



Bridging the Digital Divide: A Qualitative Study on User Interface Design and the Challenges of E-Learning Adoption

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ABSTRACT

This study investigates the eLearning platforms which primary school learners in Zimbabwe use. A qualitative research approach using interpretive philosophy interviewed four ICT facilitators in government and private primary schools located in Chinhoyi within Mashonaland West Province. Through its inductive research approach, the study concentrated on event contexts which made it workable with minimal data points and static measuring period. Educational videos together with visual aids and interactive quizzes receive popularity with students because these materials offer direct and tangible media formats for lesson instruction. WhatsApp functions as the main platform for educational technology because it provides users with cost-effectiveness combined with simple usage and friendly interface. The main obstacles to successful e-learning include inadequate internet connections together with insufficient knowledge about using platforms Ruzivo and the Zimbabwe e-learning passport. The study advises the Ministry of Primary and Secondary Education (MoPSE) to develop and participate in training programs that will enable teachers to embrace e-learning platforms efficiently.

Keywords: e-learning, e-learning platform, user interface, user experience, multimedia content

INTRODUCTION

During the last two decades, digital information processing and network connectivity development have shaped social and political life as well as economic systems while transforming how businesses operate, according to the National ICT Policy 2022-2027. The transformation has transformed education by introducing various learning possibilities that go beyond standard educational classrooms. According to Adhitya et al. (2021), who published in Nasution and Nusa (2021), the quality of education depends greatly on qualified teaching personnel who stand as essential components of educational delivery. Chinese educational policy now demands primary mathematics teachers to integrate information technology into their content delivery to

boost student learning results (Li, 2024). E-learning platforms assume critical importance in Zimbabwe to provide educational resources for students in various educational contexts.

These platforms face limitations because of substandard user interface designs, along with expensive access requirements to learning resources, as reported by Nasution and Nusa (2021). The current learning platforms, Akello and Zimbabwe Learning Passport, together with Ruzivo, encounter obstacles because their outdated content differs from revision changes in the national curriculum (Dzinotyiwei & Teddese, 2020). The authors are of the view that the adoption of educational technology faces additional barriers in Africa due to inadequate localized digital learning resources that are not aligned with the curriculum. This problem is identical to findings demonstrated in the Kenyan study (Nyamboki et al., 2025), where only 30% to 40% of the content applied to educational syllabi.

Zimbabwe faces different implementation challenges for e-learning because of student digital skill deficits, along with deficient system design quality and insufficient student access to needed technology resources (Alipio, 2020; Häkkinen et al., 2017). Research shows that well-planned UIs lead to increased user engagement along with easier interaction in educational platforms (Dalipi et al., 2022). Consequently, understanding such issues becomes vital. To enhance the usability and effectiveness of e-learning promotion at the primary level, it becomes crucial to solve navigational problems in these platforms. The research explores User Interface components in Zimbabwean e-learning systems while evaluating their influence on primary school student platform interaction.

THEORETICAL DEVELOPMENT

The Technology Acceptance Model (TAM) (Davis, 1989) is the main theory underpinning this study. **Figure 1** below demonstrates the TAM Model (Davis, 1989). The acceptance and utilization of information technologies yield both immediate and long-term benefits at organizational and individual levels, enhancing performance, financial and time efficiency, and overall convenience. The Technology Acceptance Model (TAM), developed by Davis (1989; 1993), posits that the perceived ease of use of an application significantly influences its perceived usefulness, thereby stimulating technology acceptance. This model has proven effective in evaluating user motivation to adopt various technologies (Araújo, 2020; Gefen et al., 2003; Natarajan et al., 2017), enabling researchers to develop constructs that correlate strongly with user behavior. Furthermore, it has provided a deep understanding of the affective and cognitive elements that mediate the connection between system attributes and adoption of technology (Davis, 1989). Few studies have concentrated on interventions to increase technology adoption rates, despite a wealth of research identifying important factors influencing use intention (Davis, 1989; Venkatesh & Davis, 1996, 2000; Venkatesh & Speier, 1999). TAM serves as an appropriate theoretical framework for this study, which investigates the disparity between the low adoption of formal e-learning platforms and the high usage of informal tools like WhatsApp in Zimbabwean primary schools. TAM holds that a user's behavioural intention, which is influenced by their opinions about the technology's utility and usability, is closely related to their use of it.

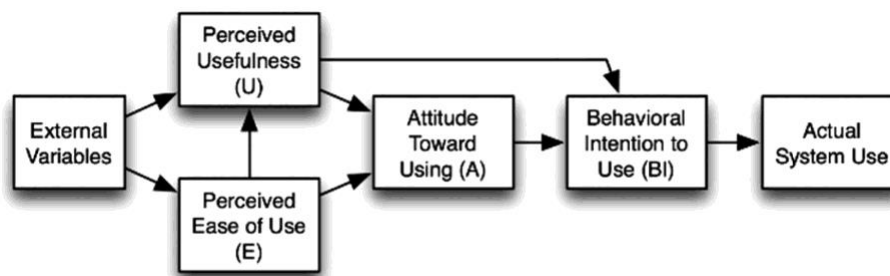


Figure 1. Technology Acceptance Model (TAM) (Davis, 1989)

For instance, it can be noted that educators may acknowledge the perceived value of online education, pointing out that multimedia content greatly improves student comprehension and engagement. Significant obstacles to perceived ease of use, especially those related to infrastructure, like inadequate access to devices, power outages, and poor internet connectivity, frequently overshadow this potential. These problems highlight the significant effort needed simply to access the platforms, redefining "ease of use" beyond the straightforward navigation of a user-friendly interface. This background clarifies the preference for WhatsApp, which optimises usability in limited circumstances thanks to its user-friendly interface and minimal data usage. A detailed examination of the elements impacting technology adoption is made possible by TAM's flexibility in incorporating outside variables. Problems like misaligned content and insufficient teacher training are not isolated issues; rather, they are crucial components that compromise official platforms like Ruzivo's perceived utility and usability. As a result, TAM successfully translates the difficulties this study found into a thorough account of technology acceptance and rejection, showing that the digital divide encompasses not only a gap in access but also a gap in the core factors that the model identifies as drivers of user acceptance.

LITERATURE REVIEW

Definition and Components of a User Interface (UI)

User Interface (UI) serves as the point of interaction between users and digital devices or applications. Just as a comprehensive architectural blueprint requires essential features like doors, windows, and utility connections (Sridevi, 2014), UI design incorporates analogous elements in software, facilitating user engagement (Trymata, 2023). This design encompasses three main aspects: interfaces between software components, interactions between software and non-human information sources, and user-computer interactions (Shneiderman, 2010; Sridevi, 2014). The primary aim of a UI is to provide an intuitive and efficient way for users to control applications, utilizing input devices such as mouse and keyboards, alongside output devices like screens (Galitz, 2007). Adaptive design, which accommodates various screen sizes, enhances user experience (Alqurni, 2023). User-Centered Design (UCD) involves users throughout the design process, emphasizing the need to understand preferences and requirements to create user-friendly interfaces (Alqurni, 2023; Uizard, 2023). Effective UI design necessitates systematic organization of essential elements. Layout refers to the arrangement of visual components for coherent navigation (Trymata, 2023).

User interface comes together as an integration of technological aspects with human behavioral elements through its features of presentation style alongside response delay and interface look and feel (Sridevi, 2014). The application of typography serves two main functions: it improves text readability, and at the same time it represents brand identity (Uizard, 2023). GUIs reduced numerous interface problems according to Sridevi (2014), but current interaction obstacles remain in their use. User engagement results from the appropriate color selection and buttons alongside sliders, creating intuitive user interactions (Trymata, 2023; Uizard, 2023). A UI design that stands out creates a positive user experience because it helps users interact and feel satisfied while forming internal connections (Priyadarshini, 2024). The user experience stays engaged through Foreground User Interface elements like easy navigation structures and adaptive interfaces (O'Brien et al., 2008). Through reflection of individual users combined with emotional design approaches, user satisfaction and sense of belonging improve (Priyadarshini, 2024). Electronic platform development requires UI design solutions because they directly impact user engagement and satisfaction levels.

Multimedia Content in E-Learning Platforms

Multimedia content plays a critical role in enhancing e-learning platforms for primary school learners, as it integrates text, images, audio, video, and interactive elements to foster engagement and improve comprehension. Studies have shown that multimedia-based learning is particularly effective for young

learners, as it caters to diverse learning styles and stimulates both cognitive and emotional engagement (Mayer, 2002). One can point out that overall User experience is determined by how well the interface is designed and also how well the content is designed. In the context of Zimbabwe, where primary schools are increasingly adopting eLearning platforms, multimedia content can bridge the gap between traditional teaching methods and digital learning, enabling learners to grasp complex concepts more effectively (Chitanana et al., 2008). This is because multimedia content is interactive; hence it is better than a solitary media online platform. Conversely, the effectiveness of multimedia in Zimbabwean primary education is often constrained by limited access to digital devices, inconsistent internet connectivity, and a lack of teacher training in integrating multimedia into their lessons (Hassenzahl, 2010). Therefore, while multimedia content has the potential to transform eLearning for primary school learners, its successful implementation in Zimbabwe requires addressing infrastructural and pedagogical challenges.

Principles of UI Design

Understanding UI design principles is essential for creating user-friendly interfaces, with key aspects including simplicity, consistency, visibility and feedback (Nielsen, 1993). Simplicity promotes intuitive navigation and reduces cognitive load, while consistency ensures uniformity in design elements such as fonts and colors. Visibility makes important options accessible, and feedback provides users with clear responses to their actions, boosting confidence (Shneiderman, 2010). According to Sridevi (2014), effective UI design merges an understanding of user behavior with technical considerations. Mandel's (1997) three golden rules, as referenced by Sridevi (2014), emphasize user control, reducing memory load, and ensuring consistency. Miya and Govender (2022) support Bakos et al. (2020) by stating that exceptional product experiences stem from strong UX design, which is essential for successful UI. Key components of effective UI design include usability, accessibility, and aesthetics. Usability focuses on the ease of navigation and interaction, aiming to create seamless experiences (Traynor, 2022). Understanding UX is crucial in product development (Ahn et al., 2021). Accessibility ensures that platforms cater to individuals with diverse abilities, following standards such as the Web Content Accessibility Guidelines (WCAG) (W3C, 2018). Three types of UIs: Character User Interfaces (CUI), Graphical User Interfaces (GUI), and Natural User Interfaces (NUI), which facilitate more intuitive interactions. Aesthetics also play a significant role in user engagement and satisfaction (Tractinsky, 1997). Balancing usability, accessibility, and aesthetics enables designers to create functional and engaging interfaces.

Best practices for intuitive UI design include User-Centered Design (UCD), usability testing, and responsive design (Donaire, 2009). UCD involves users in the design process to address their needs and preferences. Miya and Govender (2021) noted that the UI is often the first element users encounter, which affects their content engagement. A well-designed UI enhances feature usage and contributes to positive UX outcomes. They also highlighted that considering users' cultural backgrounds improves satisfaction among specific user groups, such as Arab users in healthcare (Alsswey & Al-Samarraie, 2021). Usability testing helps identify issues before product launch, ensuring a smoother experience, while responsive design guarantees functionality across various devices (Marcotte, 2010). By following these best practices, designers can create interfaces that meet user expectations and encourage positive interactions.

Global Impact and Significance of E-learning Platforms

The growth of e-learning platforms has surged in the past decade due to technological advancements, increased internet access, and the demand for flexible education. Valued at approximately \$399.3 billion in 2022, the e-learning market is expected to expand at a compound annual growth rate (CAGR) of 14% between 2023 and 2032 (Global Market Insights, 2023). This expansion is driven by the need for immersive learning experiences and the incorporation of technologies such as artificial intelligence (AI) and virtual reality (VR). While regions like Asia-Pacific, North America, and Europe are at the forefront of this trend, Asia-Pacific is

experiencing the fastest growth due to factors like the rising middle class and government support for digital education (LMS Portals, 2025). For Zimbabwe to harness the potential of information and communication technologies (ICTs) for inclusive development, effective ICT policies must be implemented, ensuring universal internet access and quality education.

Educational platforms like Khan Academy, Coursera, and Udemy have revolutionized online learning by providing accessible resources to millions (eLearning Industry, 2023). Initiatives such as India's Digital India and platforms like BYJU'S and Vedantu leverage AI for personalized learning experiences, while China's Yuanfudao offers engaging content. These examples underscore the potential of e-learning to improve educational outcomes and provide flexible learning (Digital Class World, 2024; van Dijk, 2005). In Zimbabwe, efforts include the Ruzivo platform and the Akello digital classroom to enhance access to educational materials (Dzinotyiwei & Taddese, 2020). Although e-learning helps bridge educational gaps, it can be costly, making access prohibitive for some (Nasution & Nusa, 2021). Furthermore, learning materials may become outdated, especially in countries with frequently revised curricula (Nasution & Nusa, 2021). E-learning supports lifelong learning by accommodating various needs and allowing learners to study at their own pace, which is particularly beneficial for working professionals (Allen & Seaman, 2017).

E-learning in Zimbabwe: Current Trends and Challenges

E-learning adoption in Zimbabwe is slowly increasing, especially in higher education, but it still faces significant infrastructural and pedagogical challenges (Chitanana et al., 2008). The COVID-19 pandemic accelerated the shift to digital learning, resulting in investments in e-learning tools, but progress remains inconsistent due to technological disparities between urban and rural areas (Dube, 2020). A 2020 survey revealed that only 33% of African governments had remote learning policies, with barriers such as insufficient infrastructure, high costs, limited digital skills, and a lack of localized content (UNESCO et al., 2020). In Zimbabwe specifically, about 40% of the population has electricity, and less than 20% has internet access. Furthermore, 64% of teachers lack basic digital skills for online teaching, and only 7% feel confident using learning management systems, primarily due to inadequate training (Maphosa, 2021). Limited funding for technology and a scarcity of tailored digital learning content are significant obstacles affecting UI design and e-learning implementation in the country (Dube, 2020).

The shortage of skilled personnel in UI design and e-learning pedagogy further affects the quality of platforms. Poor internet connectivity, especially in rural areas, complicates access to e-learning content (Chitanana et al., 2008). These infrastructure, affordability, and skill-related challenges hinder the integration of online learning in primary schools. Aligning e-learning platforms with national curricula and sociocultural contexts is essential for their success. Curriculum-aligned content ensures educational relevance according to the standards of the Ministry of Primary and Secondary Education. The authors are of the view that sociocultural background in UI design improves user engagement, making platforms more relatable for Zimbabwean learners. Initiatives like the Learning Passport, which offers curriculum-aligned content and supports remote education, aim to address educational gaps and promote digital learning in Zimbabwe (Ministry of Primary and Secondary Education & UNICEF Zimbabwe, 2021).

METHODOLOGY

Research Design

The study utilized a qualitative research design with an interpretive philosophy. This approach was chosen because humans create meanings, unlike physical phenomena (Saunders et al., 2019). This is crucial for creating richer understandings and interpretations of social worlds and contexts. Interviews were conducted to explore UIs of e-learning platforms used by primary school learners in Zimbabwe. The study was inductive,

focusing on the context in which events occurred, allowing for the recruitment of a small sample (Saunders et al., 2019). As a mono-method qualitative study, only a single data collection technique was used. The study was cross-sectional, with primary data collected at a single point in time. This qualitative approach allowed the researcher to examine the nature of e-learning platform UIs by gathering insights from primary school facilitators.

Participants

This study aimed to gain insights from primary school ICT facilitators. Four ICT facilitators were recruited from two primary schools in Chinhoyi, Zimbabwe two from a government school and two from a private school. Participants were selected based on their practical ICT teaching experience, accessibility, and willingness to participate. Saunders et al. (2019) support selecting 4-12 participants if they are part of a homogeneous group. In this case, all participants were ICT facilitators with similar roles and skills. Their perspectives on e-learning platform UIs helped bridge the knowledge gap, extending the field of e-learning in education.

Instruments

Interviews were used to gather the required data for this study. The instrument used to gather data in this study helped to harvest rich qualitative data from the selected participants. Construction pertinent interviews was enabled by perusing relevant pieces of literature (Marzuki et al. 2023). In-depth review of the literature helped to focus on the topics and themes that aligned with the research objectives. The interview guide used in this study helped to investigate both the practical applications and theoretical implications of UIs for e-learning platforms used at the primary level in Zimbabwe.

Data Collection Procedure

The interview protocol was designed, and the researchers organized interviews with each participant. Participants provided informed consent, fully understanding their rights, including the option to withdraw from the study at any time. The interview for each member lasted for fifteen minutes, with questions spanning from general to specific. Ethical aspects were generally considered in the study process. Consequently, respondents were generally required to complete a consent form in writing prior to their involvement in the study. Data collected were securely stored, respecting participants' privacy, and enabling efficient data management for thorough analysis and research reporting (Marzuki et al., 2023). Researchers further abided by ethical standards by ensuring that participation was voluntary. Respondents were not coerced into participating and were further permitted to withdraw from the study at any time.

Data Analysis

Thematic analysis was employed as the primary method for qualitative analysis (Braun & Clarke, 2006). This approach facilitated the identification of themes or patterns for subsequent analysis (Saunders et al., 2019). It is essential as it offers a systematic and logical framework for data analysis, resulting in comprehensive descriptions, explanations, and theories as highlighted by Saunders et al. (2019). The instrument was meticulously reviewed for content familiarization, followed by data categorization, which aids in identifying relationships and patterns within the data. Categories were established from the data gathered.

FINDINGS

Demographic Information

Participants were designated as G1, G2, P1, and P2 to maintain confidentiality, achieving a 100% response rate.

Table 1. Demographic Information

Ser	School Type	Respondent	Age	Gender	Teaching Experience	Qualification	Experience in e-learning Use
01	Gvt School	G1	29	Male	05	Diploma	03
02	Gvt School	G2	35	Female	03	Diploma	02
03	Pvt School	P1	30	Male	05	Diploma	04
04	Pvt School	P2	37	Female	07	Degree	05

The group consisted of two males and two females, ensuring balanced representation (see [Table 1](#)). Their teaching experience varied from 3 to 7 years, with three participants holding diplomas and one having a degree, indicating a lack of updates in qualifications to align with new educational skills. Their experience with e-learning ranged from 2 to 5 years, primarily due to their status as recent graduates still gaining experience in teaching. To analyze the interview data from ICT teachers in government and private schools, the author organized responses into several themes based on commonalities.

E-Learning Content Preferences

This theme explores the types of e-learning content that engage students and how teachers perceive these preferences across different school environments. It is evident that students from both government and private schools show a strong preference for multimedia-based content, such as videos, pictures, interactive quizzes, audios, and games. These elements enhance engagement and provide concrete, interactive learning experiences, which are crucial for young learners. Four teachers from both government and private schools responded as follows:

"Students prefer videos, pictures, and interactive quizzes as concrete media for lessons. For grades 4 to 7, combining text with pictures, videos, and audio is crucial." (G1; G2)

Teachers from private schools echo the same sentiments, noting that:

"Grade 4-7 learners prefer interactive and engaging methods such as videos, quizzes, games, pictures, text, and audio as they motivate and maintain interest." (P1; P2).

The responses from teachers indicate a consensus that multimedia tools significantly enhance student engagement and understanding. They emphasize the importance of combining various elements such as text, audio, and visuals to create an inclusive learning experience that caters to diverse learning styles. By utilizing these multimedia resources, educators can reinforce concepts and improve their teaching methods, ultimately benefiting their students' learning outcomes.

E-Learning Tool Preferences and Effectiveness

Schools employ various tools to enhance e-learning, with WhatsApp being widely adopted in both government and private institutions due to its affordability, ease of use, and accessibility. In private schools, STUDYISIS is also utilized, though some students face challenges accessing devices. Teachers shared their experiences:

"We use WhatsApp because it is affordable, easy to use and user-friendly." (G2, P2)

"We also use STUDYISIS on phones and laptops for those with devices, although some belong to their parents." (P2)

Teachers emphasize WhatsApp's significance as an essential e-learning tool due to its affordability and user-friendly interface, facilitating communication and collaboration among students and educators. The use of STUDYISIS in private schools indicates an attempt to enhance learning with specialized materials, though some students face accessibility issues with devices. WhatsApp's adaptability allows for various interactions,

promoting peer connections and engagement in learning. Its quick access adds to its educational value. By using these tools, students share academic resources and foster a community that aids sociocultural adaptation, especially for international students, making WhatsApp a unifying platform for learners from diverse backgrounds.

Student Feedback and Refinement of E-Learning Tools

The theme highlights how teachers collect and utilize student feedback to enhance e-learning tools and experiences. Feedback is primarily gathered through WhatsApp using surveys, written work, and images. Teachers also observe student interactions with platforms to identify challenges and improvement areas, ensuring the tools remain effective and user-friendly. The two teacher responses are as follows:

"Currently, since WhatsApp is dominating, we use WhatsApp survey polls." (G1)

"On WhatsApp, students write their work and send pictures. I use WhatsApp tools to mark. We design and launch the platform, then observe and gain feedback from the challenges faced." (P1)

Teachers emphasize feedback's role in improving student learning and e-learning tools. Methodologies like heuristic evaluation and cognitive walkthrough are used to assess usability, with emphasis on understanding users' interactions, as noted by P1. The use of mixed-method approaches, such as surveys and polls on WhatsApp, aligns with G1's focus on feedback collection. These digital interactions foster cross-cultural intelligence, assisting in adaptation for international students. WhatsApp promotes inclusivity by bringing together learners from diverse backgrounds to share ideas.

Challenges in Implementing E-Learning Tools

This theme highlights key barriers teachers face when implementing e-learning tools in primary schools. Common challenges include poor internet connectivity, insufficient digital devices, power cuts, and unfamiliarity with official platforms. These obstacles hinder effective adoption and utilization of e-learning tools, negatively impacting students' learning experiences. Teacher responses include:

"Poor internet connectivity due to too many users resulting in poor connectivity, electricity, lack of resources like our school has 640 pupils, and the computer ratio here is approximately 1.38." (G1, P2)

"Platforms approved by MoPSE, like Ruzivo, are unfamiliar to us, and our school lacks the funds to implement them. We also have no knowledge of the Zimbabwe E-learning Platform; this is the first time hearing about it." (G2, P1)

Teachers report a lack of resources and insufficient training, which affects their ability to integrate technology effectively. G2 and P1 mention their unfamiliarity with the Ruzivo digital platform and the Zimbabwe E-learning Passport, indicating a broader trend of unawareness among educators regarding available e-learning resources. This lack of engagement highlights the need for contextually relevant e-learning solutions and accessible materials, as financial constraints further limit access for many students.

Recommendations for Improving E-Learning

This theme outlines teachers' suggestions for enhancing e-learning for primary school students. Recommendations focus on improving access to digital devices, enhancing internet connectivity, providing teacher training, and ensuring power backups. Three teachers expressed:

"It can be improved by interactive boards, training teachers to acquire digital skills, installing fast internet, creating and launching school websites." (G2)

“Purchasing e-learning digital devices. For example, I once gave my students homework of capturing photographs, but the major challenge was the lack of devices.” (P1)

“The MoPSE should engage teachers and staff to develop skills when adopting e-learning platforms.” (G1)

Teachers emphasize the necessity of resources, especially digital devices and training in technological skills. The presence of ICT teachers is crucial, as they guide other teachers in technology integration. Overall, these suggestions aim to address existing challenges and improve the e-learning experience for students.

Teacher Capacity and Training for E-Learning

This theme highlights the importance of teacher training and capacity-building for the effective implementation of e-learning in schools. Proper training ensures that educators can use e-learning tools effectively and adapt to technological advancements. Involving teachers during the adoption phase of e-learning is crucial for successful integration. Teacher responses include:

“Training teachers to acquire digital skills.” (G2)

“The MoPSE should engage teachers and staff in developing their capacity to adopt e-learning platforms.” (G1)

Teachers emphasize the need for ongoing professional development to enhance their digital skills and to actively participate in developing e-learning platforms. While access to education is a fundamental right, disparities between urban and rural areas persist. Inclusive e-learning can help bridge these gaps, but training alone may not be sufficient without adequate support and resources.

DISCUSSION

The study aims to investigate the nature of user interfaces (UIs) in Zimbabwe's e-learning platforms and their impact on increasing the usage of these platforms at the primary level. The findings reveal several key insights and challenges that need to be addressed to enhance the effectiveness of e-learning in Zimbabwe. Firstly, it is evident that students from both government and private schools show a strong preference for multimedia-based content, such as videos, pictures, interactive quizzes, audios, and games. This preference aligns with the findings of Chitanana et al. (2008), who highlighted the importance of engaging and interactive content in e-learning platforms. Multimedia teaching aids are a set of hardware and software that allow the user to communicate with a computer, using a variety of natural environments: graphics, hypertext, sound, animation, and video (Kuchai et al., 2022). Multimedia content can make learning more enjoyable and effective, catering to different learning styles and keeping students motivated. Through the presentation of information in text, graphics, images, audio, and video, multimedia offers a complex multi-sensory exploration of our world, and there is evidence to suggest that combining words and pictures makes it more likely that people will be able to process a lot of information (Lin et al., 2024).

WhatsApp is commonly used across both government and private schools due to its affordability, ease of use, and accessibility. This finding is supported by Chikuvadze et al. (2025), who noted that WhatsApp has become a popular tool for communication and learning in Zimbabwean universities. The widespread use of WhatsApp indicates its potential as a valuable e-learning tool, especially in resource-constrained environments. Feedback is mainly gathered through WhatsApp, using tools like surveys, written work, and pictures. This method of feedback collection is practical and efficient, given the high penetration of WhatsApp among students and teachers. However, it also highlights the need for more formal and structured feedback mechanisms to ensure comprehensive and actionable insights.

The study also identifies several common challenges, including poor internet connectivity, insufficient digital devices, power cuts, and lack of familiarity with some official platforms. These challenges are consistent with the findings of Chitanana et al. (2008), who pointed out the infrastructural and technical barriers to e-learning adoption in Zimbabwe. Addressing these challenges is crucial for creating a more effective e-learning environment. To overcome these challenges, the study recommends increasing access to digital devices, improving internet connectivity, training teachers, and ensuring power backups. Teacher training and development are critical to ensure that educators are capable of effectively using e-learning tools and adapting to technological changes in the classroom. This recommendation is echoed by Chikuvadze et al. (2025), who emphasized the need for professional development programs to support e-learning adoption. The study highlights the importance of multimedia-based content, the widespread use of WhatsApp, and the need for structured feedback mechanisms in enhancing e-learning platforms in Zimbabwe. Addressing the challenges of poor internet connectivity, insufficient digital devices, power cuts, and lack of familiarity with official platforms is essential for creating a more effective e-learning environment. By implementing these recommendations, Zimbabwe can improve the usage and effectiveness of e-learning platforms at the primary level.

IMPLICATIONS

Theoretical Implications

The Technology Acceptance Model (TAM) is a useful theoretical framework for comprehending technology adoption in educational contexts, especially in Zimbabwean primary schools, according to the study's findings. By clarifying how perceived utility and usability are related, the study shows how infrastructure issues like slow internet access and a lack of digital resources can seriously hinder the adoption of official e-learning platforms. This emphasises the need for a sophisticated comprehension of outside factors influencing user perceptions so that researchers can more thoroughly examine the cognitive and affective aspects of technology acceptance. Furthermore, the study contributes to the existing literature by identifying contextual factors, such as teacher training and content alignment, as critical mediators affecting user acceptance, thus enriching the discourse on technology integration in education.

Practical Implications

From a practical standpoint, the study emphasises the pressing need for focused interventions to raise the efficacy and usability of Zimbabwe's e-learning platforms. To create a favourable learning environment, it is essential to implement recommendations like improving internet connectivity, expanding access to digital devices, and offering thorough teacher training. Educational stakeholders can promote increased student engagement and comprehension by giving priority to interactive multimedia content and user-friendly interfaces. Furthermore, adding structured feedback mechanisms can help e-learning resources get better over time, especially when done with popular apps like WhatsApp. In addition to bridging the digital divide, these doable actions will enable teachers and students to take full advantage of e-learning tools, which will ultimately lead to better primary school results.

CONCLUSION

The study's key findings point to the need for a multifaceted approach to enhance the overall user experience and effectiveness of e-learning applications. First and foremost, it is essential to prioritize easy navigation and user-friendly interfaces, as these factors significantly impact learners' willingness to engage with the platform. By focusing on usability, students can concentrate more on their studies and less on figuring out how to use the technology. Incorporating customizable features and interactive elements, such as quizzes and discussion

forums, is crucial. These features foster personalization and active participation, which are vital for boosting student motivation and improving learning outcomes. The study also highlights the importance of regularly integrating learner feedback into application updates. By doing so, the platform can evolve to meet actual user needs and preferences, enhancing its relevance and effectiveness. Addressing barriers that prevent learners from recognizing the direct benefits of e-learning platforms on their academic success is also essential. This indicates a need for clearer communication about the value of these platforms. Furthermore, providing robust technical support is necessary to help learners overcome challenges, build their confidence in using the application, and reduce frustrations. Overall, the study underscores the importance of engaging teachers and learners when implementing and designing e-learning platforms for primary school students. The Ministry of Primary and Secondary Education (MoPSE) should prioritize these aspects to create an effective and user-friendly e-learning environment.

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AI statement: The authors used the AI tools Grammarly and QuillBot for grammar, tenses, and improving fluency. After using these AI tools, we reviewed and verified the final version of our work. We, as the authors, take full responsibility for the content of our published work.

Data sharing statement: The datasets generated during and/or analyzed during the current study are available from the corresponding author upon request.

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