sciendo

Acta Educationis Generalis
Volume 15, 2025, Issue 2

DOI: 10.2478/atd-2025-0020

E-Learning in Higher Education Institutions in Zimbabwe: Implications on Inclusive Education for Learners Living with Disabilities

Regis Misheal Muchowe – Hazel Mubango*

Received: August 29, 2024; received in revised form: January 23, 2025;
accepted: January 24, 2025

Abstract:

Introduction: This study aimed to understand the implications of e-learning on inclusive education for learners with disabilities in higher education institutions in Zimbabwe.

Methods: Qualitative methodologies were used to yield a valuable understanding of diverse social occurrences. Purposive sampling and Snowball sampling were used to gather data. At the 10th interviewee, data was saturated, and thematic coding was used for data analysis.

Results: Results show that Microsoft Teams, Google Classrooms, Zoom, and YouTube were found to be significant e-learning platforms used by higher education institutions. Expensive data, lack of e-learning devices, lack of social interaction, network challenges, and load shedding were found to be challenges associated with e-learning. Reduced mobility, time, space, videos, voice-to-text, and cost-effectiveness were benefits related to e-learning for students with disabilities.

Discussion: There is a need to adopt inclusive e-learning tools for learners living with disabilities and for higher education institutions to provide e-learning resources to these learners.

Limitations: The study focused on universities in Zimbabwe and excluded colleges.

Conclusions: Learners living with disabilities should be provided with resources for e-learning for inclusive learning to be effective.

* Regis Misheal Muchowe, Zimbabwe Open University, Harare, Zimbabwe; muchoweregism@gmail.com; ORCID: 0009-0004-1574-3744
Hazel Mubango, Women's University in Africa, Harare, Zimbabwe; hazmub@gmail.com; ORCID: 0009-0006-4695-8056

Key words: e-learning, inclusive education, higher education, learners living with disabilities.

Introduction

Before the COVID-19 pandemic, most higher education institutions used traditional learning methods (Musikavanhu & Scheepers, 2024). E-learning was foreign to Zimbabwean universities. However, traditional learning had inclusive learning issues. It took much work for lecturers to create an inclusive learning environment. This is because of a lack of resources accommodating learners with disabilities. This challenged the Vision 2030 mantra of leaving no one behind. For example, 75% of university campuses do not have pavements to accommodate learners who use wheelchairs (Mnkandla & Mataruse, 2020). This is a challenge to them in accessing the campus and this discouraged learners living with disabilities to enrol for higher education courses, as they viewed the climate as discriminatory.

However, with the coming COVID-19 pandemic from 2019 onwards, traditional classrooms in universities were viewed as breeding grounds for the spread of the pandemic (Mnkandla & Mataruse, 2020). This resulted in WHO and the Zimbabwean government banning gatherings. With traditional classrooms being gathered, face-to-face learning was temporarily banned (Smith & Brame, 2021). This was a dilemma, as learning needed to continue. All Zimbabwean universities introduced e-learning to continue learning. This involved learning via the Internet in remote locations. This was a mechanism that universities used to continue learning while complying with rules that banned gatherings (Chimedza & Peters, 2019). However, a plethora of researchers have investigated e-learning and found that it has problems in terms of accessibility, and its future in Zimbabwean higher education is bleak.

After the COVID-19 pandemic had decreased, WHO and the Zimbabwean government unbanned large gatherings (Means et al., 2021). This means that face-to-face learning was re-introduced in Zimbabwean universities. However, due to the low costs that e-learning presents to these institutions, some universities continue with e-learning while others adopt blended learning, which is part of online learning. This is because online learning has allowed universities to have high enrolments and to use few lecturers as learning is done virtually. Reverting to the entire face-to-face would resurrect the high costs associated with it. However, now that e-learning is here to stay, it is essential to analyze its impact on inclusive learning regarding learners with disabilities.

Five pillars of Education 5.0 guide higher education in Zimbabwe: teaching, research, community service, industrialization, and innovation (Maunganidze & Kasayira, 2018). Graduates can only declare they have undergone higher

education once they can teach others, research, do community service, commercialize, and innovate. This aligns with Vision 2030, which is to make Zimbabwe a middle-income economy. In other words, graduates in Zimbabwe must be innovators and problem solvers. Therefore, higher education equips learners with independent skills that can help them contribute towards achieving Vision 2030. These skills are most welcome to the marginalized groups of the community, people with disabilities.

Education is the key for learners living with disabilities to gain self-sustenance. Undergoing university will help them to support and sustain their lives and those of their dependence. This will allow them to have income for essential commodities and access high medical care. However, most researchers have focused on e-learning about everyone. A dearth of studies focuses on learners living with disabilities and how they are impacted by e-learning since it is now the norm. For example, the UN Sustainable Development Goals (SDGs) number 4 clamors for quality education (Means et al., 2021). There is a need to ponder whether learners with disabilities access quality education through e-learning. Furthermore, UN Sustainable Development Goals (SDGs) number 10 advocates for reduced inequalities (Barnatt & Kabzems, 2021). There is a need to investigate if e-learning reduces inequalities, especially regarding learners with disabilities. This is pertinent because Zimbabwe is a member of the United Nations.

It is essential to study this phenomenon, given the importance of e-learning and learners living with disabilities. E-learning is here to stay because it has drastically reduced operational costs for Zimbabwean universities operating in a constrained economic environment. Learners living with disabilities are essential in the Zimbabwean community. They have been historically disadvantaged by being left out of most activities. However, they need to be assisted and encouraged to access higher education. Higher education is the key to their success. Higher education will arm them with problem-solving competencies that will help them make a meaningful contribution to their lives and others. In addition, the Vision 2030 mantra is about leaving no one behind. Hence, it is essential to investigate whether e-learning is inclusive to learners with disabilities.

Most Zimbabwean universities have turned to e-learning because of its cost-effectiveness. However, there is limited research on the inclusiveness of e-learning, particularly for learners living with disabilities (Hwang et al., 2017). Learners living with disabilities have been historically marginalized and with limited access to services, especially higher education. Zimbabwe's higher education is now guided by Education 5.0 (teaching, community service, research, commercialization, and innovation), which is capable of making learners living with disabilities independent and self-sustainable through the

acquisition of problem-solving skills. The mantra of Zimbabwe's Vision 2030 is to leave no one behind. This study aims to establish through studying opportunities and challenges to learners living with disabilities whether e-learning is inclusive in Zimbabwean universities. The following objectives guided the investigation.

i. To determine e-learning platforms used by Zimbabwean universities;
ii. To understand the benefits derived through e-learning for learners living with disabilities in Zimbabwean universities and
iii. To examine challenges associated with e-learning for learners living with disabilities in Zimbabwean universities.

1 Literature review

This section discusses existing literature on inclusive learning, e-learning, and learners living with disabilities.

1.1 E-learning

Online learning is an emerging and trending approach to education whereby students learn anywhere at any time via information and communication technology tools such as Moodle and YouTube (Hall, 2017). However, it is essential to fully understand the critical concepts of e-learning and be able to differentiate them. A learning content management system is a software platform that facilitates creating, managing, hosting, and tracking digital learning content, such as Elucidate (Allen & Seaman, 2017). Blended learning is a composite approach to education involving electronic learning and traditional face-to-face learning. For example, during the COVID-19 pandemic, Bindura University of Science Education students learned via Moodle, and two weeks before examinations, they came for face-to-face lectures (Mnkandla & Mataruse, 2020). E-learning and online learning are similar in that they are conducted via applications like Moodle and Google Classrooms. However, the significant difference is in terms of location. E-learning is a type of online learning in which there is no physical interaction between the teacher and the learners (Kegan & Khan, 2021). On the other hand, online learning encompasses all online learning tools, but the location doesn't matter whether it is face-to-face learning or via the e-learning spectrum.

Learning and content management systems are software platforms for authoring, managing, and delivering learning instruction or content. However, they differ in terms of users (Horton, 2020; Jovičić Vuković et al., 2024). Learning content management is profoundly used by the teacher or instructor who creates and manages the content. Meanwhile, in the learning management system, the teacher is a facilitator, and the learner is the one who uses it most of the time. More so, the two differ in the type of learning; for learning content management

systems it is wholly digital learning content (Hall, 2017). On the other hand, learning management covers a wide range of learning content, including face-to-face workshops. Examples of learning management systems are Google Classroom and Moodle, whereas Elucidate is an example of a learning content management system. Online and web-based learning are both tools that facilitate learning without the face-to-face interaction of learners and teachers. However, they differ in that web-based learning is a type of online learning associated with learning materials delivered in a Web browser, including when the materials are packaged on CD-ROM or other media (Jonassen et al., 2015). On the other hand, online learning is associated with content that is readily accessible on a computer. The content may be on the Web or the Internet or installed on a CD-ROM or the computer hard disk. Therefore, electronic learning occurs via online platforms such as virtual conferencing, WhatsApp, and Blackboard without physical or face-to-face interaction between the teacher and the learners.

1.2 Inclusive learning

Different scholars, academics, and researchers in education have defined inclusive learning from various angles. According to Pecciano (2017), inclusive education is having all children in the same classroom regardless of their differences. Another definition is proffered by Hungwe (2015), which is that inclusive education involves all learners gaining equal access to education. Inclusive education has average learners and learners with special educational needs being catered for by the education system. So it is the education looks past learner differences such as psychological, emotional, physical, mental, and behavioral capabilities. Inclusive education emphasizes providing equal opportunities for learners living with disabilities to access quality education within mainstream educational settings. It promotes an inclusive and supportive learning environment that addresses the diverse needs of all learners.

1.3 Learners living with disabilities

Learners living with disabilities refer to individuals who have physical, sensory, intellectual, or developmental impairments that may affect their ability to learn, participate, or access educational opportunities (Wang, 2017). Disabilities can vary widely, and each individual may have unique strengths, challenges, and support needs. There are many types of disabilities. Physical Disabilities include conditions that affect mobility, such as cerebral palsy or spinal cord injuries (Mayer, 2014). Physical disabilities may require adaptations in the learning environment, assistive technology, or physical access and participation support. Sensory Disabilities: Sensory disabilities include visual impairments (blindness or low vision) and hearing impairments (deafness or hearing loss). Learners with sensory disabilities may require accommodations, such as Braille materials, sign

language interpreters, or assistive listening devices (Keagan, 2016). Intellectual Disabilities: Intellectual disabilities involve limitations in cognitive functioning and adaptive behaviour (Hall, 2017). Learners with intellectual disabilities may require individualized instruction, modified curriculum, and support in developing functional skills. Learning Disabilities: Learning disabilities affect how individuals acquire, process, or express information (Hwang et al., 2017). Examples include dyslexia, dyscalculia, or attention-deficit/hyperactivity disorder (ADHD). Learners with learning disabilities may benefit from specialized instructional strategies, assistive technology, and accommodations. Developmental Disabilities: Developmental disabilities, such as autism spectrum disorder (ASD) or intellectual developmental disorder (IDD), impact cognitive, social, and behavioral development (Horton, 2020). These learners may require individualized support, structured routines, and visual support.

1.4 Benefits of e-learning

A plethora of studies have unearthed benefits associated with e-learning in higher education. One of the benefits is flexibility and convenience. E-learning allows learners to access course materials and participate in learning activities at their own pace and convenience. This flexibility is particularly beneficial for non-traditional students, such as working professionals or individuals with family commitments, who can learn without the constraints of time and physical location (Allen & Seaman, 2017). E-learning also helps with access and inclusivity. E-learning has the potential to overcome geographical barriers, providing access to education for learners in remote or underserved areas. It also promotes inclusivity by accommodating students living with disabilities, allowing for the customization of learning experiences based on individual needs (Wang, 2017). Furthermore, e-learning helps with interactive and engaging learning experiences. E-learning platforms often incorporate multimedia elements, simulations, and interactive activities that promote active learning and learner engagement. These features enhance understanding, critical thinking, and knowledge retention (Khan, 2017). There is also personalization and adaptability. E-learning allows for personalized learning experiences, enabling learners to tailor their educational journey based on their interests, learning styles, and prior knowledge. Adaptive learning technologies enhance personalization by dynamically adjusting content and activities to meet individual needs (Smith & Brame, 2021).

1.5 Challenges of e-learning

There are many challenges associated with e-learning in higher education in Zimbabwe. One of the challenges is technological infrastructure and skills. The success of e-learning relies on robust technological infrastructure and reliable

internet connectivity. Access to technology and digital skills among learners and educators can be improved to ensure effective implementation and participation in e-learning initiatives (Hwang et al., 2017). Furthermore, there are challenges associated with social presence and interaction. The absence of face-to-face interactions in e-learning environments can lead to isolation and reduced social connectedness among learners. Building social presence through collaborative activities, discussion forums, and virtual communities can mitigate these challenges (Garrison, 2017). In addition, e-learning has issues with learner readiness and self-regulation. E-learning requires self-discipline, time management skills, and self-regulatory strategies to navigate the online learning environment effectively. Learner readiness and motivation are crucial in successful e-learning experiences (Horton, 2020). Moreover, there are issues with pedagogical design and instructional strategies. The design and delivery of e-learning courses should align with pedagogical principles to ensure meaningful learning experiences. Effective instructional methods, such as clear learning objectives, scaffolding, and formative assessments, are essential for promoting deep learning and engagement (Mayer, 2014).

1.6 Technology Acceptance Theory

Technology Acceptance Theory (TAM) is a psychological model that explains how individuals perceive and adopt new technologies. It provides a framework for understanding the factors influencing individuals or groups' acceptance and use of technology. TAM was first introduced by Fred Davis in 1986 as a model to explain user acceptance of computer technology. It was later extended and refined by Davis and Venkatesh. According to the theory, some factors influence people to use technology. Perceived Usefulness: Users are more likely to accept a technology if they believe it will improve their performance, productivity, or outcomes (Means et al., 2021). Perceived Ease of Use: Users are more likely to accept a technology if they perceive it as easy to learn, use, and integrate into their existing work processes (Khan, 2017). Social Influence: The influence of peers, colleagues, and supervisors can significantly impact technology acceptance (Garrison, 2017). Positive recommendations and support from others can enhance acceptance. User Experience: System quality, user interface design, and responsiveness can influence the overall user experience and, consequently, technology acceptance (Khan, 2017). Perceived Risk: Users may hesitate to adopt new technologies if they perceive potential risks, such as security concerns, privacy issues, or adverse consequences of technology use (Hall, 2017). Therefore, if e-learning meets these criteria, it is inclusive in learning for learners with disabilities.

2 Materials and methods

The study was purely qualitative because it aimed to understand e-learning and its implications on learners with disabilities. Qualitative research is critical in studies that seek to understand perceptions (Borg & Gall, 2021). The population for this study was Zimbabwean Universities. The sampling technique was a mixture of purposive sampling and snowball sampling. For lecturers, purposive sampling was used, and snowball sampling was used for learners living with disabilities, as they referred the researcher to other learners living with disabilities. The saturation point was reached at the 10th interview, and telephone interviews were immediately stopped. However, repeat interviews were conducted with the same people to determine consistency, and issues with subjectivity were cleared. The repeat interviews gave the researcher similar findings, making the study credible and transferable. NVivo software was utilized for thematic coding. The data analysis was two-phased. The starting point was open coding, where words being repeated by interviews were selected as themes. The final phase was selective coding, combining similar or related codes. Ethics was not an issue as participants were not coerced and were allowed to operate as autonomous agents.

3 Results

This section presents qualitative findings and relates them to the literature that has been reviewed. Objectives of the study will guide this.

3.1 E-learning platforms used by Zimbabwean universities

Four e-learning platforms were identified in this study.

Microsoft Teams

The central e-learning platform that was identified in this study is Microsoft Teams. Microsoft Teams platform is used for e-learning at Zimbabwean universities. This is because Microsoft Teams allows for unlimited participants in a virtual lecture. Microsoft Teams will enable videos and slides to be shared, making them interactive and attractive. The other cause identified by the researcher is that Microsoft Teams allows staff email to be linked to the e-learning platforms. This is what one participant explained about that:

"One year ago, we were using Zoom, but our service provider for staff emails is Microsoft. Microsoft is now offering us a discounted service for all its packages, that is, emails and Microsoft Teams. We have switched from Zoom to Microsoft Teams; this is cheaper than paying for emails to Microsoft and paying for e-learning to Zoom."

Participant III

Google Classrooms

The second central platform for e-learning in Zimbabwean universities is Google Classrooms. This is because Google Classrooms can be integrated into the student portal system. This was explained by one participant as follows:

"In our institution, we use Google Classrooms because Google Classrooms is linked directly to our student and staff profiles. This means we can transfer information from the student or staff portal to Google Classrooms and vice-versa."

Participant IX

Zoom

The third central platform for e-learning in Zimbabwean universities is Zoom. The research found that most universities used Zoom at one point, but only some still use Zoom. This may be linked to a need for more services to be diversified by Zoom. However, it still offers good interaction services, as explained by one participant:

"We use Zoom because it allows lecturers and students to share PowerPoints, audios, and recordings…….Zoom allows the lectures to be recorded for future use."

Participant III

YouTube

The least used platform, according to the study participants, is YouTube. Some lecturers record their lessons on YouTube and share the video link with student portals. This is not frequently used because it is less interactive.

3.2 Challenges associated with e-learning for learners living with disabilities

The study identified four challenges faced by learners living with disabilities.

Expensive data

The study found that data from the internet are expensive in Zimbabwe. This is affecting disadvantaged groups such as learners living with disabilities. They need data to access the internet. However, respondents were asked if Netone and Econet, the major service providers, offer e-learning bundles. The respondents asserted that e-learning bundles are no longer there, and although they used to be there, they were not sustainable. One of the respondents mentioned this:

"For me, data bundles are costly, limiting my access to the e-learning platforms…..recently Econet increased its data tariffs, and the cheapest private wifi is going for more than US$10. In addition, if you buy the 8GB, it doesn't last for long…"

Participant VI

Lack of e-learning devices

The second major challenge with e-learning in Zimbabwean universities is that learners living with disabilities lack devices. To connect to e-learning, one needs a mobile phone or a laptop computer. These are expensive to acquire, especially for learners living with disabilities. In addition, they require special software. For example, learners with hearing impairments want software that translates voice to text.

Lack of social interaction

E-learning eliminates social interactions among students. Learners living with disabilities want to socialize with others. This helps them to relieve stress and to feel other people's love. For example, one respondent highlighted this:

"Online learning makes me feel isolated, and face-to-face learning helped me to network and interact with other learners…I developed friends who would help me even prepare for the examination."

Participant V

Network challenges

The other challenge is associated with network challenges. Network service providers in Zimbabwe need help to have a stable network. The network is sometimes disrupted during e-learning, and learners miss out on the lecture. This challenge extends to all learners.

Loadshedding

Electrical power cuts are another challenge associated with e-learning in Zimbabwean universities. Devices used for e-learning, such as mobile phones and laptops, need power to function. If they have power, e-learning is possible. For example, one respondent mentioned this:

"Loadshedding is back; we only have electricity from 9 pm to 5 am. E-learning takes place during the day, and we won't have electricity and fail to connect."

Participant II

3.3 Benefits derived through e-learning for learners living with disabilities

Five themes were generated on the benefits of e-learning: reduced mobility, time and space, videos, voice-to-text, and cost-effectiveness.

Reduced mobility

The study found that learners living with disabilities benefit from e-learning in terms of reduced mobility. Learners with physical disabilities have hardships in

traveling to and from campus, and this is reduced through online learning. For example, one of the participants stated this:
"With face-to-face learning, I have to commute from home to school; when I get into town, I have to move from the terminus to the classroom; already, I will be tired, and I sleep during lectures."

Participant VIII

Time and space
The study found that e-learning gives learners living with disabilities time and space. For example, learners with learning disabilities asserted that because they are slow learners, they are able to download tutorial recordings and play them until they understand the concepts. Other learners who are shy are also raised in time and space. They contribute more to learning during online learning because no one is seeing them. This was raised by one participant as follows:
"E-learning enhances my participation, and I am able to contribute during the lecture. I even asked the lecturer what I did not understand. However, I am shy about participating in physical learning as I will draw everyone's attention to me."

Participant III

Videos
Another benefit of e-learning is videos for learners with hearing impairment. The videos can be used to help them understand. They are usually visual learners, and they learn better through videos.

Voice to Text
The other benefit of e-learning is translating voice to text for learners with visual impairments. For example, Microsoft Teams provides the functionality of translating voice to text. One participant stated this:
"I have a hearing problem, so, during tutorials on Microsoft Teams, I can follow through by reading the message as it is translated into text."

Participant X

Cost-effectiveness
The study also found that e-learning is cost-effective for learners living with disabilities. Reduced movement also cuts transport costs, and not going to campus cuts accommodation costs.

4 Discussion

Microsoft Teams was found to be a significant e-learning platform. This finding deviates from Hall's (2017) and Horton (2020) findings. In their studies, YouTube and WhatsApp videos and audio were the major e-learning platforms. The COVID-19 pandemic may explain the difference. This made Microsoft innovate and come up with a platform that is interactive in real-time. YouTube and WhatsApp videos and audio are usually prerecorded and less interactive. Hence, more and more adoption of Microsoft Teams. Google Classrooms is the second central e-learning platform. This finding also diverges from Wang (2017) in China, where they use platforms such as VIPKID, Ximalaya, and Zuoyebang. This is because, in China, there is a promotion of their Chinese e-learning platforms, whereas, in Zimbabwe, we are open to using any platform. The other reason may be that Google is popular in Zimbabwe, and its platforms are heavily used, such as Gmail and Google Classrooms, which are acceptable in Zimbabwe because they are associated with Google's efficiency. Zoom has also been found to be a critical e-learning platform. This finding provides new knowledge because Maunganidze and Kasayira (2018) found Zoom to be the most frequently used platform, but this study ranks it as the third platform. This is because other platforms, such as Microsoft Teams and Google Classrooms, are diversified and allow users to link with their other services. YouTube is identified as the least used e-learning platform. This agrees with the study of Kegan and Khan (2021), who posits that YouTube as an e-learning platform in India is not highly utilized because it is less interactive and always pre-recorded.

Expensiveness is one of the plights of learners living with disabilities. Keagan (2016) needs to identify this challenge in Europe. This is because, in developed countries, students are given free data for learning purposes. Moreover, the data are cheap and sustainable, which is not the case in Zimbabwe, and the most affected are learners living with disabilities. The need for e-learning devices must be identified in the study by Mnkandla and Mataruse (2020), who only identified a lack of mobile phones and computers. However, this study further establishes that learners with disabilities also lack special software and devices, such as voice-to-text software and brailler software that translates text into braille, which is needed for e-learning. Lack of social interaction as an e-learning challenge converges with Garrison (2017), who states that e-learning reduces social interaction. However, his study does not note that learners with disabilities need socialization the most compared to other learners. Garrison's (2017) study did not focus on learners living with disabilities and only scratched the surface. Network challenges are an obstacle to e-learning. However, this is not identified as challenges by studies conducted by Smith and Brame (2021) and Wang (2017) because their countries are developed and internet connectivity is stable. Loadshedding has also been established to be an e-learning challenge. This

finding diverges from the findings by Means et al. (2021). Their studies were done in the UK, without electricity challenges.

Reduced mobility is the primary benefit of e-learning for learners living with disabilities. However, this is not identified by Pecciano (2017) because his study in Italy focused on the challenges of learners without disabilities. However, this study focused on learners living with disabilities, who have challenges with physical movements, and reduced mobility is a benefit derived from e-learning in Zimbabwean Universities. Time and space are other significant merit of e-learning. This finding on time and space is a new revelation. However, Hwang et al. (2017) established it as a benefit. However, in their study, it was the most minor benefit because it benefited introverted students. However, this study shows that it benefits learners with disabilities. Videos are also essential in e-learning, which was also picked by studies by Allen and Seaman (2017) and Chimedza and Peters (2019), indicating that e-learning helps with videos that can enhance the understanding of learners with hearing impairment. Voice-to-text as an advantage of e-learning does not surface in studies by Means et al. (2021) in the United Kingdom because they only studied the implications of e-learning on students. However, this study focuses on learners with disabilities, and hearing impairments are one of them. Cost-effectiveness as a benefit of e-learning to learners living with disabilities diverges with Smith and Brame (2021), who did not find this as a benefit because students living with disabilities in the United States are funded by the government. They are given grants to cover their accommodation and transport costs in higher education. In Zimbabwe, this is different. Given the economic quagmire where the more extensive section of learners living with disabilities may not afford accommodation and transport costs, e-learning is welcomed.

5 Limitations

The study was confined to universities. Studies must include other colleges, which are also higher education institutions, to get a deeper understanding of e-learning, inclusive learning, and learners living with disabilities.

Conclusions

The study's first objective was to determine e-learning platforms used in Zimbabwean universities: Microsoft Teams, Google Classrooms, Zoom, and YouTube. The second objective seeks to determine the benefits of e-learning in Zimbabwean universities to students living with disabilities, and reduced mobility, time, space, videos, voice-to-text, and cost-effectiveness were found to be the benefits. The final objective was to examine challenges associated with e-learning in Zimbabwean universities for students living with disabilities: expensive data, lack of e-learning devices, lack of social interaction, network

challenges, and load-shedding. Therefore, the study recommends the following to stakeholders of higher education:

- Students living with disabilities be provided with data bundles to connect for e-learning;
- Learners living with disabilities be provided with e-learning devices and software such as voice-to-text and braille software;
- Learners living with disabilities be provided with alternative power sources such as a mini-solar or a mini-battery and
- Use of blended learning to buttress online learning.

The study recommends that future studies focus on the broad curriculum of higher education and its inclusivity regarding learners living with disabilities.

Acknowledgements
We are indebted to the universities that allowed us to carry out this investigation.

References

Allen, I. E., & Seaman, J. (2017). *Digital Learning Compass: Distance Education Enrollment Report 2017*. Babson Survey Research Group.

Artino, A. R. (2018). Motivation to learn: An overview of contemporary theories. *Medical Education, 42*(10), 935-943.

Barnatt, S. N., & Kabzems, V. (2022). Zimbabwean teachers' attitudes towards the integration of pupils with disabilities into regular classrooms. *International Journal of Disability, Development and Education*, *39*(1), 135-146.

Borg, R. W., & Gall, M. D. (2021). *Education research: An introduction.* New York: Longman.

Chimedza, R., & Peters, S. (2019). Disabled people's quest for social justice in Zimbabwe. In F. Armstrong, & L. Barton (Eds.), *Disability, Human Rights and Education* (pp. 7-23). Buckingham, Philadelphia: Open University Press.

Garrison, D. R. (2017). *E-Learning in the 21st Century: A Framework for Research and Practice.* Routledge.

Hall, B. (2017). *Web-Based Training Cookbook*. New Jersey: John Wiley & Sons.

Horton, W. K. (2020). *Designing Web-Based Training: How to Teach Anyone Anything, Anywhere, Anytime.* New York: John Wiley & Sons.

Hungwe, T. (2015). *Attitudes of Teachers towards Children with Moderate Mental Retardation in Ordinary Primary Schools in Gweru* (Bachelor of Education Dissertation). Great Zimbabwe University: Special Educational Needs Department.

Hwang, G. J., Lai, C. L., & Wang, S. Y. (2017). Seamless flipped learning: A mobile technology-enhanced flipped classroom with effective learning strategies. *Journal of Computers in Education, 4*(4), 449-473.

Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Haag, B. B. (2015). Constructivism and computer-mediated communication in distance education. *The American Journal of Distance Education*, *9*(2), 17-25.

Jovičić Vukovic, A., Damnjanović, J., & Vranješ, M. (2024). The quality of online higher education teaching during the COVID-19 pandemic: Evidence from Serbia. *Acta Educationis Generalis*, *14*(3), 83-92. https://doi.org/10.2478/atd-2024-0020

Keegan, D. (2016). *The foundations of distance education*. London: Routledge.

Kegan, P., & Khan, B. H. (2021). *Web-Based Training*. London: Educational Technology Publications.

Khan, B. H. (2017). *A framework for e-learning*. London: IAP.

Maunganidze, L., & Kasayira, J. M. (2018). Educational integration of children with disabilities in schools in the Midlands region of Zimbabwe. *The Zimbabwe Bulletin of Teacher Education*, *11*(1), 72-82.

Mayer, R. E. (2014). *The Cambridge Handbook of Multimedia Learning*. Cambridge: Cambridge University Press.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2021). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies.* US Department of Education.

Mnkandla, M., & Mataruse, K. (2020). The impact of inclusion policy on school psychology in Zimbabwe. *Educational and Child Psychology*, *19*, 12-23.

Musikavanhu, T. B., & Scheepers, E. I. (2024). A systematic literature review of synchronous e-learning challenges in higher education institutions in developing nations during the COVID-19 pandemic. *Acta Educationis Generalis*, *14*(3), 121-137. https://doi.org/10.2478/atd-2024-0023

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning*, *21*(3), 166-190.

Smith, M. K., & Brame, C. J. (2021). Using technology to improve student learning. In *Tools for Teaching* (pp. 103-137). Jossey-Bass.

Wang, Q. (2017). A generic model for guiding the integration of ICT into teaching and learning. In *Handbook of Research on Integrating Technology into Contemporary Education*. IGI Global.