

# Factors Associated with Utilization of E-Learning Platforms Among Students at Kenya Medical Training College, Vihiga Campus, Kenya

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## ABSTRACT

E-learning has become an important component of health professions education because it supports flexible access to learning materials, virtual interaction, academic communication, and continuity of learning beyond the physical classroom. However, effective utilization of e-learning platforms depends on students' access, knowledge, availability of digital resources, perceived ease of use, and institutional support. This study examined factors associated with utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus. The study adopted a quantitative cross-sectional design. Data were collected from 73 students using a structured questionnaire administered through Google Forms. Descriptive statistics, including frequencies, percentages, and means, were used to analyze the data. The response rate was 100.0%. The findings showed that 77.0% of respondents had used e-learning platforms at KMTC within the previous 12 months. WhatsApp was the most used platform at 49.3%, followed by Zoom Meet at 32.9%, Google Classroom at 15.1%, and email at 2.7%. Mobile phones were the main access devices, used by 80.8% of respondents, while institutional laptops were used by only 1.4%. Students had moderate knowledge of e-learning platform features, with mean scores ranging from 2.878 to 3.095. Digital learning materials were only sometimes available, while institutional laptops and desktops were rarely available. Students perceived e-learning platforms as moderately beneficial, although utilization was constrained by lack of infrastructure, inadequate training, limited familiarity with platforms, classroom control challenges, and limited flexibility. The study concludes that e-learning platform utilization at KMTC Vihiga Campus was associated with platform usage patterns, students' knowledge, availability of digital learning materials, perceived ease of use, perceived benefits, and perceived challenges. The study recommends strengthening student orientation, improving digital infrastructure, increasing availability of e-learning materials, and enhancing technical support to improve meaningful utilization of e-learning platforms.

**Keywords:** E-learning platforms; utilization; health professions education; digital learning; Kenya Medical Training College; Vihiga Campus

## INTRODUCTION

### Background of the Study

E-learning has become an important component of health professions education because it enables students to access learning materials, interact with lecturers, participate in virtual sessions, receive academic communication, and continue learning beyond the physical classroom. In health sciences education, e-learning is particularly important because students require regular access to theoretical content, demonstrations, clinical guidance, assessment feedback, and learning resources that support both classroom and practice-based training. Regmi and Jones (2020) observed that e-learning has become part of mainstream health sciences education because it improves access to online learning resources across time and location, although its effectiveness depends on user readiness, interaction, instructional design, and institutional support. McGee et al. (2024) also found that digital and blended learning approaches can support knowledge acquisition, confidence building, and engagement in medical education, although their effectiveness differs across learning contexts and the type of skills being taught.

The relevance of e-learning in health training is also linked to the changing expectations of health service delivery. Health trainees are expected to access current knowledge, interpret learning materials, participate in continuing professional development, and apply evidence-informed information in different health service contexts. The World Health Organization (2025) explains that primary health care supports people's health needs across the continuum of health promotion, disease prevention, treatment, rehabilitation, and palliative care. Therefore, students in health training institutions require learning systems that expose them to information relevant to promotive, preventive, rehabilitative, and palliative care. E-learning platforms can support this process by providing access to lecture notes, online discussions, educational videos, case-based materials, assignments, feedback, and communication tools across different areas of health training.

In Kenya, the use of e-learning in health training institutions gained renewed importance during and after the COVID-19 pandemic, when institutions had to adopt online and blended learning to sustain teaching and reduce learning disruption. However, the transition from emergency online learning to routine e-learning has raised concerns about whether students are able to utilize available platforms effectively. O'Doherty et al. (2018) showed that online learning in medical education is often constrained by poor technical skills, inadequate infrastructure, limited institutional strategy, weak support, and negative attitudes among users. These constraints are especially relevant in resource-limited learning environments where students may depend on mobile phones, unstable internet connections, limited data bundles, and inadequate institutional digital resources.

Kenya Medical Training College provides an important context for examining e-learning utilization because it is a major institution in the training of middle-level health professionals in Kenya. KMTC (2026a) states that the College produces more than 85% of the middle-level health professionals serving Kenya's health sector. KMTC has also expanded its national reach, with 92 campuses and more than 80,000 students, making digital learning support important for sustaining access, continuity, and quality in health training (KMTC, 2026b). The KMTC e-learning portal provides course access, announcements, login support, student support tutorials, programme evaluation links, and faculty-based course categories, indicating that e-learning has become part of the College's learning infrastructure (KMTC, 2026c).

Despite the institutional presence of e-learning systems, recent evidence shows that utilization among KMTC students remains uneven. Kaloki et al. (2024) found that 89.2% of students in selected KMTC campuses participated in online classes, while 11.8% of non-participants cited lack of gadgets, lack of bundles, and poor internet connectivity as barriers. The same study reported that 76.8% of learners strongly preferred face-to-face classes despite widespread participation in e-learning, suggesting that access alone does not automatically translate into student satisfaction or effective utilization (Kaloki et al., 2024). Ndura and Sitati (2024) similarly found that KMTC nursing students experienced student-related, technological, and institutional barriers, including knowledge gaps in using internet infrastructure, lack of e-learning devices, incompatible gadgets, internet instability, slow connectivity, inadequate institutional preparation, and lack of orientation.

The problem addressed in this study is therefore not the mere availability of e-learning platforms at KMTC, but the extent to which students are able to utilize them meaningfully. Institutional investment in e-learning may fail to improve learning if students lack adequate knowledge of platform features, if learning materials are not consistently available, if platforms are difficult to use, or if students experience infrastructural and training-related barriers. This problem is important because e-learning utilization affects students' ability to access course materials, attend online sessions, communicate with lecturers, receive feedback, and sustain learning continuity. It is also important because KMTC students are being prepared for health service roles that require continuous learning across promotive, preventive, rehabilitative, and palliative care contexts.

Campus-specific evidence remains useful because students' experiences with e-learning may differ depending on infrastructure, programmes, support systems, access to devices, internet reliability, and lecturer engagement. At Kenya Medical Training College, Vihiga Campus, e-learning utilization requires attention because students' ability to use digital platforms may determine how effectively they access learning materials, participate in academic activities, and sustain learning outside the traditional classroom. The study therefore examined factors associated with utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus.

## Objectives of the Study

The general objective of the study was to examine factors associated with utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus. The specific objectives of the study were to

- i. Examine e-learning platform usage patterns among students at Kenya Medical Training College, Vihiga Campus
- ii. Assess students' knowledge of e-learning platform features among students at Kenya Medical Training College, Vihiga Campus
- iii. Determine the availability and use of e-learning materials among students at Kenya Medical Training College, Vihiga Campus
- iv. Examine students' perceptions of e-learning platform use in terms of ease of use, perceived benefits, and perceived challenges among students at Kenya Medical Training College, Vihiga Campus.

## Justification of the Study

The study was justified by the growing importance of e-learning in health professions education and the need to understand whether students are able to utilize available digital platforms effectively. Although KMTC has adopted e-learning as part of its learning infrastructure, utilization may be affected by students' platform preferences, digital knowledge, availability of learning materials, access to devices, perceived usability, and institutional support. Evidence from KMTC Vihiga Campus is therefore useful for identifying practical gaps that can inform student orientation, digital infrastructure improvement, content availability, and technical support.

The study was also justified by KMTC's national role in preparing middle-level health professionals for Kenya's health sector. Since students trained at KMTC are expected to contribute to health service delivery, their ability to use digital learning platforms is relevant to their preparation for evidence-informed practice, continuous learning, and access to health information. E-learning utilization can support learning across preventive care, promotive care, rehabilitative care, and palliative care by enabling students to access learning materials, clinical guidance, case-based discussions, communication tools, and assessment feedback.

The study further provides practical evidence for campus-level decision-making. By identifying how students use e-learning platforms, the devices they rely on, their level of knowledge, availability of digital materials, and their perceived challenges, the findings can guide KMTC Vihiga Campus and similar institutions in strengthening e-learning support. This is particularly important where students rely heavily on mobile phones, where institutional devices are limited, and where training and infrastructure gaps may reduce the effectiveness of e-learning platforms.

## Research Questions

The study was guided by the following research questions:

- i. What are the e-learning platform usage patterns among students at Kenya Medical Training College, Vihiga Campus?
- ii. What is the level of students' knowledge of e-learning platform features at Kenya Medical Training College, Vihiga Campus?
- iii. What is the availability and use of e-learning materials among students at Kenya Medical Training College, Vihiga Campus?

- iv. How do students at Kenya Medical Training College, Vihiga Campus perceive e-learning platform use in terms of ease of use, benefits, and challenges?

## Research Hypothesis

The study was guided by the hypothesis that utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus is associated with platform usage patterns, students' knowledge of e-learning platform features, availability and use of e-learning materials, and students' perceptions of e-learning platform use.

### 1.6 Definitions of Key Terms

**E-learning** refers to the use of electronic and internet-based technologies to support teaching, learning, academic communication, assessment, and access to educational resources.

**E-learning platforms** refer to digital systems and tools used to support learning, including learning management systems, virtual meeting platforms, communication applications, online classrooms, institutional emails, and other internet-based learning channels.

**Utilization of e-learning platforms** refers to students' use of digital learning platforms to access academic materials, attend online learning sessions, communicate with lecturers, receive feedback, and participate in learning activities.

**Usage patterns** refer to how students use e-learning platforms, including the type of platform used, duration of use, frequency of use, and device used to access the platform.

**Knowledge of e-learning platform features** refers to students' understanding of e-learning concepts and their ability to recognize or use basic platform functions.

**Availability and use of e-learning materials** refers to the presence and use of digital learning resources such as e-books, educational videos, e-workbooks, institutional emails, and institutional digital devices.

**Students' perceptions of e-learning platform use** refer to students' views on ease of use, usefulness, benefits, and challenges experienced when using e-learning platforms.

**Preventive care** refers to health services and learning activities aimed at reducing disease risk, supporting early detection, and preventing illness or complications.

**Promotive care** refers to health services and learning activities aimed at improving health knowledge, encouraging healthy practices, and strengthening community health education.

**Rehabilitative care** refers to health services and learning activities aimed at restoring or improving functioning among individuals affected by illness, injury, or disability.

**Palliative care** refers to health services and learning activities aimed at improving quality of life through holistic support, symptom control, communication, psychosocial support, and family-centred care for people with serious illness.

## LITERATURE REVIEW

This study was anchored on the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology. The two theories were appropriate because the study examined how students' knowledge, perceptions, usage patterns, availability of materials, and supporting conditions relate to utilization of e-learning platforms.

## Technology Acceptance Model

The Technology Acceptance Model was developed by Davis (1989) to explain why users accept or reject information technologies. The model proposes that technology acceptance is mainly influenced by perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which a user believes that a technology will improve task performance, while perceived ease of use refers to the extent to which a user believes that the technology can be used without unnecessary effort (Davis, 1989). In e-learning, students are more likely to use a platform when they believe it helps them access learning materials, attend online sessions, submit assignments, communicate with lecturers, receive feedback, and improve their learning experience.

The Technology Acceptance Model is relevant to this study because students' perceptions of e-learning platforms are central to utilization. Where students perceive a platform as easy to navigate, beneficial, supportive, and reliable, they are more likely to use it regularly. Where they perceive the platform as complicated, poorly supported, or difficult to use, utilization may decline even when the platform is available. This theoretical position is consistent with Regmi and Jones (2020), who found that user-friendly technology, interaction, learner motivation, and learner-centred design are important enablers of e-learning in health sciences education.

The model also supports the inclusion of students' knowledge of e-learning platform features as an explanatory factor. Students may avoid or underuse an e-learning platform when they do not understand how to access materials, join sessions, retrieve resources, communicate through the system, submit work, or correct errors. In this sense, knowledge influences perceived ease of use because students who understand the platform are likely to experience fewer navigation difficulties. The model further supports the inclusion of learning materials because students may perceive a platform as useful only when it provides relevant, accessible, and timely academic resources.

However, the Technology Acceptance Model has limitations because it emphasizes individual perceptions while giving less attention to broader institutional and technological conditions. In a KMTC campus context, students may have positive attitudes toward e-learning but still experience limited utilization due to poor internet connectivity, lack of data bundles, limited access to laptops, inadequate orientation, or weak technical support. This limitation makes it necessary to complement the model with a broader theory that includes facilitating conditions.

## Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology was advanced by Venkatesh, Morris, Davis, and Davis (2003) to provide a wider explanation of technology acceptance and use. The theory identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as key predictors of technology use. Performance expectancy refers to the belief that using a technology will help users achieve desired outcomes, while effort expectancy refers to the perceived ease associated with technology use (Venkatesh et al., 2003). Social influence concerns the extent to which users believe that important people expect them to use the technology, while facilitating conditions refer to the availability of infrastructure, resources, skills, and support needed for effective use.

The theory is relevant to this study because e-learning utilization among KMTC students depends not only on students' attitudes but also on the learning environment. Students require compatible devices, reliable internet connectivity, affordable data, available digital materials, lecturer engagement, orientation, and technical support. Ndura and Sitati (2024) found that KMTC students experienced barriers linked to internet instability, slow connectivity, incompatible gadgets, lack of orientation, and inadequate institutional preparation. Kaloki et al. (2024) also found that non-participation in online classes among KMTC students was linked to lack of gadgets, data bundles, and poor internet connectivity.

The Unified Theory of Acceptance and Use of Technology also supports the inclusion of usage patterns as an explanatory factor. Students who use e-learning frequently, access platforms through suitable devices, and interact with different digital learning channels are likely to develop greater familiarity and confidence.

However, where students rely mainly on mobile phones, utilization may be shaped by both convenience and limitation. Mobile phones may improve access because they are portable and widely owned, but they may also limit the use of some learning materials where documents, videos, assignments, or assessments require larger screens, stable connectivity, or longer periods of focused engagement.

## METHODOLOGY

### Study Design

The study adopted a descriptive cross-sectional design. A descriptive cross-sectional design was appropriate because the study sought to examine utilization of e-learning platforms and related factors among students at Kenya Medical Training College, Vihiga Campus at a specific point in time. Cross-sectional designs are useful where researchers seek to describe characteristics, behaviours, or exposures within a defined population without manipulating the study environment (Setia, 2016). In this study, the design allowed the collection of quantitative data on students' use of e-learning platforms, platform usage patterns, knowledge of e-learning platform features, availability and use of e-learning materials, perceived ease of use, perceived benefits, and perceived challenges.

The design supported the identification of descriptive patterns and potential associations between e-learning utilization and the selected study indicators. However, since the study was cross-sectional and descriptive, the findings were not interpreted as causal effects. The design was therefore suitable for generating campus-level evidence on factors linked to utilization of e-learning platforms, but it did not support causal inference or prediction across all KMTC campuses.

### Study Area

The study was conducted at Kenya Medical Training College, Vihiga Campus. The campus was selected because KMTC had adopted e-learning as part of its teaching and learning systems, yet there was a need to understand how students at campus level were utilizing available e-learning platforms. The focus on Vihiga Campus provided specific evidence on students' experiences with e-learning in relation to access, usage patterns, knowledge, availability of digital learning materials, ease of use, benefits, and challenges.

The campus-specific focus was useful because students' experiences with e-learning may differ across campuses depending on infrastructure, internet reliability, availability of digital devices, lecturer engagement, course requirements, and institutional support. However, the single-campus scope also means that the findings should be interpreted as evidence from KMTC Vihiga Campus rather than as representative of all KMTC campuses.

### Method of Data Collection

The study used primary data collected through a structured questionnaire. The questionnaire method was appropriate because the study sought standardized quantitative responses from students on factors associated with utilization of e-learning platforms. The use of a questionnaire enabled the researcher to collect comparable data from all respondents on platform use, frequency of use, device access, knowledge of e-learning, availability of digital learning resources, perceptions of ease of use, perceived benefits, and challenges.

The questionnaire was administered electronically through Google Forms. This method was suitable because it allowed respondents to complete the questionnaire conveniently and enabled efficient data capture. The use of an online tool also aligned with the subject of the study, since respondents were students with exposure to digital learning and electronic communication platforms.

### Data Collection Procedure

Institutional permission was sought before data collection. After permission was obtained, the researcher identified eligible students from the study population and shared the questionnaire link electronically through

available communication channels. Before completing the questionnaire, respondents were informed about the purpose of the study, the voluntary nature of participation, confidentiality of responses, and the academic use of the data.

Respondents completed the questionnaire independently and submitted their responses through Google Forms. No identifying personal information such as names or phone numbers was required. The completed responses were downloaded from Google Forms, checked for completeness, coded, and prepared for analysis. All 73 questionnaires administered were returned, giving a response rate of 100.0%.

### **Study Instrument**

The study used a structured questionnaire as the data collection instrument. The questionnaire contained closed-ended items arranged according to the study objectives and indicators. The instrument captured information on e-learning platform utilization, e-learning platform usage patterns, students' knowledge of e-learning platform features, availability and use of e-learning materials, and students' perceptions of e-learning platform use.

The first section of the questionnaire measured utilization of e-learning platforms by asking respondents whether they had used an e-learning platform at KMTC within the previous 12 months. The second section measured e-learning platform usage patterns, including the type of platform used, duration of use, and frequency of use. The third section measured students' knowledge of e-learning platform features using Likert-scale items on the meaning of e-learning, distance learning, learning using technology, internet-based learning, and recorded learning. The fourth section measured availability and use of e-learning materials, including devices used to access e-learning, e-books, educational videos, e-workbooks, institutional laptops or desktops, and institutional student emails. The final section measured students' perceptions of e-learning platform use, including ease of use, support features, user interface, task completion, error correction, perceived benefits, and perceived challenges.

The indicators were contextualized in relation to the health service domains of preventive, promotive, rehabilitative, and palliative care. This classification was included because KMTC students are trained for health service delivery across these domains. Platform usage patterns were linked to the domains because regular use of digital learning platforms can support access to learning content on disease prevention, health promotion, rehabilitation, and palliative care. Knowledge of e-learning platform features was linked to the domains because students require digital competence to retrieve learning materials, participate in online sessions, and access health-related educational resources. Availability and use of e-learning materials were linked to the domains because e-books, videos, notes, assignments, and institutional communication can support learning across preventive, promotive, rehabilitative, and palliative care. Students' perceptions of ease of use, benefits, and challenges were linked to the domains because perceptions influence whether students engage consistently with digital resources that support health service preparation.

The questionnaire generated descriptive quantitative data. However, the instrument was not a standardized or externally validated digital literacy, technology acceptance, or usability scale. This limitation was considered during interpretation because it may reduce comparability with studies that use validated tools. In addition, the study relied on self-reported responses rather than objective platform analytics or usage logs. Therefore, the findings were interpreted as reported student experiences and perceptions rather than verified platform-use records. The structured questionnaire used in the study is presented in Appendix I.

### **Sampling Technique**

The target population comprised students at Kenya Medical Training College, Vihiga Campus. The campus had an estimated population of 250 students spread across the years of study. The sample size was 73 students and was calculated using Cochran's sample size formula, which is commonly used to estimate sample sizes for survey-based studies where the researcher seeks a specified level of confidence and precision (Cochran, 1977).

Simple random sampling was used to select respondents from the student population. This sampling technique was appropriate because it gave eligible students an equal chance of participating in the study and helped reduce selection bias. However, the sample was modest and drawn from one campus only. As a result, the findings should be interpreted as campus-specific evidence and should not be generalized to all KMTC campuses without caution. The modest sample size also limited subgroup comparisons and multivariable inference. The student population list served as the sampling frame, and respondents were selected randomly from eligible students to reduce selection bias.

## **Data Analysis**

Data were cleaned, coded, and analyzed using SPSS and Excel. Descriptive statistics were used to summarize the study findings. Frequencies and percentages were used for categorical variables such as e-learning platform use, type of platform used, duration of use, frequency of use, and device used to access e-learning platforms. Means were used to summarize Likert-scale items on knowledge of e-learning, availability of learning materials, perceived ease of use, perceived benefits, and perceived challenges.

The analysis was descriptive and did not include multivariable modelling. Therefore, the study identified patterns and potential factors linked to e-learning utilization but did not estimate adjusted effect sizes or control for confounding. The absence of objective platform analytics also means that actual e-learning engagement was not independently verified. The findings were therefore interpreted as descriptive evidence useful for identifying programmatic gaps and practical areas for institutional improvement, rather than as causal or predictive estimates.

## **Ethical Considerations**

Ethical principles were observed throughout the study. Respondents were informed about the purpose of the study and participated voluntarily. Informed consent was obtained before participation. Confidentiality and anonymity were maintained by ensuring that respondents were not required to provide identifying personal information. The information collected was used for academic purposes only.

Institutional permission was sought before data collection. Respondents were assured that participation would not expose them to harm or academic disadvantage. The data were stored securely and accessed only for analysis and preparation of the manuscript.

## **Presentation of Data**

### **Response Rate**

The study targeted 73 students at Kenya Medical Training College, Vihiga Campus. All 73 questionnaires administered were returned, giving a response rate of 100.0%.

### **Utilization of E-Learning Platforms**

The findings showed that 77.0% of the respondents had used e-learning platforms at KMTC within the previous 12 months, while 23.0% had not used e-learning platforms within the same period.

### **Factors Associated with Utilization of E-Learning Platforms**

The findings on factors associated with utilization of e-learning platforms are presented under four areas: e-learning platform usage patterns, knowledge of e-learning platform features, availability and use of e-learning materials, and students' perceptions of e-learning platform use.

### **E-Learning Platform Usage Patterns**

E-learning platform usage patterns were examined in relation to type of platform used, duration of use, and frequency of use. Table 1 presents the e-learning platforms used by the respondents.

Table 1: E-Learning Platform

| E-learning Platform | Frequency | Percentage   |
|---------------------|-----------|--------------|
| WhatsApp            | 36        | 49.3         |
| Google Classroom    | 11        | 15.1         |
| Zoom Meet           | 24        | 32.9         |
| Emails              | 2         | 2.7          |
| Moodle              | 0         | 0.0          |
| Elmodo              | 0         | 0.0          |
| <b>Total</b>        | <b>73</b> | <b>100.0</b> |

Figure 1 in Appendix II presents the duration of e-learning platform use outside KMTC. The findings showed that 52 respondents, representing 71.0%, had used e-learning platforms outside KMTC for less than 12 months. Six respondents, representing 8.0%, had used them for 12–24 months, while 15 respondents, representing 21.0%, had used them for over two years.

Figure 2 in Appendix II presents the duration of e-learning platform use at KMTC. The findings showed that 42 respondents, representing approximately 58.0%, had used e-learning platforms at KMTC for less than 12 months. Eighteen respondents, representing 25.0%, had used them for 12–24 months, while 13 respondents, representing 18.0%, had used them for over two years.

Figure 3 in Appendix II presents the frequency of e-learning platform use. The findings showed that 9 respondents, representing 12.0%, used e-learning platforms hourly. Twenty-five respondents, representing 34.0%, used the platforms daily, while 24 respondents, representing 33.0%, used them over three times a week. Fifteen respondents, representing 21.0%, used the platforms monthly.

### Knowledge of E-Learning Platform Features

Students' knowledge of e-learning platform features was assessed using Likert-scale items on understanding of e-learning, distance learning, technology-based learning, internet-based learning, and recorded learning. Table 2 presents the findings.

Table 2: Knowledge of E-Learning Platform

|                                | 1      | 2      | 3      | 4      | 5      | Mean  |
|--------------------------------|--------|--------|--------|--------|--------|-------|
| Meaning on e-learning          | 16.67% | 19.05% | 17.86% | 17.86% | 20.24% | 3.064 |
| Distant learning               | 9.52%  | 20.24% | 26.19% | 14.29% | 16.67% | 3.095 |
| Learning using technology      | 15.48% | 15.48% | 28.57% | 17.86% | 17.86% | 3.075 |
| Learning conducted by internet | 14.29% | 17.86% | 28.57% | 22.62% | 15.48% | 3.072 |
| Recorded learning              | 16.67% | 19.05% | 21.43% | 20.24% | 10.71% | 2.878 |

The results in Table 2 showed that distant learning had the highest mean score of 3.095, followed by learning using technology with a mean of 3.075, learning conducted through the internet with a mean of 3.072, and meaning of e-learning with a mean of 3.064. Recorded learning had the lowest mean score of 2.878.

## Availability and Use of E-Learning Materials

Availability and use of e-learning materials were examined through the devices used to access e-learning platforms and the availability of digital learning resources. Figure 4 in Appendix II presents the type of device used to access e-learning platforms. Mobile phones were used by 80.8% of respondents, while personal laptops were used by 15.1%. Other devices were used by 2.7%, while institutional laptops were used by 1.4%. Home desktops and institutional desktops were not used by any respondent. Table 3 presents the availability of e-learning materials.

Table 3: Availability of Material

|                                | 1      | 2      | 3      | 4      | 5      | Mean |
|--------------------------------|--------|--------|--------|--------|--------|------|
| E- books                       | 21.74% | 16.30% | 20.65% | 17.39% | 9.78%  | 2.73 |
| Educational videos             | 13.04% | 13.04% | 28.26% | 16.30% | 8.70%  | 2.9  |
| E-work books                   | 16.30% | 20.65% | 25.00% | 11.96% | 8.70%  | 2.76 |
| Institutional laptops/desktops | 29.35% | 19.57% | 20.65% | 14.13% | 6.52%  | 2.43 |
| Institutional student emails   | 13.04% | 18.48% | 14.13% | 20.65% | 11.96% | 3.00 |

As per Table 3, Institutional student emails had the highest mean score of 3.00, followed by educational videos with a mean of 2.90, e-workbooks with a mean of 2.76, and e-books with a mean of 2.73. Institutional laptops and desktops had the lowest mean score of 2.43.

## Students' Perceptions of E-Learning Platform Use

Students' perceptions of e-learning platform use were examined through ease of use, perceived benefits, and perceived challenges. Table 4 presents respondents' rating of e-learning ease of use.

Table 4: Rating e-learning Ease of Use

|                                                           | 1      | 2      | 3      | 4      | Mean |
|-----------------------------------------------------------|--------|--------|--------|--------|------|
| The e-learning platform is easy to use                    | 15.22% | 22.83% | 31.52% | 14.13% | 2.53 |
| It has well thought support and help features             | 5.43%  | 27.17% | 29.35% | 11.96% | 2.64 |
| It has appealing user interface                           | 9.78%  | 18.48% | 30.43% | 15.22% | 2.69 |
| It requires the fewest steps possible to accomplish tasks | 13.04% | 22.83% | 27.17% | 15.22% | 1.99 |
| I usually make very few errors                            | 10.87% | 23.91% | 25.00% | 11.96% | 1.87 |
| It allows correction of errors with ease                  | 7.61%  | 13.04% | 26.09% | 16.30% | 2.40 |

The item "It has appealing user interface" had the highest mean score of 2.69, followed by "It has well thought support and help features" with a mean of 2.64 and "The e-learning platform is easy to use" with a mean of 2.53. The item "It allows correction of errors with ease" had a mean score of 2.40, while "It requires the fewest steps possible to accomplish tasks" had a mean score of 1.99. The item "I usually make very few errors" had the lowest mean score of 1.87.

Figure 5 in Appendix II presents the overall rating of e-learning platform ease of use. The findings showed that 16.4% of respondents rated the platforms as very easy to use, 50.7% rated them as a bit easy to use, 31.5% rated them as a bit hard to use, and 2.7% rated them as very hard to use.

Table 5 presents the perceived benefits associated with use of e-learning platforms.

Table 5: Benefits associated with Usage of E-Learning Platform

|                                         | 1      | 2      | 3      | 4      | 5      | Mean |
|-----------------------------------------|--------|--------|--------|--------|--------|------|
| Easier to plan and conduct lessons      | 15.00% | 12.50% | 32.50% | 25.00% | 13.75% | 3.10 |
| Easier classroom management             | 13.75% | 22.50% | 18.75% | 21.25% | 6.25%  | 2.80 |
| Easier feedback to students on progress | 13.75% | 18.75% | 15.00% | 32.50% | 12.50% | 3.12 |
| Increased interactivity among lecturers | 15.00% | 21.25% | 22.50% | 25.00% | 7.50%  | 2.87 |
| Easier feedback on assessments          | 12.50% | 16.25% | 18.75% | 25.00% | 6.25%  | 2.95 |

Easier feedback to students on progress had the highest mean score of 3.12, followed by easier planning and conducting of lessons with a mean of 3.10. Easier feedback on assessments had a mean of 2.95, increased interactivity among lecturers had a mean of 2.87, and easier classroom management had the lowest mean score of 2.80.

Figure 6 in Appendix II presents the overall rating of e-learning platform benefits. The findings showed that 24.7% of respondents rated e-learning platforms as very beneficial, 63.0% rated them as moderately beneficial, and 12.3% rated them as hardly beneficial.

Table 6 presents the perceived challenges associated with use of e-learning platforms.

Table 6: Perceptions on Challenges of E-learning Platform Usage

|                                             | 1      | 2      | 3      | 4      | 5      | Mean |
|---------------------------------------------|--------|--------|--------|--------|--------|------|
| Lack of infrastructure- internet, computers | 17.72% | 5.06%  | 7.59%  | 31.65% | 36.71% | 3.65 |
| Lack of training                            | 6.33%  | 11.39% | 13.92% | 37.97% | 20.25% | 3.60 |
| Lack of classroom control                   | 7.59%  | 7.59%  | 16.46% | 36.71% | 17.72% | 3.57 |
| Students not well versed with the platform  | 10.13% | 7.59%  | 17.72% | 32.91% | 25.32% | 3.59 |
| Not flexible                                | 8.86%  | 5.06%  | 22.78% | 22.78% | 24.05% | 3.57 |

Lack of infrastructure, including internet and computers, had the highest mean score of 3.65. Lack of training had a mean score of 3.60, while students not being well versed with the platform had a mean score of 3.59. Lack of classroom control and lack of flexibility each had a mean score of 3.57.

## DISCUSSION

The study examined factors associated with utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus. The findings showed that utilization was shaped by e-learning platform usage patterns, students' knowledge of e-learning platform features, availability and use of e-learning materials, and students' perceptions of e-learning platform use. These factors are important because e-learning

utilization in health training institutions depends not only on whether digital platforms exist, but also on whether students can access, understand, navigate, and benefit from them. This position is consistent with Regmi and Jones (2020), who observed that e-learning in health sciences education is influenced by interaction, learner motivation, user-friendly technology, and learner-centred pedagogical design.

The findings on e-learning platform usage patterns showed that students relied mainly on familiar and easily accessible platforms, particularly WhatsApp, Zoom Meet, and Google Classroom. WhatsApp was the most used platform, while Moodle and Elmodo were not used by any respondent. This finding suggests that students' utilization of e-learning was largely shaped by convenience, familiarity, mobile compatibility, and ease of access rather than by use of formal learning management systems. From the perspective of the Technology Acceptance Model, students are more likely to use technologies they perceive as easy to use and useful for immediate academic communication and learning tasks (Davis, 1989). The reliance on WhatsApp and Zoom therefore suggests that students may prioritize platforms that support quick communication, live interaction, and flexible access.

The usage pattern findings also suggest that e-learning use among many students was still developing. Most respondents had used e-learning platforms at KMTC for less than 12 months, while the frequency of use varied across daily, weekly, monthly, and hourly use. This indicates that while e-learning had been adopted by many students, utilization was not uniform. The Unified Theory of Acceptance and Use of Technology explains that actual use of technology depends on performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). In this study, the variation in frequency of use may therefore reflect differences in students' perceived usefulness of the platforms, lecturer expectations, availability of learning activities, access to devices, internet reliability, and confidence in using digital tools.

The findings on knowledge of e-learning platform features showed that students had moderate knowledge of e-learning concepts. Students showed some understanding of distance learning, learning using technology, internet-based learning, and the meaning of e-learning, although the mean scores were not high. This suggests that students were aware of e-learning but may not have had sufficient mastery of platform features to utilize them fully. This finding is important because awareness alone may not translate into effective utilization. Students need practical skills to access materials, join online sessions, submit assignments, interact with lecturers, retrieve feedback, and troubleshoot common platform challenges. Regmi and Jones (2020) identified lack of IT skills as one of the barriers affecting e-learning in health sciences education, while Ndura and Sitati (2024) found that knowledge gaps in using internet infrastructure affected utilization of online learning among KMTC students.

Availability and use of e-learning materials also emerged as an important factor. The findings showed that students relied heavily on mobile phones to access e-learning platforms, while use of personal laptops, institutional laptops, and desktops was very low. This suggests that e-learning access at KMTC Vihiga Campus was largely mobile-based. Mobile access may improve participation because phones are portable and widely available, but it may also limit effective learning where students need to read large documents, view detailed videos, participate in assessments, complete assignments, or engage in longer learning sessions. This finding relates closely to facilitating conditions under the Unified Theory of Acceptance and Use of Technology, which emphasizes that technology use depends on the availability of resources and support required for effective use (Venkatesh et al., 2003).

The findings further showed that e-learning materials were only sometimes available, while institutional laptops and desktops were rarely available. This indicates that utilization may have been constrained by limited access to institutional digital resources. E-learning platforms are more likely to be useful when they provide consistent access to e-books, educational videos, e-workbooks, institutional emails, lecturer notes, and assessment materials. Where such resources are inconsistent, students may not perceive the platform as sufficiently useful. This supports the Technology Acceptance Model, which links use of technology to perceived usefulness and perceived ease of use (Davis, 1989). The finding also agrees with Kaloki et al. (2024), who reported that lack of gadgets, lack of bundles, and poor internet connectivity were among the barriers affecting participation in online classes among KMTC students.

Students' perceptions of e-learning platform use were also important. The findings showed that students recognized some positive usability features, including appealing user interface, support and help features, and general ease of use. However, they also reported difficulty in completing tasks with few steps, making few errors, and correcting errors easily. This mixed perception suggests that the platforms were not rejected entirely, but students still experienced usability limitations that could affect consistent utilization. O'Doherty et al. (2018) noted that online learning in medical education is affected by technical skills, infrastructure, institutional support, and attitudes among users. Therefore, improving platform usability and support systems is necessary if e-learning is to move from partial use to meaningful academic integration.

The findings on perceived challenges showed that lack of infrastructure, lack of training, lack of classroom control, limited familiarity with platforms, and lack of flexibility were major constraints. These challenges show that utilization of e-learning platforms was affected by both technological and user-readiness barriers. Ndura and Sitati (2024) similarly found that KMTC students experienced challenges related to incompatible gadgets, unstable internet, slow connectivity, inadequate institutional preparation, lack of orientation, poor communication, inconsistent data bundles, and lack of instant feedback. This confirms that the challenges observed at KMTC Vihiga Campus are not isolated, but reflect broader issues affecting online learning utilization in KMTC contexts.

The findings on perceived benefits showed that students viewed e-learning as moderately beneficial. They recognized that e-learning could support feedback, lesson planning, assessments, interactivity, and classroom management, although the benefit ratings were not strong. This suggests that students saw value in e-learning but may not have experienced its full academic potential. McGee et al. (2024) found that digital learning of clinical skills can produce improved or comparable outcomes to in-person teaching, especially where digital methods are well integrated with traditional approaches. In the context of KMTC Vihiga Campus, this implies that e-learning may be more beneficial when used as part of a structured blended learning system rather than as a stand-alone substitute for face-to-face teaching.

The findings should be interpreted within the methodological scope of the study. The study was limited to 73 students from one KMTC campus, which limits generalization to all KMTC campuses. The modest sample size also limited statistical power, subgroup comparisons, and multivariable inference. In addition, the study relied on self-reported questionnaire responses rather than objective platform analytics or usage logs. The questionnaire was structured around the study objectives, but it was not a standardized or externally validated digital literacy, technology acceptance, or usability scale. Therefore, the findings are most useful as campus-level descriptive evidence for identifying programmatic gaps rather than as causal estimates or predictive measures. Future studies should include larger samples across multiple KMTC campuses, use validated measurement scales, include objective e-learning usage data where available, and apply multivariable models to estimate adjusted associations.

## CONCLUSION AND RECOMMENDATION

The study concluded that utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus was shaped by four main factors: usage patterns, knowledge of e-learning platform features, availability and use of e-learning materials, and students' perceptions of e-learning platform use. Students used e-learning platforms, but their use was largely concentrated around familiar platforms such as WhatsApp, Zoom Meet, and Google Classroom rather than formal learning management systems. This suggests that accessibility and familiarity influenced platform choice.

The study also concluded that students had moderate knowledge of e-learning platform features. This level of knowledge may support basic use of e-learning platforms but may not be adequate for full utilization of all platform functions. Effective utilization requires students to understand how to access learning materials, join sessions, submit assignments, communicate with lecturers, retrieve feedback, and troubleshoot basic problems.

Availability and use of e-learning materials also influenced utilization. Students relied mainly on mobile phones, while institutional computers were rarely used. Digital learning materials such as e-books, educational videos, e-workbooks, and institutional student emails were only sometimes available. This shows that e-

learning utilization was constrained by limited institutional digital resources and heavy dependence on personal mobile devices.

Students' perceptions further shaped e-learning utilization. Although students recognized some positive aspects of e-learning, including ease of use, support features, appealing interface, and moderate benefits, they also experienced difficulties related to task completion, errors, lack of training, inadequate infrastructure, limited familiarity with platforms, and lack of flexibility. The study therefore concludes that e-learning utilization at KMTC Vihiga Campus can be improved by strengthening digital infrastructure, student training, availability of learning materials, technical support, and platform usability.

KMTC Vihiga Campus should strengthen student orientation and training on e-learning platform use. Training should focus on practical skills such as logging into platforms, accessing learning materials, joining virtual sessions, submitting assignments, using institutional emails, retrieving feedback, and resolving common errors. This would help address moderate knowledge levels and improve students' confidence in using e-learning platforms.

The campus should improve access to digital learning resources. E-books, educational videos, e-workbooks, lecture notes, assessment materials, and institutional communication channels should be made consistently available through the e-learning platform. Improving the availability of learning materials would make the platform more useful and encourage regular student engagement.

KMTC should invest in stronger digital infrastructure at campus level. Reliable internet connectivity, institutional computer access, student support points, and technical assistance should be prioritized. Since the findings showed heavy reliance on mobile phones and limited use of institutional devices, improving institutional access to digital tools would reduce inequalities in e-learning participation.

Lecturers should be supported to integrate e-learning more systematically into teaching and learning. E-learning should not only be used for emergency communication or occasional online sessions, but should be incorporated into lesson planning, sharing of learning materials, feedback, assessments, and student engagement. This would help students view e-learning as a regular academic tool rather than a temporary alternative to face-to-face learning.

The e-learning platforms used by students should be made more user-friendly. Attention should be given to reducing the number of steps required to complete tasks, improving error correction, strengthening help features, and ensuring mobile compatibility. Since most students accessed e-learning through mobile phones, learning materials and platform functions should be optimized for mobile use.

The campus should establish a continuous feedback mechanism on e-learning utilization. Students should be given opportunities to report technical problems, access challenges, training needs, and material gaps. Regular feedback would help the institution identify barriers early and improve the effectiveness of e-learning support.

## **Declarations**

## **Conflict of Interest**

The author declares no conflict of interest in relation to the research, authorship, or publication of this article.

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## **Ethics Approval**

The study involved primary data collection from students at Kenya Medical Training College, Vihiga Campus. Ethical principles were observed during the study, including informed consent, voluntary participation, confidentiality, anonymity, and use of the information for academic purposes only. Institutional permission

was sought before data collection. Respondents were not required to provide identifying personal information such as names or phone numbers, and participation did not expose them to harm or academic disadvantage.

## Data and Materials

The data used in this article were collected through a structured questionnaire administered to students at Kenya Medical Training College, Vihiga Campus. The questionnaire generated quantitative data on e-learning utilization, platform usage patterns, knowledge of e-learning platform features, availability and use of e-learning materials, perceived ease of use, benefits, and challenges. No restricted third-party datasets or copyrighted instruments were used in the preparation of this article.

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## APPENDICES

### Appendix I: Research Questionnaire

#### Instructions

This questionnaire seeks information on utilization of e-learning platforms among students at Kenya Medical Training College, Vihiga Campus. Your participation is voluntary, and the information provided will be treated confidentially and used for academic purposes only. Please tick the appropriate response where options are provided. Where explanation is required, write your response clearly in the space provided.

#### Section A: Bio Data

1. State your gender:

Male [ ]

Female [ ]

2. What is your age in years?

18–20 years [ ]

21–25 years [ ]

26–30 years [ ]

31–35 years [ ]

Above 36 years [ ]

3. Which year of study are you currently in?

First year [ ]

Second year [ ]

Third year [ ]

4. Which course level are you undertaking?

Certificate [ ]

Basic Diploma [ ]

Higher National Diploma [ ]

#### Section B: Utilization of E-Learning

5. Have you used an electronic learning platform at KMTC in the last 12 months?

Yes [ ]

No [ ]

6. Which of the following e-learning platforms do you use for learning?

WhatsApp [ ]

Google Classroom [ ]

Zoom Meet [ ]

Email [ ]

Moodle [ ]

Elmodo [ ]

### Section C: Patterns of E-Learning Platform Usage

7. How long have you been using e-learning platforms outside KMTC?

For less than 12 months [ ]

For 12–24 months [ ]

For over 2 years [ ]

8. How long have you been using e-learning platforms at KMTC?

For less than 12 months [ ]

For 12–24 months [ ]

For over 2 years [ ]

9. What is your frequency of using e-learning platforms?

Hourly [ ]

Daily [ ]

Over three times a week [ ]

Monthly [ ]

### Section D: Knowledge of E-Learning Platforms

10. In your opinion, to what extent do the following statements explain e-learning? Use a 5-point Likert scale where 5 = Very great extent, 4 = Great extent, 3 = Moderate extent, 2 = Little extent, and 1 = No extent.

| Statement                               | 5   | 4   | 3   | 2   | 1   |
|-----------------------------------------|-----|-----|-----|-----|-----|
| Meaning of e-learning                   | [ ] | [ ] | [ ] | [ ] | [ ] |
| Distance learning                       | [ ] | [ ] | [ ] | [ ] | [ ] |
| Learning using technology               | [ ] | [ ] | [ ] | [ ] | [ ] |
| Learning conducted through the internet | [ ] | [ ] | [ ] | [ ] | [ ] |
| Recorded learning                       | [ ] | [ ] | [ ] | [ ] | [ ] |

## Section E: Materials Used for E-Learning

11. Which device do you mostly use to access e-learning platforms?

Personal laptop [ ]

Home desktop [ ]

Phone [ ]

Institutional laptop [ ].

Institutional desktop [ ]

Other device [ ]

12. What is your level of agreement on the availability of the following e-learning materials? Use a 5-point scale where 5 = Readily available, 4 = Available, 3 = Sometimes available, 2 = Rarely available, and 1 = Never available.

| E-Learning Resource            | 5   | 4   | 3   | 2   | 1   |
|--------------------------------|-----|-----|-----|-----|-----|
| E-books                        | [ ] | [ ] | [ ] | [ ] | [ ] |
| Educational videos             | [ ] | [ ] | [ ] | [ ] | [ ] |
| E-workbooks                    | [ ] | [ ] | [ ] | [ ] | [ ] |
| Institutional laptops/desktops | [ ] | [ ] | [ ] | [ ] | [ ] |
| Institutional student emails   | [ ] | [ ] | [ ] | [ ] | [ ] |

## Section F: Perceptions on Ease of Using E-Learning Platforms

13. The following statements relate to e-learning platform ease of use. Rate them using a scale where 1 = Strongly disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly agree.

| Ease of Use Statement                                     | 1   | 2   | 3   | 4   |
|-----------------------------------------------------------|-----|-----|-----|-----|
| The e-learning platform is easy to use                    | [ ] | [ ] | [ ] | [ ] |
| It has well-thought-out support and help features         | [ ] | [ ] | [ ] | [ ] |
| It has an appealing user interface                        | [ ] | [ ] | [ ] | [ ] |
| It requires the fewest steps possible to accomplish tasks | [ ] | [ ] | [ ] | [ ] |
| I usually make very few errors                            | [ ] | [ ] | [ ] | [ ] |
| It allows correction of errors with ease                  | [ ] | [ ] | [ ] | [ ] |

14. How do you rate the overall ease of using e-learning platforms?

Very easy to use [ ]

A bit easy to use [ ]

A bit hard to use [ ]

Very hard to use [ ]

### Section G: Perceptions on Benefits of E-Learning Platform Usage

15. The following statements relate to the benefits associated with use of e-learning platforms. Indicate your level of agreement using a scale where 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree.

| Benefit of E-Learning Platform          | 1   | 2   | 3   | 4   | 5   |
|-----------------------------------------|-----|-----|-----|-----|-----|
| Easier to plan and conduct lessons      | [ ] | [ ] | [ ] | [ ] | [ ] |
| Easier classroom management             | [ ] | [ ] | [ ] | [ ] | [ ] |
| Easier feedback to students on progress | [ ] | [ ] | [ ] | [ ] | [ ] |
| Increased interactivity among lecturers | [ ] | [ ] | [ ] | [ ] | [ ] |
| Easier feedback on assessments          | [ ] | [ ] | [ ] | [ ] | [ ] |

16. How do you rate the overall benefits of e-learning platforms?

Very beneficial [ ]

Moderately beneficial [ ]

Hardly beneficial [ ]

### Section H: Perceptions on Challenges of E-Learning Platform Usage

17. The following statements relate to challenges associated with use of e-learning platforms. Indicate your level of agreement using a scale where 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree.

| Challenge of E-Learning Platform                         | 1   | 2   | 3   | 4   | 5   |
|----------------------------------------------------------|-----|-----|-----|-----|-----|
| Lack of infrastructure, including internet and computers | [ ] | [ ] | [ ] | [ ] | [ ] |
| Lack of training                                         | [ ] | [ ] | [ ] | [ ] | [ ] |
| Lack of classroom control                                | [ ] | [ ] | [ ] | [ ] | [ ] |
| Students are not well versed with the platform           | [ ] | [ ] | [ ] | [ ] | [ ] |
| The platform is not flexible                             | [ ] | [ ] | [ ] | [ ] | [ ] |

18. How do you rate the overall challenges of using e-learning platforms?

Very challenging [ ]

Moderately challenging [ ]

Hardly challenging [ ]

19. Do you have any other comment on the utilization of e-learning platforms at KMTC?

## Appendix II: Figures Used

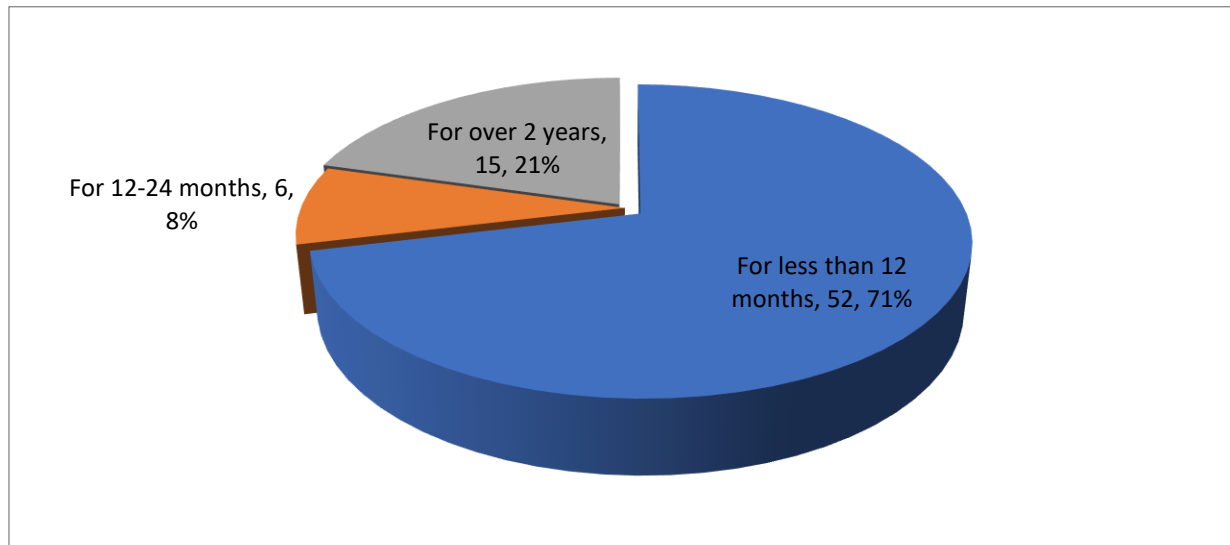


Figure 1: Patterns of E-Learning Platform Usage

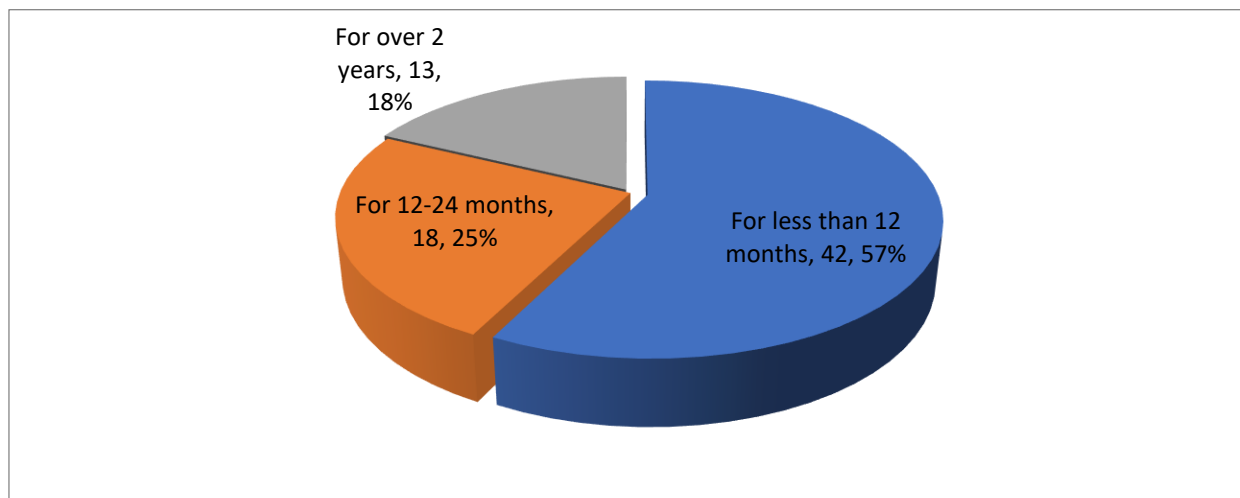
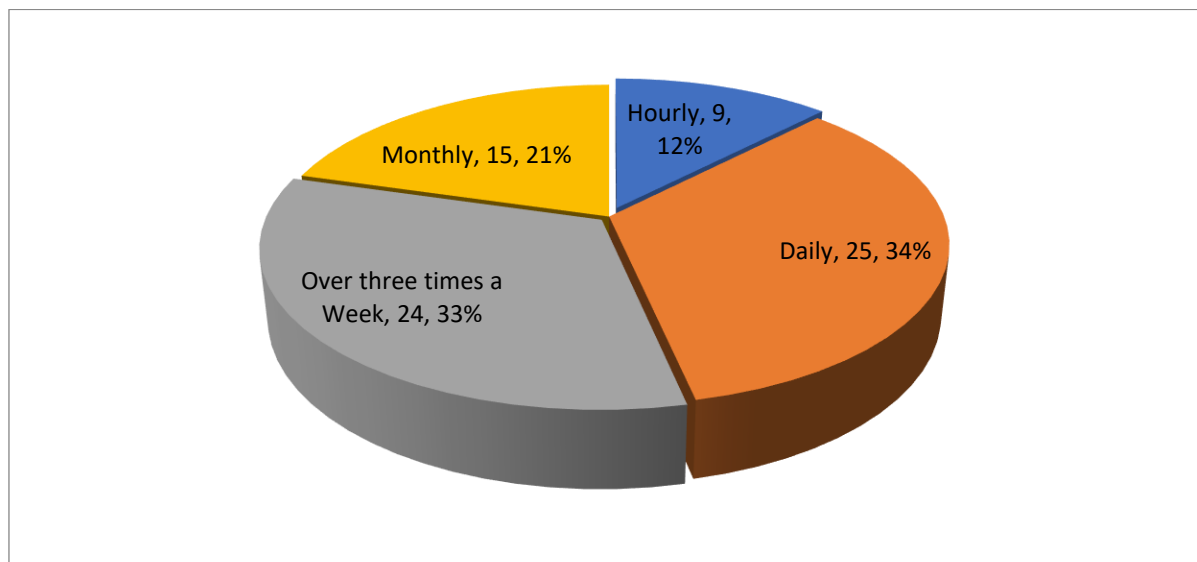
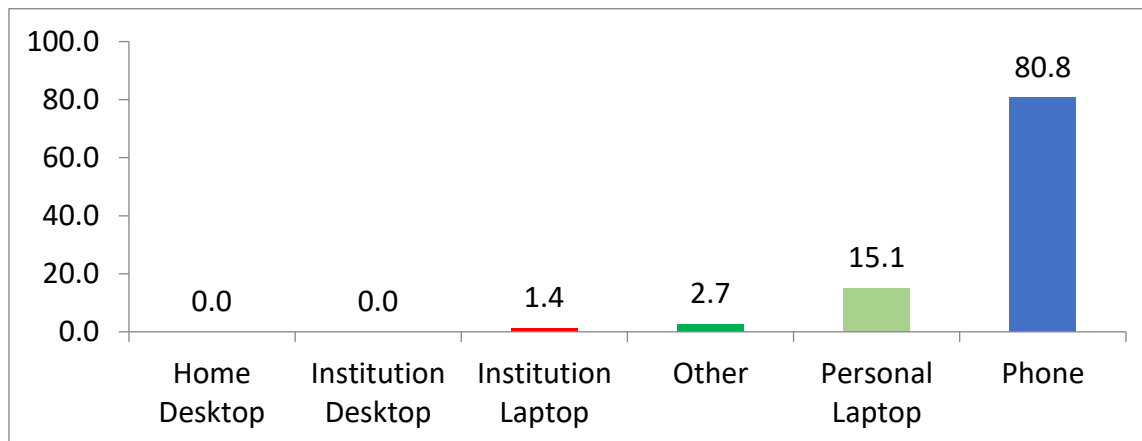


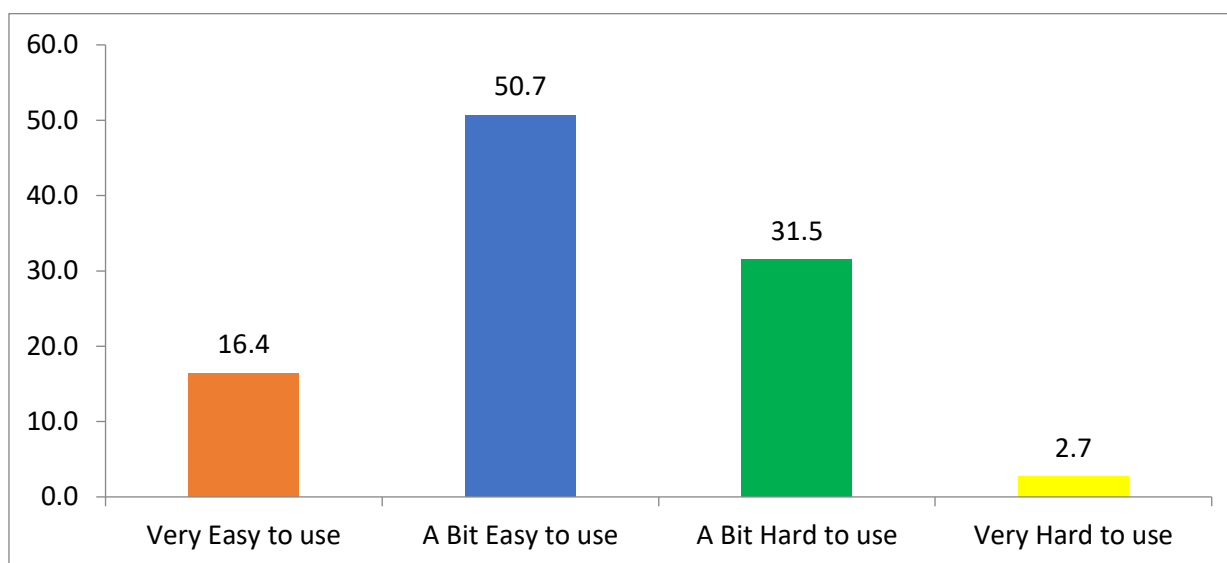
Figure 2: How Long Have You Been Using E-Learning Platforms at KMTC



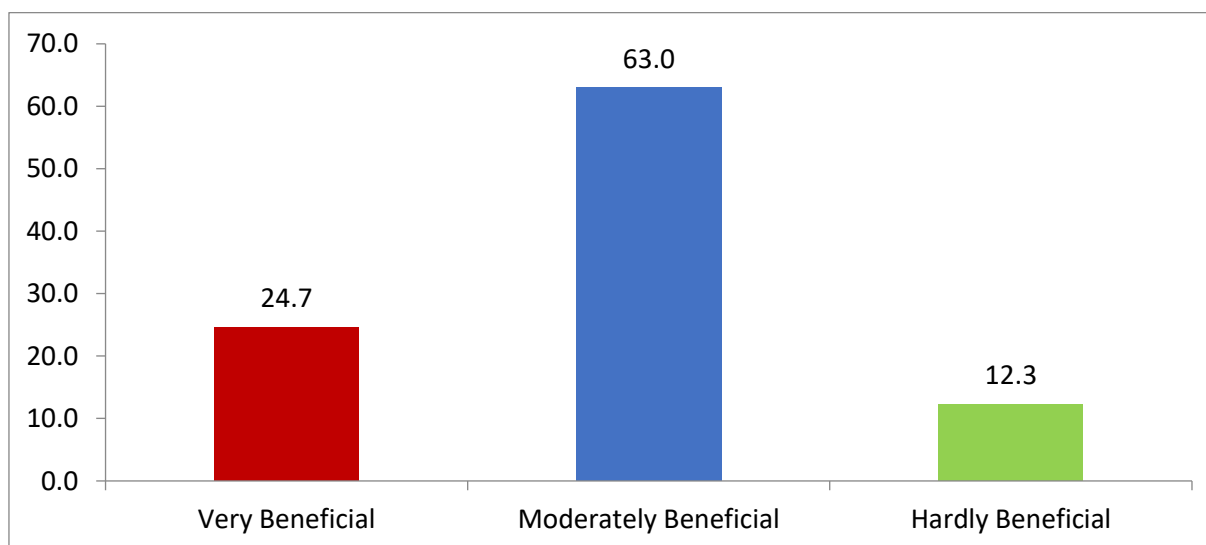
**Figure 3: Frequency of E-Learning Platform**



**Figure 4: Type of Device Used to Access E-Learning Platform**



**Figure 5: Rating Overall E-Learning Platform Ease of Use**



**Figure 6: Rating Overall E-Learning Platform Benefits**