given on time and whether the learner can understand the content of the course material. Under home assignment and continuous assessment tests, statements are stipulated covering both time factor and the link between the learning process and the assignment/test. In the section of day schools, statements are provided to assess basically whether day schools and activities used are helpful in better understanding the content.

The teacher has to indicate the relevant teaching or learning method in the next section on other teaching/learning components where the purpose is to evaluate whether the learner has acquired or developed skills. This is followed by the section on student support which is divided into two, as support from academic staff, and library and other. Accessibility of the academic support, their sufficiency and availability of the library facility and their usage are covered under their statements. If the learner is in a position to share the learning experience in a more detailed manner meeting the respective teacher, his or her contact details can be mentioned in the last part of the feedback form.
Figure 1: The structure of the existing feedback system of the OUSL

Generally, the structure of this feedback form seems adequate to obtain a broad overview of the course delivery. However, as mentioned earlier, this paper aims to analyze whether the existing general feedback system is adequate to gather specific information unique to the law degree programme in the OUSL. According to Seldin (1997), "a single questionnaire is not suitable for every course, department or institution because different instruments are needed to evaluate difference courses and produce different information".

Since course materials form the foremost place in the ODL context they should be designed in a manner to define what to be learnt, provide information and give examples (Freeman and Blayney, 2005). One of the problems of the existing course materials of the LL.B Programme is many of them are not revised and updated though the updates are discussed in day schools. Hence, as stated before, the issues faced by the students on course materials can be easily identified through the existing feedback form. However, in both home assignment and CATs sections, the emphasis has been given only to the content and not to assess the improvement of the skills of the learner. Nonetheless, the LL.B Degree is a gateway to the legal profession and critical thinking and the ability to solve problems are an inherent part of it. However, in the existing feedback form, this aspect is not included. With reference to teaching/learning method, laboratory work, fieldwork or clinical practices are not involved in the LL.B curriculum thus, statements can be designed specifically to evaluate the development of professional skills with critical thinking skills and apply legal knowledge in problem-solving.

Concerning collecting the feedback form from the learners, it is not mandatory for the learners of the OUSL to fill up the feedback form. The forms
are distributed in the last day-school of each module and there is no mechanism to collect the feedback from the absentees. The researchers have selected two courses in Level 6 of the LL. B Degree Programme in order to evaluate the students' participation ratio for supplying feedback. The findings are depicted in Table 1 as follows.

### Table 1: Statistics of students’ participation for supplying feedback

<table>
<thead>
<tr>
<th>Course</th>
<th>Number of registered students</th>
<th>Number of feedback forms received</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLU6715- Labour Law</td>
<td>560</td>
<td>114</td>
</tr>
<tr>
<td>LLU6716- Commercial Law</td>
<td>570</td>
<td>126</td>
</tr>
</tbody>
</table>

According to the above statistics, it is evident that many students have not participated in the feedback process. Therefore, it can be argued that the prevailing system prevents all registered students to involve in the feedback system. Further, there is no proper guideline to distribute the completed feedback forms to the respective teacher of the department and it is totally within the discretion of the individual teacher to do the needful according to the response received in the feedback form.

### 3.3 Comparative Analysis

The existing feedback form of the OUSL was compared with the feedback form of Indira Gandhi Open University of India and the National University of Singapore. Comparing the feedback form with Indira Gandhi Open University, it seems as it has not been designed in a very sophisticated manner. Their statements are directly linked not only with resources provided by the University but also how the teaching-learning process can be further improved with the involvement of students. In the feedback form, statements are clearly indicated on an adequate coverage of the entire syllabus through self-learning materials, enhancing knowledge and skills through self-learning materials, clear presentation of concepts in self-learning materials, presentation of concepts in proper sequence and whether learning outcomes are achieved at the end of the session. Though these statements are general, they can be considered in making changes to the learning materials and also to the effectiveness of the teacher and the curriculum.

Considering this approach further, if the statements are inserted focusing on whether course materials adequately cover the entire syllabus and case law, whether legislation and legal principles are clearly presented in the course materials then the teaching-learning process of the department of Legal Studies would be further improved.

Comparing the distribution of feedback form with the Law school of the National University of Singapore (NUS) all students submit their feedback anonymously through online upon the completion of each module before the examination. (Christudason, 2006). When the online feedback system is compared to a paper-based system, it is more user friendly and easily accessible to all learners irrespective of their attendance to the lectures.
Though the NUS is not an Open University their practices can be followed to improve the effectiveness of the Department of Legal Studies. According to the prevailing procedure of the NUS, in order to distribute filled feedback forms among the teachers, they are given only after completion of marking of examination scripts and release of results to avoid biases (Christudason, 2006). This procedure is followed in many universities like Amity Law School and South Asian University.

If the purpose of student feedback is to obtain valid and reliable information on the course as well as the teachers to improve the teaching and learning process it has to be reflected through the form. However, the given statements in the existing feedback form of the OUSL are more prone towards to evaluate the adequacy of the resources and student support services provided by the university than improving the effectiveness of the teacher.

4. CONCLUSIONS AND RECOMMENDATIONS

As Mag (2019) points out, "quality teaching is directly related with effective and high-quality feedback. As discussed earlier, the existing students feedback system of the OUSL is not adequate for LL. B Degree Programme for two reasons. Since it is the general feedback form supplied to all the students in the OUSL, there is no space for law students to provide feedback for some specific issues unique to law teaching. Moreover, many students are not engaged with supplying feedback due to the non-mandatory nature of the feedback system. Therefore, this paper proposes some recommendations to enhance the process of obtaining feedback from law students.

As a procedural revision for the feedback collecting process, this paper suggests making student feedback compulsory. In order to make the completion and submission of student feedback compulsory, it can be identified as a precondition to generate admissions for the final examination. As an online form, it can make visible to all registered students of each module and they could apply for admission to the examination once they fill the online feedback form.

As a substantial change to the content of the existing feedback form following recommendations are proposed. Accordingly, a revised feedback form should be designed to obtain feedback about the quality of the course delivery rather than other technical aspects. Most importantly, there should be a space for law students to comment on their satisfaction with subject-specific requirements. Therefore, the feedback form should be consisted of the following criteria. (see Table 2).

Implementing these proposed criteria will enhance the existing feedback system of the OUSL. Moreover, it will help to make student feedback as a key element of assessing teaching learning progression of the LL.B Degree Programme.
Table 2: Suggested new statements for the student feedback form

<table>
<thead>
<tr>
<th>Criteria in the existing feedback form</th>
<th>Proposed statements in addition to the existing statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed course material</td>
<td>Course materials adequately cover the entire syllabus</td>
</tr>
<tr>
<td></td>
<td>Course content enhances your knowledge and skills</td>
</tr>
<tr>
<td></td>
<td>Case laws and legislations are clearly presented in the course materials</td>
</tr>
<tr>
<td>Home Assignments, CATs, Day Schools</td>
<td>Course learning outcomes are achieved at the end of the module</td>
</tr>
<tr>
<td></td>
<td>Legal concepts, principles and legislations can be applied in problem solving</td>
</tr>
<tr>
<td></td>
<td>Use of innovative teaching methods in day schools</td>
</tr>
<tr>
<td></td>
<td>Use of interactive teaching in day schools</td>
</tr>
<tr>
<td>Other teaching/Learning components</td>
<td>Developing communication skills, both oral and written</td>
</tr>
<tr>
<td>Support from Academic staff</td>
<td>The existing framework is sufficient</td>
</tr>
<tr>
<td>Library and other</td>
<td>Legislative enactments/ case digests are sufficiently available at the library</td>
</tr>
<tr>
<td></td>
<td>Online access given to e-journals and legislative enactments/case digests are used and satisfactory</td>
</tr>
</tbody>
</table>

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EXPLORELETS: “CONTEXT-AWARE” INTELLIGENT ADAPTIVE LEARNING SYSTEM FOR ONLINE LEARNING

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Keywords:
Adaptive learning, Cognitive tools, Explorelets, Online learning

Abstract

Adaptive learning is becoming a new educational trend in higher education. Adaptive learning is a teaching and learning method through the computers (either online or offline) mediated by humans and guided by resources that caters to the learners’ unique needs. In adaptive learning, the learning is personalized according to learners’ needs, learning preferences and abilities on a particular subject-matter. The adaptive learning systems are typically used to manifest adaptive learning. The adaptive learning systems that have been developed are primarily cognitive tools. In this research, the author has developed an intelligent and “context aware” adaptive learning system known as explorelets that can analyze both the students’ cognition and emotion for a highly technical programming course. Explorelets, which are highly interactive and explorative deliver the contents in an appropriate sequence based on the students’ needs at a specific point of time in order for them to make progress. Explorelets are embedded with the predictive and diagnostics analytics that can be used by the instructor to monitor the students’ progress. The evaluation on the effectiveness of explorelets on students was carried through the pre-test and post-test design. In addition, a survey was also carried out to gauge students’ perception about the explorelets. The results showed that students’ post-test mean score was significantly higher than the pre-test mean score (p<0.001). The students also perceived explorelets to be favourable in their learning process. The results show that an adaptive learning system such explorelets that supports both students’ cognition and emotion with explorative and interactive features can be an effective online learning tool for the learners.
1. INTRODUCTION

With rapid development of technologies in every field of industry, organizations and institutions as well as individuals are adopting latest changes to stay either at par with others or ahead of the competition. The education field or industry is not an exception to these changes, therefore with advancement of Internet technologies and learning tools, a lot of organizations or institutions are implementing e-Learning either fully or as a support to the existing traditional learning approaches.

In implementing e-Learning, as according to Ruiz et al. (2006), educational organisations are using various approaches including adaptive learning. Heera, E. (2016), indicates that adaptive learning is a teaching and learning method through the computers as an interactive teaching tool mediated by humans and guided by resources that caters to the learners’ unique need, whereby the learning is personalized as according to learners’ needs, learning preferences and abilities on a particular subject. Edudcause (2017) further added that adaptive learning systems can deliver the types of content in an appropriate sequence that an individual learner needs at specific points in time in order for the students to make progress besides dynamically adjust to learners’ interactions and performance levels.

2. THE PROBLEM

The process of learning aims at the acquisition of new knowledge and skills that will ultimately affect the learner’s attitudes, decisions and actions. This process consists of several mental features resulting in behavioural changes taking in cognizance of the social and cultural environment. However, the various forms of learning including adaptive learning have for long focused on the cognitive domain to fulfill the requirements of the education system which is examination oriented. Past researches, such as Wan and Yu (2020) explained that adaptive learning systems which are used to manifest adaptive learning correspond to students’ cognitive state and the structure of the knowledge which allow the learning activities, learning contents and learning paths to be continuously adjusted, hence providing students with the appropriate learning initiative, resources and opportunity for reflection during the learning process (Figure 1).

However equally important, Hwang et al. (2020) stressed that the affective state of learners should also be taken into account in adaptive learning. As affective domain or state in learning deals with perception and emotions of learners, Kim and Ketenci (2020) identified that expressed emotions or sentiments by learners via online interactions, can be a significant predictor of their achievement.

In adaptive learning especially those that involved Open and Distance Learners (ODL), students are alone and they are often overwhelmed with anxieties. Thus, emotions are known to play a major role in their online learning. In fact, the affective domain which is influenced by emotion is equally...
significant as the cognitive domain in any learning set-up including in adaptive learning. And this is more so in technical subjects as it has put tremendous mental pressure on the learners resulting in the emotional state of the learner being impacted. However, most of the adaptive learning systems that have developed merely focus on the cognitive aspect of learning.

3. OBJECTIVE

The aim of this paper is to recommend a “context aware” adaptive learning system known as explorelets. Being a context-aware system, explorelet can both sense students’ emotional state, and react based on this students’ state besides the cognitive ability of the learners.

The author has focused on a programming course as programming is a technical course and is difficult to learn. A well-designed adaptive learning system can give an adaptable and customized learning content that can accommodate the learning ability of the learners as well as their preferences (Anindyaputri et al., 2020). In addition, adaptive learning systems can also help the learners with different capabilities to learn programming.

4. DESIGN and DEVELOPMENT OF EXPLORELETS

The author has designed and developed a set of adaptive learning systems known as explorelets to focus on learning object-oriented programming by emphasizing both the cognitive and affective domains. Seven explorelets have been built focusing on different concepts of the subject matter as highlighted in Table 1.

Table 1: Explorelets developed in this study and their respective learning outcomes

<table>
<thead>
<tr>
<th>Explorelet</th>
<th>Learning Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Explorelet 1 (Pre-requisite</td>
<td>To learn the pre-requisite knowledge of the topic</td>
</tr>
<tr>
<td>exploit)</td>
<td></td>
</tr>
<tr>
<td>2 Explorelet 2a</td>
<td>To describe the fundamentals of class and object</td>
</tr>
<tr>
<td>3 Explorelet 2b (special adaptation for sentiment analysis)</td>
<td>To describe the fundamentals of class and object</td>
</tr>
<tr>
<td>4 Explorelet 3</td>
<td>To develop a class program for a simple problem</td>
</tr>
<tr>
<td>5 Explorelet 4</td>
<td>To develop a class program for a problem</td>
</tr>
<tr>
<td>6 Explorelet 5</td>
<td>To create object from a class program</td>
</tr>
<tr>
<td>7 Explorelet 6</td>
<td>To develop object-oriented programs via inheritance</td>
</tr>
</tbody>
</table>

Table 1: Explorelets developed in this study and their respective learning outcomes

The cognitive element in the explorelets is supported via the cognitivism learning theory and active learning approach. Cognitivism focuses on the mental processes such as thinking and problem-solving. It aims to open up the human mind’s “black box”, the process of which is necessary for learning to
occur (*Cognitivism*, n.d.). Active learning is an instructional technique that requires all students to be asked to engage in the learning process. On the other hand, the affective element in the explorelets are processed through the text-based sentiment analysis using machine learning technique.

Each of the explorelets has its own adaptive and content pages to guide learners as highlighted in Figure 2.

**Figure 2:** An explorelet system with various elements to support students’ learning

Explorelets incorporate various multimodal learning elements such as text-based, animated, and immersive lesson pages (refer Figure 3 and Figure 4 respectively) as well as video-based lesson pages (Figure 5). In addition, it has assessment questions in the form of basic questions (Figure 6), additional questions and extension questions. These basic, additional and extension questions are used to control the adaptations’ process and are discussed in detail in the next section. The explorelets also have WhatsApp links in the form QR-code that enables a student to communicate with the lecturer and with their peers (Figure 7). This approach allows “teacher presence” and “social presence” in individualized learning of the explorelets. Explorelets also have highly engaging problem-solving activities that demands active participation from the learners (Figure 8).
Figure 3: An example of text-based page in explorelet

Figure 4: An example of an immersive page in explorelet
Figure 5: An example of video-based page in explorelet

Figure 6: A “basic” question in the explorelet that determine the adaptivity
Figure 7: Access to WhatsApp discussion group from the explorelet that provides “social presence” and “teacher presence” in the individualized learning in explorelets.

Figure 8: An engaging problem-solving activity in one of the explorelets.

All the explorelets indicated in Table 1 are self-contained yet interconnected to each other as shown in Figure 9. This design approach was adopted in order to ensure the learners are able to establish the correct understandings of past concepts and problems covered by the explorelets and finally transfer the prior knowledge to the new problem in the subsequent explorelets.
4.1 Adaptivity algorithm in explorelets

Figure 10 shows the adaptivity algorithm used in the explorelets. Students will be tested on their understanding of a sub-concept discussed in the explorelet before they can proceed to the next sub-concept. Based on the student’s performance in the explorelet lessons, the dynamic path is built to lead him or her through the lesson’s content according to his or her abilities and mood. Content which discusses a sub-concept is presented first and then the student’s basic knowledge is evaluated with a basic question. Students will be presented with the remedial contents and additional question or “extension” question based on their performance in the basic question. Students too will be awarded a reward point as part of gamification. Figure 6 and Figure 11 show some of the questions that appear in explorelets in order to determine the adaptivity.
Figure 10: The adaptivity control in the explorelets via the basic, extension and additional questions

Figure 11: A "additional" question in the explorelet that determines the adaptivity
Besides the adaptivity controlled by the system, the learners also control their learning in deciding their learning path in the explorelets (refer to Figure 12).

**Figure 12:** students control their own learning by deciding the next course of action

### 4.2 Sentiment analysis in explorelets

Besides determining the cognitive ability of the learner with regard to the subject matter, the explorelet is a “context-aware” adaptive learning system as it can both sense, and react based on their environment. In line with the aim of the paper, explorelet can sense the emotional state of the learner after completing the first explorelet (Explorelet 1) as shown in Figure 13.

**Figure 13:** The sentiment analysis in the explorelets
Sentiment Analysis is the process of determining if a piece of the sentence is positive, negative or neutral. A sentiment analysis system for text analysis uses a combination of machine learning and natural language processing (Sentiment Analysis Explained, n.d.). For those students having low scores on sentiment analysis, a different explorelet will be pushed to these students. This explorelet will provide more emotional support to the students with more focused guidance on the subject matter. Explorelets uses text-based “sentiment analysis” in order to quantify the students’ emotion (refer to Figure 14). Leveraging on machine learning from Google suite, explorelets can adapt to the mood of the students (i.e. the affective element) and their prior knowledge in addition to the student's performances in the assessment questions (cognitive element).

**Figure 14:** The text-based sentiment analysis in the explorelets

### 4.3 Analytics in explorelet

In a digital learning environment, teachers often remain outside of this process and do not understand the learning problems that are in this learning environment. In order to address this shortcoming, explorelets are linked with both predictive and diagnostic intelligent analytics that enables the instructor to monitor the students’ performance and progress using both elements of analytics. This enables the use of the combined strength of the machine (diagnose, assess, and provide data on learning) and man (implement insights from that data to counsel/coach the student in order to improve their learning outcomes and reinforce learning). The analytics supports both diagnostic and predictive analytics. Rule-based mechanism was used to provide the diagnostic analytics and K-nearest neighbour (KNN) machine learning algorithm was used for the predictive analytic (refer Figure 15 and Figure 16). Student feedback form represents The analytic editor that enable the instructor to monitor the students’ performance in the explorelets.
5. METHOD OF STUDY

5.1 Participants and learning context

Explorelets were implemented for the undergraduate Object-oriented Programming course in the September-2020 semester at the Open University Malaysia (OUM). The main topics/concepts focused by these explorelets are highlighted in Table 1. A total of 81 students (average age: 33.2) enrolled in this course in that particular semester. The course was delivered via the blended learning approach. Self-managed learning and online learning are the important components in this blended approach. All the students enrolled in the course were given access to the explorelets in order to support their online learning.
5.2 Data collection

A survey was conducted at the end of September 2020 semester in order to obtain the learners’ perception after going through these explorelets. The survey has five items with Likert scale from 1 (strongly disagree) to 5 (strongly agree) and data was analyzed using the mean scores (descriptive statistics). The survey items are given below.

❖ I achieved a higher level of understanding on the concepts of class and objects through the Explorelet
❖ My knowledge on "class" and "objects" increased after going through the the Explorelets
❖ My skills on writing Java class programs and creating objects from it has increased after going through the Explorelets
❖ I really enjoyed learning through the Explorelets
❖ I would like to have lessons in the form of explorelets in my other subjects

Students from the same cohort also were asked to take a pre-test prior to engaging with the explorelets. Immediately after completing the pre-test, the students can access the explorelets. Access to these explorelets are only given once they have attempted the pre-test. After their successful learning with these explorelets, these students will have the opportunity to complete the post-test questions. Pre-test and post-test questions are the same questions used to measure the students’ level of understanding and improvement with regard to the concepts covered by the explorelets. The pre-test and post-test questions are in the multiple-choice questions (MCQ) format with the maximum score of 10 for each of the pre-test and post-test. The questions are mostly application and analysis type of questions with few knowledge-based questions. The participation in the survey and pre-test and post-test were not made compulsory. Access to post-test questions are only given after the students have completed all the explorelets. Data was analysed using descriptive statistics of mean scores using paired samples t-test.

6. RESULTS

6.1 Students' perception on explorelets

A total of 69 students had participated in this survey. This represents 85% of the total number of students who had taken the course in that particular semester. Figure 17 shows the mean scores of all the items covered in the survey. The survey concludes that the learners gave good responses for each of the items in the survey.

Some of the students also did give direct feedback on their experience using the explorelets. Some of the feedbacks are given below (edited for clarity).

“The explorelets were very good and helped me to learn programming in a new interactive way”

“It changes my perception that we can learn interactively and learn things at our own time and space”

“The explorelets benefited me as I know and understand how the programming syntax is used”

“Wonderful experience, never thought that I can learn programming from a computer”
6.2 Effect on students’ learning after using the explorelets

A total of 59 students had completed both the pre-test and post-test questions. This represents 73% of the overall students who had registered for the course. The post-test average score has increased as compared to the pre-test (refer to Figure 18). The learners’ engagement with the explorelets had led to the good understanding of the concept covered by the explorelets. Only scores of the students who have completed both pre-test and post-test questions were analyzed.
7. CONCLUSIONS

By mixing learner-centred learning design and technology, the author has created a natural and vibrant adaptive learning environment known as explorelets. The main unique feature of explorelet is that it is "context aware" as it is able to capture the emotions of the learners and adapt the lessons accordingly for the students. In this research, the emotion is captured through sentiment analysis based on the text written by a learner using machine learning algorithm technique. Another uniqueness of Explorelet is that it supports the concept of individualized learning with group knowledge construction via peer interaction and collaboration by using the WhatsApp discussion group for immediate feedback.

Explorelets provide a personalised and adaptive digital-based learning system in a more explorative, interactive, immediate and engaging manner. This learning design can provide a positive cognitive and affective impact on the learners. It improves learning experience by providing features such as high degrees of engagement, personalization, feedback, guidance, knowledge access and at the same time uses rich-media with flawless access to important information and facilitates on-the-go mentoring by involving the human instructor in the WhatsApp group.

Simulated Learning Environment (SLE) such as adaptive learning systems especially explorelets is not to replace the human instructor but the simulated learning environment can take over some of instructors’ tasks. In fact, SLE permits combined learning in teaching pedagogy, problem-solving strategies and content knowledge (Ayres, 2008; Rieg and Wilson, 2009).

The future of higher education will involve a close collaboration between humans and SLE. In fact, the role of the human instructors can be distributed between the human-instructor and the simulated learning environment. In the future, an instructor could become the product of the human instructor and the AI-based simulated learning with each playing a complementary role. For example, the human instructor can

![Figure 18: Students’ pre-test (taken before accessing the explorelets) and post-test (taken immediately after completing the explorelets’ lessons) scores](image-url)
involves in producing the learning contents while AI-based simulated learning environments provide continuous support to the students. This synergy and relationship between both would allow the human instructor to stop handling repetitive tasks which are more mechanical – which now can be performed by the simulated learning environments. This will make the human instructor have greater availability specially to devote their time to the high cognitive level tasks which are more creative.

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REFERENCES


DEVELOPING A PROACTIVE MOTIVATIONAL INDIVIDUAL STUDENT SUPPORT SYSTEM AT OUSL: A PRELIMINARY STUDY FOR IDENTIFICATION OF INFLUENTIAL FACTORS

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Abstract
Like the other open and distance learning (ODL) institutions in the world, The Open University of Sri Lanka (OUSL) experiences low completion and high student dropout rates. If institutions are to act against the increasing student dropout rates, they need to determine the reasons for this student behavior. Studies carried out in other ODL institutions have demonstrated that learner drop outs may depend on variables such as, motivation, adaptation to the system, congruence of expectations and individual interests. Previous research studies have tested various student support models which focus on individual student needs to tackle this issue. Specifically, ‘proactive motivational support’ systems were identified to support individual students through praising their effort and strengths, allowing increased interaction with teachers and encouraging students to be involved in studies with high levels of motivation. At present, OUSL mostly practices a ‘reactive support’ system, where students initiate and request support. With the recent rates of low completion and high dropouts, it would be a timely endeavor to develop an effective learner support system as identified through literature. The aim of this study was to identify the factors that affect students’ performance, their motivation and retention. A questionnaire was designed based on a comprehensive review of similar studies in other ODL institutions and by using researchers’ experience. It was pilot tested, and the revised questionnaire was administered to students from the Faculties of Natural Sciences, Health Sciences, Engineering Technology and Humanities and Social Sciences at OUSL and around 10% responses were collected. Factors such as adjustment to the ODL system, balancing workload and student’s commitments, quality of the course material, flexibility in scheduling academic activities, effective course delivery, staff student interactions, peer and family support were identified as significant in developing a proactive support mechanism.
1. INTRODUCTION

Open and Distance learning (ODL) has become an effective learning option for many young and adult learners worldwide due to its convenience, flexibility, and possibility of selecting time and place. However, the institutions that offer higher education through ODL experience identify student drop-out and non-completion as some of the main obstacles in ODL education. Simpson (2004) states that the ODL institutions are well below conventional universities in terms of student retention. The drop-out rates are comparably higher in distance education institutions which are approximately 30-50% (Visser, 1998). Researchers identify several factors as the reasons for the low retention rates of distance learners. Mainly, the learning environment of ODL institutions differs from conventional systems because students' study in isolated environments and students' experience reduced motivation in distance education (Visser, 1998; Simpson, 2008). Therefore, identifying and developing student support systems for the ODL institutions to decrease the drop-out rates is imperative.

Previous studies have found that variables such as motivation, adaptation to the system, congruence of expectations, and interests affect student retention in an Open Distance institution (Tinto, 2001). It was reported (Au et al., 2018) that student perseverance or weakened performance in ODL is due to students' personal, motivational, and institutional factors being challenged. Individual factors play a vital role in a student's success as students having realistic expectations at the beginning of the program perform well compared to those having unrealistic expectations. And on the other hand, motivation is vital for persistence (Au et al., 2018).

Simpson (2008) proposes a proactive motivational support system which is based on two motivational theories i.e. Strengths Approach (Clifton, 2001); and Self Theory (Hong et al., 1999) for enhancing student motivation. Simpson’s proactive motivational support system supports individual students by praising their effort and strengths, allowing interaction with the teacher, and encouraging students to involve in studies with high motivation. Another study by (Paniagua and Simpson, 2018) reported the role and actions of the student support team in the EMPOWER Project to increase student retention and enhance academic performance, integration and satisfaction.

The need to reform student support in the digital age has been stressed by Tait (2014). Tait proposes that in addition to the factors identified by Street, (2010) i.e., time pressure, self-management, family, logistics and support, curriculum relevance, inadequate educational preparedness would also be a factor that affects student success. He proposed that student support needs to be integrated with curriculum, teaching and assessment, and not be a separate structural and professional entity.

The Open University of Sri Lanka (OUSL) has completed 40 years in providing educational opportunities to a large number of learners who want to pursue their higher studies, enhance their professional development, and to those who want to engage in life-long learning. However, similar to the institutions who offer higher education through Open and Distance Learning (ODL), the Open University of Sri Lanka also experiences student drop-out and non-completion as one of the main issues (Zuhairi et al., 2019). In order to take suitable measures to address this issue, a sub-committee of the learner support team established under the Committee for Research Advice on Distance Education (CRADE) decided to develop a proactive motivational support system for OUSL. As the preliminary step in this process, the present study attempted to identify the factors that affect learner motivation, their retention, success and failure in this specific context.
2. METHODOLOGY

This study selected four Faculties of OUSL: Faculty of Engineering Technology (ET) and Faculty of Health Science (HS) offering professional degrees and Faculty of Humanities and Social Sciences (HSS) offering both professional and non-professional degrees and Faculty of Natural Sciences (NSC) offering only a non-professional degree for the study. HS Faculty recruit only employed students while the other Faculties have a mixture of both employed and unemployed students. Further, except for the degree programmes offered by HSS, those offered by other three Faculties contain a considerable practical component in their content.

In order to gather information from students, a common feedback form was prepared for each Faculty. A note carrying the purpose of the study with the relevant link was emailed to the private email addresses of re-registered students of the 2019/20 academic year. The re-registrants were selected as the team felt that the students should have at least one-year experience in the university to answer the questionnaire properly. Since private email addresses of some students were not available and about 3-5% emails bounced back, the same message was displayed for a month as an announcement under the Faculties in MyOUSL student portal of the Open University Management Information System (OMIS). Because of this open invitation to students, it was assumed that the responding sample is a good representation of the university population of the four Faculties.

The results obtained were analyzed as percentages collectively for all the Faculties and separately for each Faculty. The responses for the Likert scale were reduced to Agree, Neutral and Disagree by adding Strongly agree to Agree and Strongly disagree to Disagree and the percentage values were compared.

3. RESULTS AND DISCUSSION

3.1 Student Characteristics

The percentages of response from the four Faculties were 13.9% for NSC, 11.3% for ET, 7% for HSS and 6% for HS. The student’s characteristics percentages of the 4 Faculties and totals are shown in Table 1. All the Faculties have more females than males and the male populations are comparatively very low in NSC and HS. All Faculties have the highest student number in the 26-35 years group. Next, NSC and ET have more younger students (18-25 years old) while HSS and HS have much older students (36-45 years old). The distribution of students in the regional centers shows a similar pattern. However, NSC and ET have more students in CRC and KRC compared to the other Faculties. This is probably linked with the fact that having better laboratory facilities in these two regional centres.
Table 1: Student’s characteristics as percentages

<table>
<thead>
<tr>
<th></th>
<th>NSC n= 486</th>
<th>ET n= 555</th>
<th>HSS n= 476</th>
<th>HS n= 215</th>
<th>Total n= 1733</th>
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<tbody>
<tr>
<td>Gender</td>
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<td></td>
<td></td>
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<tr>
<td>Male</td>
<td>18.7</td>
<td>51.5</td>
<td>43.4</td>
<td>22.7</td>
<td>36.5</td>
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<td>48.5</td>
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<td>63.5</td>
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<td></td>
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<td></td>
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<tr>
<td>18-25 years old</td>
<td>39.3</td>
<td>42.3</td>
<td>20.1</td>
<td>9.3</td>
<td>31.3</td>
</tr>
<tr>
<td>26-35 years old</td>
<td>55.3</td>
<td>49.2</td>
<td>49.3</td>
<td>56.9</td>
<td>51.9</td>
</tr>
<tr>
<td>36-45 years old</td>
<td>4.5</td>
<td>7.4</td>
<td>21.6</td>
<td>30.1</td>
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<tr>
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<td>0.9</td>
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<tr>
<td>above 56 years</td>
<td>0.4</td>
<td>0.2</td>
<td>1.9</td>
<td>0.0</td>
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</tr>
<tr>
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</tr>
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<td>1.1</td>
</tr>
<tr>
<td>No. of credits registered in 2019/20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studentship only (0 credits)</td>
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<td>12.4</td>
<td>11.1</td>
<td>3.2</td>
<td>9.8</td>
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<td>4.7</td>
<td>12.2</td>
<td>3.7</td>
<td>7.0</td>
</tr>
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<td>9.7</td>
<td>18.0</td>
<td>20.4</td>
<td>14.9</td>
</tr>
<tr>
<td>16 – 20 credits</td>
<td>8.4</td>
<td>11.4</td>
<td>17.0</td>
<td>27.8</td>
<td>14.1</td>
</tr>
<tr>
<td>21 – 30 credits</td>
<td>61.7</td>
<td>61.8</td>
<td>41.7</td>
<td>44.9</td>
<td>54.2</td>
</tr>
</tbody>
</table>
Studentship is given to students completing the degree and those who want to avoid academic activities due to higher engagement in the career or personal matters. Less than 9 credits are also given to students completing the degree. The counsellors usually advise the employed students to take a lesser number of credits. Higher percentage of NSC and ET students have taken the maximum number of credits, probably because these Faculties have younger, unemployed students. In HSS and HS students seem to take a lesser number of credits probably most of them are employed.

Most of the students spend a very low number of hours on academic activities. In HSS and HS this is more than 50%, whereas NSC has 43.2% and ET has the lowest value 33% among the 4 Faculties. Although the students taking fewer credits contribute to lower the percentages (16.8% in average), it cannot mask the whole picture as there are 54.2% students taken 21-30 credits. A student taking 30 credits needs to engage 28 hours/week in studies while it is 19 hours/week for 21 credits (1 credit = 50 hours). The percentage of students unsatisfied about the number of hours spent on studies are very high. This is highest (70.4%) in the HS most probably because almost all students are occupied. However, in the ET satisfied student percentage is higher than unsatisfied percentage unlike in other 3 Faculties.
passing most of the courses with highest/good grades. The rest of the students had their initial expectations of completing the degree with average/minimum results. When considering their achieved expectations so far, of the 80% of students, only around 30% have obtained the expected results or above. The rest of the students have not succeeded in their studies up to now. Probably the students feel the ODL courses are easier initially, but they get discouraged when they realize that they need to put much effort on them (Fozdar, Kumar and Kannan, 2006). On the other hand, employed students may be finding it difficult to cope with the workload.

The students’ responses for questions on their personal, motivational and institution-based factors are given in Table 2. The personal factors such as the workload they handled, their adjustment to distance education and their fitness for handling the courses were questioned. Factors distracting students from studies like employment, and family commitments and the support from families, friends and institutions that encouraged them to engage in studies, were considered as motivational/demotivational factors. The acceptability and quality of printed material, online resources, course delivery and support from the staff were considered as institution-based factors. The results showed that except in a few cases, overall, the patterns of the answers of all 4 Faculties are similar with almost close percentages. Where there are wide gaps, possible reasons can be seen.

4.2 Personal factors

In all the Faculties, around 11% students feel that they cannot manage with the workload of the courses (Q1). Further, around 49% agree that they underestimated the study time required for courses and could not study well to get good results (Q2). However, 24% of students feel that they could not manage with the number of credits taken (Q4). Effective time management is important for ODL students, specifically who have to balance coursework, a job and family responsibilities. According to McGhie (2017), successful students are well-organized and adopt effective time management strategies. A 33.8% of students of 4 Faculties did not like distance education and wanted more staff-student interactions. A higher percentage of ET students (41.8%) wanted more staff-student interactions probably because their course contents are difficult to understand (Q5). This shows that the awareness of ODL study methods given through the existing induction programs is inadequate and the existing mechanism needed to be strengthened.

Lack of prior knowledge (Q9), computer facilities (Q10) and finance (Q12) have affected a small percentage of students (17.4% - 25.7%) students. Lack of English language knowledge (Q11) has affected a much lower percentage of students in the Faculties (7.4 -11.5%). NSC and ET Faculties have more students with English language difficulties, probably because their courses have subject material difficult to understand or because the writing styles are not user-friendly.

4.3 Motivational factors

Students get demotivated when there are outside pressures that distract them from studies. Around 39% students of the four Faculties said that they failed some courses because they could not attend their compulsory activities such as practical classes and continuous assessments due to leave problems and inability to reach assignment deadlines (Q6). This is proved by the fact that a large percentage of students (63.4%) in all Faculties has been affected by time...
constraints due to pressure at their working places and/or family commitments. This is a serious issue as distance education is there to study while working. Flexible timetabling, attractive course designing, and interactive course delivery are some of proactive measures. There are students who are demotivated by external factors. About 15.3% overall students do not get enough support and encouragement from their families (Q8). 17.8% overall students said that their batch mates did not support them for studies and well-being (Q21). Except in the HSS where 45.3% agreed that they receive support from seniors, other Faculties experienced low support (~23.4) from them (Q22). Further, HSS Faculty students felt low physical/mental abuse by fellow students (22.0%) (Q23) while the other Faculties experienced high percentages (38.9 - 70.4%). It seems that although batchmates help each other in these 3 Faculties, a considerable amount of hostile activities are also happening. University environment seems to be unacceptable by app. 29.8% of students (Q24). In the ODL system, institutional support needs to be extended by introducing mechanisms to encourage collaborative work by peers. As Kahu et al. (2013) suggest peer interactions neutralise the sense of isolation often experienced by distance learners. Motivational student supports can be adopted for working students (Grebennikov and Shah, 2012).

4.4 Institutional factors

Some students (~19.2%) felt that the printed course material is not well written (Q13) and about 30.2% felt that they are not interesting (Q3). Very low percentage (~8.9%) complained that the online material is not useful (Q14) and around 9.9% complained that the course delivery at day-schools and practical classes are not helpful for studies (Q15). A higher percentage of students (24.5%) said that they did not receive adequate support from academic staff (Q16) and 37.2% said that communication is a problem (Q17). Strong relationships of students with academic staff would help the students to improve their performance in a course (Au et al., 2018). Therefore, this is a crucial factor to be considered. 9.5% of students felt that the support by the laboratory staff is inadequate (Q19) while 14.4% felt that library facilities did not help them for their studies. However, a very high percentage of students (74.1%) claimed that the support provided by the university should be improved (Q18). This might be due to the fact that the low-level students are complaining of the factors beyond their control such as the lack of the support given by the institution (McGhie, 2017).
Table 2: Student’s responses regarding personal, motivational and institution-based factors affecting them

<table>
<thead>
<tr>
<th>Qu. No.</th>
<th>NSC (Dis agree: 12.6, Neutral: 79.6, Agree: 34.8)</th>
<th>ET (Dis agree: 10.5, Neutral: 72.1, Agree: 37.7)</th>
<th>HSS (Dis agree: 13.4, Neutral: 75.9)</th>
<th>HS (Dis agree: 11.6, Neutral: 74.5)</th>
<th>Total (Dis agree: 10.7, Neutral: 72.1, Agree: 33.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.8</td>
<td>12.6</td>
<td>79.6</td>
<td>10.5</td>
<td>72.1</td>
</tr>
<tr>
<td>2</td>
<td>29.6</td>
<td>20.4</td>
<td>50.0</td>
<td>34.2</td>
<td>19.5</td>
</tr>
<tr>
<td>3</td>
<td>49.2</td>
<td>25.1</td>
<td>35.7</td>
<td>39.5</td>
<td>27.0</td>
</tr>
<tr>
<td>4</td>
<td>56.4</td>
<td>22.2</td>
<td>21.4</td>
<td>45.0</td>
<td>30.8</td>
</tr>
<tr>
<td>5</td>
<td>40.7</td>
<td>25.7</td>
<td>33.5</td>
<td>36.8</td>
<td>21.4</td>
</tr>
<tr>
<td>6</td>
<td>41.4</td>
<td>19.3</td>
<td>39.3</td>
<td>34.2</td>
<td>24.0</td>
</tr>
<tr>
<td>7</td>
<td>18.5</td>
<td>21.2</td>
<td>60.3</td>
<td>19.8</td>
<td>25.2</td>
</tr>
<tr>
<td>8</td>
<td>14.8</td>
<td>17.7</td>
<td>67.5</td>
<td>16.2</td>
<td>24.5</td>
</tr>
<tr>
<td>9</td>
<td>54.5</td>
<td>29.8</td>
<td>15.6</td>
<td>47.9</td>
<td>30.1</td>
</tr>
<tr>
<td>10</td>
<td>61.5</td>
<td>22.6</td>
<td>15.8</td>
<td>58.0</td>
<td>24.0</td>
</tr>
<tr>
<td>11</td>
<td>13.0</td>
<td>14.6</td>
<td>72.4</td>
<td>11.5</td>
<td>16.8</td>
</tr>
<tr>
<td>12</td>
<td>48.8</td>
<td>25.8</td>
<td>25.7</td>
<td>38.7</td>
<td>30.5</td>
</tr>
<tr>
<td>13</td>
<td>10.7</td>
<td>11.5</td>
<td>77.8</td>
<td>22.0</td>
<td>16.4</td>
</tr>
<tr>
<td>14</td>
<td>5.3</td>
<td>8.2</td>
<td>86.4</td>
<td>11.0</td>
<td>13.0</td>
</tr>
<tr>
<td>15</td>
<td>6.2</td>
<td>11.7</td>
<td>82.1</td>
<td>13.2</td>
<td>15.7</td>
</tr>
<tr>
<td>16</td>
<td>46.1</td>
<td>32.9</td>
<td>21.0</td>
<td>40.9</td>
<td>29.9</td>
</tr>
<tr>
<td>17</td>
<td>30.0</td>
<td>30.9</td>
<td>39.1</td>
<td>30.3</td>
<td>28.5</td>
</tr>
<tr>
<td>18</td>
<td>7.6</td>
<td>21.0</td>
<td>71.4</td>
<td>6.8</td>
<td>14.8</td>
</tr>
<tr>
<td>19</td>
<td>7.6</td>
<td>15.4</td>
<td>77.0</td>
<td>10.6</td>
<td>22.7</td>
</tr>
<tr>
<td>20</td>
<td>8.4</td>
<td>21.2</td>
<td>70.4</td>
<td>8.6</td>
<td>25.6</td>
</tr>
<tr>
<td>21</td>
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<td>76.5</td>
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<td>14.8</td>
</tr>
<tr>
<td>22</td>
<td>17.9</td>
<td>29.0</td>
<td>53.1</td>
<td>22.0</td>
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</tr>
<tr>
<td>23</td>
<td>54.3</td>
<td>31.3</td>
<td>14.4</td>
<td>53.2</td>
<td>29.5</td>
</tr>
<tr>
<td>24</td>
<td>44.9</td>
<td>33.1</td>
<td>22.0</td>
<td>37.8</td>
<td>35.9</td>
</tr>
</tbody>
</table>
5. CONCLUSIONS

The study revealed that OUSL students have high expectations when they enroll in their degree programmes. However, a considerable percentage of these students have not been successful in achieving their expected level of performance due to various factors. Many students have underestimated the study time required for courses and they faced time constraints due to work and/or family commitments. This study showed that the students require a good support system from the institution for successful completion of the programme. Several influential factors that affect students’ performance, motivation and persistence were identified in order to develop a proactive support mechanism for OUSL.

REFERENCES


THE ROLE OF DIGITAL LITERACY AND LEARNING APPROACHES TO PROMOTE SUSTAINABLE LIFELONG LEARNING IN SRI LANKA

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²Faculty of Education, Horizon Campus, Malabe (WP), Sri Lanka.

Abstract

This study examines and discusses the traditional and e-learning tools and instructional approaches adopted by youth in higher educational institutes in Sri Lanka. The Covid-19 pandemic created new platforms for online learning replacing traditional classroom-based and blended learning. Since cost-effective open source software and advanced pedagogies are available in online environments, self-learning has become faster than ever before. Virtual teachers and environments have facilitated cross-disciplinary learning and lead to more academic achievements. Academically developed nations lead to sustainable development, hence lifelong learning is important as it allows anyone to join educational programmes during any stage in their lives. However, the level of digital literacy may mediate the relationship between lifelong learning and sustainable development especially when it comes to online learning. Digital literacy is broadly regarded as a potential mode of participating effectively in online communities. Since statistics and communications are pivotal to societal participation and improvement, the role of digital literacy is significant to the sustainable development of a country. Quantitative research approach based on cross-sectional research design was used in the study. Data was collected via electronic surveys using a structured questionnaire distributed via Google form among the different clusters of learners in higher educational institutes in Sri Lanka. Data analysis was done through descriptive statistics, Pearson correlation and regression analysis. The results indicated that online learning does not significantly influence sustainable lifelong learning. However, traditional classroom-based learning as well as blended learning had a significant influence on sustainable lifelong learning. Digital literacy partially mediates the relationship between online learning and lifelong learning. Findings pave the way for designing and re-designing novel learning approaches to promote lifelong learning.
1. INTRODUCTION

Learning is a lifelong process. Learning can be a formal or an informal process. Learning makes man perfect in terms of enhancement of knowledge and experience which lead to proper decision making. Learning experience may influence attitudinal changes. Therefore, learning is the main part of a person's development. All the countries in the world promote learning as it enhances synergy effect on every aspect of societies and countries at large. However, the learning approach is different from person to person. One approach of an individual may be so productive to him while same would not be suitable to other persons. Therefore, learning approach is the important selection of a person specially if a person pursues continuous professional development. Further, when time, cost and social distance concepts are concerned selection of an appropriate learning approach is a significant decision.

Traditionally learners and teachers meet face to face and conduct teaching and learning process in a physical place. This may occur at pre-schools, schools and universities. Even though this method facilitates learners to focus their full attention on the learning process, sometimes this method was not productive as learners were detached from family, especially from parents' observation. This method created some social distractions when students migrated to foreign countries leaving parents and family members in the local territories. However, with the development of internet, technology-mediated learning approaches were introduced in higher educational institutes all around the world. This trend promoted blended learning approach. In this method teachers extend their teaching and assessment processes into learning management systems (LMS), where some extra activities put into LMS. This method became popular among both academic and student community because classroom time could be effectively used and extra activities can be deposited in the LMS. This blended method was more effective than the traditional classroom method.

With the advent of COVID-19 pandemic, social distancing was the easiest and most effective solution to fight against the fast spreading virus. Schools, colleges, universities were closed all around the world and teaching learning approaches were shifted to fully online platforms. The communication among the human being was completely limited to online platforms and most common among them were Zoom, MS Teams, Google Meet and online meeting etc. Educational institutes had no option other than moving into online lecturers and examinations. Many practiced this teaching-learning process more than one year all around the world and with the controlling of COVID-19 pandemic many tried to assess the effectiveness of different learning approaches.

Learners as well as educators attempted to comment on different teaching and learning approaches and the role of digital literacy in supporting the academic activities. Still there are gray areas to investigate as which approach most influence achieving the learning outcomes, because each method has its inherent pros and cons. Therefore, this research was conducted to assess the potential of learning approaches to promote sustainable lifelong learning and to examine the role of digital literacy.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The early contributors to the literature of learning approaches and learning outcomes had different findings. The common observation of many of such reviews is the lack of consistency in constructs used to measure learning approaches as well as learning outcomes as well. However, based on the following literature review the researcher developed the hypothesis.
The knowledge of the world created from some specific places. Like Gurukula or teacher-centered. Learners are expected to meet the teachers. This methodology of face-to-face created groups or class of learners. Classroom based education is so productive as small number gather and interact within them (Pastirik, 2006). Cognitive engagement in the classroom is characterized as “a psychological state in which students put in a lot of effort to truly understand a topic and in which students persist studying over a long period of time” (Rotgans and Schmidt, 2011 p.1)

H1: Classroom-based learning significantly influenced on learning outcomes

With the advent of the COVID-19 Pandemic, online learning was highlighted and accepted by many learners as the most flexible solution. The analysis of students’ contributions to online discussions provides evidence of effective collaboration in online environments (Curtis, and Lawson, 2001, p.31). Many even predict that the world has no option other than doing everything online. Aligned with this development; the researchers developed the 3rd hypothesis as follows.

H3: Online learning significantly influenced learning outcomes

Technology plays a key role in online learning. The level of digital literacy is important as it enable learners to bridge the knowledge gaps. Therefore, it was interesting to investigate the role of digital literary in this context. “Having digital literacy requires more than just the ability to use software or to operate a digital device; it includes a large variety of complex skills such as cognitive, motoric, sociological, and emotional that users need to have in order to use digital environments effectively” (Alkali, and Amichai-Hamburger, 2004. p.1). Accordingly, the fourth hypothesis was formed as follows:

H4: Digital literacy mediates the relationship between online learning and learning outcomes

Figure 1: Conceptual Framework
3. METHODOLOGY

The deductive research approach was used in the study, and a cross sectional survey was held. A self-administered questionnaire was utilized and collected data from 386 respondents. The Google form online method was used to collect the questionnaires. The simple random sampling method used to collect the data. The average response rate is approximately 18%. Learners attached to the higher educational institutes of Sri Lanka were selected and emails were sent to nearly 2000 learners. Questions were mainly designed on 5-point Likert scale and a few open-ended question formats. The quantitative analysis was done with multiple regression analysis. Normality, linearity, multi-collinearity and homoscedasticity tests were conducted as pre-requisite before running multiple regression analysis. (See Figures 2, 3 and 4). The independent variables were free from multi-collinearity diagnostic, as VIF values are below 5 and value of tolerance greater than 0.2. Reliability of the data was making sure through Cronbach Alpha assessment. All the Cronbach’s Alpha values were well above the cutoff point of 0.7. With the help of exploratory factor analysis the factor loadings were identified. Validity test was conducted in few aspects as face, content, criterion and constructs validities. The main criterion of convergent validity test was performed and calculated Average Variance Extracted (AVE) and composite reliability (CR). AVE values were greater than 0.5 and composite reliability values are also greater than the cutoff point of 0.7. The discriminant validity test was done through square of AVE and compared with the corresponding correlation values of exogenous variables. AVE square values were greater than 0.5 except two situations all other circumstances those values were greater than the correlation values of independent variables. Therefore, similar to convergent validity, the discriminant validity also appeared to be high. This validates the construct validity of the questionnaire.

Table 1: Validity and Reliability of the measurement model

<table>
<thead>
<tr>
<th>Variable</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
<th>AVE²</th>
<th>Corr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRB</td>
<td>.758</td>
<td>.91</td>
<td>.71</td>
<td>.41</td>
<td>.51</td>
</tr>
<tr>
<td>BLB</td>
<td>.784</td>
<td>.84</td>
<td>.80</td>
<td>.54</td>
<td>.534</td>
</tr>
<tr>
<td>OLB</td>
<td>.782</td>
<td>.92</td>
<td>.81</td>
<td>.45</td>
<td>.268</td>
</tr>
<tr>
<td>DL</td>
<td>.804</td>
<td>.79</td>
<td>.77</td>
<td>.49</td>
<td>0.131</td>
</tr>
<tr>
<td>LO</td>
<td>.849</td>
<td>.78</td>
<td>.66</td>
<td>.44</td>
<td>.544</td>
</tr>
</tbody>
</table>


Table 2: Demographic Profile of the Sample

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>129</td>
<td>33.4</td>
<td>33.4</td>
</tr>
<tr>
<td>Female</td>
<td>257</td>
<td>66.6</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>386</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>Frequency</td>
<td>Percentage</td>
<td>Cumulative Percentage</td>
</tr>
<tr>
<td>18-25</td>
<td>183</td>
<td>47.4</td>
<td>47.4</td>
</tr>
<tr>
<td>26-30</td>
<td>139</td>
<td>36.0</td>
<td>83.4</td>
</tr>
<tr>
<td>31-35</td>
<td>24</td>
<td>6.2</td>
<td>89.6</td>
</tr>
<tr>
<td>36-40</td>
<td>24</td>
<td>6.2</td>
<td>95.8</td>
</tr>
<tr>
<td>41-45</td>
<td>11</td>
<td>2.9</td>
<td>98.7</td>
</tr>
</tbody>
</table>
According to the Table 02 above, out of the total student population, female students’ participation was relatively higher than male students’ participants. Approximately two third of students are female. Majority of students (83.4%) are in the age range of 18-30. Out of 386 students 23.8 are married while 72.4% are unmarried. According to the ethnic representation 75.1% students are Sinhala. 15.3% Tamil and 9.6% represented by Muslim students.

4. RESULTS

Following Tables and Figures presents the results of statistical analysis. The main analytical test for hypothesis test is multiple regression analysis. The following Table 3 shows that the independent variables (MCLB; Classroom- based learning, MBL; Blended learning, MOLB; Online learning based and MDL; Digital literacy all together explain 76.5% variability on dependent variable (MLOC; Learning outcomes). However, the exact impact is 58%. The Table 4 shows, outcome of ANOVA \( (F=134.026, p<0.05) \) indicates that the independent variables are statistically significant and predict the dependent variable. (The regression model is good fit with the data).

Table 3: Mode Summary

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.765a</td>
<td>.585</td>
<td>.580</td>
<td>.39064</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), MDL, MCLB, MBL, MOLB
b. Dependent Variable: MLOC

The Table 5 shows the regression coefficients. According to the table online learning-based approach had not significantly influenced on the learning outcomes. \( (p>0.05) \), \( p= 0.061 \). However, classroom-based learning and blended learning had demonstrated a significant relationship towards the learning outcomes.
Table 4: ANOVA Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regression</td>
<td>81.807</td>
<td>4</td>
<td>20.452</td>
<td>134.026</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>58.139</td>
<td>381</td>
<td>.153</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>139.946</td>
<td>385</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: MLOC
b. Predictors: (Constant), MDL, MCLB, MBL, MOLB

Table 5: Regression Coefficients

<table>
<thead>
<tr>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.391 (.150)</td>
<td>Beta</td>
<td>2.614 (.009)</td>
</tr>
<tr>
<td>MCLB</td>
<td>.33 (.039)</td>
<td>.352</td>
<td>8.624 (.000)</td>
</tr>
<tr>
<td>MBL</td>
<td>.229 (.050)</td>
<td>.233</td>
<td>4.617 (.000)</td>
</tr>
<tr>
<td>MOLB</td>
<td>.090 (.048)</td>
<td>.100</td>
<td>1.880 (.061)</td>
</tr>
<tr>
<td>MDL</td>
<td>.244 (.042)</td>
<td>.314</td>
<td>5.795 (.000)</td>
</tr>
</tbody>
</table>

a. Dependent Variable: MLOC

Table 6 shows, the testing of mediation relationship of digital literacy on online learning. Theoretically, without reasonable information and communication technological (ICT) knowledge online learning is not efficient. Therefore, Digital literacy is playing a pivotal role in technology mediated learning. In order to measure these relationship mediation relationships were tested in four steps as in table 6. According to that all four steps of regression tests derive significant p values. So, it is proven that, digital literacy has a partial mediation between online learning and learning outcomes.

Table 6: Testing mediation relationship

<table>
<thead>
<tr>
<th>Steps</th>
<th>Variables</th>
<th>Estimate P value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Independent Online Learning</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>2</td>
<td>Mediation Digital Literacy</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>3</td>
<td>Dependent Learning Outcomes</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>4</td>
<td>Independent Online Learning</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

According to the summary of hypothesis testing in Table 7, traditional classroom-based learning approach and blended learning approach had significantly influenced learning outcomes. However, online learning approach had not significantly influenced learning outcomes. Therefore, according to the Table 6, test of mediation was done. It demonstrates the fact that digital literacy partially mediates the relationship between online learning approach and learning outcome (Figures 2, 3 and 4).
### Table 7: Summary of Hypothesis Testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Estimate</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Class room based learning significantly influence learning outcomes</td>
<td>.000**</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2: Blended learning significantly influence learning outcomes</td>
<td>.000**</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3: Online based learning significantly influence learning outcomes</td>
<td>.061**</td>
<td>Rejected</td>
</tr>
<tr>
<td>H4: Digital literacy mediate the relationship between online learning and learning outcomes</td>
<td>.000**</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Note: N=386; **p< 0.01

---

**Figure 2: Normality of Data Distribution**

**Figure 3: Linearity of Data**
5. CONCLUSIONS

The purpose of this study was to examine the potential of learning approaches to promote sustainable lifelong learning and the role of digital literacy pertaining to the students attached to higher educational institute in Sri Lanka. With the advent of the global COVID-19 pandemic the entire world had to maintain the social distancing concept. The most vulnerable segment of this was the learning community all around the world. Fortunately, alternatives were introduced temporarily to curb the virus and continue the education amidst the COVID-19 pandemic. While experiencing the aftermath of the first and second waves, the World Health Organization warns of a possible third wave also. By the 20th April 2021, Europe as well as India was in the centre of the pandemic threat. This indicates the gravity of challenges faced by the entire world irrespective of their economic stability. Under such a scenario the current study address with the participation of Sri Lankan students, how three types of learning approaches would be effective in supporting their continuous education.

Irrespective of the fact that online learning is an essential part during a global epidemic of this nature, this study empirically validates that online learning does not significantly influence learning outcomes. This is a matter to be carefully examined by the authority in any country in the world. Because, technology is necessary, as the study proves digital literacy mediates the relationship between online learning and learning outcomes. But the problem is, how far online learning is underpinning to achieving the learning outcomes. Even in a situation of a global pandemic a country like Sri Lanka where youths are more familiar with the modern telecommunication tools and equipment, as far as education is concerned, still online education and its return is doubtful. These practices may not be applicable to some of the other world where many daily routines are also mostly attached to technologically-based applications. However, the Sri Lankan situation reflects that many students still prefer classroom-based learning and blended learning as it facilitates some extra inputs outside the classroom. Online learning has not been really successful in local regions. The reasons may be the lack of ICT infrastructure, low knowledge levels, domestic as well as workplace barriers and slow social additions and acceptance. So, it is recommended to have future cross-sectional as well as longitudinal studies of a similar nature as well as with different stakeholders. The present research paves the way to study the existing profile of social, cultural and economic background of Sri Lanka compared with the rest of the countries in the world.
REFERENCES


USING ELECTRONIC COURSE MATERIAL FOR LEARNING: PERCEPTIONS OF MEDICAL LABORATORY SCIENCE UNDERGRADUATES

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Abstract

The Department of Medical Laboratory Sciences (MLS) at The Open University of Sri Lanka (OUSL) has been offering a Bachelors Honours Degree in Medical Laboratory Sciences for in-service Medical Laboratory Technologists since 2013. Printed course materials are the main teaching component. By identifying the tremendous potential of using blended learning in teaching and learning, OUSL has commenced using digital technologies, enabling education to become more accessible and immediate for its diverse learning population. As a new initiative, the Department of MLS has recently taken a decision to replace the printed course material with electronic material (e-course material). The e-materials offered are in PDF format and are made attractive compared to the printed versions by including coloured figures and links to videos. The aim of this study was to find the student perceptions on learning through e-course material. Questionnaires were used to collect data from 70 students and 64 responded. Convenient sampling method was used. Among the respondents, 44 were females and 20 were males. The majority (87%) of the learners used mobile phones to access e-course material, mainly from their home. Approximately equal numbers of students have studied printed material and e-course material. There were no correlations found between age, gender or marital status with the reading behaviour where they either read directly using the screen or took printouts. However, there was a significant difference between the age and agreement on the easy accessibility of electronic course material (p = 0.034) and reading on screen (p = 0.037). In addition, a significant difference was observed between marital status and preference for electronic course material (p = 0.014). The common trend indicates that students over the age of 35 preferred to read on the screen and value the easy accessibility of learning through electronic devices contradicting the accepted stereotyped views on older learners.
1. INTRODUCTION

Use of digital textbooks and e-course material is more common among the academic community at present in the West. E-course material could be easily accessed through mobile digital devices such as smartphones and tablets. E-course material has the potential to be more advanced in comparison to printed course material, due to cooperating interactive activities and multimedia (Choi, Heo, Lim, and Jo, 2011; Lee, Messom, and Yau, 2013). However, multiple studies have reported lower preference for reading digital material over printed material irrespective of the readers’ gender or easy accessibility (Chou, 2012; Woody, Daniel, and Baker, 2010). Despite this easy accessibility, there have been some difficulties that have been pointed out. Some include difficulty in reading texts on a small computer screen for a long period of time (Wilson, 2003), using technology (Baek and Monaghan, 2013) and comprehending online texts (Lam, Lam, and McNaught, 2009) which have been pointed out as factors contributing towards less preference for e-course material. A few studies have shown that learners emphasize on the beneficial aspects of electronic material including economic benefits, portability and mobility (Baron, Calixte, and Havewala, 2017; Ji, Michaels, and Waterman, 2014).

The learning style of an individual is an important factor which contributes to an effective learning process which may be specific to that individual. These learning styles have been classified according to sensory preferences of the individuals using visual, aural, read/write, kinesthetic (VARK) classification (Fleming and Mills, 1992). A novel typology of structural elements of electronic course materials considering the VARK classification has been introduced (Klement, Dostál, and Marešová, 2014). These structural elements include navigation in the studio, providing multimedia content, interactivity in education and mediate the content (Klement et al., 2014). It’s worthwhile considering incorporating these structural elements into e-course material in order to provide the full benefit to learners.

The Open University of Sri Lanka (OUSL) has been using printed course materials as the core teaching component from its inception. The Department of Medical Laboratory Sciences offers Bachelor of Medical Laboratory Sciences Honours Degree programme for registered Medical Laboratory Technologists serving in the health sector. The degree programme consists of minimum 120 credits, with 30 credits each at Levels 3, 4, 5 and 6. Course material is the main teaching component in the programme of study and the course material is comprised of sessions. Each session contains a session outline, introduction, content, activities learning outcomes and references. Considering the increased affordability, portability and its use in research, the Department of Medical Laboratory Sciences took the decision to replace printed course material with e-course material starting from the academic year 2018/2019.

E-course material provided for the students are in the PDF format with the additional features of a PDF with colour images as opposed to the black and white images used in the printed material. Student perceptions of using online technology in order to facilitate teaching and learning in Health Sciences in an ODL context have been reported previously (Maboe, 2017). However, student perceptions on using e-course material in an ODL mode have not been studied previously. With various studies carried out in different parts of the world, it is important to understand the perception of our students on e-course material who are in the Open Distance Learning (ODL) mode. The current study was carried out to identify learner perceptions on learning through e-course material. Thus, the findings of the current study would provide the areas to be developed in e-course material and will enable to make evidence-based policy decisions.
2. RESEARCH METHODOLOGY

2.1 Approach and Study design

A mixed methods design was used in the current study. Sixteen statements in the questionnaire were evaluated on a 4 point scale where 1 indicates “Strongly Disagreement” and 4 indicates “Strongly Agreement”. Open ended questions were also used in the questionnaire.

2.2 Study population

Bachelor of Medical Laboratory Science Honours undergraduates at levels 4, 5 and 6 were recruited in the study.

2.3 Sampling method

Convenient sampling method was used. Printed questionnaire was distributed among the students at levels 4, 5 and 6 in the BMLS Hons Degree programme.

2.4 Sample size

A total number of 70 students at levels 4, 5, and 6 were included in the study with only 64 students who have responded.

2.5 Data instrument

A self-administered questionnaire consists of demographic data and learner perceptions on learning through e-course material was used.

2.6 Data Analysis

Data was analyzed using SPSS statistical software (version 21). Descriptive analysis was done under six categorical variables; Gender, Age, Civil status, Reading method, Mostly Used Device and the place that they used to access the online course material. Chi-square test was used to determine the association between the variables. The median score variances amongst the markers such as age, gender, marital status with the agreement on the statements was determined using Mann Whitney U test. \( p<0.05 \) considered significant.

3. RESULTS

3.1 Demographic data

Among the respondents, 44 (69%) were females and 20 (31%) were males and the majority of the samples were below the age of 40 years. Only 10 students were above the age of 40 years. The majority of the students were married 43 (67.19%) and only 21 students were single (32.81%) (Table 1).

3.2 The devices used and the place of access

Majority of the individuals (62%) have used their mobile phones to access e-course material, mainly from their home, while only a smaller proportion have used desktops (Table 2).
Table 1: Demographic data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>44</td>
<td>68.75</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>20</td>
<td>31.25</td>
</tr>
<tr>
<td>Age category</td>
<td>25-29</td>
<td>20</td>
<td>31.3</td>
</tr>
<tr>
<td></td>
<td>30-34</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>35-39</td>
<td>18</td>
<td>28.1</td>
</tr>
<tr>
<td></td>
<td>40-44</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>45-49</td>
<td>3</td>
<td>4.7</td>
</tr>
<tr>
<td>Civil status</td>
<td>Married</td>
<td>43</td>
<td>67.19</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>21</td>
<td>32.81</td>
</tr>
</tbody>
</table>

Table 2: The device used and the place of access

<table>
<thead>
<tr>
<th>Mostly used device</th>
<th>Home</th>
<th>Work</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop</td>
<td>2 (3.1%)</td>
<td>1 (1.6%)</td>
<td>3 (4.7%)</td>
</tr>
<tr>
<td>Laptop</td>
<td>5 (7.8%)</td>
<td>0</td>
<td>5 (7.8%)</td>
</tr>
<tr>
<td>Mobile phone</td>
<td>40 (62.5%)</td>
<td>16 (25%)</td>
<td>56 (87.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>47 (73.4%)</td>
<td>17 (26.6%)</td>
<td>64 (100%)</td>
</tr>
</tbody>
</table>

3.3 Modes of reading

Approximately 52% of the learners have used printouts of the e-course material, while 48% of the learners have used e-course material (Figure 1).
3.4 Annotating and highlighting the course material

Most of the students (91%) did not highlight the text in the e-course material, while (61%) of the students highlighted the text in the printouts taken from the e-course material (Figure 2).

Figure 2: Highlighting the text. (A) Printouts of the e-course material. (B) E-course material

Approximately 46% of the learners were making annotations in printed material while only 11% of the learners did so with the e-course material (Figure 3).

Figure 3: Annotating the text. (A) Printouts of the e-course material. (B) E-course material

3.5 Challenges in using e-course material instead of printed course material

Numerous students have given feedback on the challenges faced when mandated to use e-course material, rather than traditional printed course material. There are obstacles in accessing the e-course material on computers, including the lack of 4G internet services. There is fatigue in reading course content on digital platforms over a prolonged period of time. Feedback comments on this matter, “using e-course material for a long time is very difficult and not good for eyes” and “difficult to read for a long time”. There are also students who aired their concerns over the adverse effects of losing electrical power as a challenge in using e-course material.
3.6 Association between the variables

The cluster bar chart on the gender and the mode of reading is given below. Majority of the female students preferred to read printed course materials, while most of the male students preferred to read e-courses materials (Figure 4). However, there was no significant association identified between the gender and the mode of reading (p=0.074).

There was no significant association identified between the marital status of the learners and the mode of reading (p=0.532) (Figure 5).

3.7 Statement evaluation on a four-point scale

The median score highlights the differences in the ages of the learners and the agreement on ease of accessibility of electronic course material, see Figure 6. The common trend indicates that students over the age of 35 or higher agreeing to the statement on ease of accessibility of e-course material. There is a significant difference in the median scores between the two age groups on agreeing upon the easy accessibility of electronic course material (p=0.034).
The following cluster bar chart shows that a greater number of students less than 35 years of age, do not agree on the easy readability of e-course material, while the majority of the students who are 35 years of age or more, have agreed on the same (Figure 7). There is a significant difference between the two age groups on agreeing with the statement “easy readability of the e-course material” (p=0.037).

Most of the married students (26 out of 34) preferred to use e-course material, but the majority of the single students did not prefer to use e-course material. A significant difference (p=0.014) was identified between the marital status and the preference over the mode of reading (Figure 8).
4. DISCUSSION

The majority of the students in the current study were females and were below the age of 40 years. Most of the learners used mobile phones over laptops, desktops and tablets. In addition, learners have accessed e-course material from home. Approximately equal number of students have studied both the printouts of the material and the e-course material. In contrast to the findings of this study, multiple studies have reported preference for printed material over the electronic version among the academic community (Li, Poe, Potter, Quigley, and Wilson, 2011), undergraduates (Mizrachi, 2014) and undergraduates and postgraduates (Pálsdóttir, 2019). However, these studies have not been conducted in an ODL context. Most of the students (89%) did not highlight the text in the e-course material while 60% of the students highlighted the text in the printouts taken from the course material in the current study. Similarly, a previous study showed that over 80% of the learners highlighted the text in the printed material, while only about one third of the students did so with the electronic material (Mizrachi, 2015). In addition, students in Pálsdóttir et. al. have reported that highlighting the text in electronic material is not easy as highlighting the printed material as well as the importance of using a software which is easier to highlight (Pálsdóttir, 2019). Approximately 46% of the learners were making annotations in printed material while only 11% of the learners did so with the e-course material in the current study. In line with the current study, a few other studies have reported that the learners found it easier to make annotations in printed material over electronic material (Baron et al., 2017; Mizrachi, 2015; Pálsdóttir, 2019).

Furthermore, e-course materials could be designed as hypertext interactive learning materials with multimedia elements which would motivate the learner. Virtual laboratorie, videos, interactive on-line tests, sound records could be incorporated to e-course material to cover the structural elements described in Klement et.al. (2014) Thus, these features could be recommended, while developing e-course material.

Majority of the female learners preferred to read course material through printouts, while male students preferred to read on the screen. However, there was no significant association between the reading method and the gender or the marital status. Partially in line with the current study, a previous study has reported females in a non-academic context.
environment tend to read printed media over digital media in contrast to males (Liu and Huang, 2008). Students above the age of 35 years agree on the statements: “easy accessibility of e-course material” and “easy to read on screen” with a significant difference between the two age groups on agreeing upon these statements. Students agreeing on the easy access to electronic material and the ease of handling have also been reported previously in studies (Baron et al., 2017). However, the association of easy accessibility of e-course material with the age has not been studied previously. Marital status showed a significant association for learners with a preference for using electronic course material, where married learners prefer to use the e-course material more than the single students in the present study and the reason for this should be determined separately. Recent studies have shown, that reading e-course material leads to eyestrain and headaches (Baron et al., 2017; Farinosi, Lim, and Roll, 2016). Although this study did not explore the physical side effects which may result from the prolonged use of e-course material, a student has indicated that “using e-course material for a long time is very difficult and not good for eyes” as a challenge to using e-course material.

Providing e-course material to students would reduce costs in printing, dispatching, distribution, and handling of printed course material. In addition, physical storage issues will be resolved to a larger extent. Considering the data gathered in the current study and previous findings, it is apparent that the students should be given a choice to use e-course material or printed material. The OUSL has made the decision to waive a considerable percentage of student tuition fees for those courses providing e-course material instead of printed material. Thus, students have the option to print e-course material with the tuition fee waiver if they choose to read from the printed course material. In addition, the Department of Medical Laboratory Sciences would keep a few printed course materials in the university library and regional centres. Therefore, students will have the choice of using e-course material or the printed material with an added benefit to the institution by reducing the cost and storage issues.

However, replacing printed course material with e-course material with the rapid technological development could be a better option considering the improvements that could be made for an efficient learning process as previously reported (Klement et al., 2014). Therefore, according to the current study approximately an equal proportion of students use printed as well as e-course material, emphasizing the importance of upgrading e-course material suitable for a more efficient learning process.

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Farinosi, M., Lim, C., and Roll, J. (2016). Book or screen, pen or keyboard? A cross-cultural sociological analysis of writing and reading habits basing on Germany, Italy and the UK. *Telematics and Informatics, 33*(2). https://doi.org/10.1016/j.tele.2015.09.006


Mizrachi, D. (2014). Online or print: Which do students prefer? *Communications in Computer and Information Science, 492*. https://doi.org/10.1007/978-3-319-14136-7_76


LEARNER PERCEPTIONS ON THE MODE OF DELIVERY OF MATHEMATICS COURSES: THE CASE OF SRI LANKAN OPEN AND DISTANCE LEARNERS IN MANAGEMENT STUDIES

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Learner perceptions, Mathematics, Management, Open and Distance Learning

Abstract
The new technologies which have been used in distance education by The Open University of Sri Lanka have widened the opportunities for the learners in Management Studies especially during the Covid-19 pandemic by shifting the modes of course delivery to online platforms. Though Mathematics courses will enrich such learners with numerical and analytical skills with strong business acumen, special attention is needed when delivering those courses, as the nature of these are different than the other courses in Management programmes. Hence, the study intends to evaluate the learner perceptions on preferred mode of delivery of Mathematics courses and attempts to identify any variations in the preference for the mode of delivery owing to the differences in employment status, medium of study, gender, and age of the learner. The study further intends to investigate the association between the attendance for online sessions and preferred mode of delivery. The variations were analysed using a quantitative approach for which data were collected from Open and Distance learners in Management studies using a self-administered questionnaire. The results revealed that fully online mode (study materials and lectures delivered as online videos, files, and online assignments) was the most preferred mode of delivery for Mathematics courses. Further, the results suggested that preference to the mode of delivery will not be affected by the characteristics of the learner in an ODL setting such as age, gender, employment status, medium of study, level of study, and attendance for online lecture sessions. It was further revealed that learners significantly used mobile phones when engaging in online learning and emphasized on the need of incorporating social media into the teaching, learning and communication process. Hence, this study independent variables used to testify the productivity of ODL could be used in generating a proactive response to develop blended learning strategies for Mathematics courses.
1. INTRODUCTION

Parallel to the enhancement in diversity in many different aspects of life, pathways to education also claim to be diversified, growing, open as well as free, with the increased usage of technology (Karunanayaka and Naidu, 2020). The 21st century demands the growth in Open and Distance Learning (ODL) which then requires proper and systematic studies and research into a greater depth with the aim of developing and improving ODL.

Due to the COVID-19 pandemic, opportunities in online based education have been widened and hence, shifting to online platforms in education has become a prominent and a timely requirement. Therefore, studies can be carried out on the vision of digitalization of education now and beyond the age of COVID-19 (Mulenga and Marbán, 2020). Kara et al., (2019) pointed out that, the context of each programme or course might be a source of challenge itself for learners, in online distance education. Since Mathematics is one of the most difficult fields to learn as it requires both intuitive and analytic intelligence (Jacobs, 2005) this has been a further challenge to the learner in ODL settings. Especially in a management study programme, where a majority of the learners are coming from a non-mathematics background after their secondary education, a major focus must be placed in this regard. Moreover, as the nature of mathematical courses are different to the other courses in Management programmes, more complexities have arisen, and this has also been proven with the significant findings of a preliminary study.

According to Kara et al. (2019), the ODL administrators are required to get feedback from learners, in terms of the effectiveness of their distance learning experience, due to the special and unique nature of the ODL setting. Consequently, such continuous studies have paved the way to evaluate and improve the quality of the course delivery in the aforementioned setting. However, hardly any previous study could be found to have been done in this regard especially in the Sri Lankan higher education context relating to Management studies.

Accordingly, to serve the broader purpose of the study, which is to evaluate the perceptions of Sri Lankan Open and Distance learners in Management studies on mode of delivery of mathematical courses, the authors have set the following research objectives.

1. To identify the learners’ preferred modes of delivery for mathematical courses in ODL setting.
2. To assess the association between mode of delivery and variables such as age, gender, employment status, medium of study, level of study, and attendance for online lecture sessions.
3. To analyze the behaviour of learners in ODL in terms of lecture attendance and tools used to attend lectures.
4. To evaluate the learner perceived quality of online lecture sessions.

2. LITERATURE REVIEW

2.1 Open and Distance Learning

In numerous studies, various scholars have defined Open and Distance Learning (ODL) and Distance Education (DE), and it could be noted that these terms have been used interchangeably (Bozkurt, 2019) in the same context. However, many authors debate claim that ODL and DE are significantly different from each other while some authors deny this claim. According to Bates (2005), Open learning is a goal...
or an educational policy which is characterized by the removal of barriers of any kind, where no one should be denied access to an open learning programme which in turn demands the use of technologies that are available for everyone engaged in open learning. Bates (2005) has further stated that DE is less of a philosophy unlike open learning and more likely to be a method of education where learners can study on their time, at their chosen place of study and without face-to-face interactions with a teacher. Adeniyi and Oladele (2019) have also reviewed the term ODL and emphasized the fact that learners are provided with flexible opportunities to learn in this setting, and can disregard the time and place constraints. Irrespective of the differences in the concepts, owing to the positive factors, such as flexibility, affordability, accessibility and life-based education (Musingafi et al. 2015), developed and developing countries have widely adopted ODL, to cater to the demands of learners in the 21st Century (Musingafi et al., 2015). Nevertheless, learners are not free from certain challenges that are stemming from ODL which has led to a higher rate of learner drop out as proved by Hapugoda et al., (2018) in a study conducted in the Sri Lankan context. Another study conducted by Kara et al. (2019), has identified that detailed examination of such challenges would be able to positively influence the learner dropout decisions. Unique characteristics of adult learners who compose the largest audience of ODL, cause unique challenges for them, unlike for traditional learners. They may take up courses while continuing their work as well as while dealing with family responsibilities (Kara et al., 2019). Accordingly, they have identified certain challenges in their study and categorized these into three themes namely, Internal challenges, External challenges and Programme related challenges. Internal challenges included management challenges, learning challenges and technical challenges. External challenges comprised job-related challenges and domestic challenges while Programme-related challenges included tutor-related challenges and institutional challenges. Musingafi et al., (2015) have identified three types of challenges faced by Open and Distance learners: Individual related challenges; Instructional related challenges; and Institutional related challenges. Results of a study conducted by Ohene, (2014) revealed that distance education programmes comprise of Instructional challenges, Financial challenges and Challenges in institutional support. However, Kara et al., (2019) claims that these challenges vary, mainly depending on the gender, age, knowledge and skills of the learners as well as the context where they study. Hence, it can be noted that learners in ODL setting are naturally challenged in many ways where measures should be taken to aid them in overcoming those challenges.

2.2 Mode of delivery of courses

DE is a planned learning experience or a method of instruction which is characterized by constant separation of instructor and the learner (Burns, 2011). The experience from different studies indicates that, with the technology used, nature of learning, degree of interactivity support and the institutional setting, major differences can be found in ODL models (Fillip, 2001 as cited in Burns, 2011). Explanation and demonstration of teaching materials and the arrangement of learning activities take-up vital roles when considering traditional in-class teaching methods. The arrangement of learning activities includes experiments, observations, classroom discussions, practice, and presentations etc. (Chen and Lai, 2005). But, within the ODL setting, the learners have no need to attend regular face to face teaching sessions. DE will apply some pedagogical approach in which the learners would be able to actively construct their own knowledge based on their personal experiences in learning.
(Weller, 2002; Croft et al., 2011). With the tremendous advancement of technology, other than the traditional teaching methods, online teaching methods are also used, and now blended learning is widely used in the ODL setting. According to Marsh (2001), blended learning integrates traditional classroom with the e-learning tools which ensure the maximum effectiveness. Furthermore, several modes of delivery in the ODL setting have been identified which include correspondence mode which is printed media, audio based, televisual, computer based multimedia, web based and mobile based (Burns, 2011; Samkange, 2013).

2.3 Mathematics subject for learners in Management Studies

According to most of the studies, Mathematics can be identified as a very difficult subject which requires both analytical and instinctive intelligence. According to Neale (1969), in the field of Mathematics education, attitude towards learning, plays a crucial role. Further, Wei (1988) has stated that the attitude towards Mathematics subject indicates the person’s preferences, perspectives and ideologies regarding Mathematics. When considering teaching and learning Mathematics subjects in the ODL setting, the problems which were encountered in face-to-face sessions like; lack of interest, motivation, and positive attitude could be solved through the blended learning methods. Most of the studies revealed that, blended learning would facilitate very proactive learning and interactivity in between learners and the mediator in the learning environment for a subject like Mathematics (Lin et al., 2017). Generally, the Open and Distance learners in Management Studies appear to be from a commerce background which lacks the knowledge and competencies in Mathematics. As a result, such learners encounter certain problems in learning Mathematics in their study programmes. Further, Abramovitz et al., (2012) identified that many problems could occur in face-to-face Mathematics teaching framework for beginners. Not specializing in Mathematics, lack of interest, and lack of motivation could be identified as the reasons for the problems encountered. Hence, the blended learning approach can be used to facilitate very active learning and escalate the interactivity among the learners and the moderator. Furthermore, it can be used to improve the learners’ control in doing Mathematics related tasks and the learners’ interest in Mathematics. Also, the usage of blended learning helps in diversifying the instructional delivery in Mathematical courses as blended learning is a combination of conventional face to face learning, online and web-based technologies (Awodeyi et al., 2014).

3. METHODOLOGY

The study was conducted using a quantitative approach for which data were collected from Sri Lankan Open and Distance learners in Management studies, which was the considered sampling unit. The researchers adopted a self-administered questionnaire based on the literature and the student feedback forms developed by the Quality Assurance Cell, The Open University of Sri Lanka. The sample consisted of 101 Management learners drawn using Stratified sampling method based on the 4 levels of study according to Sri Lanka Qualification Framework (sample percentages: level 2 – 15.8%, level 3 – 45.5%, level 5 – 27.7% and level 6 – 10.9%) from a population of 914 learners. Although the researchers initially planned to obtain data from 20% of the population, the effective response rate accounted only for 11.05% of the population. The data were collected during August – November 2020 using a Google form, and were analyzed using IBM SPSS 23.0.
To achieve the set objectives of the study, the following hypotheses were tested using the Chi-square test.

H1: There is an association between age of the learner and mode of delivery of the course.

H2: There is an association between gender of the learner and mode of delivery of the course.

H3: There is an association between medium of study and mode of delivery of the course.

H4: There is an association between employment status of the learner and mode of delivery of the course.

H5: There is an association between number of online sessions participated by the learner and mode of delivery of the course.

H6: There is an association between level of study of the learner and mode of delivery of the course.

4. RESULTS AND DISCUSSION

4.1 Sample profile

Figure 1 depicts the profile of the sample considered for the current study. When the sample was analyzed for the age distribution, it was noted that 46.5 percent of the sample were between “26 years to 35 years”, which was also the percentage in the “25 years and below” category. Considering its gender distribution, it was revealed that the sample consisted of more females with a percentage of 68.3 and males with a percentage of 31.7. It is noteworthy that most of the learners included in the sample were employed accounting for a percentage of 63.4 which represents another unique characteristic of a learner in the ODL setting. According to the analysis, it is visible that most of the learners pursue their studies in English medium amounting to a percentage of 50.5 and only 5.9 percent (the least) of learners follow the courses in Tamil medium and the rest follow in Sinhala medium.
4.2 Analysis of mode of delivery

Figure 2 depicts that, a majority of the learners; with a percentage of 32, are interested in fully online mode where the study materials and lectures are delivered as online videos, files, and online assignments. Also, it was noted that, 23% of the learners are interested in both the face-to-face lecture sessions and lectures which are delivered in partial online mode. Further it was found that 19% of the learners prefer printed study materials and lesser number of face-to-face lectures. Also, according to the analysis, it was noticed that 2% of the learners prefer online lectures and printed course materials while 1% of the learners prefer the existing mode of delivery where the face-to-face lectures are delivered with printed materials and online assignment submission.

4.3 Hypothesis tests results

The analysis proceeded to the next stage where authors used Chi-square test, to test the hypotheses, to answer the research questions and ultimately achieve the research objectives. The results of hypothesis tests are shown in Table 1. Results revealed that there were not any significant association between mode of delivery and variables such as age, gender, employment status, medium of study, level of study, and attendance for online lecture sessions. Therefore, it can be concluded that preference for the mode of delivery will not be affected by the characteristics of the learner in ODL setting such as age, gender, employment status, medium of study, level of study, and attendance for online lecture sessions. As a result, variation to the learner preference from above factors need not be anticipated when deciding a suitable mode of delivery for the Mathematical courses. Hence, their preferred mode of
delivery given to the study, in the form of responses to the questionnaire, can be considered final, when shifting from traditional modes to novel, innovative and online modes of delivery.

Table 1: Results of hypothesis tests

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>P value</th>
<th>Supported/Not supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: There is an association between age of the learner and mode of delivery of the course</td>
<td>0.590</td>
<td>Not supported</td>
</tr>
<tr>
<td>H2: There is an association between gender of the learner and mode of delivery of the course</td>
<td>0.605</td>
<td>Not supported</td>
</tr>
<tr>
<td>H3: There is an association between medium of study and mode of delivery of the course</td>
<td>0.114</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4: There is an association between employment status of the learner and mode of delivery of the course</td>
<td>0.294</td>
<td>Not supported</td>
</tr>
<tr>
<td>H5: There is an association between number of online sessions participated by the learner and mode of delivery of the course</td>
<td>0.161</td>
<td>Not supported</td>
</tr>
<tr>
<td>H6: There is an association between level of study of the learner and mode of delivery of the course</td>
<td>0.163</td>
<td>Not supported</td>
</tr>
</tbody>
</table>

4.4 Quality of online lectures

Although the perceived quality of the online lectures was above average accounting for a value of 3.81, the attendance of learners for online Mathematical subjects has been a major concern. Thus, an analysis of reasons for not attending, was conducted and the results as shown in Table 3 revealed that, inconvenient times has been the major reason followed by other reasons, personal commitments, and poor/no facilities.

4.5 Analysis of the tools/devices/connections used

According to the figures shown below (Figure 3 and Figure 4), most of the learners use mobile phones as the device with mobile data as the connectivity type to access the lecture sessions. According to the previous analysis, it was revealed that the learners encounter some connection issues and are having poor facilities to attend for the lecture sessions. Hence, we can presume that these types of connection issues may lead to experience some unfavourable impacts for a subject like Mathematics which needs proper interactivity and support from the educators. Further the data revealed that, 39% and 6% of the learners use laptops and desktop computers respectively to attend the lecture sessions. To gain the internet connectivity 32% and 4% of the learners use Wi-Fi connection and ADSL connection, respectively.
<table>
<thead>
<tr>
<th>Quality measures</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose (objectives) of the session was explained at the commencement of the session</td>
<td>3.86</td>
<td>.813</td>
</tr>
<tr>
<td>The order of topics was sufficiently logical to help the learning process</td>
<td>3.82</td>
<td>.853</td>
</tr>
<tr>
<td>Subject matter was clearly explained</td>
<td>3.48</td>
<td>.976</td>
</tr>
<tr>
<td>Greater emphasis was placed on the concepts difficult to understand</td>
<td>3.48</td>
<td>.934</td>
</tr>
<tr>
<td>Presentation slides and notes were useful</td>
<td>3.97</td>
<td>.974</td>
</tr>
<tr>
<td>Examples were used for better explanation</td>
<td>3.72</td>
<td>.991</td>
</tr>
<tr>
<td>Learners were encouraged to ask questions and express their views</td>
<td>3.76</td>
<td>1.060</td>
</tr>
<tr>
<td>The lecturer was well prepared for the class</td>
<td>3.92</td>
<td>1.026</td>
</tr>
<tr>
<td>The lecturer came for the session on time</td>
<td>4.15</td>
<td>.792</td>
</tr>
<tr>
<td>Time management of the lecturer was good (sufficient time was spent on each topic)</td>
<td>3.91</td>
<td>.981</td>
</tr>
<tr>
<td>The lecture was audible (loud enough to be heard)</td>
<td>3.79</td>
<td>1.052</td>
</tr>
<tr>
<td>The lecturer is friendly and approachable</td>
<td>3.99</td>
<td>.911</td>
</tr>
<tr>
<td>I am motivated to follow the course after attending the sessions</td>
<td>3.64</td>
<td>1.045</td>
</tr>
<tr>
<td>Overall, the online sessions were effective, and I am happy that I attended the day school because I was able to gain knowledge and clear my doubts</td>
<td>3.83</td>
<td>1.011</td>
</tr>
<tr>
<td>Overall Quality</td>
<td>3.81</td>
<td>0.729</td>
</tr>
</tbody>
</table>
Table 3: Reasons for the poor attendance for online lectures

<table>
<thead>
<tr>
<th>Reason</th>
<th>Mean value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconvenient times</td>
<td>2.851</td>
<td>1</td>
</tr>
<tr>
<td>Other reasons</td>
<td>3.118</td>
<td>2</td>
</tr>
<tr>
<td>Other personal commitments</td>
<td>3.287</td>
<td>3</td>
</tr>
<tr>
<td>Poor or no facilities (ex: internet connection etc.) to attend the sessions</td>
<td>3.406</td>
<td>4</td>
</tr>
<tr>
<td>Because it is optional</td>
<td>3.851</td>
<td>5</td>
</tr>
<tr>
<td>Did not feel the need to attend</td>
<td>4.485</td>
<td>6</td>
</tr>
</tbody>
</table>
5. CONCLUSION, RECOMMENDATIONS AND FURTHER RESEARCH

The findings suggest that, both full and partial online learning modes are well accepted by majority of the learners despite their demographic variations. It paves a way to further improve the quality of teaching and learning under full and partial online modes. However, to address different reasons for poor attendance in online lectures, the authors consider sharing the recordings of the lectures as a best practice.

In contrary to the suggestions made by several previous studies which emphasizes that, retaining learners in the online environment is more difficult than retaining learners in face-to-face formats in higher education context (Allen and Seaman, 2014; Hegeman, 2015), the current study has proved that the learners prefer online and blended modes to conventional face-to-face formats in the same context.

As Khairuddin et al., (2020) suggested, a paradigm shift from Open and Distance Learning to Online Distance Learning is required, and hence educators should equip themselves with adequate knowledge and training as learners are already in the process of adapting themselves for the forthcoming Online Distance Learning era. Thus, innovative delivery methods apart from traditional methods should be proposed to develop effective blended learning strategies. Since most of Open and Distance learners are from the generations of Y (Millenials), Z and Alpha (Hapugoda et al., 2018), researchers propose to integrate social media into online learning (Balakrishnan et al., 2013; Jansz et al., 2019).

Aligning with the results of the study conducted by Mulenga and Marbán, (2020), the published results of the current study also will serve as a basis for making a recommendation to the university management and policy makers at large, to examine the viability of incorporating and stabilizing online learning in the Sri Lankan education system in post pandemic age.

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TOWARD A FRAMEWORK FOR STRENGTHENING PARTICIPANTS’ SELF-EFFICACY IN ONLINE EDUCATION

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Asian practitioners, Framework, Online education, Self-efficacy

Abstract
The purpose of this study was to review the role of self-efficacy in online education to propose a holistic framework for strengthening participants’ self-efficacy, especially in the Asian context. To investigate the potential role of self-efficacy of the participants in online academic activities this study followed the conceptual analysis method by breaking down concepts into constituent elements to get a superior understanding of the philosophy. A vast literature survey has been conducted before proposing the framework in the original article published in the Asian Association of Open Universities Journal. This brief presentation further reports that self-efficacy, the level of confidence someone needs to perform a particular task, is an important factor among teachers and students operating online platforms, and enhanced efficacy is capable of encouraging online academic practices. The proposed framework along with a list of intervention measures if practiced could make online education effective and attractive. This could open up, the author hopes, a new vista in online education by scaffolding participants’ inner thrust to leverage the potential of online education to the fullest. This could be especially helpful to the millions of first-generation online users in several Asian countries who possess low self-confidence in their ability and hence, scored low. This framework could help better integration, interaction, and collaboration in the online learning environment.

1. INTRODUCTION

Mahatma Gandhi, the great Asian thinker said a person often becomes what he believes himself to be, meaning if he keeps on believing that he cannot do a certain thing, he will never be succeed; reversely if he keeps on believing that he can do it, he will surely acquire the capacity to do it even if he may not have it at the beginning (Deats, 2005). This "self-belief" which was later extensively researched as “self-efficacy” by Albert Bandura in his “social cognitive theory” refers to beliefs in one’s capabilities to organize and implement the courses of action needed for producing a given accomplishment and having exclusive power to predict one’s behavior (Bandura, 1997, p. 3).
Self-efficacy determines and controls people’s thoughts and the way they act or behave (Alquarashi, 2016). Peterson and Arnn (2005) consider self-efficacy as the basis of human performance, and it is significant to examine the factors that affect self-efficacy along with the desired behaviors. Self-efficacy beliefs find answer for the question: Can I do this? Hodges (2008) further finds this is situation specific, and individuals may find self-efficacy belief varying from situation to situation. A lot of past studies have examined the importance of participants’ self-efficacy with respect to their use of online education (Teo, 2009) that strongly suggests a link between self-efficacy and technology use potential (Sun and Chen, 2016; Corry and Stella, 2012). Honicke and Broadbent (2016) said using an online platform for education makes sense because today’s students are digital natives, and the majority of these students are well adept at using technology so that a learner’s academic self-efficacy is significantly associated with academic performance. In contrast to conventional face-to-face classroom lecturing, technology enhanced learning not only facilitates the showcasing of multimedia teaching materials but also encourages students to take initiative to research on their own and to share with peers about their personal insights into online forums (Tsai, 2017). Honicke and Broadbent (2016) said self-efficacy beliefs influence academic performance of both teachers and students. Students with high self-efficacy have better self-regulation and more resilience to face obstacles (Bandura, 2001), demonstrate stronger academic performance and emotional attachment (Putwain, Sander, and Larkin, 2013), have increased confidence in their self-regulated learning (Talsma, Schütz, Schwarzer, and Norisa, 2018) which affects their engagement and academic achievements thus increasing their grades and, eventually, are happier all around (LaRocca, 2017). On the other hand, teachers’ with high self-efficacy are more capable of orchestrating teaching–learning activities to bring about “desired changes on student engagement and learning” (Tschnannen-Mora et al., 1998, p. 783), make the teacher “capable of carrying out good teaching” (Christopshersen et al., 2016, p. 241), help students’ achievement (Guo, Connor, Yang, Roehrig, and Morrison 2012), provide job satisfaction and professional commitment (Joo et al., 2013), diminish attrition (Pellas, 2014; Komarraju and Dial, 2014), even influence his/her attitudes for successful integration of technology (Hatlevik and Hatlevik, 2018), less concerned of teaching infrastructures (Kundu, Bej, & Dey, 2021a), and even more influential to students’ learning engagement (Kundu, Bej, & Dey, 2021b).

Thus, the construct of self-efficacy sounds like a recipe for academic success so far as online education is concerned. In this context, the remark of Hodges (2008) becomes pertinent that the role of self-efficacy in online environments is only in its infancy that needs more studies. The current study reviews the role of self-efficacy in online education, especially in the Asian context, there is a huge developing potentiality of online education in Asian countries (Paul, 2020) during the coming decades although it has several big challenges to face like, uneven development, high cost of establishing a system, uneven teaching quality, cultural bigotry and unfair practice (Kundu and Bej, 2020; Kundu and Bej, 2021). Numerous studies that have examined the cultural differences between Western and Eastern educations (Bandalaria, 2018) have provided a consistent picture that describes Eastern education as group-based and teacher-dominated where the students are not encouraged to question or challenge a teacher’s knowledge, centrally organized pedagogical culture with examinations as the essential way to define performance, whereas in Western education, to challenge a teacher or tutor is seen as part of the self-development process as dialogue and interaction are encouraged in the learning process that is more...
commensurate to the online education (Liu et al., 2010). Besides these cultural barriers, digital inclusion in most of the Asian countries to facilitate online learning is uneven which cannot be rooted out overnight (Al Saadi, Addeen, Turk, Abbas, Ahmad, Khan, Faisal, and Khan (2017). Accepting these limitations, the current study researched how participants’ self-efficacy could help them to continue online education amidst these challenges and how their efficacy level could be strengthened. The specific research questions set for this study were as follows:

1. RQ1: What is the role of self-efficacy in online education?
2. RQ2: What are the factors influencing self-efficacy in online education?
3. RQ3: How to strengthen participants’ self-efficacy in online education?

2. THEORETICAL FRAMEWORK

The enhanced Technology Acceptance Model (TAM 3) developed by Venkatesh and Bala (2008) clearly depicts that users’ intention of technology use is clearly influenced by his/her self-efficacy, specifically computer self-efficacy (Figure 1). This model empirically established self-efficacy as an important factor contributing users’ ease of technology use. Hence this model has served as a theoretical framework in this study.

Figure 1: Technology Acceptance Model (TAM 3) (in Venkatesh and Bala, 2008)
3. RESEARCH METHODOLOGY

This study followed the method of conceptual analysis to study the potential role of the participants' self-efficacy in online education. Conceptual analysis consists primarily in breaking down or analyzing concepts into their constituent parts, in order to gain knowledge or a better understanding of a particular philosophical issue in which the concept is involved (Beaney, 2003). The author used secondary data source for analysis that include past research articles and organizational records (mainly of empirical nature). The articles used for literature survey were selected from the education-specific databases of JSTOR digital library, Web of Science, Eric and SCOPUS. A search criterion was developed to select articles for online education to overcome the non-standardized nomenclature, as stated by Corry and Stella (2012). The first selection criterion was “online education” or “online learning” published within last 20 years. The second criteria were “general self-efficacy”, “internet self-efficacy”, “computer self-efficacy” and “online self-efficacy”. The third criteria were “factors influencing online self-efficacy, Internet self-efficacy and computer self-efficacy”. A general search produced 1886 articles relating to self-efficacy in the online academic scenario, which were then limited to 50 empirical articles on the basis of particular search of factors influencing participants’ self-efficacy for online education, especially in the Asian context that have searched for developing a framework, the main focus of this study. Then the selected 50 articles (40 from Asian context) had close reads of the abstracts. The original version of this conference chapter published in the Asian Association of Open University Journal (Kundu, 2020) bears a detail of all 50 selected articles and this 34th AAOU conference chapter focussed mainly on the findings. Out of 50 studies, 40 studies were purposively chosen from the Asian context where technology inclusion is very irregular, gender disparity is prevalent, and skilled teachers are a rarity (Kundu and Bej, 2021). Here self-efficacy of the participants could be a good instrument for overcoming these impediments, which could provide them an intrinsic motivation to sustain in the teaching-learning activities and continue their fight against all odds (Chiu and Tsai, 2014).

Document analysis was used to classify the research studies by research area/theme. Document analysis is a social research method and is an important research tool in its own right to give voice and meaning around an assessment topic and is an invaluable part of most schemes of triangulation, the combination of methodologies in the study of the same phenomenon (Bowen, 2009). It involves skimming (superficial examination), reading (thorough examination), and interpretation (Fereday and Muir-Cochrane, 2006). This study followed the overall recipe of O’Leary (2014) who outlines an eight-step planning process that should take place in document analysis with few changes.

4. RESULTS

4.1 Findings Relating to RQ1

The vast literature on self-efficacy, irrespective of context, show it has a deep impact on persons’ behaviour and performance in the following manner as presented in Figure 2.
Figure 2: The influence of self-efficacy on behaviours and performance (in Bandura, 1993)

The finding of this document analysis reports the role of self-efficacy in online education has a positive correlation with the participants’ academic performance. Bates and Khasawneh (2007) found self-efficacy for online technologies as a good predictor of student performance in online courses and if the students chose to enrol in an online class, it is expected that their technology self-efficacy toward the class was high. Reychav et al. (2016), LaRocca (2017) and Cusso-Calabuig et al. (2018) found participants’ perceived enjoyment in an online course depends on their computer self-efficacy, the root of success in any online course. Taipjutorus (2014) demonstrated a positive relationship between self-efficacy and using technology for teaching purposes. Hatlevik (2017) reported that computer self-efficacy in basic and advanced ICT operational and collaborative skills and self-efficacy in using computers for instructional purposes are highly correlated though separate constructs. Few studies found that self-efficacy has a deep impact on the online learning experience and knowledge even the perseverance to complete an online course (i.e., Kim and Park, 2017; Song et al., 2011; Tang et al., 2014; Shen et al., 2013; Prior et al., 2016). Hong et al. (2017) mathematically established a positive relationship between Chinese learning intrinsic motivation and online learning self-efficacy. The studies (e.g., Lim et al., 2016; Shen, 2015; Deliang Lingling and Hock, 2015; Kuo et al., 2014; Chiu and Tsai, 2014; Joo et al., 2013; Zhang et al., 2012; Chu, 2010; Song et al., 2011) also found that self-efficacy has a deep impact on the participants’ personal innovativeness, communication climate, holding strong perception toward online infrastructure, motivation, asynchronous communication, learner–learner communication or learner–teachers’ communication and knowledge sharing in online mode. Few conflicting outcomes also observed when Pellas (2014) and Jan (2015) reported that computer self-efficacy and student satisfaction level have no positive or significant relationship conversely Kuo et al. (2014) found learners’ self-efficacy and internet usage have positive correlation. Despite these few it could be assumed that policies to strengthen self-efficacy of the participants could help flourishing of online education.

4.2 Findings Relating to RQ2

An in-depth analysis found several factors influencing participants’ self-efficacy for online education that posit human performance technologists must
consider those factors when developing training interventions. The spotlight in a lot of studies fall mostly on the technology factors of self-efficacy in online learning like computer self-efficacy (Pellas, 2014), internet self-efficacy (Lin et al., 2013; Kuo et al., 2014), digital media self-efficacy (Pumptow and Brahm, 2020), learning management system (LMS) self-efficacy (Prior et al., 2016; Martin et al., 2010) and ICT self-efficacy (CussoCalabuig et al., 2018; So et al., 2012). Few studies focused on the role of self-efficacy, task value (Joo et al., 2015; Cho and Shen, 2013; Yokoyama, 2019), and few others focused on the general self-efficacy (Gebara, 2010) in online education. Some studies (Taijutorus, 2014; Shen et al., 2013) investigated multi-dimension of self-efficacy in online learning. Chu (2010) found that emotional family support plays a major role in enhancing internet self-efficacy while Chu and Chu (2010) found peer support and e-learning outcomes play as an important predictor. Law et al. (2010) found a well-facilitated e-learning setting can enhance self-efficacy for online learning while Song et al. (2011) found prior knowledge of online system had a direct effect on online efficacy and participants. Jashapara and Tai (2011) found personal innovativeness with information technology (IT) showed a significant effect on e-learning system self-efficacy, and computer playfulness had a significant positive effect on e-learning system self-efficacy. Zhang et al. (2012) found the psychological safety communication climate as a predictor, Shen et al. (2013) found the number of online courses, Wang et al. (2013) found motivation as a palpable predictor and Chiu and Tsai (2014) found the associated social factors influence self-efficacy for online education. Kuo et al. (2014) said ability to use the internet has a positive effect, which is further supported by Taijutorus (2014). Lin et al. (2008) found social presence as a strong predictor of self-efficacy, while Shen (2015) found the trust between participants as a strong predictor, and Lim et al. (2016) found learner–learner interaction and system quality was related to learners’ computer self-efficacy. Among other factors influencing self-efficacy for online education are attitude and digital literacy (Prior et al., 2016), perceived enjoyment (Reychav et al., 2016), community involvement (Vayre and Vonthron, 2016), personal innovativeness (Kim and Park, 2017) and particular education system of the country (Gerick et al., 2017). The studies of Liou et al. (2016) and Wang and Wu (2008) have reported the benefits of feedback and incentive are important factors influencing self-efficacy in online education to find out whether students attain their goals in learning. Online communication was claimed as an important factor influencing self-efficacy in online education, as stated in studies of Lim et al. (2016), Cho and Cho (2017), Lin et al. (2015), Reychav et al. (2016), Shen (2015) and Vayre and Vonthron (2016). Considering the significance of self-efficacy in online education, there is a need to identify and understand these factors influencing participants’ self-efficacy. A brief diagram of the factors is furnished for easy understanding in Figure 3.
4.3 Findings Relating to RQ3

Finding an answer for the third research question, the author proposed a framework for strengthening participants’ self-efficacy in online education presented in Figure 4 along with a few policy measures (in Table 1) which is the main focus of this study.

4.3.1 Verbal persuasion

The proposed framework presumed that verbal persuasion builds self-efficacy when a particular environment is encouraging and praising individuals with feedback for their competence to improve their effectiveness (Chowdhury, 2020). Empirical evidence behind this proposition is found in a series of studies taken up in this document analysis like Wang and Wu (2008), Chu (2010), Wang et al. (2013), Chiu and Tsai (2014), Tang et al. (2014), Jan (2015), Lin et al. (2015), Shen (2015), Liou et al. (2016) and Hong et al. (2017), etc. Positive self-talks, informal communications, human relationships, etc. can also raise the self-efficacy level of the participants. The author also focuses on the fact that although encouraging messages have the potential to raise self-efficacy, there are chances that it may collapse into bare sermons unless they are supported by efficacy-affirming experiences (i.e., enactive self-mastery with controlled affective domains). Effective verbal persuasion is needed to be reinforced with corresponding actions. For example, telling individuals that they are capable but not assigning them any practical tasks tends to erode both learners’ self-efficacy and the teachers’ credibility. The corresponding measures for verbal persuasion domain are presented in Table 2 for both students and teachers. Verbal persuasion may not be possible or practical in several online courses, but a possible equivalent may be convincing a feedback mechanism through email notes, WhatsApp messaging or phone calls to manipulate learners’ self-efficacy. The interventions involving written communication were also there in Bandura’s verbal persuasion category (Bandura, 2001).
Figure 4: Framework for enhancing self-efficacy in online education

Table 1: Few policy measures to implement the proposed framework

<table>
<thead>
<tr>
<th>Domains</th>
<th>For teachers</th>
<th>For students</th>
</tr>
</thead>
</table>
| Verbal Persuasion | • Encouragement, regular feedback, visions from respective school authorities and governments to teach online.  
• Teacher-teacher interactions will encourage their ability and efficacy.  
• A clear vision before teachers regarding what to teach, how to teach, and access will help their smooth functioning.  
• The stress produced during teaching online especially from inabilities need to be reduced by suitable mentoring and peer support. | • Encouragement from parents, teachers, and society as whole will enhance their use of online learning.  
• Constructive feedback from teachers and parents will help to strengthen their self-confidence.  
• A clear vision from school authorities and teachers when and how to get benefits from online learning will enhance their belief. The vision and guidelines for how to overcome the infrastructural limitations are also important here. |
## Role Modelling

- Success stories of teachers who get exceptional success in teaching through online learning should be put before them.
- Several model teaching procedures using teaching apps like Zoom, Kahoot, Seesaw, Google classroom, Remind, Classtree, Dropbox, YouTube etc may be given to the teachers to enhance their self-belief.
- Pedagogical agents for learning (PALs) may also help in strengthening vicarious experience (Kim and Baylor, 2006).
- Peer support or peer learning play a big role. If friends can learn online, why can’t I? The student is expected to put more effort to overcome his weaknesses and it will enhance his efficacy.
- Animated life-like characters (Johnson, Rickel, and Lester, 2000) embedded in instructional applications, or instructional videos and models may serve this purpose.
- Self-efficacy starts with autonomy and self-regulation. Children who are allowed to decide for themselves and choose their ways are more self-reliant and independent. It is always a good idea to let them choose their tasks so that they get to do what they want to and not lose interest in it.

## Self-mastery

- When teachers overcome their obstacles and setbacks with perseverance and resilience, they will attain mastery over the online teaching that will strengthen their self-efficacy belief.
- More practice makes him more confident about his abilities/skills and reduces his chances of failing in the real task.
- To increase employee self-efficacy, organizations can conduct specialized training programs and orientations that promote self-efficacy.
- Allowing teachers to express their opinions, active feedback mechanisms, prioritizing targets, and helping them with time-management and organizational skills.
- Students also after overcoming their weaknesses will attain mastery in learning through online that will enhance their sense of efficacy.
- Students will learn from their past success and failure, for this they need to be offered a democratic and cooperative learning atmosphere.
- One students’ attainment of Self-mastery may encourage others hence success stories need circulation.

4.3.2 Role modelling

Role modelling reinforced through vicarious experiences or social models. It may be difficult to include vicarious experiences in online education, yet the success stories of peers in the field could be helpful in this context. Supporting empirical evidence is also found in the study of Lin et al. (2015)
who said social presence is an important predictor of self-efficacy and in the extended expectation confirmation model propounded by Tang et al. (2014). Observation of models has been investigated and shown to be important for formation of self-efficacy beliefs (Jashapara and Tai, 2011). Hodges (2008) found the solitary often asynchronous environment of online courses does not readily promote opportunities for witnessing peer observation, yet he empirically proved self-efficacy to learn mathematics asynchronously (SELMA) was positively correlated with the academic achievement of the learners. Here, ‘pedagogical agents for learning’ (PALs) may be a possible alternative for addressing the vicarious learning component of self-efficacy development in the online educational environment. PALs are explained by Kim and Baylor (2006) as “animated lifelike characters” (Johnston et al., 2000) that are inserted in instructional applications, and it is the ability to simulate social interaction that makes PALs unique form of conventional computer-based environments (p. 570).

4.3.3 Self-mastery

Self-mastery is the development of skills like thinking, intuiting, communicating, leading, feeling, doing, and being, necessary for any academic achievement and viewed as the ultimate learning goal (Cunanan and Chua, 2015). Self-mastery is most vital in strengthening participants’ self-efficacy in online education, which is reinforced through suitable coaching, practice, and participation. Enough of empirical evidence is found in this analysis for this proposition where learners were found to exhibit more online self-efficacy having more online exposure (Song et al., 2011), with the increase in number of online courses adopted (Shen et al., 2013) and with the increase in computer self-efficacy (Kuo et al., 2014). Kuo et al. (2014) said increase in teachers’ technology self-efficacy might directly increase their acceptance of technology and also indirectly increase their usage of technology. Additionally, Shen et al. (2013) asserted that technology self-efficacy has come to play a crucial role in the preparation and implementation of educators who can successfully use educational technology to enhance student learning. This suggestion falls in line with the self-efficacy literature in that beginning with lower-level skills creates opportunities for learners to have early successes before tackling more difficult material. Before self-mastery to take place, earlier two stages – verbal persuasion and role modelling – need to be followed.

5. CONCLUSIONS

The study reached the conclusion that participants’ self-efficacy is one of the key issues behind their success in online education. Three major sources of self-efficacy – role modelling, verbal persuasion, and self-mastery – have been discussed in the context of online education, their roles have been reviewed, especially in the Asian context, and a proposed model is presented along with respective policy intervention measures. The framework revealed that all stakeholders of online education – students, teachers, institutions, society, and parents – have crucial roles for effective online education. The responsibility is not solely of the government. The author hopes the framework will prove useful for students, educators, and developers operating online, especially for the millions of first generation and inexperienced participants of online education in a large number of Asian countries, who possess low self-confidence in their abilities hence achieve less in this particular learning mode. However, the proposed model needs to be tested empirically. Hence, this study has a wide scope of future
work by conducting empirical studies to test the validity of the model in several socioeconomic contexts.

ACKNOWLEDGEMENTS

The author acknowledges the Asian Association of Open Universities (AAOU) for accepting and publishing the main work in their journal (AAOUJ) and sponsoring the author to present the findings in their 34th Annual Conference of the Asian Association of Open Universities (AAOU2021) held from 1-3 June 2021 in Colombo, Sri Lanka that brings this brief chapter. The author is immensely grateful to the whole AAOU2021 organizing committee for allowing him to present this work before an august audience and praising his efforts.

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EFFECTIVENESS OF SOCIAL PARTICIPATION OF CUSTOMERS IN ACADEMIC PURPOSES: A CASE STUDY OF INFORMAL WHATSAPP GROUPS

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Academic purposes, Customer social participation, Informal WhatsApp groups

Abstract

The concept of Customer Social Participation is one of the trends advanced with the ubiquity and extensive proliferation of information technology. Customer Social Participation was little explored in the WhatsApp groups formed informally for academic purposes. Thus, to fill the research gap, this study investigates 1) the relationship between the perceived benefits of customer social participation and the level of participation in WhatsApp groups informally established by learners for academic purposes 2) the degree of existing level of perception on perceived benefits of customer social participation in these informal WhatsApp groups 3) the influence of age of the learner and the study level on the level of customer social participation. The literature identifies that motivations to participate in social groups are the benefits a member receives from a group categorized as functional, hedonic, social, and, psychological benefits. The level of customer social participation measured was using two dimensions, the length of membership and the average frequency of visits to the group. The study adopted a single cross-sectional survey methodology. The data collected from 170 undergraduates reading for the Bachelor of Management Studies programme, and active participating in the informal WhatsApp groups established informally by the learners for learning-related activities. The sample was selected using the convenience sampling technique and, the data was collected via an online questionnaire. Normality of the data, sample adequacy, reliability and validity were ensured. The multiple regression, one sample t test and discriminant analysis were performed and results revealed that functional benefits, psychological benefits and hedonic benefits were the significant perceived participation benefits sought by the learners joining the informal WhatsApp groups for academic purpose while social benefits have an insignificant negative relationship and the hedonic benefits contributed immensely towards the learner participation in such groups. Further, the age and the study level were not significant factors influencing the differences of the degree of the participation among the respondents. These findings imply that WhatsApp for academic purposes enhances the interaction among the students in terms of functional, psychological, and hedonic benefits.
1. INTRODUCTION

The internet is not just a new medium for information transfer but more than that since it is increasingly becoming social and communal (Preece and Shneiderman, 2009; Kamboj and Rahaman, 2017). Internet with web 2.0, started to facilitate the platform based online interaction among the people around 2004 with Facebook, Youtube, twitter and other popular social networking sites which has created a new paradigm of individual and social life by facilitating online interaction among the people (Kaplan and Haeinlein, 2010). Thus, it aroused attention on the notion of community concept in online SNS in both academia and the business organizations since it has become one of the mega trends (Armstrong and Hagel, 1996; Kozinets, 1999; Wang, Yu, and Fesenmaier, 2002a; Wang and Fesenmaier, 2004; Preece and Preece, 2000; Rishika, Kumar, Janakiraman, and Bezwada, 2013; Chae and Ko, 2016; Kamboj and Rahaman, 2017). In relation to marketing, this has created firm centric value creation process and the values are rapidly moving to the customer side with the increase of more informed, networked, empowered, and active consumers who prefer personalized experience (Prahalad and Ramaswamy, 2004).

Online communities share common interests and interact with each other to discuss topics, exchange ideas and seek support in a collaborative environment. Thus, one participant’s behaviour may be influenced not only by his/her own motivations but also by other members and the community (Guo, Yu, Zhou and Zhang, 2012). Hence, customer participation in such communities has been widely investigated in marketing in terms of industries, brands and in different social networking sites such as Facebook fan pages, travel communities (Wang and Fesenmaier, 2004; Casaló, Flavián and Guináliu, 2010; Chae and Ko, 2016; Kamboj and Rahaman, 2017) and identify the customer participation in social media as customer social participation (e.g: Chae and Ko, 2016; Kamboj and Rahaman, 2017). However, this is not addressed adequately in relation to higher education (e.g: Sayan, 2016; Gasaymeh, 2017).

Education is one of the industries, that has adopted SNS technology more widely and WhatsApp is one such SNS networking sites, which has been used for higher education purposes in various academic disciplines such as education mathematics, information systems and languages (Tang and Hew, 2017). WhatsApp is “a smartphone application that operates on nearly all current types of devices and operating systems”. Further, it allows people access to information fast and easily with its unique attribute of creating groups and facilitating more interactive communication among the group (Sayan, 2016). On the other hand, these SNS are one type of online community which depend on the contribution of the users (Brandtzæg and Heim, 2009). This implies that WhatsApp also facilitates the community concept with its unique features. For example, the group creator or admin has authority to add and remove the participants. Further, every group member in WhatsApp group has similar rights. It enables the group members to receive an alert for each message sent or, alternatively, to mute the incoming alerts for the duration of 8 hours, a day, or a whole week. With its potential, it has been getting much attention for adaptation for academic purposes (Sayan, 2016; Gasaymeh, 2017).

The success of SNS depends on the contribution of the users. But what makes users highly motivated for continuous active participation is still not much investigated (e.g: Kamboj and Rahaman, 2017). Hence, it is important to investigate how user motivation and participation can influence active participation which is critical knowledge for firms to develop SNS (Brandtzæg and Heim, 2009). Moreover, what
motivates customer to participate in such a community is more attitudinal and psychological (Wang and Fesenmaier, 2004; Rishika et al. 2013) and is rapidly changing with the technology (Kamboj and Rahaman, 2017). An area that is little explored is about motivations to adopt WhatsApp for education purposes though students' have positive attitudes towards WhatsApp use as an easy, fun and useful option (e.g: Sayan, 2016; Gasaymeh, 2017). Some scholars (e.g: Gasaymeh, 2017) highlight the important of the adaptation of WhatsApp groups to formal education. However, in the context of the Bachelor of Management degree programme offers by Faculty of Management Studies, The Open university in Sri Lanka, it is observed that there are WhatsApp groups informally formed by the students. During the Covid 19 pandemic, WhatsApp has been highly used by learners as an informal education facilitating tool for academic purposes. Hence, it is important to investigate what motivates learners to form such groups though there are supplementary online platforms for most of the courses of Bachelor of Management Studies Degree programme. Further, most of the communities are providing user to user interaction. Thus, effectiveness of these informal WhatsApp groups is vital to investigate. Thus, to fill the research gap, this study addresses the following research questions:

1) What is the relationship between the motivations on customer social participation in WhatsApp groups (informally established) by learners for learning purposes?
2) What is the existing level of perception on perceived benefits of customer social participation in WhatsApp groups (informally established) by learners for learning purposes?
3) Do learner age and the level of study have influence on levels of customer social participation?

2. LITRETURE REVIEW

2.1 Customer social participation

The notion of customer participation in social media is a vague phenomenon which still requires universal definition (Chae and Ko, 2016; Kamboj and Rahaman, 2017) and which has been described by various scholars in different ways (e.g: Preece and Shneiderman, 2009; Rishika et al., 2013; Chae and Ko, 2016; Kamboj and Rahaman, 2017). Rishika et al. (2013) in their study related to the fashion brand industry, used the concept of “Customers’ Social Media Participation” to describe customers’ participation behaviour in SNS. Further, they identified that customer social media participation as the customer visit frequency to a firm’s created SNS Facebook page. Chae and Ko, (2016) refers to customer participation on social media as ‘customer social participation’ and defines it as "an effort to achieve co-creation of values through required but voluntary interactive participation of the customers in service production and delivery process in social media. As SNS is characterized by its linkage to different websites and platforms, customers are exposed to constant opportunities for participation. The customer participation on social media is customer social participation (Chae and Ko, 2016; Kamboj and Rahaman, 2017). Since participation has been identified as a quantitative construct, most of the studies use quantitative measures such as level of contribution (Casalo et al., 2010; Tasi and Bagozzi, 2014), frequency of visits, degree of participation (Wang, Minor and Wei, 2011; Agag and El- Marsy, 2016).
2.2 Dimensions of customer social participation

Customer Social Participation has been investigated using different theoretical perspectives. But it is argued that what motivates customers to participate in online communities is little known (Gretzel and Yoo; 2008; Kamboj and Rahaman, 2017) and most of the studies still identify the dimensions of CSP from both offline and online brand community behaviour literature (e.g: Kamboj and Rahaman, 2017; Flavian, and Guinaliu, 2010) since use of CSP to Customer Participation in social media has been commonly adopted in fashion brand related online shopping behaviour studies (e.g :Chae and Ko, 2016). The research in customer social participation has been mainly conducted to identify the motives to participate (Casalo et al., 2010a; Casalo et al., 2010b). Moreover, many scholars identified the customer motivations or benefits sought by the customers as the dimensions of the customer social participation (e.g: Kamboj and Rahaman, 2017; Wang and Fesenmaier, 2004; Flavian, and Guinaliu, 2010; Burke, Marlow and Lento 2009). According to Armstrong and Hagel (1997) an online community provides four different values to members as transaction, interest, fantasy, and relationship while Wang and Fesenmaier (2002) identify functional, social, psychological and hedonic benefits. Chung and Buhalilis (2008) identify three benefits sought by online community users in Korea: information acquisition, socio-psychological, and hedonic. However, Kamboj and Rahaman (2017) identify antecedents of CSP in online communities as social attributes, psychological attributes, hedonic attributes and functional attributes which is similar to the benefits-based customer participation model proposed by Wang and Fesenmaier (2002a) and revalidated in 2004. Hence, this study adopts Wang and Fesenmaier (2002a) framework for this study.

2.2.1 Functional Benefits

Functional benefits of online communities sought by its users in brand communities are exchanges of products or services between members (Armstrong and Hagel, 1996). But in general users seek information support for both learning and facilitating decision making, convenience and the efficiency of fulfilling specific activities irrespective of time and geographical limits. (Wang and Fesenmaier, 2002; Wang and Fesenmaier, 2004).

Hence, 

H1: There is a significant positive relationship between perceived functional benefits and level of participation in informal WhatsApp groups for academic purposes.

2.2.2 Social Benefits

Online communities are socially constructed structures in online platforms (Wang et al. 2002; Preceee and Precee 2000; Chae and Co, 2016) which express the social meaning (Wang et al. 2002). Social benefits stand for the communication with other members, building relationships, exchanging ideas and opinions and getting involved (Preceee and Preceee, 2000; Wang and Fesenmaier, 2004a). It is dependent on the purpose of online community and is also based on the tasks members are involved such as providing help and support, socializing informally through synchronous and asynchronous communication, discussing and exchanging ideas, forming relationships, and getting involved with other members (Preceee and Preceee , 2000). Kozinets (1999) point out that the way of interaction may extend from informational to relational, then recreational, and finally transformational.
H2: There is a significant positive relationship between perceived social benefits and level of participation in informal WhatsApp groups for academic purposes.

2.2.3 Psychological benefits

Online communities offer psychological benefits and it then creates a sense of belonging (e.g. Wang and Fesenmaier, 2004a; Kamboj and Rahaman, 2017) by providing functional benefits. Wang and Fesenmaier (2004) highlights that online consumption knowledge is learned along with group specific cultural norms, specialized language and concepts; that is, the identities of other group members. Hence, the initial step of search information transfers into the source of community and later makes the understanding the commonality which then generates identities and develops a sense of belonging and affiliation among the members in the community. Psychological benefits depict trust within the community users (e.g: Wang and Fesenmaier, 2004a; Kamboj and Rahaman, 2017). For an example Most of SNS content are third party information, and trust on such information are gradually occurs with the fulfillment of functional and social benefits (Wang and Fesenmaier, 2004a).

H3: There is a significant positive relationship between perceived psychological benefits and level of participation in informal WhatsApp groups for academic purposes.

2.2.4 Hedonic Benefits

Members join online communities also for their own enjoyment and entertainment purposes. These kinds of benefits are important in consumer information searching behavior and product consumption (Hirschman and Holbrook, 1982; Wang and Fesenmaier, 2004). Hedonic consumption depicts the multi-sensory, fantasy and emotive aspects of a person’s experience with products. Moreover, products are viewed as subjective symbols rather than the objective nature.

H4: There is a positive relationship between perceived hedonic benefits and level of participation in informal WhatsApp groups for academic purposes.

Conceptual framework of the research is illustrated in Figure 1.

3. METHODOLOGY

One of the most important aspects of the research is selecting the appropriate research approach (Guba and Lincoln, 1994; Crotty, 1998; Cresswell, 2014). This study adopted the quantitative approach to investigate the causal relationship between the level of perceived benefit and the customer social participation and the degree of perceived benefit and the existing level of customer social participation.

Methodologies adopted by a study shape the diversity of the entire body of knowledge (McGregor and Murnane, 2010). The methodological choice of this study is a single cross-sectional survey research design. It uses the deductive approach (Sanders et al, 2019) with aligning to positivistic philosophy. Cresswell (2015) elaborates on the survey research designs as procedures adopted in quantitative research in which the investigator carried out a survey to a sample or to the entire population of the people. This is mainly used to describe attitudes, opinions, behaviours or characteristics of the population. Hence, he highlights that rather than providing rigorous explanations survey studies describe trends in the data.
3.1 Population and the sample

The population of the study was the undergraduate students reading for Bachelor of Management Studies degree programme during the academic year of 2019/2020. According to the programme review report (2018) approximately 3720 students are following this four-year degree programme. Convenience sampling technique is used to select the sample. An online survey questionnaire was developed and distributed among four hundred learners \( n = 400 \). 170 completed questionnaires (42.5 percent) were returned.
3.2 Operationalisation

This study adopted online community participation benefit scale developed by Wang et al. (2002) and further validated by Wang and Fesenmaier (2004a). Thus, the instrument consists of two sections. The first section comprises three (03) questions on respondent’s characteristics such as respondents’ age, gender, and the programme level. The second section of the questionnaire consists of 18 questions on a seven-point scale to measure the benefits of the participation and 4 questions for level of customer social participation in WhatsApp groups. Further elaborating, the instrument consisted of four (04) items to measure the functional benefits, five (05) items to measure the social benefits, five (05) questions for psychological benefits and four (04) questions to measure the hedonic benefits.

3.3 Sample profile

The sample profile depicted in Table 1 depicts the age, gender and the level of the respondent in BMS degree programme. The highest number of respondents is in the age range of 24-29 (70.6%) while the lowest number of respondents is in the age range of 35-39 (5.9%). 71.8 percent of the respondents are females and male representation is 28.2 percent. The majority of the respondents are following BMS Level 05 (45.9%) followed by level 06 24.1 percent, level 03 15.9 percent and from level 4, 14.1 percent.

<table>
<thead>
<tr>
<th>Sample Characteristics</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 - 23</td>
<td>18</td>
<td>10.6</td>
</tr>
<tr>
<td>24-29</td>
<td>120</td>
<td>70.6</td>
</tr>
<tr>
<td>30-34</td>
<td>22</td>
<td>12.9</td>
</tr>
<tr>
<td>35-39</td>
<td>10</td>
<td>5.9</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>48</td>
<td>28.2</td>
</tr>
<tr>
<td>Female</td>
<td>122</td>
<td>71.8</td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>15.9</td>
</tr>
<tr>
<td>Level 4</td>
<td>24</td>
<td>14.1</td>
</tr>
<tr>
<td>Level 5</td>
<td>78</td>
<td>45.9</td>
</tr>
<tr>
<td>Level 6</td>
<td>41</td>
<td>24.1</td>
</tr>
</tbody>
</table>

4. DATA ANALYSIS

4.1 Normality test

In the first phase of the study the normality of the distribution of data is performed. Table 2 shows the skewness of data for Functional Benefits (FB), Social Benefits (SB) Psychological benefits (PB), and Hedonic benefits (HB). Skewness of FB (-.0824) is between -1 and – 0.5 Hence the data set of FBs is moderately skewed while skewness of SB, PB and HB are less than -0.5 and depicts the fairly symmetrical. Skewness of level of participation (LP) is – 0.565 (-0.5 to -1). Thus, LP has a moderate level of skewness. Kurtosis value of all the variables are in the range of +2 and -2. Hence the sharpness of central peaks of all the variables were sharp.
Table 2: Normality test

<table>
<thead>
<tr>
<th></th>
<th>FB</th>
<th>SB</th>
<th>PB</th>
<th>HB</th>
<th>LP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>5.7221</td>
<td>5.0800</td>
<td>4.8847</td>
<td>4.8706</td>
<td>5.0397</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.15719</td>
<td>1.27356</td>
<td>1.46016</td>
<td>1.44070</td>
<td>1.35665</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.824</td>
<td>-.263</td>
<td>-.258</td>
<td>-.413</td>
<td>-.565</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.043</td>
<td>-.440</td>
<td>-.789</td>
<td>-.498</td>
<td>-.171</td>
</tr>
</tbody>
</table>

4.2 Validation of the measurement properties

The research instrument validity and the reliability were ensured. Table 3 presents the results of sampling adequacy, construct validity and construct reliability analyses which were performed.

Table 3: Validity and Reliability

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sampling Adequacy</th>
<th>Construct Reliability</th>
<th>Convergent Validity</th>
<th>Discriminant Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KMO</td>
<td>Bartlett’s</td>
<td>CR</td>
<td>AVE</td>
</tr>
<tr>
<td>FB</td>
<td>0.747</td>
<td>315.762</td>
<td>0.850</td>
<td>0.708</td>
</tr>
<tr>
<td>SB</td>
<td>0.818</td>
<td>381.087</td>
<td>0.858</td>
<td>0.732</td>
</tr>
<tr>
<td>PB</td>
<td>0.898</td>
<td>704.053</td>
<td>0.934</td>
<td>0.731</td>
</tr>
<tr>
<td>HB</td>
<td>0.813</td>
<td>455.920</td>
<td>0.897</td>
<td>0.758</td>
</tr>
<tr>
<td>AP</td>
<td>0.785</td>
<td>321.228</td>
<td>0.854</td>
<td>0.721</td>
</tr>
</tbody>
</table>

According to the Table 3, KMO and Bartlett’s test results for all the variables were higher than the threshold level (P<0.05). Thus, the all the variables can be factorized and all the correlations coefficient are far from zero (P<0.05). Hence the sampling adequacy for all the variables were ensured. Construct reliability ensured through the Cronbach Alpha (α) value estimation. Cronbach Alpha (α) value is greater than 0.7. Thus, internal consistency of the measurement properties was ensured. Further, construct validity was measured through convergent validity (CR > AVE) while discriminant validity ensured with AVE is greater than the shared variance values.

Objective 1: To investigate the relationship between the benefits of the participation on the level of customer social participation in WhatsApp groups (informally established) by learners for learning purposes.

The results of the multiple regression depicted in Table 4. The strength of association between the benefits of the participation and the level of participation is shown from adjusted $R^2 = 0.353$ (P<0.05). This indicates that...
variation of level of participation explained by the four benefits of participation is 35.3 percent. F ratio is 24.056 ((P<0.05), thus the goodness of fit model is satisfactory.

### Table 4: Model Fit

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R^2</th>
<th>Adjusted R^2</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.607</td>
<td>0.368</td>
<td>0.353</td>
<td>24.056</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 5 presents the results of the beta coefficient values and t statistics of four participation benefits. Beta coefficient of Functional Benefits (FB) = 0.171 (0.017<0.05, t= 2.412), Social benefits (SB) = 0.209 (0.045 < 0.05, t= 2.019), Psychological benefits (PB) = -0.226 (0.057 > 0.05) and Hedonic benefits (HB) = 0.546 (0.000< 0.05). This indicates that three factors: FB, SB, and HB are the significant variables in the model while PB has negative insignificant relationship with level of participation. The most significant benefit is hedonic benefit for learner level of participation in the informal WhatsApp group.

Objective 2: To identify the learner existing level perception on the benefits of customer social participation in academic purpose WhatsApp groups and the existing level of customer social participation in WhatsApp groups. Table 6 shows the results of the one sample t test performed to investigate the objective.

### Table 5: Strong and Weak Participation Benefits

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.283</td>
<td>.459</td>
<td></td>
<td>2.791</td>
</tr>
<tr>
<td>FB</td>
<td>.200</td>
<td>.083</td>
<td>.171</td>
<td>2.412</td>
</tr>
<tr>
<td>SB</td>
<td>.223</td>
<td>.110</td>
<td>.209</td>
<td>2.019</td>
</tr>
<tr>
<td>PB</td>
<td>-.210</td>
<td>.110</td>
<td>-.226</td>
<td>-1.915</td>
</tr>
<tr>
<td>HB</td>
<td>.514</td>
<td>.085</td>
<td>.546</td>
<td>6.041</td>
</tr>
</tbody>
</table>

a. Dependent Variable: PL

Table 6 depicts that Functional benefits (13.769), Social benefits (5.938), psychological benefits (3.434) and hedonic benefits (3.354) are significance at P< 0.005. Hence, the learners have a positive perception of the whatsapp for academic purposes in terms of the benefits they get.

Objective 03: To investigate the learner age and the level of study have influence on level of customer social participation

Discriminant analysis was performed to identify the relationship of learner age and the level of study with the level of customer social participation.
Table 6: Results of One Sample t Test

<table>
<thead>
<tr>
<th>Dimension</th>
<th>t</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Deviation</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBE</td>
<td>13.769</td>
<td>.000</td>
<td>1.22206</td>
<td>1.15719</td>
<td>1.0469</td>
<td>1.3973</td>
</tr>
<tr>
<td>SBE</td>
<td>5.938</td>
<td>.000</td>
<td>0.58000</td>
<td>1.27356</td>
<td>.3872</td>
<td>.7728</td>
</tr>
<tr>
<td>PBE</td>
<td>3.434</td>
<td>.001</td>
<td>0.38471</td>
<td>1.46061</td>
<td>.1636</td>
<td>.6059</td>
</tr>
<tr>
<td>HBE</td>
<td>3.354</td>
<td>.001</td>
<td>0.37059</td>
<td>1.44070</td>
<td>.1525</td>
<td>.5887</td>
</tr>
</tbody>
</table>

4.3 Measuring the existing level of learner participation in WhatsApp groups

Tables 7 and 8 show the level of learner participation in informal WhatsApp groups by the learners in BMS degree programme. The majority of the respondents have moderate level of participation (44.7 percent) in these groups while there are 39.4 percent respondents indicates that the level of participation is high and 15.9 percent of the respondents are low in active participation in informal WhatsApp groups.

Table 7: Existing level of learner participation in WhatsApp groups

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>27</td>
<td>15.9</td>
<td>15.9</td>
</tr>
<tr>
<td>Moderate</td>
<td>76</td>
<td>44.7</td>
<td>60.6</td>
</tr>
<tr>
<td>High</td>
<td>67</td>
<td>39.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>170</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8: Mean Value Ranges

<table>
<thead>
<tr>
<th>Mean Value Range</th>
<th>Level of Active participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3.59</td>
<td>Low</td>
</tr>
<tr>
<td>3.6 – 5.59</td>
<td>Moderate</td>
</tr>
<tr>
<td>5.6 -7</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 9 shows the results of discriminant analysis. The value of Wilks’ $\lambda$ is 0.978 and it transforms chi-square of 3.845 (0.427> 0.05) for age. The value of Wilks’ $\lambda$ of level of study is 0.998 and chi-square is 0.053 (0.819> 0.05). Hence age and level of study do not significantly contribute to the group differences.
### Table 9: Canonical Discriminant Functions

<table>
<thead>
<tr>
<th>Test of Function(s)</th>
<th>Eigenvalue</th>
<th>Percentage of Variance</th>
<th>Cumulative</th>
<th>Canonical Correlation</th>
<th>Wilks’ Lambda</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Level Function 1</td>
<td>0.023</td>
<td>98.6</td>
<td>98.6</td>
<td>0.150</td>
<td>0.978</td>
<td>3.845</td>
<td>4</td>
<td>0.427</td>
</tr>
<tr>
<td>Function 2</td>
<td>0.000</td>
<td>1.4</td>
<td>100</td>
<td>0.018</td>
<td>0.998</td>
<td>0.053</td>
<td></td>
<td>0.827</td>
</tr>
</tbody>
</table>

### 5. DISCUSSION AND CONCLUSION

This study attempted to investigate the effectiveness of customer social participation of the learners, reading for BMS degree programme in informal WhatsApp groups for academic purposes. The results revealed that functional benefits, psychological benefits and hedonic benefits are significant perceived participation benefits sought by the learners joining to the informal WhatsApp groups for academic purpose while social benefits have an insignificant negative relationship while the hedonic benefits are highly contributing towards the learner participation in such groups. Barker (2009) identified a similar finding in the study of older adolescents’ habitual SNS motivations for use as entertainment and passing time. Similarly, Wang and Fesenmaier (2004) identify social and hedonic benefits as the most important perceived benefits sought by the travellers in SNS communities. Further, the results of the multiple regression revealed that 35.3 percent variation of the level of participation is explained by the perceived benefits of WhatsApp groups. This implies that there are factors other than the perceived participation benefits influencing on customer participation in WhatsApp groups. Moreover, the age and the study level are not significant factors that influence the differences of the degree of the participation among the respondents. This implies that irrespective of age groups learners in all four levels of BMS degree programme are participating in these WhatsApp groups. Further, the majority of the learners are moderate level of participants. However, this study has limitations of not accounting for the feelings, emotions and the behavioural aspects of the customer social participation in informal WhatsApp groups for academic purposes. The scope of the study is limited to the BMS programme and the results can be varied with the learner participation in such groups in other disciplines. This study implies several future research directions. There is a requirement of identifying the other factors contributing to the participation in these informal WhatsApp groups. This study conducted in groups created by the learners. But further studies can be conducted on teacher learner WhatsApp groups. However, this study addresses the popularity of WhatsApp for academic purposes and can suggest how to incorporate WhatsApp formally for interactive learning experience.

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VIRTUAL CHEMISTRY LAB SPACE: GOING PARTLY VIRTUAL WITH PRACTICAL CHEMISTRY AMIDST THE COVID-19 PANDEMIC LOCKDOWN

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Abstract

A laboratory-based practical component which provides hands-on experience on chemistry related experimentation is considered essential in chemistry curricula at undergraduate level. However, due to the recent cessation of academic activities during the Covid-19 pandemic, all practical activities were halted, though minimal alternatives could have been adopted given the difficulty of accessing such content via online teaching methodologies. Nevertheless, with the advancement of technology, there are many recently developed software, animations, and virtual and augmented reality simulations that allow users to receive a virtual laboratory experience without any physical presence. Hence, in order to facilitate learning during the pandemic lockdown, a ‘Virtual Chemistry Lab Space’ (VCLS) was created using open educational resources (OER) of above nature, and it was administered among learners enrolled in an introductory undergraduate practical chemistry course via the university learner management system. As per the feedback collected from the learners, 76% of respondents indicated familiarity with the VCLS while 59% indicated that they were interested in engaging in activities provided through this resource during the pandemic lockdown. A majority (70%) indicated that the VCLS was helpful in understanding the course content during the pandemic period while 82% indicated that they are likely to use it in the future provided there is adequate time given. As per the respondents, the prevalent problems related to using the VCLS as part of the course were lack of internet access (31%), lack of physical interactions (25%), and lack of time (23%). However, the overall opinion on the VCLS, as well as on replacing part of the laboratory work associated with this course by the VCLS in future was notably positive, while a majority indicated that flexibility to the learners, access to learning resources, and use of technology in education will improve due to the use of this novel tool.
1. INTRODUCTION

Technology plays a pivotal role in distance education (Bates and Bates, 2005; Casey, 2008; Clark, 2000). The use of technology is considered not as an option, but a defining characteristic of the teaching-learning relationship in distance education (Moore, 2013; Willis, 1993). However, it has often been observed that the incorporation of technology in various forms such as means of delivery, assessment, or learner support in education had indicated notable limitations due to inherent drawbacks that includes lack of infrastructure, lack of technical competence, or even the lack of motivation etc. (Galusha, 1998; Tabata and Johnsrud, 2008). Hence, it is important to consider any potential limitations and take precautionary action to minimize the same if technology is to allow the effective dissemination of knowledge (Chen, 2009; Christensen, 2002).

Nevertheless, during the recent halt in academic activities that took place globally as a result of the COVID-19 pandemic, academics were warranted to relook at how technology can be used at all levels of education, thus allowing education to be continued amidst the social shutdown (Ali, 2020; Chick et al., 2020; Daniel, 2020; Ferdig et al., 2020; Goh and Sandars, 2020). Hence, under the prevailing social circumstances, it has become an immediate necessity to understand the efficacy as well as learner perception of including technology in facilitating education, specifically for areas where online delivery is seldom practiced.

A laboratory-based practical component which provides hands-on exposure on chemistry related experimentation is considered essential in chemistry curricula at undergraduate level. CYU3302 - Basic Practical Chemistry, is a three-credit course offered for level three (i.e. freshman) learners at the Open University of Sri Lanka (OUSL). The course is aimed at providing a thorough understanding of basic concepts related to practical chemistry, while developing fundamental experimentation skills, and is hence facilitated mainly via academic activities that are conducted in person, in addition to the provision of a typical distance learning resources such as a carefully designed course material. However, due to the recent cessation of academic activities during the COVID-19 pandemic, all practical activities were halted, and minimal alternatives could be adopted to continue course delivery, given the inherent difficulty of effectively delivering such content via online teaching methodologies.

Nevertheless, with the advancement of technology, there are many recently developed software, animations, and virtual and augmented reality simulations that allow users to receive a virtual chemistry laboratory experience without any physical presence. In a recent study, Georgiou et al. have demonstrated the successful use of virtual reality simulations for distance education in chemistry, claiming that such technology plays a major role in education as they provide realistic models with which learners can interact to acquire real world experiences, while providing a safe environment in which learners can repeat processes without any risk, enabling learners to perceive concepts and theories easily (Georgiou et al., 2007). Notably, Erwin Boschmann had claimed similar traits in another study conducted via the use of web-based television sessions for chemistry related content delivery (Boschmann, 2003), while other contemporary reports add credit to above claims (Dalgarno et al., 2009, 2012). Hence, in this study, a resource composed of virtual chemistry simulations and animations was created using open educational resources (OER) of a similar nature, in order to facilitate learning during the pandemic lockdown and it was administered among learners enrolled in an introductory undergraduate practical chemistry course via the
university learner management system. The learners were encouraged to engage in the virtual activities during the lockdown period and the feedback collected from the learners was eventually used in understanding the perception of the learners on the resource and the effectivity of using the same for content delivery in distance education.

2. METHODOLOGY

A resource named as ‘Virtual Chemistry Lab Space’ (VCLS) was developed using OER that have been specifically designed to provide a virtual experience in preparing, performing, and analyzing chemical laboratory activities via computer-based simulations. The VCLS was hosted in the university learner management system (LMS), elearn OU SL, and it was administered among learners enrolled in the course CYU3302. Due to the pandemic shutdown that was in effect during this period, all course related communication and delivery took place online through elearn and hence, the information regarding VCLS was shared among the enrolled learners via a message sent through elearn informing them to use the resource as needed, while the pandemic shutdown was in effect. Notably, use of the VCLS was completely voluntary, hence, although use of the VCLS was recommended, it was not made compulsory to the learners by any means.

Once regular in person activities resumed after the pandemic shutdown, the learners were brought back in to the university to participate in the regular in person laboratory-based practical sessions, while it was anticipated that the learners who were familiar with the theory and techniques of the experiments involved with the session by use of the VCLS would indicate better proficiency in performing the laboratory activities. To qualitatively validate this hypothesis, a survey was conducted by administering a feedback questionnaire specifically designed to anonymously evaluate (1) background and inclination to use technology in education, (2) use of the VCLS during the period of pandemic lockdown, and (3) accessibility and perception on the VCLS, of 208 learners enrolled in the course after they completed the in-person practical session. Eventually, the data collected was analyzed to arrive at appropriate conclusions.

3. RESULTS AND DISCUSSION

3.1 Background of Learners and Inclination to Use Technology in Education

Distribution of the 208 learners who competed the feedback questionnaire, based on sex, age group, and employment status is presented in Figure 1. As can be seen, both sex and age composition of the learners included in the study showed the typical composition seen under similar academic settings. As for the employment status, a significant proportion (68%) of learners were employed while only 16% were full-time learners. This in turn would be a matter of concern given the time requirement associated with using the VCLS, specifically as the use of the resource was regarded as completely voluntary.

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Distribution of learners based on their familiarity with the VCLS, how they found out about the VCLS, and the technology-related activities they have used in support of their academic work at the OUSL are presented in Figure 2. A significant majority (73%) indicated that they were familiar with the VCLS; a clear indication of the inclination of the learners towards using the VCLS. At the same time, 7% of the learners indicated that they were completely unaware of the VCLS, while it should be noted that including the opinions of such individuals in the survey would decrease the potential of any subjective bias being in place. Noting the differences in how the learners identified their awareness on the VCLS in the above analysis, it would be important to further understand any potential reasons for the differences in the awareness levels among the learners. Hence, responses were collected to evaluate as to how the individual learners found out about the VCLS, and the findings are summarized in Figure 2 (B). According to this, only 41% of the learners had seen the message sent by the Senior Coordinator regarding the VCLS, while 22% of the learners found out about it through colleagues, a likely indication of collaborative learning. Another 30% learners found out about it when they logged into elearn, while 6% indicated that they did not know anything about the VCLS; likely the same sub-section of learners that indicated that they were completely unaware of the VCLS in the previous analysis (Figure 2 (A)).

To further understand the inclination of the learners to use technology in education, feedback was sought as to which activities the learners have used (or currently use) in support of their academic work at the OUSL. The findings here are summarized in Figure 2 (C), and as can be seen, the majority of learners were aware of browsing the internet for subject related material, using software and mobile applications (apps), and using audio visual resources as support for academic activities. It is notable that given the availability and use of technology of present times, such activities might be considered mundane. However, looking at the feedback provided on using interactive simulations as that conducted through the VCLS, or more extraordinary activities such as developing their own programs/coding, it is clear that the majority of the learners were unaware of the usage of such resources in academic activities. Importantly, this indicates the novelty of adopting the VCLS as a tool in an educational setting, specifically within the cohort of learners that participated in this study. Nevertheless, it is notable that 29% of the learners have indicated that they had prior knowledge on developing their own programs/coding for academic activities, indicating that the technical knowledge required for utilizing tools such as the VCLS is indeed present among the learners.
3.2 Use of the VCLS During the Period of Pandemic Lockdown

Feedback received in terms of the use of the VCLS by learners during the period of pandemic lockdown is summarized in Figure 3. As seen here, although a significant proportion (69%) of learners indicated that they had used the VCLS during the pandemic lockdown period, 30% indicated that they did not use it at all. This however was anticipated as the use of the VCLS was not made compulsory. Hence, the feedback collected was further analyzed to understand the correlation between the demographic variables of the learners and the ensuing use, to identify any potential limitations in the use of the VCLS based on the background of the learners.

Figure 2: Distribution of learners based on (A) familiarity with the VCLS, (B) how they found out about the VCLS, and (C) technology-related activities they have used in support of their academic work at the OUSL
Figure 3: Distribution of learners based on (A) how much they have used the VCLS during the pandemic period and (B) how interested they were to engage in activities provided in the VCLS.

The data obtained here are presented in Table 1 below. As clearly seen, there is no apparent correlation between the use of the VCLS during the pandemic period based on sex, age group, or the employment status of learners: A clear indication that the background of learners has no clear impact on one's tendency to use the resource. This is evidenced by the similarity of the distributions in percentage composition values of learners under each subgroup of each demographic variable. Although a slight deviation in pattern is observed for those above 30 years, this data may be considered inconclusive given the comparatively smaller percentage of learners of this subgroup (4%) included in the study. Of note, it was anticipated that there would be some correlation between the employment status and the use of the VCLS, given the time factor associated with using the resource. However, such correlation again is absent; a likely result of the lockdown which enabled all learners of different employment levels to have similar access to this virtual resource due to the limited professional activities that took place during the pandemic lockdown. Overall, the findings clearly suggest that the VCLS or any other resource of this nature would allow equal access to learners of all backgrounds during a lockdown period, indicating its potential use as an effective alternative teaching methodology.
Table 1: Analysis of the use of the VCLS during the pandemic period based on the demographic distribution of learners.

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>Subgroup</th>
<th>Percentage composition (%)</th>
<th>Percentage of learners (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Used it a lot</td>
<td>Used it a little</td>
</tr>
<tr>
<td>Sex</td>
<td>Female</td>
<td>63</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Age group</td>
<td>&lt;25 years</td>
<td>53</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>25 – 30 years</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>&gt;30 years</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Employment status</td>
<td>Full-time employed</td>
<td>38</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Part-time employed</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Full-time student</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

Further, feedback was also sought as to assess the interest of the learners for engaging in activities provided in the VCLS as summarized in Figure 3(B). As can be seen, a majority of learners (59%) indicated that they were interested in using the VCLS, while another 14% have indicated that they would have used the VCLS if they had known about it during the pandemic shutdown. Another 11% indicated that they were not interested in using the VCLS but used it as there was free time. Collectively, this could be regarded as an overall positive response on the use of technology to facilitate learning either directly or indirectly during such periods of time, while emphasizing the importance of effective communication to the learners regarding such activities. Although notable concern could be placed on the 15% of learners who did not use the VCLS, while they knew about the resource, it should be noted that such behaviour could have been obviated by making the VCLS compulsory for the learners, in contrast to the voluntary practice adopted herein.

The VCLS was composed of three main sections, namely (1) PhET interactive simulations, (2) basic laboratory operations, and (3) virtual laboratory simulations, specifically designed to provide an understanding on the activities typically undertaken by the learners within the lab. More
precisely, PhET interactive simulations were a collection of OER virtual simulations identified as relevant to the course CYU3302. These simulations had been developed by the University of Colorado Boulder, USA (CC-BY), using Java, Flash or HTML5, and they could be run online or downloaded to a computer. The second component, basic laboratory operations were a collection of virtual resources developed by the American Association of Chemistry Teachers and LibreTexts (CC BY-NC-SA 3.0), focusing on basic laboratory operations such as measuring volumes, preparing solutions, observing chemical reactions etc. The third component was virtual laboratory simulations, developed by ChemCollective (a project in the National Science Digital Library, USA) (CC BY-NC ND). This section focused on more specific course related activities that are typically undertaken by the learners in the lab such as solution preparation and quantitative chemical analysis.

Here, the learners were requested to rate the above components of the VCLS in terms of their use and the help provided by each component in understanding the course content as summarized in Figure 4. As can be seen, majority of learners (>50%) indicated that they have used the components on basic laboratory operations and virtual laboratory simulations at least once, while a lesser fraction (36%) indicated the use of PhET interactive simulations. A similar trend was observed in terms of the help provided by each component in understanding the course content, where majority of learners (>50%) indicated that the components on basic laboratory operations and virtual laboratory simulations was ‘helpful’ in understanding the course content, while a lesser proportion (40%) indicated a similar response for PhET interactive simulations. Notably, sizable proportions (30% and 22% respectively) of learners indicated that using the components on basic laboratory operations and virtual laboratory simulations was ‘very helpful’ in understanding the course content, indicating the effectiveness of the use of technology to facilitate distance and online learning during the pandemic lockdown. This fact is further evidenced by the negligible proportions of learners who indicated that each component was ‘not helpful’ in understanding the course content, indicating the overall positive attitude of the learners in adapting to novel teaching methodologies.

Figure 4: Rating of the components of the VCLS by learners based on (A) their use and (B) help provided in understanding the course content by each component included in the VCLS.
To further understand the perception of the learners on the VCLS, opinion of learners on using the VCLS to facilitate learning during the pandemic lockdown and the likeliness of using the VCLS in future, perhaps during another pandemic lockdown, are summarized in Figure 5. As clearly seen, A significant majority (70%) indicated that the VCLS was helpful in understanding the course content during the pandemic period while 51% indicated that they are ‘very likely’ to use it in the future, while another 31% indicated as ‘likely’, given that there would be time away from other professional and academic responsibilities. Of note, only negligible potions (<10%) of learners had a negative opinion on each case as visible in Figure 5 (A) and (B). Hence, this result perfectly reinstates the overall positive attitude of the learners in adapting to novel teaching methodologies.

Figure 5. (A) Opinion of learners on using the VCLS to facilitate learning during the pandemic lockdown and (B) likeliness of using the VCLS in future

3.3 Accessibility and Perception of Learners on the VCLS

Further, to understand any potential limitations in adopting the VCLS, feedback was collected in order to assess what devices were used by learners to access the VCLS, while the findings here are summarized in Figure 6 (A). It is apparent that a significant majority (69%) indicated that they have used a smart phone to access the resource, while relatively lesser proportions had access to a laptop, desktop or tablet computer. Apparently, only 4% of the learners indicated that they do not have access to any of the above devices (Note that percentages above were determined based on the total number of respondents (208) as there was a substantial portion of learners who accessed the VCLS via multiple devices). Hence, collectively the data collected on device accessibility suggest that (1) use of technology related teaching tools is a viable alternative given the vast majority of learners with access to devices to be used for such purposes, (2) while emphasizing the need to develop applications or programs that are compatible with mobile devices, given that large numbers would prefer to use the resources on such platforms.
Additionally, feedback was also collected to assess the problems related to using the VCLS as per the experience of the learners in using the resource. This information is summarized in Figure 6 (B) and it is apparent that the lack of time, interest, internet access, knowledge on technology to use such resources, and guidance through staff-student interactions that typically occurs during in-person sessions, as well as the difference between working in a real lab and virtual simulations were identified as potential problems associated with using the VCLS. However, among these, lack of internet access (31%), difference between working in a real lab and virtual simulations (25%), and lack of time (23%) were identified as the most prominent drawbacks (Note that percentages above were determined based on the total number of respondents (208) as there was a substantial portion of learners who identified multiple options of the above as problems associated with the VCLS). Similar observations have been made in a study conducted by Galusha and Jill, where loss of motivation due to lack of face-to-face contact with teachers and peers, and lack of faculty support was found to diminish the efficacy of distance learning (Galussha, 1998). Hence, the findings here collectively emphasize the need to (1) carefully manage the resources selected for such purposes based on the intensity of internet usage, (2) the need to accommodate supplementary in-person sessions to provide the physical interactions that lack in such online delivery methods, and (3) design online activities such that they would not require a large amount of time, thus being a burden, specifically in the case of full-time or part-time employed learners.

Then, the opinion of the learners on replacing part of the laboratory work associated with the practical sessions of the course by online activities using the VCLS in future was sought as summarized in Figure 6 (C). Here, a significant proportion (48%) indicated that this would be a good idea, while another sizable proportion (31%) indicated that they did not think that this would be good, indicating an ambivalence among the learners: a likely result of the prevalent problems associated with using the VCLS. Further, the learner perception on the effect on different attributes in education if part of the laboratory work associated with the course CYU3302 was replaced by online activities using the VCLS in future was sought. The findings here are summarized in Figure 7 (A) and as clearly seen significant proportions of learners indicated that flexibility to the learners (65%), access to learning resources (73%), and use of technology in education (77%) will improve via the use of the VCLS, while only a negligible proportion (<8%) indicated pessimism on each aspect.
Notably, relatively lesser proportions of learners indicated that use of the VCLS would improve the exposure to laboratory techniques (42%) and staff-student interactions (27%), while larger proportions (>20%) indicated pessimism in this regard, whereas another significant proportion were ‘not sure’ of their opinion. Such results however could be anticipated given the conventional delivery methods typically adopted in practical related courses and the inherent lack of the hands-on exposure and physical interactions that may result from online delivery methods.

Nevertheless, the overall opinion of the learners on the VCLS was greatly positive as summarized in Figure 7 (B). Majority of the learners (64%) have indicated that the VCLS was interesting and helpful for the course, while 10% indicated that it was interesting, although not helpful for the course. Only a negligible proportion (4%) indicated that the VCLS was neither interesting nor helpful for the course.

Similarly, in assessing the likeliness to recommend their colleagues to use the VCLS as an academic support tool as summarized in Figure 7 (C), it is clear that once again a significant proportion (79%) is likely recommend their colleagues to use the VCLS as an academic support tool, while only much lesser proportions of learners indicated that they were not sure (11%) or they will not recommend using the VCLS (7%). Further analysis indicated that the out of the learners who indicated that the VCLS was neither interesting nor helpful for the course, 75% were not familiar with the resource according to the feedback provided by the same learners on the familiarity of the VCLS. This suggests that the overall opinion of the learners on the VCLS is biased by the lack of familiarity with the resource and this could be significantly improved by facilitating further use of the VCLS by direct motivation such as making the use of the VCLS compulsory or by indirect means where the learners are encouraged to use the same.

4. CONCLUSIONS

As per the feedback collected regarding the VCLS from the learners from all demographic backgrounds, 76% of respondents indicated familiarity with the VCLS while 59% indicated that they were interested in engaging in activities provided through this resource during the pandemic lockdown. A significant majority (70%) indicated that the VCLS was helpful to understand the course content during the pandemic period while 82% indicated that they are likely to use it in the future. The prevalent problems related to using the VCLS as part of the course delivery were lack of internet access (31%), lack of physical interactions (25%), and lack of time (23%), which need to be carefully taken into consideration if further use of the resource is advocated. However, the overall opinion on the VCLS (74%) as well as the opinion on replacing part of the laboratory work associated with this course by the VCLS in future (48%) was notably positive. Further analysis suggests that the overall opinion of the learners on the VCLS is biased by the lack of familiarity with the resource, which could be significantly improved by facilitating further use of the VCLS via direct or indirect motivation. Overall, it is notable that a majority of learners indicated that flexibility to the learners, access to learning resources, and use of technology in education, all of which are important determinants in effective dissemination of knowledge, specifically in open and distance learning, will improve due to the use of this novel tool, thus awarding notable credibility to the work discussed herein.
Figure 7: Learner perception on (A) the effect on different attributes in education if part of the laboratory work associated with the course was replaced by online activities using the VCLS in future, (B) overall opinion on the VCLS, and (C) the likeliness to recommend their colleagues to use the VCLS as an academic support tool.
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