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Effect of Technological Readiness on Student Satisfaction in Distance Learning in Kenya

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Abstract

Purpose: The purpose of this article was to analyze effect of technological readiness on student satisfaction in distance learning in Kenya.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: Technological readiness significantly influences student satisfaction in distance learning in Kenya, as learners with reliable internet access, appropriate devices, and basic digital skills report smoother participation and fewer frustrations during online classes. Conversely, limited connectivity, high data costs, and low digital literacy reduce engagement, cause missed assessments, and lower overall learning satisfaction. Therefore, improving infrastructure, affordable internet access, and digital training for both students and instructors is essential to enhance satisfaction in Kenyan distance education programs.

Unique Contribution to Theory, Practice and Policy: Health belief model (HBM), social cognitive theory (SCT) & theory of planned behavior (TPB) may be used to anchor future studies on the effect of technological readiness on student satisfaction in distance learning in Kenya. Health communication campaigns should integrate traditional media with digital platforms to reach a wider, more diverse audience. Policymakers should prioritize the integration of comprehensive, multi-platform health communication strategies in public health policy.

Keywords*: Technological Readiness, Student Satisfaction, Distance Learning*

INTRODUCTION

In distance learning, student satisfaction is typically measured through structured surveys or validated satisfaction scales that ask learners to rate their overall experience, ease of learning, interaction efficacy, and support received. In developed economies such as the United States (USA), research has shown generally high satisfaction rates when technological infrastructure and support services are strong. For example, a study of U.S. university students found that over 75% of learners reported satisfactory or highly satisfactory experiences with online courses, particularly where platforms were reliable and instructors provided timely support (Allen & Seaman, 2018). In Japan, studies have reported that approximately 70% of students expressed moderate to high satisfaction with online degree programs, with satisfaction closely linked to ease of use and responsiveness of learning management systems (Yamada & Fukuda, 2019). Trends in both economies suggest that technological readiness, including stable internet and user-friendly platforms, strongly influences overall satisfaction (Allen & Seaman, 2018; Yamada & Fukuda, 2019).

In developing economies, student satisfaction with online learning varies more due to disparities in access to technology and instructional support. For instance, research in India indicated that only about 55% of distance learners reported high satisfaction, with lower scores linked to frequent connectivity issues and limited digital skills (Patel & Singh, 2021). Similarly, a study in Brazil found that slightly over 60% of students were satisfied with online learning, but satisfaction strongly depended on reliable internet and institutional tech support (Costa & Almeida, 2022). These trends show that while many students value the flexibility of online learning, technological limitations significantly reduce satisfaction in developing contexts, underscoring the need for targeted infrastructure improvements (Patel & Singh, 2021; Costa & Almeida, 2022).

In Sub-Saharan African economies, student satisfaction with distance learning remains relatively lower compared to both developed and other developing regions. Studies in Kenya report that fewer than 50% of student's express satisfaction with online learning experiences, often citing poor internet access and inconsistent platform functionality (Mwangi & Ndirangu, 2022). In addition, research in Nigeria found that only around 45% of students felt satisfied with online courses, largely due to technical barriers and limited institutional support (Okeke & Adebayo, 2023). These patterns highlight the persistent impact of technological readiness on how students evaluate and experience distance learning across sub-Saharan contexts, with satisfaction closely tied to improvements in infrastructure and digital literacy support (Mwangi & Ndirangu, 2022; Okeke & Adebayo, 2023).

Technological readiness in distance learning refers to the degree to which students have access to the necessary digital tools and skills to engage effectively in online education. Four key components of technological readiness are internet access, device quality, technical skills, and familiarity with online learning platforms. Internet access is critical, as slow or intermittent connectivity can disrupt participation and learning, leading to frustration and lower satisfaction (Bağrıacık Yılmaz, 2023). Device quality also plays a role; students with older or less functional devices may struggle to engage with multimedia content or use learning management systems effectively, affecting their learning experience. Technical skills, including the ability to navigate online platforms and troubleshoot basic issues, are essential for ensuring a smooth learning experience. Students with higher technical skills are more likely to feel confident and engaged,

leading to higher satisfaction (Suhandiah et al., 2022). Familiarity with the learning platform itself can enhance students' comfort, reducing anxiety and improving overall satisfaction.

These four aspects of technological readiness directly influence student satisfaction, which is often measured through surveys or satisfaction scales. When students have reliable internet access and high-quality devices, they are more likely to report satisfaction with their learning experience, as they can fully participate in course activities without technical hindrances (Suhandiah et al., 2022). Furthermore, students with advanced technical skills are often more comfortable navigating online tools, which increases their confidence in using the course materials and engaging with instructors. Research indicates that students who are familiar with the technology and platforms used in their courses tend to be more satisfied due to their ability to focus on content rather than dealing with technical difficulties (Bağrıacık Yılmaz, 2023). Thus, ensuring that students have the necessary technological readiness through infrastructure and skills training essential for maximizing satisfaction in distance learning environments.

Problem Statement

Despite the rapid expansion of distance learning, especially following the COVID-19 pandemic, many students continue to report varying levels of satisfaction with online education, and technological readiness appears to be a key influencing factor. Research has shown that students who are more technically prepared having reliable internet access, digital skills, and familiarity with online tools tend to report higher satisfaction levels, whereas those with limited access and lower technical competencies experience frustration and lower satisfaction (Suhandiah, 2022). However, existing studies have predominantly focused on general measures of online learning readiness, often combining technology with other readiness factors like learner motivation, making it difficult to isolate the specific impact of technological readiness alone on satisfaction outcomes. Additionally, while research has identified positive associations between overall learning readiness and satisfaction, there remains limited empirical evidence that examines direct causal pathways and mechanisms through which technological readiness affects student satisfaction in distance education environments (Bağrıacık Yılmaz, 2023). Moreover, many of the studies have been conducted in specific cultural or educational contexts, leaving gaps in understanding how technological readiness influences satisfaction across different regions and types of distance learning models. Therefore, there is a critical need to investigate how students' technological readiness directly shapes their satisfaction with distance learning, and to clarify the underlying factors that may strengthen or weaken this relationship in diverse learning settings.

Theoretical Review

Technology Acceptance Model (TAM)

The technology acceptance model (TAM), developed by Fred Davis in 1989, explains how users come to accept and use technology. According to this model, perceived usefulness and perceived ease of use are the key factors that influence an individual's decision to adopt and use a technology. In the context of distance learning, TAM is highly relevant because it addresses how students' perceptions of a technology's ease of use and its usefulness impact their satisfaction. Students who are ready to use technology meaning they are familiar with digital tools and can easily navigate online platforms are more likely to report higher satisfaction. The model highlights that when students perceive online learning tools as beneficial and easy to use, their motivation and

satisfaction levels increase. This theory can explain how students' technological readiness directly affects their online learning experience and overall satisfaction with the course (Venkatesh & Bala, 2020)

Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and Use of Technology (UTAUT), developed by Venkatesh (2003) integrates several technology acceptance models into one unified framework. It suggests that performance expectancy, effort expectancy, social influence, and facilitating conditions significantly influence user acceptance and technology use. In the context of distance learning, UTAUT provides a robust framework for understanding how technological readiness including access to the necessary devices, internet connection, and digital skills affects student satisfaction. Students with higher technological readiness are more likely to find online learning platforms easy to use, which directly impacts their satisfaction levels. Moreover, the theory's emphasis on facilitating conditions and effort expectancy makes it particularly useful in examining how institutions can support students' readiness and enhance their satisfaction with online education (Al-Qaysi, Al-Samarraie, & Ghani, 2020)

Self-Determination Theory (SDT)

Self-determination theory (SDT), proposed by Edward Deci and Richard Ryan in the 1980s, focuses on intrinsic motivation and the psychological needs for autonomy, competence, and relatedness. According to SDT, when students feel competent in using technological tools and have the autonomy to navigate online courses, their intrinsic motivation and satisfaction are enhanced. In distance learning, technological readiness impacts students' sense of competence if students are technologically ready, they can more easily navigate digital platforms, which boosts their confidence and satisfaction. The theory emphasizes that supporting students' digital skills, ensuring access to technology, and fostering a sense of relatedness through online instructor presence can create an environment where students feel motivated and satisfied. This theory is relevant for examining how technological readiness, by fostering competence and autonomy, can enhance student satisfaction in online education.

Empirical Review

Al-Azawei, Parslow, & Lundqvist (2019) explored the impact of technological readiness on student satisfaction in online courses at three universities. Using a mixed-methods approach, they surveyed 780 students and conducted focus group interviews. The study found that students with high technological readiness reported higher satisfaction levels with online learning, particularly in areas such as course access and ease of use. Students with poor internet access and limited technological skills, however, expressed frustration, which negatively impacted their satisfaction. The authors emphasized that online learning environments must be accessible, and technological infrastructure must be robust to accommodate students with varying levels of readiness. They recommended that universities provide technology access, including subsidized devices and high-speed internet, to ensure equitable learning experiences. Furthermore, digital skills training was highlighted as critical in enhancing student readiness and satisfaction. They also suggested institutions focus on reducing technical difficulties during online courses, which were found to be a major barrier to satisfaction. The study concluded that technological readiness is a strong determinant of student satisfaction in online learning environments.

Liaw & Huang (2020) examined how students' technological readiness affected their satisfaction with online courses in Taiwan. The study employed structural equation modeling (SEM) with a sample size of 1,050 students. Their findings revealed that technological readiness, specifically the ease of using learning management systems (LMS), directly affected student satisfaction. Students who were more familiar with digital tools and had easy access to technology reported better overall experiences with their courses. Conversely, students with limited access to technology or digital skills had lower satisfaction levels. They recommended that institutions offer pre-course technology assessments and provide user-friendly platforms that cater to students with varying levels of technological skills. The study suggested that universities should enhance support services such as tutorials and helpdesks to help students overcome technical challenges. They concluded that a seamless technology experience significantly boosts student satisfaction.

Al-Qaysi, Al-Samarraie, & Ghani (2020) investigated the relationship between technological readiness and satisfaction among students in Malaysia. They surveyed 600 students and used regression analysis to analyze the data. The study found that students who possessed higher technological readiness especially those with strong digital literacy skills expressed higher satisfaction with online courses. However, students who struggled with technology had lower satisfaction, particularly due to frustration with platform interfaces and technical issues. The study recommended that universities provide mandatory training sessions on digital tools before students engage in online learning. Moreover, the authors suggested offering alternative learning modes (e.g., mobile-based platforms) to cater to students with varying levels of technological proficiency. They also emphasized the need for regular technological support to help students navigate any issues during courses. The study concluded that technological readiness is essential for maximizing student satisfaction in online learning environments.

Adarkwah (2021) focused on the impact of technological readiness on student satisfaction with distance learning in Ghana during the COVID-19 pandemic. The study employed surveys (n = 450) and correlation analysis to assess students' technological readiness and their satisfaction levels. The findings indicated that students who were technologically ready, with access to devices and stable internet, expressed higher satisfaction with online learning. However, students with limited access to devices or internet reported lower satisfaction, citing difficulties in attending live sessions and completing assignments. The study recommended government interventions to improve internet access and provide subsidies for technology to ensure equitable access for all students. It also proposed training workshops for students to enhance their digital skills before engaging in distance learning. Adarkwah (2021) concluded that the success of online education depends heavily on students' readiness to use technology effectively.

Alshammari (2021) assessed the relationship between technological readiness and satisfaction in distance learning among Saudi students. The study used surveys (n = 920) and hierarchical regression analysis to analyze the data. They found that students' technological readiness, including their comfort with learning management systems and internet access, was a strong predictor of student satisfaction with online learning. Students who had higher technological readiness and greater access to reliable resources reported a more positive experience in online education. The authors recommended that universities invest in technological infrastructure and ensure that digital platforms are accessible to all students. They also called for more personalized

feedback to increase satisfaction and engagement. The study concluded that enhancing technological readiness is essential for improving student satisfaction in online courses.

Ifinedo (2022) explored how technological readiness influenced student satisfaction with distance learning in Canadian universities. The study used a survey (n = 1,400) and regression analysis to evaluate students' technological readiness and their satisfaction with online education. The findings revealed that students' technological preparedness—including their device quality, internet access, and digital literacy directly impacted their satisfaction levels with distance learning platforms. Students who faced challenges with technology access and usage had significantly lower satisfaction with online courses. The study recommended that universities standardize technology requirements and ensure that all students have access to the necessary tools to participate in online courses. The researcher also suggested offering flexible learning options for students with limited access to technology.

Çakıroğlu & Akdeniz (2023) studied the effect of technological readiness on student satisfaction in online higher education in Turkey. Using surveys (n = 1,230) and multilevel modeling, the study explored the relationship between students' readiness with digital tools and their satisfaction with online courses. The results showed that students with strong technological readiness were significantly more satisfied with the usability and effectiveness of online learning platforms. They suggested that universities need to support both students and faculty by providing ongoing technology training. The study recommended that institutions assess technological readiness before students begin online courses and offer pre-course tech workshops. The study concluded that technological readiness is a critical factor for ensuring high student satisfaction in distance learning environments.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Gaps

While studies such as Al-Azawei, Parslow, & Lundqvist (2019) and Liaw & Huang (2020) have explored the link between technological readiness and student satisfaction, there is a gap in understanding how specific aspects of technological readiness, such as students' digital literacy, influence their long-term engagement and success in online learning. Although existing frameworks primarily focus on access to technology and ease of use, few studies explore how technological readiness interacts with other factors like learning styles or student motivation. Furthermore, the psychological aspects of readiness, such as students' self-confidence in using technology, remain underexplored. Future research should integrate cognitive and emotional

dimensions of technological readiness and examine how these factors collectively shape student satisfaction across different types of online learning environments.

Contextual Gaps

The studies reviewed predominantly focus on traditional academic settings such as universities, neglecting the role of technological readiness in non-traditional learning environments, such as vocational training or corporate online education. Additionally, while many studies (Alshammari et al., 2021; Al-Qaysi, Al-Samarraie, & Ghani, 2020) have concentrated on general satisfaction with online platforms, few address the specific needs of students in specialized courses or those requiring more hands-on learning experiences. There is a clear gap in understanding how technological readiness affects satisfaction with practice-based or interactive online courses that involve simulations, labs, or workshops. Future research should delve deeper into the diverse educational contexts and examine how technological readiness impacts satisfaction in these specialized settings.

Geographical Gaps

A significant gap exists in geographical research regarding technological readiness and its effects on student satisfaction, particularly in developing economies. While studies like Adarkwah (2021) and Ifinedo (2022) examine students in developed economies, the challenges faced by students in low-resource regions, such as sub-Saharan Africa or Latin America, have not been extensively studied. These regions often experience inconsistent access to high-speed internet, limited digital infrastructure, and varying levels of technological literacy, all of which can significantly influence the effectiveness of distance learning. Additionally, studies have largely focused on urban students, with little research on students in rural or remote areas who may have different experiences with technological readiness. Future research should focus on underserved populations to better understand the unique challenges they face and develop targeted strategies for improving their satisfaction and success in online learning environments.

CONCLUSION AND RECOMMENDATIONS

Conclusions

In conclusion, technological readiness plays a crucial role in shaping student satisfaction in distance learning environments. The ability of students to access reliable technology, along with their proficiency in using digital tools, significantly influences their engagement, learning experience, and overall satisfaction with online courses. As distance learning continues to expand globally, it is essential that both educational institutions and policymakers prioritize technological readiness by ensuring equitable access to technology, providing digital literacy training, and creating supportive learning environments. Institutions that invest in improving technological infrastructure and support services are more likely to foster higher levels of student satisfaction and academic success. Moving forward, it is vital for research, practice, and policy to continue addressing the technological barriers faced by students, particularly in under-resourced regions, to ensure that distance learning is accessible and effective for all learners. Ultimately, by enhancing technological readiness, educational institutions can create a more engaging, inclusive, and rewarding online learning experience for their students.

Recommendations

Theoretical Contributions

Future research should expand existing theoretical models by incorporating technological readiness as a core factor in student satisfaction in distance learning. While previous theories focus on learner engagement and pedagogical design, more attention needs to be given to how students' perceptions of their technological readiness such as access to devices, internet quality, and digital skills directly influence their overall learning satisfaction. This could involve integrating concepts from the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) with educational satisfaction theories to create a comprehensive framework that addresses both technological and emotional factors. Moreover, theorists should explore cross-cultural variations in technological readiness and its impact on student satisfaction, particularly in developing economies with less access to advanced technologies.

Practice

In practice, universities and online learning platforms should prioritize investments in improving students' access to technology and digital literacy training to increase satisfaction in distance learning. This includes ensuring that students have access to reliable internet connections, modern devices, and the necessary software to participate fully in online courses. Educational institutions should conduct regular technological readiness assessments to identify potential barriers to access and address them proactively. Faculty should also receive ongoing training to effectively use technology in ways that enhance student engagement and satisfaction. Moreover, universities should provide technical support services for students to troubleshoot issues related to software, hardware, or internet connectivity to ensure that technological problems do not hinder the learning experience. Designing courses that are technologically inclusive—ensuring compatibility across different devices and platforms can significantly improve student satisfaction in distance learning.

Policy

Policymakers should recognize technological readiness as a critical component of educational quality and develop policies that ensure equitable access to technology in distance learning environments. National education bodies should create funding programs that support the development of robust technological infrastructure in higher education institutions, particularly those serving students in rural or underserved areas. Policies should mandate digital literacy education as part of the curriculum for all students, preparing them for the technology-driven learning environments of the future. Additionally, policymakers can encourage institutions to adopt standards for technology use in distance learning that promote accessibility, such as universal design principles and mobile-friendly course formats. Governments should also advocate for the reduction of technology costs through subsidies or partnerships with technology companies to ensure that students in lower-income brackets can access necessary learning tools without financial strain. By focusing on these areas, policies can help ensure that all students, regardless of their technological background, have the resources and skills necessary to succeed in distance learning.

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