

Harnessing e-Learning Delivery System for Higher Education Expansion: Learner Experience Challenges in Selected Public Universities of Malawi

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Article

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Abstract

E-learning delivery system was adopted by most public universities of Malawi as an expansion strategy for increasing learner enrolment into academic programmes. Although the e-learning system started before the Covid-19 Pandemic in Malawi, it became more widespread after health authorities closed all education institutions as a prevention intervention in 2020.

This research paper has examined learner experience challenges with the e-learning delivery system for the ODeL programmes in selected three public universities of Malawi. The participating public universities comprised of Malawi University of Science and Technology (MUST), Lilongwe University of Agriculture and Natural Resources (LUANAR) and Mzuzu University (MZUNI) respectively.

The research study mainly involved mixed research methods such as documentary analysis, focus group discussions and survey questionnaires with the learners. The data was processed using statistical tools and thematic analysis.

The findings revealed multiple experiences challenges being faced by learners with e-Learning delivery system for ODeL academic programmes. Most of the learner experiences challenges such as limited access to internet facility by learners, unreliable internet connectivity, high cost of internet bundles which becomes unaffordable to learners, inappropriate use of digital devices and lack of skills on effective use of e-Learning delivery system.

1.0 Introduction

Majority of public universities in Malawi established Open Distance e-Learning (ODeL) delivery option as an expansion strategy for increasing learner enrollment into academic programmes due to limitations of infrastructure and other facilities. Furthermore, the occurrence of Covid-19 Pandemic also necessitated quick adoption of e-learning delivery system in most education institutions of Malawi as a response measure to the abrupt closure of all schools and academic institutions by the health authorities.

The growth of e-learning academic programmes through the ODeL system in Malawi, necessitated formulation of guidelines by regulatory institution of National Council of Higher Education (NCHE) to ensure quality control. In this regard, NCHE introduced a policy framework for regulating ODeL system and e-learning programmes in 2020. Furthermore, the Department of Open Distance and e-Learning (DoDeL) under Ministry of Education also introduced an overarching policy for guiding e-Learning delivery in Malawi.

E-learning delivery system in Malawi is generally characterized by numerous challenges arising from macro environmental factors such as low levels of digital technology adoption and limited access to digital services by the citizenry.

The purpose of this research study was to establish the learner experience challenges with the e-learning delivery system for ODeL programmes in the selected three public universities of Malawi. This is meant to derive lessons and insights emanating from the learner experience challenges in order to improve delivery of ODeL programmes in the public universities of Malawi.

1.1 Global Historical Background of e-Learning System

E-learning system has been in existence for some decades. However, the first ever e-Learning course was conducted in 1984 for undergraduate and in 1985 for post-graduates at the University of Toronto in Canada (Ngonda, 2023). There were few academic institutions that adopted e-Learning technologies before the Covid-19 pandemic (Diab, 2020).

The adoption of e-Learning technologies by most schools, institutions and universities in most countries across the globe increased during the Covid-19 pandemic experience for continuity of education to learners due to compulsory shutdown of physical classes as a preventive measure by government authorities (Alhumaid, 2020).

The benefits of e-Learning are that students have access to education without geographical restrictions and in some cases at their own preferred time especially when the delivery mode is off-line method (Diab, 2020). In addition, e-Learning also offers substitution learning to the traditional classroom model. It is cost-effective as compared to the traditional face-to-face learning model (Al-awadan, 2012).

The delivery of e-Learning sessions in educational institutions is done as either asynchronous (offline sessions) or synchronous (online sessions) and at times, it is also used as blended (combination of online and physical sessions) or hybrid (some students attend online while others face to face during the same session (Azionya, 2021).

A recent meeting comprised of forty-seven (47) Heads of State from Least Developed Countries (LDCs) held in Doha, Qatar from 5th to 9th March 2023, to which Malawi was in attendance, agreed to establish an Online University to strengthen their digitalization efforts. This is a strong indication of the importance of e-Learning in higher universities across the globe. You may also refer to Malawi Vision 2063 agenda!

1.2 Historical Background of ODeL System in Malawi

Malawi recognized the potential of distance education upon independence in 1964. The Government of Malawi, introduced Open and Distance Learning (ODL) in 1965 for primary and secondary education sectors under Malawi Correspondence College (MCC) with initial enrolment of 1,424 students. This was the first local chapter on ODL because, prior to this set up, Malawians advanced their studies through correspondence colleges from other countries (Zimbabwe, Zambia, Tanzania, and South Africa) in the Southern Africa Development Community (SADC) Region and beyond Africa, such as the United Kingdom. The programmes conducted by the Government of Malawi were supplemented with radio programs by the sole broadcaster, Malawi Broadcasting Corporation (MBC), through the Schools

Broadcasting Unit (SBU) from 1965. The MCC focused on print-based learning materials; whereas SBU produced and aired selected MCC lessons. The MCC and for fSBU merged in 1973 into what, later became the Malawi College of Distance Education (MCDE) in 1987 (Ministry of Education, 2024).

Following the footsteps of MCDE, the then Malawi Polytechnic, now Malawi University of Business and Applied Sciences (MUBAS), started offering professional courses through evening classes to people in employment who wanted to further their education and training (Ministry of Education, 2024). Thereafter, Mzuzu University (MZUNI) introduced e-Learning programmes in 2005 for selected programmes. The trend continued with other public universities such as University of Malawi (UNIMA) and Malawi University of Science and Technology (MUST) respectively include LUANAR. The Table 1 below indicates information about the background details of ODeL programmes in the public universities of Malawi.

Table 1
Background details of ODeL programmes in the public universities of Malawi

No	Public Universities	Background information on the ODeL system
1	University of Malawi (UNIMA)	In collaboration with Amity University, Indira Ghandi National Open University, and the University of Madras, from India, started offering professional courses in commerce and human resource development through e-Learning from 2009.
2	Malawi University of Business and Applied Sciences (MUBAS)	Introduced first ODeL programmes in September 2021.
3	Kamuzu University of Health Sciences (KUHES)	Began utilizing e-learning/virtual learning to train nurses and midwives in 2009. But they do not have ODeL programmes
4	Mzuzu University (MZUNI)	Joined the movement in 2005 by offering Bachelor of Arts (Education) and Bachelor of Science (Education) using the ODeL delivery mode.
5	Lilongwe University of Agriculture and Natural Resources (LUANAR)	Started offering ODeL programs in 2015 in several areas such as Bachelor of Science in Agricultural Economics, Bachelor of Science in Agricultural Extension and Bachelor of Science in Agricultural Innovations. However, LUANAR had started block-release programs a few years earlier.
6	Malawi University of Science and Technology (MUST)	The Malawi University of Science and Technology (MUST) also embarked on ODeL in 2020.

Currently, all the five public universities have ODeL programmes except for Kamuzu University of Health Sciences (KUHES) which only offers e-learning sessions on occasional basis.

This shows that ODeL system is well established in the public universities of Malawi despite some variations in the historical backgrounds.

1.3 Problem Statement

The growing demand for higher education by learners in Malawi and the need for responsiveness to the national strategic vision of Malawi (MW2063) enabler number five on human capacity development, have exposed huge gaps and opportunities for rethinking delivery of education. These have revealed the need for exploring more efficient, inclusive, resilient, and transformative education delivery modes (Ngonda, 2023).

Consequently, most public universities of Malawi have recently increased introduced Open Distance and e-Learning (ODEL) system for delivery of academic programmes. In these public universities, e-Learning delivery system is a tool for delivery of ODeL programmes to learners. It is also a tool for increasing access to education for learners through a flexible and convenient mode (Chimpololo, 2013). Malawi Government through the Ministry of Education established the Department of Open, Distance and e-Learning (DoDeL) which provides an oversight function on issues of e-learning in the country (Chawinga, 2018).

The growing demand for higher education (Kalima, 2023) and the emergence of Covid-19 pandemic created an opportunity for online education (Kayange, 2021). For instance in Malawi, there has been support from World Bank under the Skills for Vibrant Economy (SAVE) Project and Ministry of Education, Department of ODeL (DoDeL) on enhancement of e-Learning system as a strategy for increasing access to higher education to learners in line with National Education Sector Plan (NESP) for 2020 to 2030. The support from the World Bank's Skills for Vibrant Economy (SAVE) Project and the Ministry of Education, through its Department of Open, Distance, and e-Learning (DoDeL), has been instrumental in the development and implementation of e-learning initiatives in Malawi. These efforts align with the National Education Sector Plan (NESP) which aims to expand access to quality higher education. Currently, five public universities in Malawi have the ODeL system, namely, Malawi University of Business and Applied Sciences (MUBAS), Malawi University of Science and Technology (MUST), University of Malawi (UNIMA), Lilongwe University of Agriculture and Natural Resources (LUANAR) and Mzuzu University (MZUNI) respectively (Kayange, 2019).

In view of digital challenges, especially Malawians in remote areas with only 18% to 27.7% who have access to internet facilities, there is need to investigate learner experience challenges with e-learning delivery system for the ODeL programmes in the public universities. This would enable important lessons to be drawn regarding areas for improvement in the delivery of e-learning system for ODeL programmes.

1.4 Research Objectives

The main objective of this research study was to establish learner experience challenges with e-learning delivery system for Open, Distance and e-Learning (ODEL) programmes in the selected three (3) public universities of Malawi.

The specific objectives of this study were as follows:

1. To assess the landscape of e-learning system and ODeL programmes for learners in the selected three (3) public universities of Malawi.
2. To investigate the nature and magnitude of learner experience challenges with e-learning delivery system for the ODeL programmes in the three (3) public universities.

1.5 Significance of the Research Study

This research study is significant for the advancement of e-learning education delivery standards in Malawi.

The study has established numerous learner experiences with e-learning delivery system for ODeL programmes in the selected three public universities of Malawi and drawn some useful lessons for future improvement.

The learner challenges require immediate attention and solutions in order to improve the e-learning delivery system in the public universities of Malawi.

2.0 Literature Review

2.1 Empirical Literature Review

Globally, there are several key disruptors in the education sector (Lubis, 2019). These may include natural-related disruptors (Purwaningsih, 2022), human-led disruptors (Ra, 2021) and technology disruptors (Lubis, 2019). A disruption comes in many ways, including ever-changing trends amid generational preferences and ideas (Smith, 2020).

However, the major disruptor in the education sector is the worldwide spread of the Covid-19 Pandemic which led to the closure of schools, colleges and universities in most countries across the globe (Azionya, 2021).

Most education institutions that were closed during the pandemic opted to use e-Learning platforms for the continuity of their academic study programmes. For example, in Jordan, educational institutions were required to operate under exceptional circumstances and transfer their activities to online and remote methods (Karasneh, 2021). Similarly, in Spain, nursing students in higher learning institutions were required to finish their studies through e-learning during the Covid-19 pandemic (Ramos-Morcillo, 2020). The case was the same in most Asian countries such as China which adopted e-learning technology in the wake of the Covid-19 Pandemic and this was easily undertaken as China has the advantage of the largest online population of 840 million people (Dokubo, 2020). These measures were not spared in developing countries. For example in Zambia, a study on academic activities of nursing students conducted at colleges in Lusaka and Mufulira districts respectively, concluded that Covid-19 pandemic caused failure in students to complete course content, concepts were poorly taught, delayed examinations and prevented students from clinical attachments (Mwila, 2021).

Similar findings were also reported in Mozambique where all schools were closed down by the Government due to Covid 19 pandemic on 20th March 2020 and education institutions opted for online classes with the use of tools such as WhatsApp (35.3%), Google Classroom (27.7%), Zoom (15.1%), Moodle (14.3%), Skype (4.2%) and Colibri (3.45%) (Mahaluca, 2022). Likewise in the Republic of South Africa, students moved to online learning when schools and education institutions were closed down in line with the Covid-19 prevention measures imposed by the Government (Azionya, 2021).

These e-Learning platforms were given different names by users such as Emergency Remote Teaching - ERT (Colclasure, 2021), Mass Open Online Course - MOOC (Lubis, 2019), Artificial Intelligence - AI (Lubis, 2019), Digital Integrated System for Holistic Teaching and Virtual Orientation - DISHTAVO (Tari, 2021) and Open Distance & e-Learning – ODeL (Tari, 2021).

2.2 Theoretical Frameworks

2.2.1 TPACK (Technology, Pedagogical and Content Knowledge) Model

TPACK Model describes the kinds of knowledge required by teachers for the successful integration of e-learning technology in the delivery of teaching (Zhang, 2021).

TPACK Model contains three core elements as follows; **Technological Knowledge** (TK), **Pedagogical Knowledge** (PK) and **Content Knowledge** (CK) respectively. Technological Knowledge refers to teacher knowledge about traditional and new technologies that can be integrated into the curriculum, Pedagogical Knowledge refers to teacher knowledge about a variety of instructional practices, strategies and methods to promote students' learning while Content Knowledge refers to any subject matter knowledge that a teacher is responsible for teaching.

This Model is relevant for this research study as it has assisted this research study in understanding the integration of education tools in technology use. The integration of TPACK model elements for this study has involved the use of pedagogical approach for e-learning delivery to learners, the design of content materials by tutors and also selection of appropriate technologies for e-learning delivery.

2.2.2 SAMR (Substitution, Augmentation, Modification and Redefinition) Model

SAMR Model is a four-level taxonomy that describes how technology impacts on teaching and learning. The four levels of this model are Substitution, Augmentation, Modification and Redefinition (Kelton, 2014). The Substitution and Augmentation components belong to **Enhancement** category while the Modification and Redefinition components are classified as **Transformation** Tier (Pankomera, 2017).

The Substitution component says that technology acts as a direct substitute with no functional change while the Augmentation component says that technology acts as a direct substitute with functional improvement. Whereas the Modification component says technology allows for significant task redesign

while Redefinition component says that technology allows for the creation of new tasks, previously inconceivable.

This Model is useful for this research study as it will help the researcher to understand the extent to which technology transforms teaching and learning in this study.

2.2.3 Justification of the Theoretical Models

These theoretical models are useful in this research study as they have elements that underpin the key issues under investigation. For instance, the **TPACK Model** is useful for integration of digital tools with pedagogical approach to ensure effective e-learning delivery in the three public universities of Malawi. Learner experiences are influenced by use of digital technology for delivery of ODeL programmes in the public universities of Malawi. The key issues for research in this study involve learner experiences with e-learning delivery system, therefore understanding integration of technology and delivery methodologies is very important.

Similarly, the **SAMR Model** has four key elements that explain the interplay of factors that are necessary for effective e-learning to take place such as Substitution, Augmentation, Modification and Redefinition respectively. The combination and interplay of all these factors in appropriate fashion will achieve effective e-learning experience.

3.0 Research Methodology

The researcher conducted both secondary and primary data research to enrich the information sources. The secondary research involved review of existing literature in order to examine the published information sources while the primary research involved collection of data from the public universities of Malawi. According to Mira (2017), secondary research is cost effective, fast and easy to undertake while primary research is costly and takes long to be completed but data is relevant for the research study.

This research study adopted a Pragmatism Philosophy in order to examine learner experiences with the e-learning delivery system and ODeL programmes for the public universities of Malawi. This would help to build concepts and patterns of the learner experiences. According to Saunders et al (2019), Pragmatism Philosophy seeks to develop a practical solution to an existing problem. In this study, the findings will help to propose a practical solution to the problems arising from learner experiences. The research also used a case study approach as the study was limited to public universities of Malawi with ODeL programmes.

3.1 Respondents for the Research Study

Out of the population of five universities, the researcher focused on three universities as a sample size. The selection of the three universities was based on geographical presentation and experience record of e-learning delivery in Malawi. The three sampled universities were as follows: Malawi University of

Science and Technology (MUST), Mzuzu University (MZUNI) and Lilongwe University of Agriculture and Natural Resources (LUANAR) respectively.

The researcher used both qualitative and quantitative methods for data collection such as focus group discussions and survey questionnaires with learners. The Table 2 below shows the respondents and data collection tools for this research study.

Table 2
Respondents for the research study from the selected three public universities of Malawi

No	Learner Respondents	Reason for Choice of Method	Population Size	Sample Size
(a) Survey Questionnaires				
1	MZUNI	Detailed responses	300	100
2	LUANAR	Detailed responses	2,310	500
3	MUST	Detailed responses	277	164
Subtotal			2,877	764
(b) Focus Group Discussions				
1	MZUNI	Strong qualitative data	300	35
2	LUANAR	Strong qualitative data	2,310	50
3	MUST	Strong qualitative data	277	30
Subtotal			2,877	115

3.2 Data Processing and Analysis

The data for this study was qualitative in nature. As such, the data processing and analysis involved **Survey Monkey software** package to derive the results using quantitative analysis. In processing of qualitative data, the researcher employed a qualitative content analysis approach to identify patterns and themes in the comments or opinions from respondents. The key concepts, elements, and recommendations from the emerging trends and best practices were systematically reviewed.

3.3 Research Limitations

The limitations that were encountered during the research study were as follows:

1. There were only three (3) public universities in Malawi with ODeL system that participated in this research study out of the existing five (5) universities. This was due to time constraint for travel to all the public universities across Malawi.
2. The data was obtained only from learner respondents for undergraduate programmes and therefore has a single dimension. The study left out postgraduate learners. This happened because majority

of learners for ODeL programmes in the public universities of Malawi are for undergraduate programmes.

4.0 Findings and Discussions

The findings for this research study were both qualitative and quantitative in nature and this is in line with the designed methodology. The presentation of the findings is in line with the objectives for this research study.

The introductory section for the findings is on the respondents who participated in this research study. There was a reasonable success rate for the responses in the data collection exercise for this research study.

However, the majority of learner respondents were from LUANAR, seconded by MZUNI and lastly MUST respectively. This is because of disparities in learner enrolments into ODeL academic programmes for these public universities. The Table 3 below shows number of respondents from the three public universities of Malawi who participated in this research study.

Table 3
Respondents for the research study from the selected three public universities of Malawi

No	Learner Respondents	Respondents	Percentage (%)
(a) Survey Questionnaires			
1	MZUNI	10	2%
2	LUANAR	399	80%
3	MUST	89	18%
	Subtotal	536	100%
(b) Focus Group Discussions			
1	MZUNI	12	35%
2	LUANAR	10	30%
3	MUST	12	35%
	Subtotal	34	100%

The detailed information in the Table 3 above has been further analysed into a pie chart as presented in Fig. 3 below.

However, the focus group discussions had similar number of respondents as the sample size is restricted to a maximum of twelve for purposes of effective control and group participation. The Fig. 3

below shows the composition of learner respondents for focus group discussions from the three public universities of Malawi.

4.1 Landscape of e-learning delivery system and ODeL programmes in public universities

The first specific objective assesses the landscape of e-learning system and ODeL programmes in the selected three public universities of Malawi. In order to address this specific objective, the findings have examined key areas across the three public universities such as nature of ODeL programmes, satellite centres, e-learning platforms, integration with face to face sessions, ODeL infrastructure and institutional support to ODeL system respectively.

In order to ensure clarity and simplicity of presentation, the Table 4 below has been used to depict findings on landscape of e-learning system and ODeL programmes in selected three public universities of Malawi.

Table 4

A summary of findings on landscape of e-learning system and ODeL programmes in selected three public universities of Malawi

No	Key Dimension	Malawi University of Science and Technology (MUST)	Lilongwe University of Agriculture and Natural Resources (LUANAR)	Mzuzu University (MZUNI)
1	ODeL Programmes	Offered to undergraduate learners only.	Offered to undergraduate learners only but post-graduate programmes are available under E-Campus which is managed by Astra Learning.	Offered to undergraduate learners only.
2	Satellite Centres	There is one satellite centre in Blantyre	There are three satellite centres in Lilongwe, Blantyre and Mzuzu.	There are four satellite centres in Karonga, Lilongwe, Balaka and Mulanje.
3	e-Learning Platforms	Official platform is Moodle supported by Google Meet, Whatsapp	Official platform is Moodle supported by Google Meet, Microsoft Teams	Official platform is Moodle supported by Google Meet, Microsoft Teams Whatsapp
4	Integration with face to face sessions	Learners are taken through face to face sessions for some weeks	Learners are taken through face to face sessions for some weeks	Learners are taken through face to face sessions for some weeks
5	ODeL Infrastructure	There is no ODeL Campus Instead Main Campus and City Satellite Centre used for e-learning students	There is an ODeL Campus	There is an ODeL Campus and computer laboratories
6	Institutional support to ODeL system	Learners have access to computer laboratory and access to SAVE loans	Learners have access to computer laboratory and access to SAVE loans	Learners are borrowed devices and access to SAVE project loan

Most of the findings are similar to all the selected three public universities which participated in this research study.

4.2 Nature and magnitude of learner experience challenges with e-learning system and ODeL programmes

There numerous challenges encountered by learners in the delivery of ODeL programmes in the public universities of Malawi. The common challenges obtained through focus group discussions are unreliable internet connectivity, lack of appropriate devices, unaffordable internet data, lack of digital skills on both lecturers and learners, limited feedback and interactions with lecturers, inconvenient time schedules for

e-learning sessions and others. The Table 5 below shows the narrative comments on challenges of learners in e-learning delivery.

Table 5
Narrative comments on challenges of learners in e-learning delivery

No	Thematic area	Challenges faced by learners
1	Internet connectivity	• Intermittent internet connectivity • Network connection and lack of money for purchasing bundle • Network problems and down systems of our platforms like Moodle
2	Lack of adequate interactions with lecturers	• Some lecturers do not arrange classes for their courses. • Most lecturers do not conduct these sessions. • Limited interaction with classmates and lecturers. Distractions at home.
3	Lack of resources	• Lack of resources to be used like books and data bundles • Lack of data bundles for internet service • Lack of devices like laptop and good smartphone • Being denied access to student loans • Poor condition of learning gadgets • High costs of internet services. • Frequent black out that results in low phone battery.
4	Failure to attend classes	• Missing of classes • Some periods missed since some lectures can choose not to teach • Lack of time schedule • Time scheduling for classes • Absenteeism of lecturers • Unexpected missing of classes due to offline • Frequent postponement of sessions.
5	Lack of online skills	• Some lecturer do not fully teach on video calls. Some just shares slides without explanation. This makes us different from the generic students who have ample time with the lectures. • Technophobia • Inadequate knowledge on how to access the portals
6	Lack of commitment by lecturers	• Lack of commitment by some lecturers to offer online classes

The findings from a survey questionnaire revealed similar findings with the focus group discussions. Learners in the three public universities were asked to indicate the weaknesses of e-learning delivery system using rating of options from a scale of 1 to 8, with 1 being the highest impact and 8 the lowest impact as presented in Fig. 4 below.

The respondents were rating the options from a scale of 1 to 8, with 1 being the highest impact and 8 the lowest impact. The majority of the respondents indicated poor internet connectivity (7.45), lack of online skills (5.77), limited interactions with lecturers (5.67), inability to observe body language (4.54), high cost of data and devices (4.90), inability to follow lecturers (3.04), limited time allocation (2.65) and limited lecturer guidance (1.99) respectively.

The problem of internet connectivity is very big in Malawi especially in remote areas. Although internet companies such as Airtel and TNM have upgraded internet services from 4G Network to 5G Network, the quality of internet connection is still a challenge.

Similarly lack of digital skills by learners, lecturers and general public is a major challenge in Malawi. This is because digital technology is a new phenomenon that is not fully embraced by the citizenry especially in remote areas.

4.3 Linkage of research findings with theoretical models

The findings have revealed useful insights on the common learner experiences challenges for e-learning system and delivery of ODeL programmes in the three public universities of Malawi.

These findings have been linked with theoretical models for interpretation based on academic concepts. Below is Table 6 with the linkage of research findings.

Table 6
Linkage of findings with theoretical frameworks

Linkage of findings with theoretical frameworks		
No	Learner experiences challenges with e-learning delivery system	Linkage of findings with theoretical frameworks
(a) Technological Deficiencies		
1	Internet connectivity	TPACK and SAMR Models indicate the importance of technological integration in education delivery. Internet connectivity is necessary for effective e-learning. Similarly there is need for availability of appropriate devices to ensure optimal delivery of e-learning.
2	Lack of resources	
(b) Human Capacity Deficiencies		
3	Lack of adequate interactions with lecturers	TPACK and SAMR Models requires use of effective pedagogical approach in delivery of e-learning. It is important for both lecturer and learners to properly interact through the online platforms to ensure effective knowledge transfer.
4	Failure to attend classes	
5	Lack of online skills	
6	Lack of commitment by lecturers	

4.4 Recommendations

The implementation of e-learning delivery system and ODeL programmes in the public universities is faced with numerous learner challenges that affect quality of service delivery. There is need to address the challenges to ensure effective delivery of e-learning. The following are possible recommendations to be implemented by the public universities and other stakeholders:

1. Provision of devices to learners under ODeL system. The National Education Loans Board has recently started offering loans for devices to learners. This is a good development that needs to be supported to cover more beneficiaries in Malawi.
2. Lobbying with internet service providers such as Airtel Malawi and TNM Malawi for zero rated internet services to learners and also provision of reliable internet services. Currently, Airtel Malawi offers zero rated internet services to some public universities.
3. Public universities should have adequate facilities for ODeL learners. Some public universities have Satellite Centres for delivery of internet services to learners.
4. Regular provision of orientation training to build capacity of learners and lecturers on use of internet technology.

5. Choice of appropriate e-learning platforms for delivery of science programmes especially science programmes as they require laboratory use.
6. There is need for introduction of National ODeL College by Malawi Government. This will help to set best practices and strengthen e-Learning delivery in Malawi.

5.0 Conclusions

The public universities in Malawi have e-learning delivery system and ODeL programmes as a strategy for increasing learner enrollment. However, these universities need to resolve the learner experience challenges that affect delivery of e-learning programmes to the learners.

Despite the decline of Covid-19 Pandemic, most higher education institutions have continued to offer e-learning for delivery of academic programmes.

However, there is need to improve the quality of e-learning experience as most of the challenges can be resolved through appropriate interventions by relevant authorities. These interventions can help to improve service quality of e-Learning delivery in the public universities of Malawi.

Declarations

1. Statement of Ethics Approval. The research was approved by Malawi University of Science and Technology (MUST) Ethics Committee

2. The higher education institutions were requested in writing by the researcher for data collection exercise in each respective institution. There was an acceptance that was provided for the data collection exercise which involved consent of learners, lecturers and administrators

Ethical Declaration

This manuscript is original, has not been published elsewhere, and is not under another consideration by another journal. There is no plagiarism or inclusion of copy righted materials without appropriate permissions.

This research study was approved by the Malawi University Science and Technology (MUST) Research Ethics Committee (REC) as part of academic work for a PhD Programme for the researcher.

The research study has adhered to human ethics and consent before undertaking data collection exercise from respondents to participate in this study.

Author Contribution

The whole work has been done by the author

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Figures

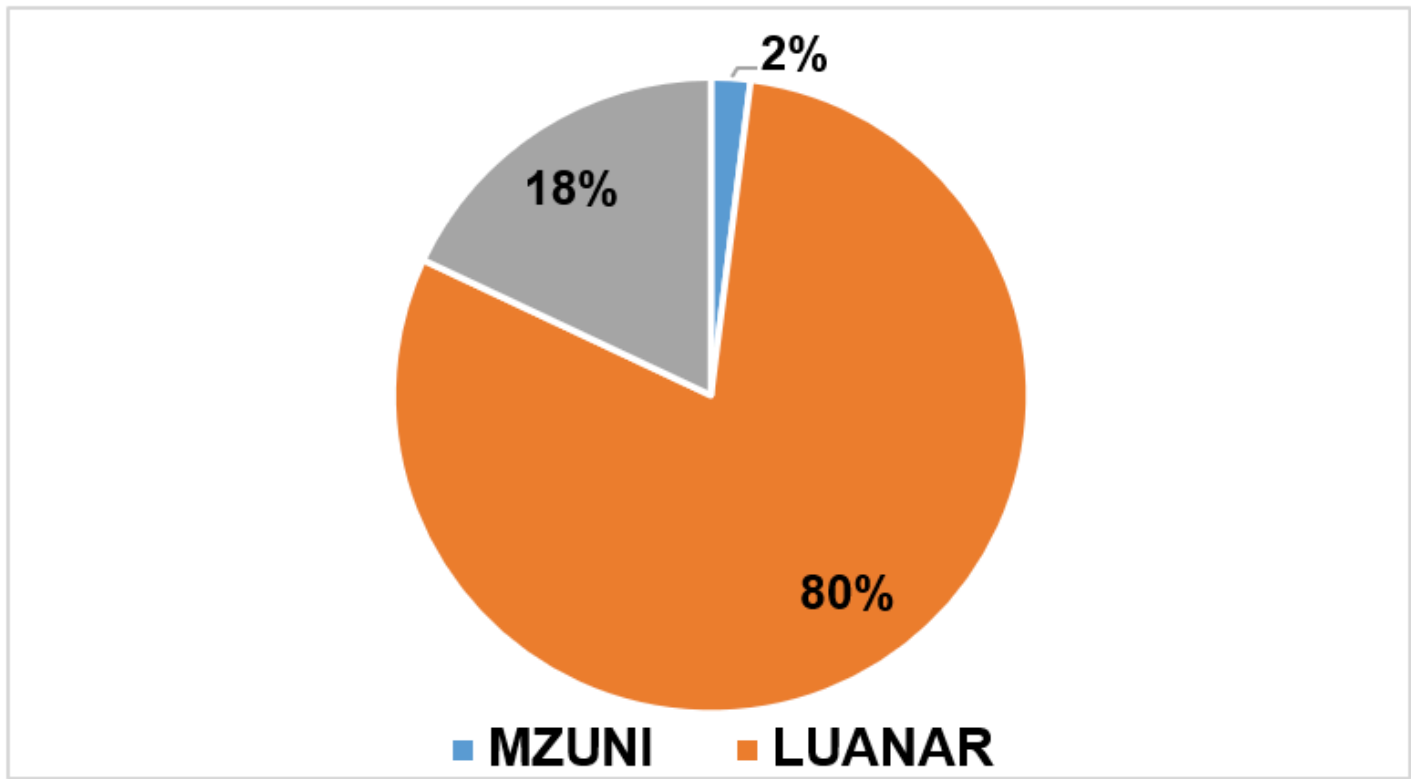


Figure 1

Figure 2: Learner Respondents on Survey questionnaires

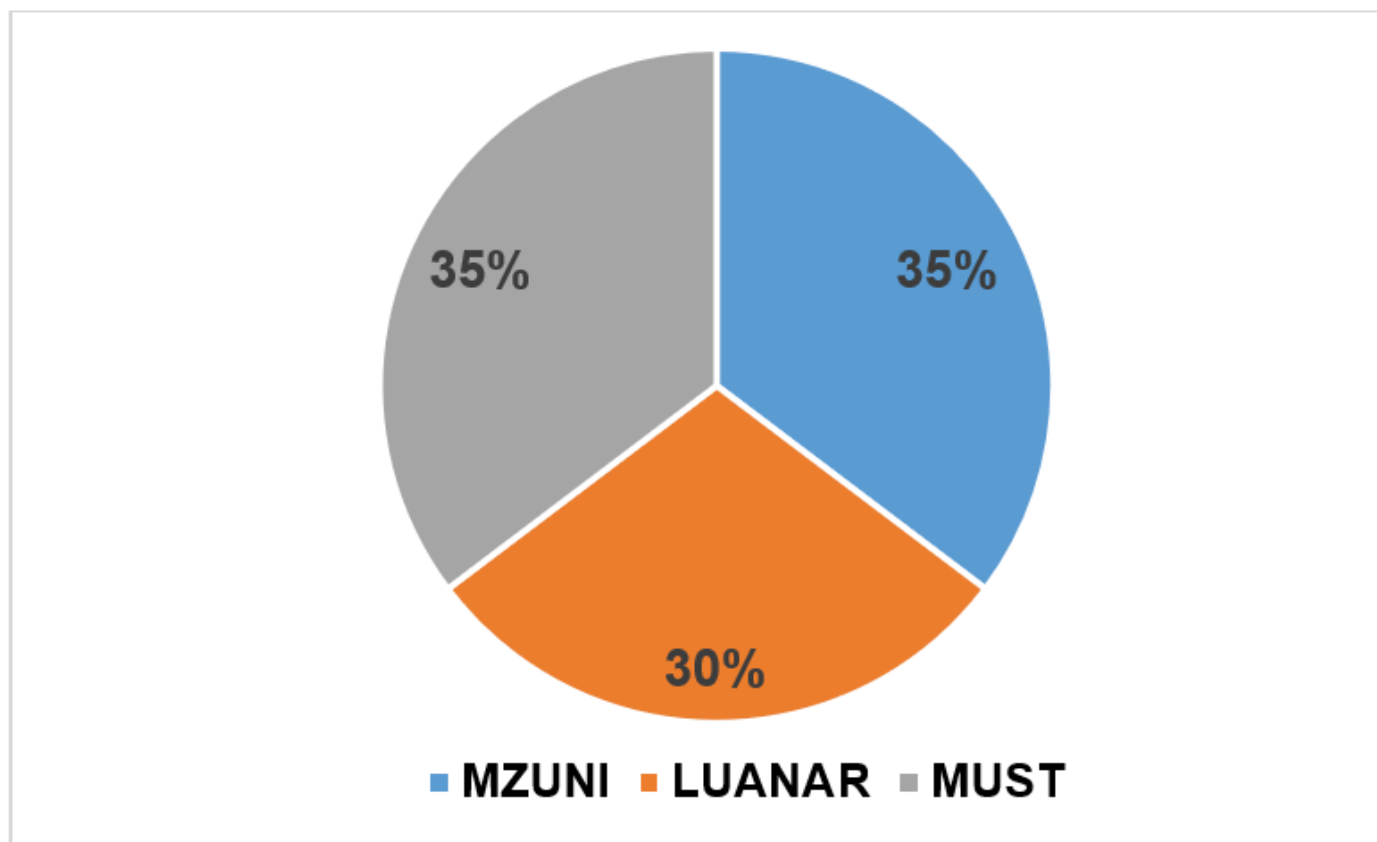


Figure 2

Figure 3: Learner Respondents on Focus Group Discussions

Which of the weaknesses would you consider the most impactful on e-learning delivery method? Rank the list below from 1 to 8 (1=highest impact and 8=lowest impact)

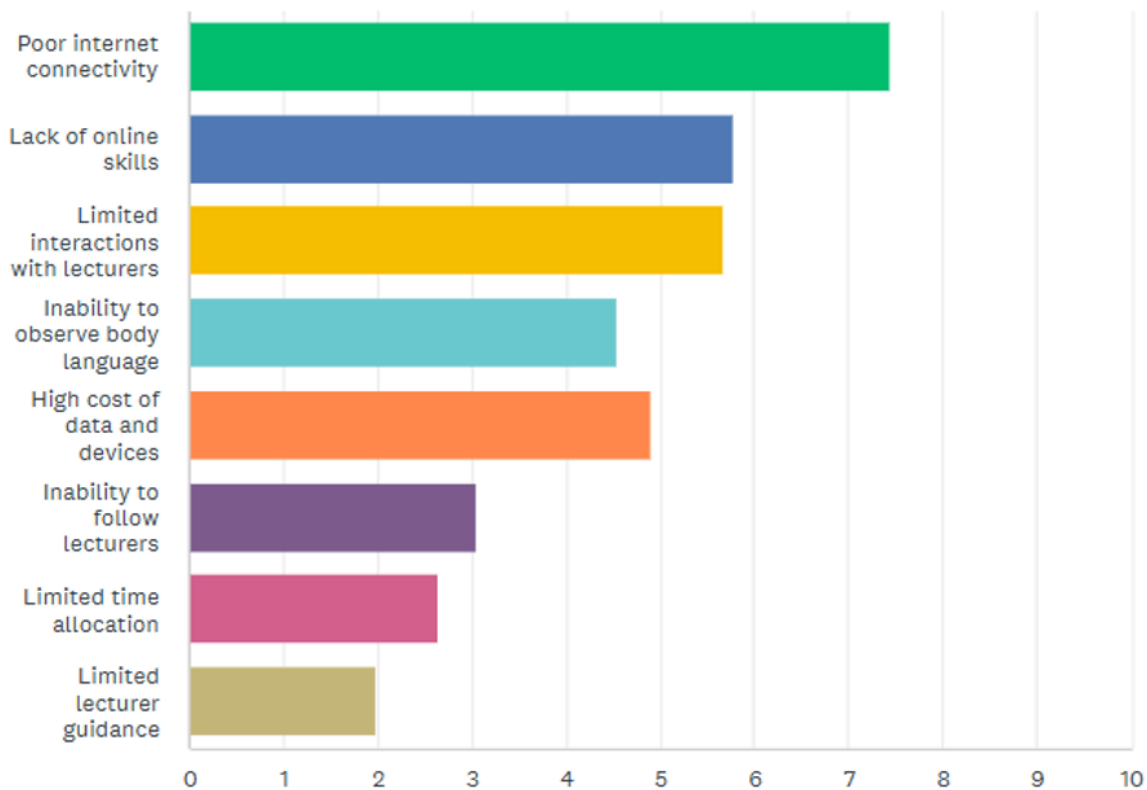


Figure 3

Figure 4: Learner responses on weaknesses of e-learning methodology