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Bridging the Expectation Gap: An Analysis of Learner Perceptions, Institutional Provision, and the Pragmatic Realities of Technology-Enabled Learning in Kenyan Universities

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Abstract

Purpose: This study aimed to analyze the complex interplay between university students' perceptions of Technology-Enabled Learning (TEL), their evaluation of institutional TEL resources, and their pragmatic experiences with digital tools, to identify key gaps and opportunities for effective integration.

Methodology: A quantitative, cross-sectional survey design was employed. Data were collected from 498 students across five Kenyan universities using a structured questionnaire. Descriptive statistical analysis was used to assess perceptions of institutional TEL resources, experiences with MOOCs, perceived usefulness of TEL, and general attitudes towards technology in education.

Findings: Students demonstrated overwhelmingly positive perceptions of TEL's value for academic and career success (Means >4.0). However, their evaluation of institutional TEL provision was lukewarm (Means ~3.0-3.6), highlighting a service quality gap. They valued technologies that provide access and convenience (e.g., lecture capture, mobile services) over complex content creation tools. Students were pragmatic advocates, strongly desiring more TEL integration while expressing concerns about distractions, privacy, and cybersecurity.

Unique Contribution to Theory, Policy and Practice: The study highlights a critical "perception-provision gap," extending the Technology Acceptance Model by showing that high perceived usefulness can coexist with low perceived quality of institutional support. It provides policymakers with evidence to shift from providing basic TEL infrastructure to enhancing its quality, reliability, and pedagogical integration. For practitioners, it underscores the need for a student-centred, mobile-first approach that prioritizes accessible resources and addresses student concerns to translate positive attitudes into effective learning outcomes.

Keywords: *Technology-Enabled Learning (TEL), Digital Divide, ICT Proficiency, Learner Perceptions, Higher Education, Social Media, MOOCs*

1.0 Introduction

The successful implementation of Technology-Enabled Learning (TEL) in higher education is fundamentally a human-centric process. While infrastructure and policy are critical enablers, ultimate success depends on the end-users who are the students. Their perceptions of technology's value, their experiences with the resources provided, and their pragmatic choices in tool usage are decisive factors in adoption and learning efficacy (Bond et al., 2020; Davis, 1989). In the Kenyan context, where universities are actively investing in digital transformation, understanding this human dimension is paramount.

Prior research emphasizes that learner acceptance is driven by perceived usefulness and ease of use (Davis, 1989). However, these perceptions do not exist in a vacuum, as they are shaped by the quality and reliability of the institutional Technology-Enhanced Learning (TEL) environment (Šumak et al., 2011; Al-Fraihat et al., 2020). A disconnect can arise when positive general attitudes towards technology meet inadequate or poorly supported institutional systems (Selwyn, 2007; Henderson et al., 2017). Furthermore, students' practical use of technology often reveals a hierarchy of needs, prioritizing tools that offer immediate utility such as access to materials and administrative efficiency over those requiring advanced creative skills (Lai & Bower, 2019; Marshall, 2010). According to Makokha & Mutisya (2016), universities in Kenya lacked requisite ICT infrastructure and skills.

This study, therefore, focuses on this crucial nexus. It moves beyond mapping access and skills to delve into the attitudes and experiences that mediate how technology is used for learning. By analysing students' perceptions of their institution's TEL provision, their engagement with open learning formats like MOOCs, and their nuanced views on technology's role in education, this research aims to uncover the "expectation gap" between student digital readiness and institutional service delivery. The findings seek to inform strategies that are not only technically sound but also perceptually resonant and pragmatically aligned with student realities.

1.1 Statement of the problem

Kenyan universities are actively promoting Technology-Enabled Learning (TEL) through investments in digital infrastructure and policy frameworks (Mutisya & Makokha, 2020; Nyerere et al., 2020). However, the success of these initiatives is predicated not only on the availability of technology but, more critically, on its acceptance and effective use by students (Maraza et al., 2022). While prior studies have begun to map basic access and connectivity challenges (Wambugu & Njoroge, 2021), there remains a significant lack of systematic evidence on the experiential and perceptual dimensions of the digital divide from the student perspective (Baporikar & Shangheta, 2018).

A critical disconnect exists between institutional provision and learner reality. Universities may be investing in platforms and hardware, but without a clear understanding of how students perceive

the quality of these resources, what tools they genuinely find useful for their studies, and the complex attitudes they hold towards technology's role in learning, these investments risk being underutilized or misaligned (Mtebe & Raisamo, 2014). Preliminary observations suggest students may hold positive general attitudes towards TEL, yet simultaneously report dissatisfaction with specific institutional services, a contradiction that remains unexplored (Maraza et al., 2022). Furthermore, students' pragmatic adoption of technology for learning (such as reliance on mobile phones and social media) may not align with the tools and methods prioritized by institutional planners (Mwalumbwe & Mtebe, 2017).

This gap in understanding creates a tangible risk. It can lead to TEL strategies that are technically sound but perceptually mismatched, resulting in wasted resources, frustrated learners, and the exacerbation of educational inequalities (Ifinedo & Kankaanranta, 2021). Students who are unable to navigate poorly supported systems or who find provided tools irrelevant may be further disadvantaged (Van Dijk, 2020). Therefore, a pressing need exists for a diagnostic study that specifically investigates the alignment between student perceptions, the quality of institutional TEL provision, and actual technology usage patterns (Šumak et al., 2011). Without this evidence, efforts to implement equitable and effective digital learning will remain based on assumption rather than insight, jeopardizing both educational outcomes and the return on significant institutional investment.

1.2 Purpose of the Study

The overarching purpose of this study was to investigate the alignment or misalignment between university students' perceptions of Technology-Enabled Learning (TEL), the quality of TEL resources provided by their institutions, and their actual pragmatic engagement with digital tools. Specifically, it sought to move beyond infrastructural audits to understand the human and experiential dimensions of the digital learning environment. The study aimed to determine whether students' high expectations and positive attitudes toward TEL were met by institutional provision, and to identify the types of technologies they found most useful for their academic pursuits. By examining perceptions, experiences, and practical valuations, this research aimed to provide a holistic, learner-centred diagnostic to inform the development of more effective, responsive, and equitable TEL strategies in Kenyan higher education.

1.3 Study Objectives

The specific objectives of this study were:

1. To evaluate students' perceptions of the quality and availability of Technology-Enabled Learning (TEL) resources and services provided by their institution.
2. To investigate students' experiences with and awareness of Massive Open Online Courses (MOOCs) as a component of the broader digital learning landscape.

3. To assess students' perceptions of the usefulness of Technology-Enabled Learning for their academic performance, skill development, and future careers.
4. To explore students' general attitudes towards the integration of technology in education, including its benefits, risks, and impact on engagement and connection.

2. Literature Review

The discourse on TEL is extensive, but two interconnected themes are particularly relevant to this study; digital literacy and proficiency, and learner perceptions and acceptance.

2.1 Digital Literacy and ICT Proficiency

Possessing a device does not equate to the ability to use it effectively for learning. Digital literacy involves the "skills, knowledge, and creativity required to use ICT for learning, work, and social participation" (Ala-Mutka, 2011, p. 3). Research consistently shows that students often overestimate their digital skills, demonstrating high competence with social media and communication tools but struggling with academic and critical digital literacies, such as information evaluation, multimedia creation, and using specialized software (Margaryan et al., 2011).

2.2 Learner Perceptions and Acceptance of TEL

The success of any educational technology initiative is partially dependent on user acceptance. Models like the Technology Acceptance Model (TAM) posit that perceived usefulness and perceived ease of use are key determinants of technology adoption (Davis, 1989). Previous studies have found that when students perceive technology as beneficial for their academic performance and future careers, they are more likely to engage with it (Bervell & Arkorful, 2020). Our study investigates these perceptions directly, exploring whether Kenyan university students see TEL as a tool for better results, deeper understanding, and improved collaboration.

2.3 Theoretical Framework

The primary theoretical framework underpinning this research is an adapted and extended version of the Technology Acceptance Model (TAM). This model posit that perceived usefulness and perceived ease of use are key determinants of technology adoption (Davis, 1989)."

3.0 Methodology

3.1 Research Design

This study employed a quantitative, cross-sectional survey design. This approach was deemed appropriate for systematically collecting standardized data from a large sample of students at a specific point in time, allowing for the description and analysis of prevailing perceptions and experiences (Creswell & Creswell, 2018).

3.2 Population, Sample, and Data Collection

The target population was undergraduate and postgraduate students from five public universities in Kenya. A total of 498 students participated in the study. Data were collected using a pre-tested, structured online questionnaire

3.3 Instrument and Measures

The questionnaire contained dedicated sections to address the study objectives:

Perception of Institutional TEL Environment: Participants rated 19 resources/services (e.g., LMS, Wi-Fi, e-libraries, specialized software) on a 6-point Likert scale (1=Poor to 5=Excellent, with 6=Not Available).

Experience with MOOCs: Items captured prior online course experience and specific MOOC enrolment, completion, and awareness.

Perceived Usefulness of TEL: Students indicated their agreement with seven statements on TEL's benefits (e.g., improving results, skills, collaboration) on a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree).

Usefulness of Specific Technologies: A list of 22 technological activities (from accessing recorded lectures to blogging) was rated for usefulness on a scale from 1 (Not at all useful) to 5 (Very useful).

General Perceptions of Technology in Education: Fourteen statements covering engagement, connection, distraction, privacy, and teacher integration were rated on a 5-point agreement scale.

3.4 Data Analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS Version 26). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed for all items to summarize student responses and identify central trends and variations in their perceptions and reported experiences.

Results

4.1 Learners Perception of Institution TEL Environment

In this section, learners were asked to evaluate their experiences with a range of resources, services and spaces. Experiences were rated on a Likert scale where 0 = No response, 1=Poor, 2=Fair, 3=Neutral, 4=Good, 5=Excellent and 6=Not Available. Results are shown in Table 1.

Table 1: Resources provided by institution to students

Resources/services/spaces provided by your institution	Poor	Fair	Neutral	Good	Excellent	Not available	Mean	SD
eClassroom facilities (e.g. computers, projection systems, lecture capture systems, SMART boards, etc)	9.2%	25.1%	16.3%	47.8%	1.6%	1.6%	3.09	1.112
Computer labs (for practical and Internet access)	10.4%	24.3%	15.9%	35.1%	11.6%	2.6%	3.21	1.293
Email services (institutional)	3.0%	18.7%	13.5%	42.0%	22.7%	0.2%	3.63	1.120
Learning Management System (e.g. Moodle, etc)	6.0%	23.7%	15.5%	34.5%	18.9%	1.4%	3.41	1.242
ePortfolio	14.3%	24.1%	20.1%	25.3%	10.4%	5.8%	3.11	1.413
Network bandwidth/speed of Internet (download and upload)	9.2%	25.3%	14.3%	34.7%	15.1%	1.4%	3.25	1.280
WiFi access	8.6%	20.9%	14.3%	36.1%	19.7%	0.4%	3.39	1.262
Online or virtual technologies (e.g Network or cloud-based file storage system, Web portals, etc)	6.4%	24.9%	19.5%	35.5%	12.7%	1.0%	3.26	1.180
Access to software (e.g. MATLAB, GIS applications, statistical software, etc.	15.9%	26.3%	18.3%	24.9%	9.2%	5.4%	3.02	1.417
Download and use of free and open-source software for teaching and learning	9.4%	23.3%	20.3%	31.9%	11.4%	3.6%	3.23	1.289
Support for maintenance and repair of ICTs	11.2%	28.5%	18.5%	28.5%	11.4%	1.8%	3.06	1.289
Access to data storage	7.2%	25.9%	18.5%	33.9%	12.7%	1.8%	3.24	1.225
Data visualization software	9.8%	26.9%	23.7%	27.9%	9.2%	2.4%	3.07	1.235
Citation/reference management software	8.8%	28.1%	17.5%	29.3%	12.9%	3.4	3.19	1.309
Plagiarism detection software	16.7%	23.1%	20.5%	24.7%	11.2%	3.8%	3.02	1.393
e-Journals	13.1%	24.9%	19.1%	25.5%	12.7%	4.8%	3.14	1.396
e-Books	11.2%	24.5%	18.7%	28.1%	15.5%	2.0%	3.18	1.321
e-Newspapers	10.6%	27.1%	18.5%	25.9%	14.1%	3.8%	3.17	1.355
e-Proceedings of conferences	5.6%	21.7%	15.9%	34.7%	20.7%	1.4%	3.47	1.233

Table 1 reveals a student body that holds moderately positive but lukewarm perceptions of their institution's TEL resources, with no service rated as "good" or "excellent" by a convincing majority. Learners are satisfied with core services. Key infrastructure like institutional email (Mean=3.63), the LMS (3.41), and Wi-Fi (3.39) received the highest ratings, suggesting they are functional and relatively reliable. There is adequate but uninspiring availability of general

resources at the universities. Most other resources, including eClassrooms (3.09), computer labs (3.21), and e-Library resources (e-books, e-journals ~3.16), cluster in the mid-range. They are not seen as poor, but nor are they viewed as high quality. The high "Fair" and "Neutral" ratings indicate significant room for improvement.

Notable deficiencies in specialized software exist in Kenyan universities. Resources requiring deeper investment, such as specialized academic software (3.02), plagiarism detection (3.02), and data visualization tools (3.07), are among the lowest-rated. This aligns with the high "Not available" responses and reflects a gap in supporting advanced academic work.

In summary, the institution has established a basic TEL foundation but is failing to excel or provide advanced, specialized tools. The overall sentiment is one of adequacy, not satisfaction, pointing to a clear need for strategic investment and quality enhancement across the board.

4.2 Students Experience with Massive Open Online Courses (MOOC)

Learners were asked to indicate their experience with MOOC. Responses are shown in Table 2.

Table 2: Students experience with MOOC

Taking of online course	Frequency	Percent
No	142	30.3%
Yes	327	69.7%
Total	469	100.0

Table 2 data reveal a strong foundation of experience with online learning among the student population. The fact that 69.7% of students have taken an online course indicates that the vast majority are not newcomers to technology-enabled education. This prior exposure is a significant asset, suggesting that students are already familiar with the basic mechanics of digital learning environments. This high level of experience likely contributes to their positive perceptions of TEL's usefulness, as they can draw on past experiences to evaluate its benefits. It also suggests that institutional efforts to expand TEL are building upon a student body that is largely prepared for this mode of learning.

4.3 Students Enrolment in MOOC

Learners were asked whether they had ever enrolled in a MOOC. Responses are given in Table 3.

Table 3: Students' enrolment in MOOC

Have you taken a MOOC	Frequency (N)	Percent (%)
No, and I do not know what a MOOC is	145	36.25
No, but I do know what a MOOC is	82	20.50
Yes, and I completed it	113	28.25
Yes, but I didn't complete it	60	15.0
Total	400	100.0

Table 3 result reveals a significant awareness gap and a completion challenge regarding MOOCs among the students. Students reported low awareness and engagement with over a third of students (36.25%) not even aware of what a MOOC is, indicating a major gap in exposure to this prominent form of online learning. In addition, Kenyan university students show a promising but limited uptake of MOOCs. It is clearly shown that while a combined 43.25% have enrolled in a MOOC, this is a minority of the student body.

Results also reveal a significant students MOOC dropout rate where of those who enrolled, a substantial number (15% of the total, or over 34% of enrolees) did not complete their course, highlighting a common challenge with MOOC retention.

In summary, there is a clear opportunity to increase awareness and effective utilization of MOOCs. The high non-completion rate suggests that simply promoting enrolment is not enough but support structures may be needed to help students succeed in these unstructured learning environments.

4.4 Perception of Use of Technology Enabled Learning

Learners were asked to evaluate their experiences with a range of Technology Enabled Learning. Experiences were rated on a Likert scale where Strongly disagree = 1, Disagree =2, Neutral =3, Agree =4, and Strongly agree = 5. Results are shown in Table 4.

Table 4: ***Learners Perception on TEL***

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	SD
It will help me get better results in my subjects	2.0%	2.6%	12.9%	49.8%	32.7%	4.09	0.857
It will help me understand the subject material more deeply	2.0%	2.8%	11.6%	51.0%	32.5%	4.09	0.853
It makes completing work in my subjects more convenient	1.6%	1.8%	11.0%	50.8%	34.7%	4.15	0.808
It motivates me to explore many topics I may not have seen before	1.8%	2.6%	11.2%	44.2%	40.2%	4.18	0.866
It allows me to collaborate with others easily, both on and outside of the campus	1.4%	2.4%	11.8%	45.6%	38.8%	4.18	0.836
It will improve my IT/information management skills in general	1.4%	1.0%	10.0%	45.0%	42.6%	4.26	0.790
It will improve my career or employment prospects in the long term	1.8%	1.4%	12.2%	43.2%	41.4%	4.21	0.844

Table 4 result reveals an overwhelmingly positive and optimistic perception of Technology-Enabled Learning (TEL) among students. The results are strikingly consistent with highest value on skills and careers**.** Students rate TEL most highly for improving general IT skills (Mean=4.26) and long-term career prospects (4.21), clearly viewing it as a key tool for employability and skill development. Students also strongly believe TEL enhances convenience (4.15), collaboration (4.18), exploration (4.18), and their academic results (4.09).

In summary, there is a powerful student mandate for TEL. Despite the significant access and skill barriers identified elsewhere, students firmly believe in its value for their academic and professional futures. This creates a strong foundation for the institution to build upon, provided it addresses the underlying infrastructure and training gaps.

4.5 Usefulness of Technology for Learners

Learners were asked to evaluate their perceived usefulness of technology in their studies. Usefulness was rated on a Likert scale where, Do not know =1, Not at all useful =2, Useful to a limited extent =3, Neutral =3, Useful =4. Very useful = 5. Results are shown in Table 5.

Table 5*: Usefulness of Technologies in studies*

	Do not know	Not at all useful	Useful to a limited extent	Neutral	Useful	Very useful	Mean	SD
Design and build Web pages as part of your course?	6.4%	7.4%	10.8%	16.7%	36.7%	21.9%	3.74	1.297
Create and present multimedia shows as part of your course requirements (e.g PowerPoint)?	9.4%	4.8%	6.0%	14.1%	40.0%	25.7%	4.04	1.205
Create and present audio/video as part of your course requirements?	8.6%	4.6%	6.2%	13.3%	38.8%	28.5%	4.06	1.194
Download or access online radio/video recordings of lectures you could not attend?	6.8%	3.0%	5.0%	10.2%	35.7%	39.2%	4.23	1.089
Download or access online audio/video recordings to revise content of lecturers you have already been to?	2.4%	2.6%	4.0%	13.5%	36.3%	41.2%	4.17	1.006
Download or access online audio/video recordings of supplementary content materials?	2.4%	2.8%	4.4%	15.5%	37.1%	37.8%	4.10	1.025
Use the Web to access university-based services (e.g enrollment, paying fees)?	2.2%	2.0%	3.2%	15.5%	32.1%	45.0%	4.21	0.979
Use your mobile phone to access web-based university services or information (e.g enrolment, paying fees)?	1.8%	2.0%	3.0%	11.8%	36.3%	45.0%	4.25	0.939
Use instant messaging/chat (e.g Skype, Messenger, Hangout, etc) on the Web to communicate/collaborate with other students in the course?	2.4%	2.2%	5.2%	15.5%	40.2%	34.5%	3.98	1.087
Use a social networking platform (e.g Facebook) on the Web to communicate with other students on the course	2.4%	3.8%	6.0%	16.9%	37.8%	33.1%	4.00	1.020
Use microblogging (such as Twitter) to share information about class-related activities?	2.2%	6.8%	6.4%	20.1%	38.0%	26.5%	3.78	1.174
Keep your own blog as part of your course requirements?	4.2%	5.4%	5.6%	22.9%	36.1%	25.7%	3.84	1.159
Use instant messaging/chat (e.g Skype, Messenger, Hangout, etc) on the Web to communicate with teachers and administrative staff from the course	2.4%	3.8%	6.0%	16.9%	37.8%	33.1%	3.94	1.039

Contribute to another blog as part of your course requirements?	5.6%	6.4%	8.0%	26.3%	32.3%	21.3%	3.71	1.232
Use the web to share digital flies related to your course (e.g. photos, audio files, movies, digital documents, websites, etc)?	3.0%	1.4%	4.4%	20.1%	40.0%	31.1%	4.04	0.967
Use web-conferencing or video chat to communicate/collaborate with other students in the course?	3.4%	2.4%	2.6%	16.5%	43.8%	31.3%	4.09	0.964
Receive alerts about course information (e.g. timetable changes, the release of new learning resources, changes in assessment) via RSS feeds on the web?	3.0%	2.4%	4.8%	15.9%	38.4%	35.5%	4.09	1.019
Contribute with other students to the development of a wiki as part of your course requirement?	4.2%	3.6%	4.8%	20.1%	39.8%	27.5%	3.95	1.078
Receive grades/marks from your lecturer via text message on your mobile phone?	2.4%	4.0%	6.8%	15.1%	34.7%	36.9%	4.01	1..120
Receive pre-class discussion questions from your lecturer via text message on your mobile phone?	1.6%	3.4%	5.6%	16.3%	37.1%	35.9%	4.01	1.059
Use a personal dashboard on the university intranet to access all your academic information related to courses, grades, etc.?	1.6%	1.8%	4.8%	16.7%	37.6%	37.6%	4.09	0.978
Use an ePortfolio system to record your achievements for future use beyond the course of your studies?	4.6%	5.4%	5.6%	18.3%	40.4%	25.7%	3.89	1.153

Table 5 result reveals a clear and practical hierarchy in how students value different technological tools for their studies. They place highest value on access and administrative efficiency**.** According to these university students, the most useful tools are those that provide flexible access to content (recorded lectures, supplementary materials) and streamline administrative tasks (mobile access to university services, personal dashboards). This reflects a desire for convenience and control over their learning and logistics.

Students further demonstrate strong appreciation for tools that enable communication (e.g., instant messaging) and collaboration (e.g., web-conferencing), highlighting the value they place on technology-facilitated peer interaction. Furthermore, Students show lower interest in digital content creation, such as building web pages or blogging, which aligns with their reported lower

proficiency in these areas, suggesting a preference for content consumption and sharing over original creation.

Therefore, university students are pragmatic. They most value technologies that save them time, provide access to resources, and facilitate communication. The findings strongly advocate for a student-centred TEL strategy that prioritizes mobile-friendly services, lecture capture, and efficient communication channels over complex content creation assignments.

4.6 Learners Perceptions of Using Technology in Education

To measure learners' perception towards use of technology in education, they were asked to indicate their level of agreement with statements about the usefulness of technology in education and their courses. Responses are shown in Table 6.

Table 6: Learner's perception of using Technology

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	SD
I get more actively involved in courses that use technology.	1.8%	7.2%	20.9%	52.8%	17.3%	3.77	0.883
I am more likely to skip classes when materials from course lectures are available online.	12.2%	28.1%	22.1%	26.9%	10.6%	2.96	1.211
When I enter the university, I was adequately prepared to use the technology needed in my courses	5.2%	12.9%	23.3%	44.2%	14.5%	3.50	1.054
Technology makes me feel connected to other students	1.0%	1.8%	14.9%	49.8%	32.5%	4.11	.791
Technology makes me feel connected to teachers	1.8%	4.6%	19.7%	46.8%	27.1%	3.93	.901
Technology interferes with my ability to concentrate and think deeply about subjects I care about.	12.4%	25.3%	21.9%	28.7%	11.6%	3.02	1.227
I am concerned that technology advances may increasingly invade my privacy.	6.8%	21.1%	27.1%	33.3%	11.6%	3.22	1.227
I am concerned about cyber security (password protection and hacking)	3.0%	8.4%	21.7%	47.0%	19.9%	3.72	0.974
In-class use of mobile devices is distracting to my teacher	5.6%	18.9%	27.3%	34.3%	13.9%	3.32	1.101
Use of tablets/laptops in class improves my engagement with the content and class	1.8%	7.4%	24.7%	49.0%	17.1%	3.72	0.895
When it comes to social media (e.g. Facebook, Twitter, Linkedin), I like to keep my academic life and social life separate	1.8%	7.4%	24.7%	49.0%	17.1%	3.72	0.895
I wish my teachers in the university would use and integrate more technology in their teaching	0.6%	6.2%	20.7%	48.6%	23.9%	3.89	0.859
Technology makes me feel connected to what's going on at the university	0.4%	2.2%	15.1%	51.6%	30.7%	4.10	.757
In-class use of mobile devices is distracting to me	10.1%	23.3%	11.1%	36.7%	17.0%	3.32	1.101

Table 7 result reveals a student body that holds complex, nuanced, and sometimes contradictory views on technology in their education, reflecting a mature understanding of its dual-edged nature. There is an overwhelmingly positive view of technology's role in fostering connection and

engagement. Students feel technology successfully links them to their peers and the university (Means ~4.10), and they strongly desire even greater integration of these tools by their instructors (Mean=3.89), believing it increases their engagement in class (3.72).

Despite these benefits, students are not naive to the potential downsides. A significant portion agrees that technology can be a distraction, both to themselves and their teachers during class (mean=3.32), and can interfere with deep concentration (3.02), while also expressing significant concerns about privacy (3.22) and cybersecurity (3.72). Crucially, however, students reject a key negative assumption, disagreeing that online materials lead to class skipping (Mean=2.96), which alleviates a common faculty concern. On other matters, students are moderately confident in their initial digital preparedness (3.50) and show a moderate desire to keep their social media lives separate from their academic life (3.72)

In summary, students are pragmatic advocates. They are not uncritical tech enthusiasts rather they recognize both the transformative power of technology for learning and connection, and its potential for distraction and risk. This balanced perspective calls for a responsible and intentional implementation of TEL that maximizes benefits while actively mitigating the downsides they have clearly identified.

4.7 Theoretical Extension of TAM Theory as a Study Finding

A primary finding of this study is the identification of a critical "perception-provision gap," which necessitates an extension of the foundational Technology Acceptance Model (TAM) for technology-enabled learning (TEL) in institutional higher education contexts. While the data strongly supported TAM's core premise that perceived usefulness (PU) is a powerful driver of positive attitudes toward TEL (Davis, 1989), the results revealed a significant anomaly that high PU can coexist with a low evaluation of institutional TEL services and lead to suboptimal adoption patterns.

This discrepancy demonstrates that in mandatory, resource-constrained educational environments, TAM's individual-focused constructs (PU and perceived ease of use) are insufficient alone. The study found that the perceived quality of institutional provision, such as, the reliability of the Learning Management System, campus Wi-Fi, and specialized academic software, acts as a critical external variable *that moderates* the pathway from positive perception to effective use. When institutional provision is perceived as poor, students' attitudes toward the *institution's specific TEL tools* become negative, and their pragmatic behaviour shifts toward personal workarounds (e.g., using mobile data and consumer-grade communication apps), despite their general belief in TEL's value.

Consequently, this study theoretically extends TAM by arguing that for TEL in institutional settings, PU is not a static belief but is mediated by the user's experiential evaluation of system implementation quality. This bridges TAM with models that prioritize systemic factors, such as

the Unified Theory of Acceptance and Use of Technology (UTAUT), which includes "facilitating conditions" (Venkatesh et al., 2003), and the Information Systems Success Model, which emphasizes system and service quality (DeLone & McLean, 2003). The findings underscore that a comprehensive framework for TEL acceptance must integrate individual perceptions with the objective and perceived quality of the institutional support ecosystem

Traditional TAM

Student Perceptions (PU/PEOU) → Attitude → Intention to Use → (Implied: Effective Use)

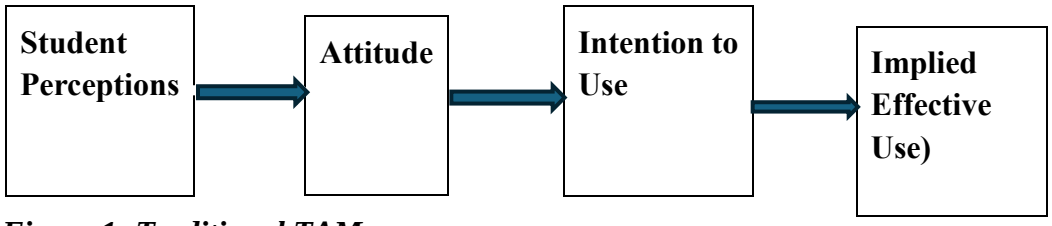

Figure 1: Traditional TAM

This Study's Extended Framework

Institutional TEL Perception (Objective Reality and Perceived Quality) → Moderate/Influences → Student Perceptions (PU/PEOU) → Attitude → Intention to Use → Pragmatic Use Patterns

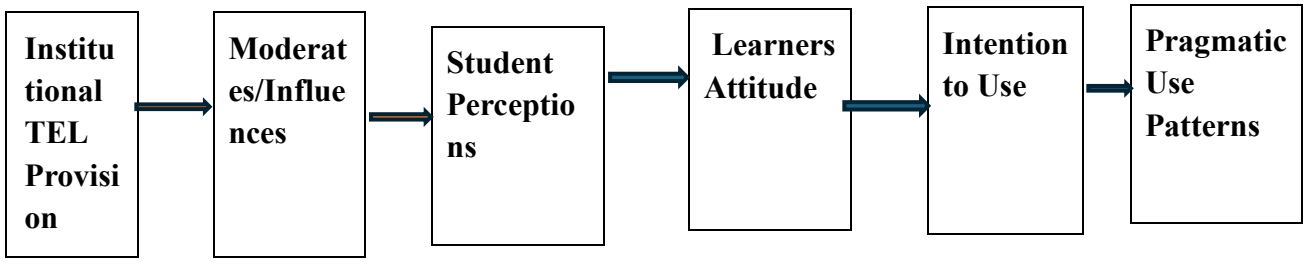

Figure 2: This Study's Extended TAM Framework

5.0 Conclusion

This study concludes that a significant “perception-provision gap” exists in the Technology-Enabled Learning (TEL) environment of the surveyed Kenyan universities. Students are overwhelmingly optimistic about the value of TEL, viewing it as crucial for academic success, skill development, and future employability. They are pragmatic digital learners who highly value tools that provide convenience, access, and connectivity, such as lecture recordings and mobile university services. However, their assessment of the institutional TEL provision is merely adequate, with core services seen as functional but not excellent, and advanced academic tools rated poorly or noted as unavailable.

Students emerge as pragmatic advocates: they strongly desire greater and more effective TEL integration from their lecturers but are also critically aware of potential downsides, including digital distraction and privacy concerns. Their high engagement with general online courses contrasts with a notable awareness gap and completion challenge regarding structured MOOCs. Ultimately, the study reveals that while students are psychologically and motivationally ready for digital learning, the institutional ecosystem is not fully prepared to support them with high-quality, reliable, and pedagogically integrated tools. Bridging this gap is essential to translate student enthusiasm into tangible, equitable learning outcomes.

6.0 Recommendations

Based on the findings of this study, the following recommendations are proposed for university administrators, policymakers, and academic staff:

1. Elevate the Quality and Reliability of Core TEL Services:

- Move beyond providing basic infrastructure to ensuring excellent service quality. Institutional focus should shift to improving the reliability, speed, and user-friendliness of the Learning Management System (LMS), campus Wi-Fi, and e-library platforms, aiming for student ratings in the "Good" to "Excellent" range.
- Establish and communicate clear service-level agreements for IT support and resource uptime to build student trust.

2. Develop Strategic Awareness and Support Programs for Digital Learning Resources:

- Launch targeted campaigns to raise awareness and build skills in using advanced resources, including specialized academic software (e.g., SPSS, GIS), plagiarism detection tools, and Massive Open Online Courses (MOOCs). This should include curated lists of relevant MOOCs and integration pathways into existing curricula.
- Create structured support mechanisms, such as peer mentoring or facilitated study groups, to address the high dropout rate observed in MOOC participation.

3. Adopt a Student-Centred, Pragmatic Pedagogy:

- Formally leverage the technologies students find most useful. Prioritize institutional investment in lecture capture systems and ensure all administrative services are fully mobile-optimized.
- Encourage and train faculty to use accessible, low-bandwidth communication tools (e.g., WhatsApp for announcements) and design assessments that utilize technologies students value, such as multimedia presentations and collaborative platforms, while providing scaffolding for more complex digital content creation.

4. Implement Responsible Integration Policies that Address Student Concerns:

- Develop and disseminate clear guidelines for in-class technology use to mitigate distractions, co-created with student and faculty input.
- Integrate digital citizenship education, covering privacy, cybersecurity, and mindful technology use, into orientation programs or first-year seminars to proactively address student anxieties and promote responsible engagement.

By acting on these recommendations, institutions can close the identified perception-provision gap, ensuring their TEL investments effectively harness student motivation and translate into enhanced, equitable, and future-ready learning experiences.

References

Ala-Mutka, K. (2011). Mapping digital competence: Towards a conceptual understanding. Publications Office of the European Union.

Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004

Baporikar, N., & Shangheta, L. (2018). Barriers in effective ICT integration in education: The case of higher education in Namibia. *International Journal of Knowledge Management, 14*(3), 45–61

Bervell, B., & Arkorful, V. (2020). LMS-enabled blended learning utilization in distance tertiary education: Establishing the relationships among facilitating conditions, voluntariness of use and use behaviour. International Journal of Educational Technology in Higher Education, 17(1), 1-16.

Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. International Journal of Educational Technology in Higher Education, 17(1), 1-30.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). Sage publications.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30.

Henderson, M., Selwyn, N., & Aston, R. (2017). What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Studies in Higher Education, 42*(8), 1567–1579. https://doi.org/10.1080/03075079.2015.1007946

Ifinedo, P., & Kankaanranta, T. (2021). Understanding the influence of context in technology integration from university teachers' perspectives. *Computers & Education, 173*, 104282. https://doi.org/10.1016/j.compedu.2021.104282

Lai, J. W. M., & Bower, M. (2019). How is the use of technology in education evaluated? A systematic review. *Computers & Education, 133*, 27–42. https://doi.org/10.1016/j.compedu.2019.01.010

Maraza, M. T., Chipunza, C., & Moyo, S. (2022). The role of technology acceptance model in e-learning adoption: A case of a Zimbabwean university. South African Journal of Higher Education, 36(3), 230–248.

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. Computers & Education, 56(2), 429–440. https://doi.org/10.1016/j.compedu.2010.09.004

Marshall, S. (2010). Change, technology and higher education: Are universities capable of organisational change? *ALT-J, Research in Learning Technology, 18*(3), 179–192. https://doi.org/10.1080/09687769.2010.529107

Mmari, W. D. (2025). Barriers to effective integration of ICT in secondary education in Tanzania: Perspectives of students, teachers, administrators, and stakeholders. *African Quarterly Social Science Review*, *2*(4), 696-702. https://doi.org/10.51867/AQSSR.2.4.63

Mtebe, J. S., & Raisamo, R. (2014). Investigating perceived barriers to the use of open educational resources in higher education in Tanzania. *The International Review of Research in Open and Distributed Learning*, *15*(2). https://doi.org/10.19173/irrodl.v15i2.1803

Mutisya, D. N., & Makokha, G. L. (2016). Status of E-Learning in Public Universities in Kenya. *The International Review of Research in Open and Distributed Learning. 17(3). DOI: 10.19173/irrodl.v17i3.2235*

Mutisya, D. N., & Makokha, G. L. (2020). Challenges affecting adoption of e-learning in public universities in Kenya. *International Journal of Education and Development using ICT, 16*(3), 174–188.

Mwalumbwe, I., & Mtebe, J. S. (2017). Using learning analytics to predict students' performance in moodle learning management system: A case of Mbeya University of Science and Technology. *Electronic Journal of Information Systems in Developing Countries, 79*(1), 1–13. https://doi.org/10.1002/j.1681-4835.2017.tb00577.x

Nyerere, J. K., Ndiritu, A., & Mwania, J. M. (2020). Influence of university attributes on students' adoption of e-learning in selected private universities in Kenya. *Journal of Research in Innovative Teaching & Learning, 13*(1), 88–106. https://doi.org/10.1108/JRIT-01-2020-0006

Selwyn, N. (2007). The use of computer technology in university teaching and learning: a critical perspective. *Journal of Computer Assisted Learning, 23*(2), 83–94. https://doi.org/10.1111/j.1365-2729.2006.00204.x

Šumak, B., Heričko, M., & Pušnik, M. (2011). A meta-analysis of e-learning technology acceptance: The role of user types and e-learning technology types. *Computers in Human Behavior, 27*(6), 2067–2077. https://doi.org/10.1016/j.chb.2011.08.005

Van Dijk, J. A. G. M. (2020). *The digital divide*. Polity Press.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478. https://doi.org/10.2307/30036540

Wambugu, P., & Njoroge, J. M. (2021). Digital infrastructure and e-learning in Kenyan universities: Challenges and opportunities. *African Journal of Science, Technology, Innovation and Development, 13*(7), 851–861. https://doi.org/10.1080/20421338.2020.1832635