BRIDGING PEDAGOGY AND INNOVATION: THE IMPACT OF TECHNOLOGY ON INSTRUCTION AND STUDENT OUTCOMES AT KENYA ASSEMBLIES OF GOD EAST UNIVERSITY (EAST)

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Abstract

This paper examines the role of technology in improving teaching practices and student learning outcomes at Kenya Assemblies of God EAST University (EAST). The study employed both quantitative and qualitative methods within a descriptive research design. A single questionnaire containing structured and open-ended items was administered to all categories of respondents. Of the 75 distributed questionnaires, 67 were returned, representing an 89% response rate. Convenience sampling, also known as availability or accidental sampling, was used. Qualitative data provided contextual insights into identified barriers through descriptive themes. The findings highlight a gap between the perceived potential of technology and its actual integration into instruction at EAST. Contributing factors include inadequate training and support, technical limitations, resistance to change, and issues related to accessibility and equity. Previous studies indicate that such barriers are common and require targeted interventions. To address these gaps, the study recommends expanding access to and training in Learning Management Systems and multimedia tools, upgrading digital infrastructure, and providing continuous pedagogical training for faculty. Additionally, attention should be given to improving internet reliability, upgrading classroom facilities, and ensuring equitable access to technological resources. Fostering a culture of innovation and digital inclusion through supportive institutional policies will also be key to sustaining progress.

Keywords: Quality higher education, Integration of technology, Faculty development, Student engagement, Curriculum alignment, Digital resources.

Introduction

The Kenya Assemblies of God EAST University's (EAST) Vision is to become a distinguished Pentecostal University which produces servant leaders for the marketplace can only be achieved through providing relevant and quality education. The offerings are provided from best practice approach as is required by Commission for University Education (CUE), coupled with service to the Nation of Kenya and humanity. EAST's philosophy of education is guided by intrinsic principles of Christian charity and servant hood leadership with no unjustifiable discrimination motivated by

predispositions of gender, nationality or inner convictions among others. It goes without saying that contemporary quality education is impossible without the integration of technology in its various forms. The integration of technology into instruction can greatly transform and reshape traditional pedagogical approaches to more contemporary ones; thus, enhancing the quality of education offerings. Such methods may include but are not limited to interactive whiteboards, adaptive learning software, Learning Management Systems (LMS) and virtual classrooms. In learning spaces, technological tools have in many ways increased prospects for both teaching and learning. These prospects comprise of personalized learning, accessibility of information, coupled with learner engagement, collaboration and communication. Besides, it can lead to interactive and engaging content, flexible learning environments, better assessment tools and methods while increasing instructor support and professional development. Meanwhile, digital literacy for both educators and learners; and deliberate technological integration into instruction will go a long way in enhancing the quality of education in institutions of higher learning.

Globally, institutions of higher learning are progressively adopting technologies to enrich instructional delivery, stimulate student engagement, and enhance learning outcomes (Schrum & Levin, 2015). At EAST, a growing emphasis on technology-enhanced instruction reflects the commitment to innovation and academic excellence. According Mishra and Koehler (2006) there are several factors leading to the effective integration of technology into pedagogy. These comprise of access to devices, strategic planning, faculties and learners' capacity, and instructional design geared to supporting student-centered learning environments. Thoughtfully applied educational technology can lead to personalized learning, suitable feedback, and support for differentiated instruction as crucial aspects for the improvement of student performance and motivation (Means et al., 2014). As EAST continues to evolve in response to her Mission (which is to provide relevant and quality education that produces Spirit-empowered servant leaders for the global marketplace) and global educational trends; Understanding the role technology plays and the needs of both faculty and learners in determining instructional practices and learner outcomes is essential. Establishing the role of technology in teaching and learning at EAST was part of an action research conducted to determine the factors impeding the quality of teaching and learning at Kenya Assemblies of God EAST University (EAST). The study sought to explore how technology is being used at EAST to enhance instructional practices and student learning outcomes; paired with recommendations for how best to improve technological integration for higher quality instruction at the University. By analyzing the experiences of educators, learners and staff within this context, the research aimed to contribute valuable insights into effective strategies for technology integration and its impact on academic success.

Literature Review

The integration of technology such as videos, e-books, podcasts, augmented and virtual reality (AR/VR), artificial intelligence (AI), learning management systems (LMSs), and conferencing platforms such as Zoom, Microsoft Teams, and Google Meet/Classroom, among others, is proving to be greatly beneficial in enhancing the quality of education. As the landscape of higher education

evolves, technology has become increasingly central, offering new opportunities for more dynamic, interactive, and inclusive learning experiences. Technology supports the delivery of instructional content in diverse formats that cater to various learning preferences and abilities. It enhances student engagement by making learning more interactive and immersive. Students can now access learning resources anytime and anywhere, promoting flexibility and self-directed learning. According to Berge (2002), technology in education can facilitate greater communication between faculty and learners, support collaborative learning environments, and provides access to a broad spectrum of educational materials. The collaborative features of many digital platforms encourage student participation, teamwork, and peer feedback. These elements are critical to the development of 21st century skills needed in the marketplace.

In their research on the role of technology in fostering inclusive and equitable education, Kim and Higgs (2023) argue that digital tools empower instructors to build stronger instructional relationships with their students, regardless of physical location. This fosters a learning environment that is not only accessible but also adaptive to the varied needs of learners. Coker and Mercieca (2023) reinforce this point by highlighting how digital access connects learners and educators with global educational resources, thus enriching the learning experience and promoting international academic collaboration. Furthermore, Means et al. (2013) found that the use of digital platforms and e-learning tools improves student outcomes by providing greater flexibility and more varied learning opportunities. This aligns with Baran et al. (2011), who emphasized the capacity of technology to support personalized learning, enabling students to progress at their own pace and engage with materials that best suit their individual learning styles.

Emerging technologies such as artificial intelligence and virtual reality are also creating opportunities for simulated learning environments and intelligent tutoring systems. These innovations can offer tailored feedback, simulate real-world scenarios, and enhance experiential learning (Huang et al., 2020). Kohnke & Zou (2025) while cautioning on the risk over reliance on ChatGPT also pointed out to its usefulness in reshaping lesson planning, enabling convenience and differentiated instruction. Additionally, the use of gamification and mobile learning tools has been found to increase student motivation and retention by turning learning into an engaging and interactive process (Wang & Tahir, 2020). Moreover, adaptive learning systems use data analytics to adjust content based on learner performance, thereby improving instructional effectiveness (Holmes et al., 2019). In essence, the integration of educational technologies is reshaping traditional teaching methods and making education more student-centered, flexible, and globally connected. For higher education institutions, the adoption of these tools is not just a convenience but a necessity to remain relevant in the digital age.

The variety of technology available for quality instruction in form of digital platforms and e-learning tools is vast. Firstly, there are Adaptive Learning Tools (ALT), which are platforms used to adjust content based on specific learner ability. Research established that these tools can aiding the addressing of learning gaps while supporting individuals to grasp concepts at their own pace. Dela Cruz (2023) found that learners who used adaptive learning tools had a greater chance of achieving higher pass rates, and displayed better general engagement in comparison to their peers in

conventional learning environments. This was due to the ability of these platforms to identify learning gaps and provide directed interventions that were personalized. Secondly are Collaborative Learning Environments (CLEs). Collaborative learning environments tools such as Zoom, Google Classroom and Microsoft Teams simplify real-time teamwork among learners. This empowers them to cooperate on projects, share resources, and participate in discussions, despite of their geographical location. The use of CLEs also nurtures a sense of community and improves learning outcomes. Another one is Access to Diverse Learning Materials (ADLM). Digital resources make it possible for learners to access a wide range of resources such as videos, e-books, simulations, and engaging activities. The employment of online learning offers the kind of diversity which caters to different learning styles and depth of content. Another way in which technology can be integrated into teaching and learning is the use of Online Flipped Courses (OFC). Alizadeh (2024) research on an immersive flipped learning context, showed high levels of student engagement and perceived learning outcomes. Providing an online flipped course in a virtual environment boosted learner engagement with learning content and other learners which led to enhanced academic skills and knowledge retention. Synchronous Online Learning (SOL) is another important way in which technology can be integrated into instruction at the university level. This kind of a learning environment effectively improved learner capacity in technical skills and digital adaptability; albeit with student interactions support and provision of practical experiences (Lukashe et al., 2024).

Findings from previous studies evidently lean toward the importance of incorporation of technology into instruction. The findings of the action research carried out at EAST agree with earlier studies though without indicating corresponding enthusiasm. Results from these studies point out many possible reasons as to why there is mismatch between just how important technological integration is in offering quality education and its utilization at EAST. Firstly, is lack of training and support. It is not uncommon for faculty and students to feel unprepared for the use new technologies effectively, leading to frustration and underutilization (Almazova, 2020; Dousay et al., 2023). Secondly, the integration can and is affected by technical issues. These concerns can be frequent hitches, outdated systems, or unreliable internet connections which hinder or water down the learning experience (Ali & Durrani, 2023; Martínez-Gutiérrez et al., 2022). The third aspect is resistance to change. In this regard, some educators and learners may prefer traditional methods of instruction and resist adopting new technologies. Besides, accessibility of technology and its equitability are both know to hamper its integration into education. This means that not all students and faculties have equal access to devices or internet and other relevant technology; and therefore, creating disparities in learning opportunities. This can definitely lead to the poor perception of technology integration and its importance in teaching and learning (Muscanell & Gay, 2025; & Hemajothi & Kumar Jain, 2022). EAST could leverage these insights while increasing the integrating technology into its teaching and learning practices. For example, the learning management systems (LMS) and online resources. Though these two are available at EAST, they may be curtailed by inability of both faculty and learners to use them effectively. While interactive digital tools can help enhance student engagement, especially in a rapidly changing educational environment; the question begs whether EAST faculty and learners are empowered and willing to employ them to their advantage.

Additionally, faculty could benefit from professional development programs that focus on incorporating technology into their teaching to enhance both the teaching experience and student learning outcomes. However, are they aware of this need and willing to grow in technological integration for better pedagogy?

Reviewed literature in this article strongly advocates for technological enhancement of instructional quality. However, this emphasis is for settings with well-developed digital infrastructure and high levels of technological readiness. There seems to be limited research examining how such integration unfolds in smaller, faith-based, or resource-constrained universities like Kenya Assemblies of God EAST University. Additionally, few studies explore institutional and human factors such as faculty preparedness, digital literacy, and organizational support. These factors are known to influence the effective adoption of technology in instruction. The reviewed literature also lacks localized evidence on how technological tools impact teaching practices and student learning outcomes within the unique socio-cultural and institutional context of EAST. These gaps underscore the need for an evidence-based investigation into how technology integration can be optimized to enrich instructional quality at the university.

Materials and Methods

The researcher conducted an action study to determining factors impeding the quality of teaching and learning at EAST. The fourth objective of the study was to establish the role of technology in improving teaching practices and student learning outcomes at EAST. The study design was descriptive research which employed both qualitative and quantitative approaches (Creswell & Creswell, 2018; Kothari, 2014). This methodology was picked for its ability to enable the collection of both numerical data (quantitative) and in-depth insights (qualitative) regarding the role of technological integration in improving teaching practices and student learning outcomes at EAST (Creswell & Plano Clark, 2018; Tashakkori & Teddlie, 2010).

The quantitative approach was used to collect data related to the current state of teaching and learning, faculty development, and technology integration through structured questions/items. On the other hand, the qualitative approach involved collecting views and discourses using open-ended questions in the questionnaire from faculty members, administrators, alumni, and students to glean detailed insights into the barriers and opportunities for improving educational quality (Amberscript, 2023; Xiao et al., 2019). The total sample size from which data was to be gathered is 75 respondents, comprising 20 faculty members, 30 students, 13 administrators, and 12. However, 19 faculty members, 27 students, 13 administrators, and 8 others (this included alumni and those who did not indicate their roles at EAST) responded to the study tool. This sample size was considered to be sufficient for the collection of the required data for analysis. The study instrument administered was one questionnaire for all the categories of respondents. The return rate of 67 out of 75 is 89%, which was adequate for the needed analysis. Convenience sampling, also known as availability or accidental sampling was used. According to McLeod (2023) this type of sampling is a non-probability sampling method.

The age groups were categorized into six: Under 20, 21–25, 26–30, 31–35, 36–40, and Over 40. Out of the 67 respondents of the study, the majority were aged over 40 years (47.7%), followed by the age bracket made up of respondents between 21 and 25 years (20%). Those aged 26–30 was third (15.4%), and 7.7% were respondents aged 36–40. The under-20s and those aged 31–35 combined made up 9.2% of the study sample. The highest number of participants was drawn from the group aged over 40 years while the lowest were those aged under 20 years and 31-35; which combined formed 9.2 percent of the study respondents. As indicated by the study participants, 52.3% were male, 46.2% female, while 1.5% identified as other. The analysis was done using the Google Form utilized for data collection.

Table 1

Demographic Characteristics of Study Respondents (N = 67)

Demographic Labels	Categories	Frequencies (n)	percentages
Age Group	Under 20	2	3.1
	20-15	13	20.0
	26-30	10	15.4
	31-35	4	6.1
	36-40	5	7.7
	Over 40	12	47.7
Gender	Male	35	52.3
	Female	31	46.2
	Other	1	1.5

Results and Discussions

The use of technology can support the delivery of content, enhance student engagement, and provide new ways for students to access learning resources. According to Berge (2002) technology in education can facilitate greater communication between faculty and students, support collaborative learning, and provide access to diverse learning materials. In a study by Means et al. (2013) the use of digital platforms and e-learning tools was shown to improve student outcomes by offering greater flexibility and more diverse learning opportunities. Additionally, studies by Baran et al. (2011) emphasize the role of technology in promoting more personalized learning experiences, as digital tools allow students to progress at their own pace and engage with course content in a variety of formats. In positioning EAST to leverage on the use of technology to improve on instructional outcomes, the current study examined the role of technology in improving teaching practices and student learning outcomes at the university.

Table 2

Respondents' Ratings on the Role of Technology in Improving Teaching Practices and Student Learning Outcomes at EAST (N = 67)

Item	Number of Respondents (n)	Mean	Percentage (%)
Use of educational technologies in the classroom to improve faculty's ability to engage students	54	4.0	80
Role of technological tools (e.g., LMS, Google Meet, Zoom) in enhancing faculty's ability to track and assess student progress	47	3.5	70
Incorporation of multimedia resources (videos, podcasts, simulations) to improve students' understanding of complex concepts	40	3.0	60
Educational technology's contribution to improved student learning outcomes (better grades, deeper understanding)	54	4.0	80
Faculty's confidence in using digital tools to enhance teaching and promote active learning	40	3.0	60

There were five (5) items in the questionnaire used to gauge the role of technology in improving teaching practices and student learning outcomes at the University. These items tested the following areas: The use of educational technologies in the classroom; the role of technological tools, such as Learning Management Systems (LMS), conferencing platforms such as Google Meet, Zoom and so on in enhancing Faculty's ability to track and assess student progress effectively; the incorporation of multimedia resources (videos, podcasts, simulations) in lessons to help improve EAST students' understanding of complex concepts; educational technology's contribution in positively affecting EAST students' learning outcomes, such as better grades and deeper understanding of the material; and the EAST Faculty's confident ability to use various digital tools to enhance their teaching practices and promote active learning among students at. The Study Respondents were to rate each of these items on a scale of 1 to 5; 1 being the lowest and 5 the highest. The study participants rated the use of educational technologies in the classroom in significantly improving EAST Faculty's ability to engage students during lessons at 4; the role of technological tools, such as Learning Management Systems (LMS), in enhancing Faculty's ability to track and assess student progress effectively at 3.5; the incorporation of multimedia resources (videos, podcasts, simulations) in lessons to help improve EAST students' understanding of complex concepts at 3.0; educational technology's contribution in positively affecting EAST students' learning outcomes, such as better grades and deeper understanding of the material at 4; but the EAST Faculty's confident ability to use various digital tools to enhance their teaching practices and promote active learning among students at 3.0.

Research findings from studies by Berge (2002), Means et al. (2013) and Baran et al. (2011) clearly indicate the importance of integration of technology into instruction. The current study findings on the same show that technology integration in instruction is rated relatively highly for some aspects.

These areas include: significantly improving EAST Faculty's ability to engage students during lessons at 4 and educational technology's contribution in positively affecting EAST students' learning outcomes, such as better grades and deeper understanding of the material at 4. The areas such as the enhancement of Faculty's ability to track and assess student progress effectively was rated lower at 3.5; While the incorporation of multimedia resources (videos, podcasts, simulations) in lessons to help improve EAST students' understanding of complex concepts at 3.0. Also, the EAST Faculty's confident ability to use various digital tools to enhance their teaching practices and promote active learning among students using technology was rated at 3; Which is barely above the average 2.5. Earlier studies indicate this as one reason why technology may not be as integrated into instruction as it should be.

Students and faculty might rate technology integration into teaching and learning low for several reasons. First, is lack of training and support (faculty and students may feel unprepared to use new technologies effectively, leading to frustration and underutilization). These findings corroborate those in Almazova (2020) and Dousay et al. (2023) which established that digital transformation cannot just rely on technology alone: but rather, should include the human factor (teacher competence, student digital literacy and institutional support). Studies by Jamil and Muschert (2023) and Khalid et al. (2023) reveal that unreliable internet connectivity, frequent system interruptions, and inadequate devices significantly disrupt the instructional process. This in return, lowers student engagement and satisfaction while increasing frustration among both learners and instructors. This underscores the fact that access alone is insufficient without reliable and stable technological infrastructure. Furthermore, internet connectivity can be a barrier to technology-enhanced learning in higher education (Ali & Durrani, 2023; Martínez-Gutiérrez, et al.; Khalid et al 2023; Jamil & Muschert, 2023). These findings are in agreement with the study results at EAST that established technical issues such as frequent hitches, outdated systems, or unreliable internet connections among others as being a deterrent to the learning experience; and consequently, interfering with instructional quality enrichment through integration of technology.

Besides, resistance to change where some educators and students preferred traditional methods and resisted adopting new technologies were found to be constraints to technological integration into teaching and learning at EAST. In their study, Thomas and Ahmed (2023) also found that resistance to change, and issues related to accessibility and equity tended to interfere with the use of technology to enhance the quality of instruction. Moreover, Muscanell and Gay (2025); Hemajothi and Kumar Jain (2022) in their separate researches established that accessibility and equity concerns occasioned by not all students and faculty having equal access to devices or internet, create disparities in learning opportunities; and inadvertently produce poor perception of instructional technology integration. These very explanations may fit well with EAST Fraternity's low rating of technology integration into teaching and learning; and need targeted interventions.

Summary

The current study at Kenya Assemblies of God EAST University examined the role of technology in enhancing teaching practices and student learning outcomes. Grounded in existing research by

scholars such as Berge (2002), Means et al. (2013), and Baran et al. (2011), the study explored how educational technologies support content delivery, promote student engagement, and personalize learning experiences. A five-item section in the questionnaire of the main Study was used to assess the effectiveness of various technological tools and practices. Results showed that the use of educational technologies to improve faculty engagement with students and the positive impact of technology on student learning outcomes were rated relatively high (4.0). However, other aspects such as tracking student progress through LMS tools (3.5), incorporating multimedia resources to aid comprehension (3.0), and faculty confidence in using digital tools to foster active learning (3.0) received moderate scores.

These findings highlight a gap between the perceived potential of technology and its actual integration into instruction at EAST. Contributing factors may include inadequate training and support, technical limitations, resistance to change, and issues related to accessibility and equity. Previous studies (e.g., Almazova, 2020; Dousay et al., 2023; Thomas & Ahmed, 2023; Zou, 2025) suggest that these barriers are common and need targeted interventions. Addressing these challenges is essential for EAST to fully leverage educational technology, enhance instructional effectiveness, and foster better academic outcomes. With deliberate investment in training, infrastructure, and inclusive policies, the university can strengthen its digital transformation in education.

Recommendations

1. **Improvement of the Integration of Educational Technology**

This entails expanding access to and training in the use of the University's Learning Management Systems (LMS). This will ensure that both faculty and learners can effectively navigate digital learning spaces. Universities should provide regular training workshops for instructors on how to use LMS features to design interactive coursework, facilitate assessments, and manage student progress. Beyond LMS platforms, faculty should be supported in integrating multimedia teaching aids like educational videos, podcasts, simulations, and gamified content. The use of emerging technologies such as Artificial Intelligence (AI), Augmented Reality (AR), and Virtual Reality (VR) can transform traditional teaching into interactive, personalized learning experiences that boost student engagement and comprehension.

2. **Upgrade Infrastructure and Digital Resources**

Contemporary learning experience requires a robust infrastructure. EAST should prioritize investments in high-speed internet across Campuses, particularly in lecture halls, libraries, and student halls of residences. This will guarantee uninterrupted access to online content. Classrooms should be equipped with smart boards, projection systems, ergonomic furniture, and sufficient power outlets to support digital learning. Libraries must be revitalized with access to updated physical textbooks, e-books, online databases, and digital research tools. Creating well-equipped digital labs and resource centers will also support independent study and innovation among students.

3. **Enhance Professional Development**

Instructors at need more than just access to tools; they require pedagogical strategies for using them effectively. Regular training on digital pedagogies, such as blended learning, flipped classrooms, and hybrid teaching models, will empower faculty to maximize student learning.

4. **Expand Student Support Services**

Technology integration at EAST must be supported with expanded academic advising, online tutoring, and mental health services accessible via digital platforms. Setting up online help desks and chatbots for academic and administrative queries can streamline services. Additionally, developing accessible learning materials for learners with disabilities, including screen readers and captioned content, ensures inclusivity.

5. **Promote Research and Innovation in Educational Technology**

EAST should encourage faculty and students to engage in research on the impact of technology on learning and teaching. Establishing innovation hubs and tech incubators within the University can foster a culture of creativity and contribute to the development of local, context-specific educational solutions.

6. **Establish Monitoring and Evaluation Frameworks**

To ensure the effectiveness of technological interventions, EAST should implement monitoring and evaluation systems. These should track usage of digital tools, measure student satisfaction, and assess learning outcomes regularly. Data from LMS analytics, surveys, and performance metrics should inform future investments and improvements.

Conclusion

The findings of the Current Study highlight a gap between the perceived potential of technology and its actual integration into instruction at EAST. Contributing factors may include inadequate training and support, technical limitations, resistance to change, and issues related to accessibility and equity. Previous studies suggest that these barriers are common and need targeted interventions. Addressing these challenges is essential for EAST to fully leverage educational technology, enhance instructional effectiveness, and foster better academic outcomes. With deliberate investment in training, infrastructure, and inclusive policies, the university can strengthen its digital transformation in education.

In order to address these gaps, the study recommends expanding access to and training in Learning Management Systems and multimedia tools, upgrading digital infrastructure, and providing continuous pedagogical training for faculty. Attention must also be given to improving internet reliability, updating classroom facilities, and ensuring equitable access to technological resources. Additionally, fostering a culture of innovation and digital inclusion through supportive policies will be key to sustaining progress.

In conclusion, the University has made commendable strides in adopting educational technology, but a more deliberate and comprehensive approach is essential. With targeted investment and institutional commitment, EAST can create a more interactive, inclusive, and effective learning environment for both faculty and students.

Implications for practice or policy

The university needs to:

- Capitalize on more educational technologies for enhancement of instruction.
- Invest in continuous professional development of faculty for effective technological integration.
- Increase the intensity of learners training on utilization of technology for better student outcomes.
- Encourage more blended learning models to accommodate the diversity learner needs and learning preferences.
- Support cooperation between departments to align action research and innovation with instructional goals and curriculum delivery.

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