



Electronic learning benefits and challenges in Malawi's higher education: A literature review

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Abstract

Electronic learning (e-learning) has become inevitable for higher education institutions during the Corona Virus pandemic. This paper presents a systematic literature review on e-learning in Malawi's higher education institutions with comparable analysis from findings in other developing countries across the globe. The aim was to highlight some benefits and challenges of implementing a sustainable e-learning programme in higher education institutions. Methods for the review included a qualitative analysis of literature and employed the Bandara et al. (2011) framework and NVIVO 10.0 for windows for data analysis and management and incorporated the Preferred Reporting Items for Systematic Reviews and Meta-Analyses to help define the question, the inclusion and exclusion criteria, and the proposed methods, including a comprehensive search strategy. Sources for the review included research articles from databases such as Sage, Emerald, Science Direct and Elsevier. The paper has unearthed several benefits of online learning especially during the coronavirus pandemic. Despite the few publications and sustainable e-learning research in Malawi, the review has found that technological, individual, financial and managerial challenges, impede the development of best practice standards for e-learning implementation. The review has suggested recommendations of a sustainable e-learning programme to provide quality learning through technology. The paper provides further ideas for developing and implementing a sustainable e-learning program to provide quality learning through technology.

Keywords E-learning · Distance education · Developing countries · Higher education institutions · Malawi

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1 Introduction

The surge in the spread of Corona Virus Disease (COVID-19) is a serious catastrophe and has commanded a series of changes across the globe. The world has experienced lockdown measures and closure of educational institutions aside other industries like tourism and hospitality, manufacturing sector, travel, entertainment and other social systems. Global economies have been affected in return and the time away from these activities are creating a cost to the socio-economic development of societies. As we see now in the world, the COVID-19 pandemic is forcing educational institutions such as universities to shift rapidly to distance and online learning (Almaiah et al., 2020). United Nations Education and Scientific Cultural Organisation (UNESCO) (2020) confirms that the closure of universities and schools has several adverse consequences on students such as interrupted learning which deprives students and the youth of opportunities for growth and development.

As a remedy, the government of Malawi has embarked on e-learning programmes for students so that the education sector can continue to operate amid the lockdown measures. Indeed, e-learning is a necessity in higher education institutions (HEIs) and is being deployed in education the world over (Ansong et al., 2018; Islam et al., 2015) and has become a novel means of learning trend in current years (Naveed et al., 2017a). The world is increasingly becoming digital and higher education is not an exception to this transition (Siemens et al., 2015a). The objective of this review is to highlight some studies on e-learning in HEIs in Malawi in comparison to some selected developing countries. This review focuses on students as the largest stakeholder of e-learning and the more affected when it comes to implementation. Bhardwaj and Goundar (2018) and Naveed et al. (2017b) posited that an e-learning system is a student centered approach with students as the most important stakeholder and perceived beneficiary.

1.1 Concept of e-learning

According to Arkorful and Abaidoo (2014), there is not any common definition of the term e-learning while Al-Azawei et al. (2016) say that, as with other new terminologies of learning in the digital era, e-learning does not have an acceptable definition among all researchers. E-learning refers to the integration and utilisation of information technology tools such as computers, software and internet in the process of teaching and learning in education (Aboderin, 2015; Hubackova, 2015; Kayange, 2019; Mwakyusa & Mwalyagile, 2016; Turban et al., 2015). Igbokwe et al. (2020:29) defines e-learning as a “learning approach that is centered on the use of electronic technologies to teach, learn, communicate, share ideas, access information and regulate educational activities from instructors to learners in an online environment”. Kyari et al. (2018:1) define it as the “use of the Internet, intranets/extranets, audio and videotape, satellite broadcast, and interactive television, not only for content delivery but also for interaction among participants”. Defining e-learning as a concept is not a straight forward thing and the broader distinct definitions above highlight the difficulty in finding a commonly

accepted definition. This study takes e-learning as the use of electronic technologies and the Internet in delivering education content online or offline and supporting collaboration in different geographical areas.

1.2 E-learning in Malawi

E-learning in Malawi has grown due to the need to expand access to higher education, and the inadequacies of faculty teaching staff with pressure on the capacity of HEIs being so high (Chawinga & Zozie, 2016; Kayange, 2019; Maere, 2011). Besides, there has been growing interest by HEIs to engage in e-learning due to the closure of education institutions courtesy of COVID-19. However, it is worrisome to note that only 0.8% of Malawi population access higher education (World Bank, 2019). Malawi has six public and eighteen private universities registered and accredited with the National Council for Higher Education (NCHE) (NCHE, 2021). About 30% of these are now engaged in e-learning modalities including Malawi University of Science and Technology, Catholic University of Malawi, Malawi Assemblies of God University and Blantyre International University, while the University of Malawi, Kamuzu University of Health Sciences, Lilongwe University of Agriculture and Natural Resources and Mzuzu University (MZUNI), are still considering their capacities.

No university in Malawi offered complete online degree programs or online courses before the COVID-19 pandemic. However, the sudden global pandemic which prolonged school closure and lockdown measures, forced changes in education delivery. Consequentially, during the lockdown, two public universities and two private universities in Malawi offered online education to their students. The numbers increased after COVID-19 lockdown as additional three public universities and seven private universities started offering online education to compliment face to face course delivery in an attempt of catching up on the time that was lost during lockdown. This made 13 universities out of 21 offering online education after COVID-19 lockdown. Online learning at these universities was made possible through virtual classrooms using Moodle, Zoom Video Conferencing, and Google Classroom. Students and lecturers accessed and interacted with each other using personal smartphones, tablets and laptop computers provided they had internet connectivity. Other technologies in use included blogs, wikis, social tagging and bookmarking, and social networking using Facebook, WhatsApp, and YouTube. Some African universities such as the University of South Africa (UNISA) have intensified the use of Internet technologies to enhance teaching and learning (Queiros & de Villiers, 2016; UNISA, 2016). Thanks to the proliferation of computers, networks, and the Internet, the puzzle is solved. Today, universities, businesses, and organisations worldwide now offer fully-accredited online degree, vocational, and continuing education programmes in abundance.

1.3 Methodology

The study adopted Bandara et al. (2011) framework (Fig. 1) whose tool provide a four-phased systematic literature review process. Bandara et al. (2011) say that the first phase involves the systematic identification and extraction of articles.

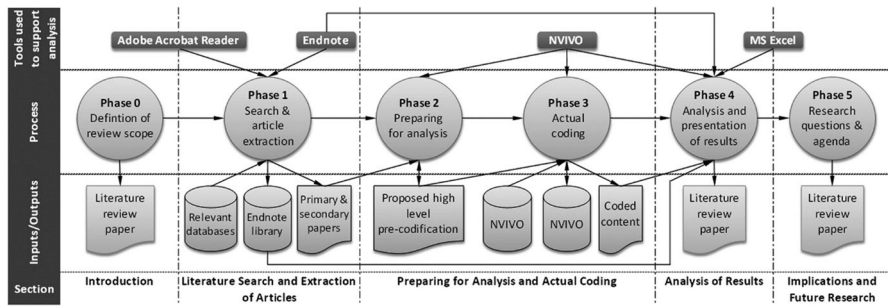


Fig. 1 Overview of the literature review approach. Adapted from Bandara et al. (2011)

It also includes a search strategy involving a selection of parameters for dates, determining the terms to look for, identifying a key topic and searching through titles, abstracts, and keywords (Sofiadin, 2014). The next phase is dedicated to the preparation of the analysis, the third step involves the actual coding and analysis of the content and finally, the last phase supports the overall writing and reporting of the findings (Bandara et al., 2011).

Bandara et al. (2011) further recommend some tools to support the conduct and management of these phases; in particular, this review used NVIVO 10.0 for windows as a qualitative data management tool for the analysis and defining coding schemes and pre-coding guidelines and Adobe Acrobat Professional 9.0 to read, search and index the extracted papers. The study employed a qualitative technique in which major themes focusing on benefits and prevalent challenges facing the implementation of e-learning in Malawi HEIs were reviewed from literature. The literature was sourced from journal articles, published and unpublished dissertations, and technical and research reports, retrieved from Sage, Emerald, Science Direct, Taylor & Francis, and African Journal Online scholarly databases and Google Scholar. The search terms were: e-learning, distance education, higher learning institutions, higher education, and developing countries.

The framework used in this review was chosen because it has been proven relevant in conducting reviews in information systems (IS) studies in general (Bandara et al., 2011; Levy & Ellis, 2006; Miskon et al., 2010; vom Brocke et al., 2009). This study incorporated the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (fig. 2) flow diagram advocated by Moher et al. (2009) and Stovold et al. (2014) to help define the question, the inclusion and exclusion criteria, and the proposed methods, including a comprehensive search strategy. Search statements were constructed using Boolean logic and operators like “AND” “OR” “NOT,” and generated 19,976 articles but based on the inclusion and exclusion criteria, the final analysis was based on 92 articles. The criteria for inclusion ensured that articles were: peer-reviewed, reported on e-learning/distance education benefits and challenges of HEIs in developing countries, empirical scholarly documents published not more than 10 years old or otherwise used as a basis for defining some particular concepts. Data were analysed thematically using NVIVO 10.0 for windows.

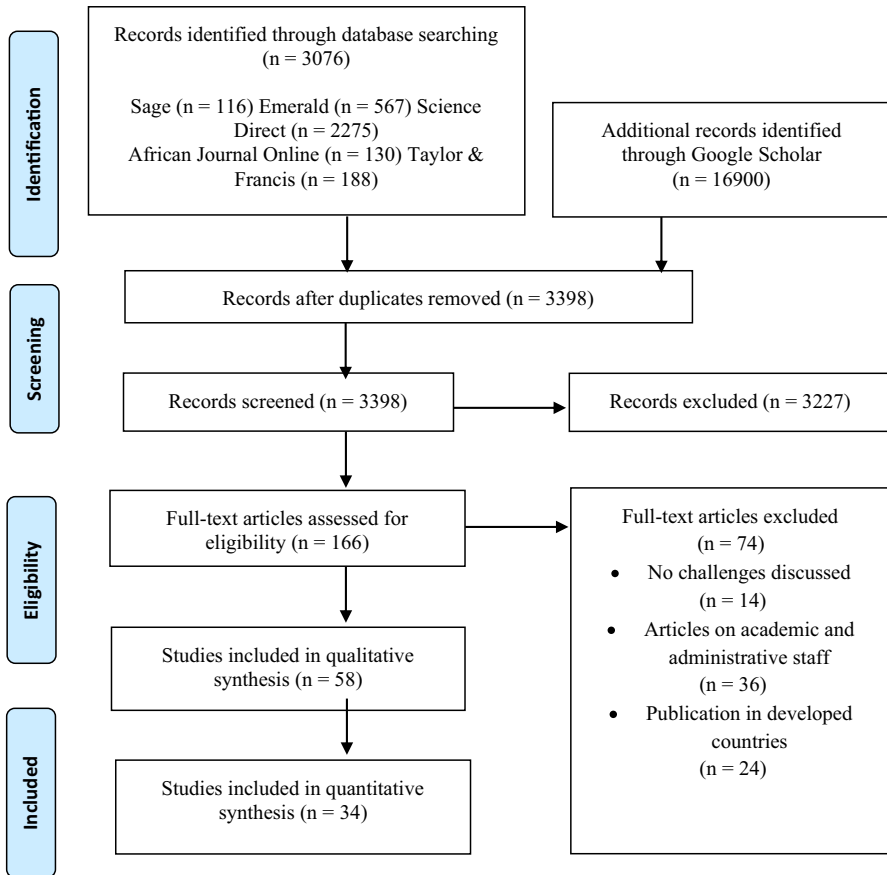


Fig. 2 PRISMA flow diagram: Adopted from Moher et al. (2009)

1.4 Findings and analysis

1.4.1 Benefits for implementing e-learning

In all essence, as the world moves digital in all facets of human endeavours; we can generously acclaim the notion of e-learning in educational pursuits. Globally, governments are supporting e-learning system and its implementation, specifically in higher education (Alkharang, 2014; Makokha & Mutisya, 2016; Tarhini et al., 2014). Kayange (2019) in a study on ‘E-learning encounters in Malawi HEIs’ found that e-learning is economical since it: reduces transportation and accommodation costs; requires only tuition and accommodates multiple enrolment even without classrooms and other facilities; accommodates work and learning at the same time and, allows access to numerous, latest, and updated information through published e-books and journals. Tarus et al. (2015) in Kenya

pointed out that e-learning encourages learners to take responsibility for their learning and build self-knowledge and self-confidence.

Alkharang (2014) in Kuwait articulates that the benefits of e-learning to educational institutions are indisputable and include: increased learning flexibility, improved interaction between the learner and the facilitator, increased quality assurance through peer-reviewing of teaching content, students can learn anywhere, and access knowledge across physical borders. E-learning can provide quality, intelligent, flexible, low cost, motivational and lifelong learning and education through low-cost technology (Naresh & Reddy, 2015; Sofiadin, 2014). Samsudeen and Mohamed (2019) in Sri Lanka found that e-learning reduces the cost of teaching and learning by 50–70%. Naveed et al. (2017a) in Saudi Arabia found that e-learning is becoming very important and gradually a popular approach in HEIs because of the ability of resource sharing, cost-effectiveness, flexibility, breaks the boundaries of time and space, and easy availability of the World Wide Web. Khaniran (2018) in Saudi Arabia demonstrated that e-learning can deliver the educational goals of HEIs to areas wrecked by wars and Almaiah et al. (2020) bemoaned that e-learning is practical during school closure and ensures continuous learning even during the coronavirus pandemic. HEIs in Malawi should make deliberate efforts to introduce e-learning programs for their students to reap the benefits that comes along. The discussion on benefits of e-learning is summarised in Table 1.

Table 1 Benefits for implementation of e-learning

Benefits	Sources
Greater collaboration, resource sharing and interactivity	Al-Azawei et al. (2016); Alkharang (2014); Almaiah et al. (2020); Arkorful and Abaidoo (2014); Barteit et al. (2019); Igbokwe et al. (2020); Naveed et al. (2017a, 2017b)
Reduced overall cost and time	Alariqi et al. (2019); Al-Azawei et al. (2016); Alkharang (2014); Almaiah et al. (2020); Barteit et al. (2019); Çakiroğlu (2014); Hubackova (2015); Igbokwe et al. (2020); Kayange (2019); Naresh and Reddy (2015); Naveed et al. (2017a, b); Samsudeen and Mohamed (2019); Sofiadin (2014)
Convenience and flexibility and allow students' access to content anytime and anywhere	Al-Azawei et al. (2016); Alkharang (2014) Arkorful and Abaidoo (2014); Igbokwe et al. (2020); Makokha and Mutisya (2016); Naresh and Reddy (2015); Naveed et al. (2017a, b); Samsudeen and Mohamed (2019); Tarus et al. (2015); Turban et al. (2015)
Access to quality education across physical borders	Alariqi et al. (2019); Al-Azawei et al. (2016); Alkharang (2014); Ansong et al. (2018); Barteit et al. (2019); Khaniran (2018); Lashayo et al. (2018); Naveed et al. (2017b)

Source: extracted from literature review

1.4.2 Challenges of implementing E-learning in developing countries

Some authors note that e-learning systems in developing countries are still at the infancy stage whose status is not appealing (Almaiah & Alamri, 2018; Mwakyusa & Mwalyagile, 2016; Tarhini et al., 2017). Others argue that limited studies have been conducted regarding barriers of implementing and using e-learning systems in developing countries (Al-Azawei et al., 2016; Almaiah & Mulhem, 2020; Esterhuyse & Scholtz, 2015). In respect to cultural and contextual backgrounds in different countries, the researchers noted that these challenges are classified into different categories such as; technological, individual, cultural, course, management, and implementation challenges. This review summarises the main challenges distinctly as experienced in Malawi.

1.4.3 Technological infrastructure and resources in Malawi

Kayange (2019) and, Tembo and Mwale (2019) report that Malawi has very poor and substandard technological infrastructures like telecommunications, and computers with the lowest levels of technology access in learning organisations in African universities. Several studies in Malawi emphasised that access to tertiary education in Malawi remains very low due to acute shortages of teaching and learning resources, inadequate classrooms and library spaces, and a shortage of human capacity (Chawinga & Zozie, 2016; Chipeta et al., 2018; Wamba & Mgonezulu, 2014). The quality of HEIs in Malawi measured through an analysis of infrastructure, information and communication (ICT) facilities, teaching and learning resources and finance is very challenging needing much improvement (Mambo et al., 2016; Valeta et al., 2016). This can be attributed to the poor capacity in technological infrastructure in many universities in Malawi. The Centre for Online Distance and e-Learning at MZUNI was established to deliver programmes through print media, radio, television, multimedia, Internet-based media, and web-technology (Mzuzu University, 2014). Ten years down the line, as Chawinga and Zozie (2016) ascertained, nothing online or technological about it can be spotted as findings reveal that the university has not yet adopted these technologies. The difficulty is the lack of technology infrastructure at national level with little attention being given to improve the conditions of infrastructure by the government amid financial challenges.

Touray et al. (2013) in Gambia identified the problems of obsolete technologies and lack of maintenance culture. Al-Azawei et al. (2016) and Benghet and Helfert (2014) in Iraq express poor infrastructure to include lack of enough servers, laboratories, computers, and Internet and/or intranet networks inside the university. Eltahir (2019) established that the challenges of e-learning in developing countries remain a reality due to the digital divide in existence. Other studies have also found serious challenges of technological infrastructure in developing countries including lack of computers in HEIs to serve students all the time (Alsabawy et al., 2013; Al-Araibi et al., 2019; Al-Azawei et al., 2016; Alkharang, 2014; Almaiah & Almulhem, 2018; Almaiah & Alyoussef, 2019; Al-Araibi et al., 2019; Aung & Khaing, 2016; Bar-teit et al., 2019; Eltahir, 2019; Esterhuyse & Scholtz, 2015; Geduld, 2013; Igbokwe et al., 2020; Lwoga, 2014; Lwoga & Komba, 2015; Kenan et al., 2014; Kisanga

& Ireson, 2015; Mtebe & Raisamo, 2014b; Makokha & Mutisya, 2016; Moakofhi et al., 2017; Munezero et al., 2016; Naresh & Reddy, 2015; Naveed et al., 2017a, 2017b; Nwabufo et al., 2013; Pani et al., 2015; Rana et al., 2014; Sanga et al., 2013; Sayed & Baker, 2014; Siemens et al., 2015b; Tarus & Gichoya, 2015; Tarus et al., 2015).

1.4.4 Poor internet connectivity and cost

Studies in Malawi found very poor bandwidth and Internet connectivity and extremely high in cost (Chawinga, 2017; Chibambo, 2016; Chipeta et al., 2018; Kainja, 2018). As such, the little bandwidth that is available becomes even less valuable for investigation and edification. The eLearning Industry (2016) equally reckons high cost of Internet connectivity as a key challenge in implementing e-learning in Africa. Mambo et al. (2016) found limitations in the effectiveness of e-learning programmes in Malawi's HEIs as the availability of computers and Internet at University of Malawi, Catholic University of Malawi, University of Livingstonia and Lilongwe University of Agriculture and Natural Resources was rated poor with MZUNI rated very poor. According to Kainja (2018), the average connection speed of Internet had dropped from 1.8 megabites per second (Mbps) in 2016 to 1.3 Mbps per second in 2017, contrary to the average global connectivity of 7.0 Mbps per second. According to the Inclusive Internet Index 2020 report, Malawi ranks very poor on all four of its indicators: internet availability, affordability, relevance, and readiness with the number of Mbps in Malawi regarded as the lowest and the least growing rate in the world, making it hard to facilitate expressive growth particularly in education (Freedom House, 2021; International Telecommunication Union, 2014; The Economist Group, 2020).

Interestingly, Zozie and Chawinga (2018), observe that smartphones and laptops, are a common sight amongst students and lecturers at MZUNI. However, internet costs remain high for many users in Malawi. Most Malawians cannot afford normal internet rates and survive on subsidised data bundles. Freedom House (2017) established that there was very low growth rate of internet among consumers due to high service costs including: 17.5% VAT on mobile phones and services; 16.5% VAT on internet services and 5–10% on mobile phone text messages totaling to 44%. Fahad et al. (2016) found that many users in developing countries may not be able to afford the cost of the necessary IT infrastructure and Internet. Studies by Al-Azawei et al. (2016) in Iraq; Alkharang (2014) in Kuwait; Kanwal and Rehman (2017) in Pakistan; Geduld (2013) in South Africa; Kenan et al. (2014) in Libya; Touray et al. (2013) in Gambia; Batane (2013) and Moakofhi et al. (2017) in Botswana; Naveed et al. (2017b) in Saudi Arabia; Tarus et al. (2015) and Makokha and Mutisya (2016) in Kenya; Nwafubo et al. (2013) and Igbokwe et al. (2020) in Nigeria; Eltahir (2019) in Sudan; Kasse and Balunywa (2013) in Uganda; and studies from Tanzania by Kisanga and Ireson (2015); Lwoga (2014); Mwakyusa and Mwalyagile (2016); Ngimi (2013); Esterhuysen & Scholtz, 2015 in South Africa; Alariqi et al. (2019) in Afghanistan; Benghet and Helfert (2014) in Libya; Nor and Mohamad (2013) in Malaysia also report about the high cost of accessing internet, poor internet

connectivity, serious low internet bandwidth and system breakdown as some of the factors that hinder e-learning.

1.4.5 Individual challenges among users

Chipeta et al. (2018) report about lack of computer skills, Internet and information searching skills amongst students in HEIs. Similarly, Zozie and Chawinga (2018) note that many students who join university do not know how to use computers. In South Africa, Letseka et al. (2018) and Queiros and de Villiers (2016) found low levels of computer/internet access at home. More so, owning a computer is a dream for many people in many developing countries (Chibambo, 2016). Zozie and Chawinga (2018) found that 72% of university students in Malawi were average users of electronic technology for learning and 61% did not use supplementary e-learning instructional materials beyond those prescribed by lecturers due to lack of searching skills. In contrast, separate studies found that majority of undergraduate students have known digital technologies and the Internet all their lives and frequently use online information to supplement lecturer notes (Chawinga & Zozie, 2016; Lwehabura, 2016; Queiros & de Villiers, 2016; Sife, 2014). Perhaps the general idea to be concluded from such differences is on the essence and outcome quality at which students use the online forums for their education pursuits. The difference rests on online self-efficacy which relates to the skills required to use online learning tools such as discussion forums, emails, and internet (Wang et al., 2013). For instance, a study by Batane (2013) revealed that young people in Botswana use 75% of their Internet time for entertainment and communication, and not for education. Ansong et al. (2018) in Ghana found that only 26% of university students had knowledge on the use of e-learning functions in an e-learning system. Deyrup and Bloom (2013) noted that often undergraduate students lack information literacy skills and technical know-how to search, retrieve, and evaluate online information efficiently. Kayange (2019) reports that very little if any of the ICT content is in the Malawi education syllabi, a situation which worsens the ICT illiteracy rate in the country. Several studies also found that the lack of computer skills, internet and e-learning illiteracy among students is prevalent (Al-Araibi et al., 2019; Al-Azawei et al., 2016; Aung & Khaing, 2016; Karaman et al., 2014; Kenan et al., 2014; Kihoza et al., 2015; Kisanga & Ireson, 2015; Lwoga & Komba, 2015; Makori, 2011; Moakofhi et al., 2017; Mwakyusa & Mwalyagile, 2016; Naveed et al., 2017c; Nwafubo et al., 2013; Nor & Mohamad, 2013; Olugbeko & Izu, 2013; Tarus et al., 2015; Touray et al., 2013).

1.4.6 Insufficient power generation output

Malawi has insufficient power generation output to support its swelling population (Kayange, 2019). The unreliable power and exorbitant costs of generators further limits the use of ICT services and makes Internet connectivity and access difficult (Al-Azawei et al., 2016; Chibambo, 2016; Kayange, 2019; Mtebe & Raisamo, 2014a; Mwakyusa & Mwalyagile, 2016). Chawinga (2017) also found electricity outages as the main challenge in adopting technologies in universities

in Malawi. Chawinga and Zozie (2016) found that 86.6% of distance learning students preferred university-learning manuals because they are comprehensive, cheap to access, and one does not need electricity to use them. Such findings also help to explain why e-learning adoption has been so low in Malawi. With an ever reliance on lecture notes and handouts, many students find it easy to use physical materials that do not require electricity. Other authors similarly attest to the challenge of interrupted electricity connectivity (Al-Azawei et al., 2016; Igbokwe et al., 2020; Kasse & Balunywa, 2013; Moakofhi et al., 2017; Nwafubo et al., 2013; Sana & Mariam, 2013; Tembo & Mwale, 2019). Moreover, persistent blackouts according to Mutegi (2014) and Ouma et al. (2013) ruined nearly all the e-learning projects in Zimbabwe and Kenya respectively.

1.4.7 Inadequate financial and technical support

Education remains an increasingly top spending priority for the government of Malawi over the past few years absorbing the lion's share of the budget with \$285 million (18%) in 2017/2018, \$451 million (23.5%) in 2018/2019 and \$541 million (25%) in 2019/2020 of the total budget (United Nations Children Education Fund (UNICEF), 2019). Even though the share of the government's overall education budget received by HEIs in Malawi is relatively high (20–28%) over the past few years compared to other sub-Saharan African countries, the amounts are largely inadequate to support their expansion and quality improvement needs (Mambo et al., 2016; UNICEF, 2019; Valeta et al., 2016). In increasing budgetary deficits, governments find it hard to finance university education beyond operations and technical requirements. Most of the finance is targeted towards the service function which is teaching and learning and therefore other functionalities suffer. In many countries, associated challenges are exacerbated due to the dependence of the higher education sub-sector on government funding. In Malawi, public funding constitutes approximately 80% of total expenditure on the public higher education sub-sector (Mambo et al., 2016). Studies by Kayange (2019) in Malawi; Al-Azawei et al. (2016) in Iraq; Aminu and Rahaman (2014) in Nigeria; Becker et al. (2013), Gcora and Cilliers (2016), Kisanga and Ireson (2015) in Tanzania; Naresh and Reddy (2015), Tarus et al. (2015) in Kenya; Touray et al. (2013) in Gambia; Almaiah et al. (2020) in Jordan and Saudi Arabia also reveal the problems of low-income support in HEIs.

A plethora of studies have also revealed the lack of managerial and technical support from governments in developing countries on ICT and e-learning development and implementation (Al-Azawei et al., 2016; Alkharang, 2014; Eltahir, 2019; Esterhuysen & Scholtz, 2015; Kisanga & Ireson, 2015; Letseka et al., 2018; Lwoga & Komba, 2015; Moakofhi et al., 2017; Mtebe & Raphael, 2013; Mwakyusa & Mwalyagile, 2016; Mtebe & Raisamo, 2014b; Naresh & Reddy, 2015; Ngimi, 2013; Nwafubo et al., 2013). Poor support in technology increases fear towards ICTs, creates resistance to change and loss of interest and commitment to use e-learning (Tarus et al., 2015). Barteit et al. (2020) and Labrique et al. (2013) found very poor implementation of e-learning systems in developing countries

beyond the pilot phase, mainly due to inadequate training of stakeholders, poor technological support, unmet expectations and inadequate allotment of financial resources.

1.4.8 Lack of policy regulation for e-learning

Kayange (2019) reports that Malawi has no formal regulation for e-learning education in HEIs. The National Council for Higher Education was instituted by an Act of Parliament No. 15 of 2011 for inspection, policing and monitoring quality assurance in HEIs. Unfortunately, NCHE is basically grounded on conventional mode of teaching and learning standards which require inter alia physical libraries, classrooms with furniture, boarding facilities and assembly halls whereas it lacks an e-learning department where the mushrooming e-learning system could be housed and harnessed. Practically, lack of an e-learning policy at MZUNI poses difficulties in implementing e-learning (Zozie & Chawinga, 2018). Elsewhere, Kisanga and Ireson (2015), Mwakuyasa and Mwalyagile (2016) and Tarus et al. (2015) in Tanzania; Ansong et al. (2018) in Ghana; and Moakofhi et al. (2017) in Botswana found that most HEIs in their countries had no e-learning policies. Al-Azawei et al. (2016), Gcora and Cilliers (2016), and Kenan et al. (2014) in Libya; Naresh and Reddy (2015) in India; Lwoga and Komba (2015) in Tanzania; and Makokha and Mutisya (2016) in Kenya construe that the challenge is prevalent in many developing countries. Hopefully in Malawi, NCHE is currently developing guidelines to inform the national policy on ODL (Valeta et al., 2016).

2 Conclusion and recommendations

Implementing an e-learning system not only delivers higher education to a large population and reduces its high demand but also engages students and faculty staff irrespective of distance amidst difficult times. However, e-learning in HEIs in Malawi is not fully practiced, since, there are a lot of impediments. The study found that underdeveloped ICTs and power infrastructure are the most common impediments reported by many studies followed by the lack of an e-learning policy and lack of knowledge to use ICTs among students. In light of these challenges the review recommends the following basic strategies that will help the HEIs to improve and successfully implement the e-learning systems in Malawi.

- The Malawi government should; invest more financial resources, develop and implement appropriate policies and regulations to support e-learning programmes; provide seed capital to universities with performance-based budget allocation mechanisms to encourage HEIs to be more innovative, competitive and efficient; expand electricity generation capacity; and establish a special scholastic fund targeting needy students so that they can acquire reliable technological gadgets to be used in accessing digital media and instructional material on cloud computing, online journals, and digital databases.

- Universities should introduce information literacy courses; provide efficient Internet connectivity; charge economic fees; and raise funds from alumni and private sector philanthropists.
- Malawi Communications Regulatory Authority and Internet service providers namely: Malawi Telecommunications Limited, Telecom Networks Malawi and AIRTEL Malawi should revise downwards the rates charged on Internet services which are considered the highest in the Southern African Development Community region.

Abbreviations E-LEARNING: Electronic learning; HEIs: Higher Education Institutions; COVID-19: Corona Virus Disease; UNESCO: United Nations Education and Scientific Cultural Organisation; NCHE: National Council for Higher Education; MZUNI: Mzuzu University; UNISA: University of South Africa; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; UNICEF: United Nations Children Education Fund

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Authors' contributions Limbani Chrispin Gama performed the analysis and interpretation of the findings and was a major contributor in writing the manuscript. George Theodore Chipeta worked on the methodology section of the paper and shaped the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement and diagram. Winner Dominic Chawinga provided a final review and edited the manuscript. All authors read and approved the final manuscript.

Data availability The datasets analysed during the current study are available with the corresponding author upon reasonable request.

Declarations

Ethics approval This is a review article. The Mzuzu University Research and Ethics Committee confirmed that no ethical approval is required.

Consent to publish Not applicable.

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