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Original Article

Challenges to Utilization of Online Learning: A Study on First-Year Nursing Students at Selected KMTC Campuses

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Online Learning, E-learning.

Technological advancements play a pivotal role in reshaping traditional learning paradigms. The COVID-19 pandemic disrupted teaching in Kenya's learning institutions, especially in medical schools, like Kenya medical training college (KMTC). Due to safety, face-to-face classes had to be suspended. Online learning tools played a crucial role during the pandemic; but in developing countries like Kenya, technological, educational/literacy background, and socioeconomic challenges existed that could be a hindrance to the adoption and utilization of online learning process. The purpose of this study was to identify challenges to online learning from the perspective of student nurses (March and September 2020 classes) at Kenya Medical Training College. The study objectives were to assess student-related, technological and institutional challenges to the utilization of online learning. A descriptive, cross-sectional design was utilised in the study. Structured questionnaires were used to collect data from sampled March and September 2020 class student nurses who undertook online classes. The respondents were 272 first-year diploma student nurses from March and September 2020 classes sampled from eight selected campuses in the Western, Nyanza, and North Rift regions of Kenya. Collected data was analysed using the Statistical Package for Social Sciences (SPSS) version 20 computer software. Descriptive statistics included proportions, and frequencies, while results were presented in the form of graphs and tables. Ethical issues were observed by ensuring confidentiality and anonymity, and permission was sought prior to data collection. Study findings revealed the existence of challenges to the utilization of online learning by students at KMTC. Student-related challenges included knowledge gap on the use of internet infrastructure (38.8%), not owning E-learning devices (9.6%), and inadequate utilization of online learning at home setting due to disruptions, limited space, and competing tasks (88.2%). On technological challenges, 70% of respondents owned gadgets that were incompatible with the media that was being utilised for e-learning, hence couldn't log in for the sessions. Frequent internet instability was experienced by 54.4% of students. 58.8% stated having slow internet connectivity that affected timely logging in for sessions. On institutional challenges, 55.5% of students stated inadequate preparation for online learning by the institutions, and lack of orientation. 92.6% of respondents indicated preference for face-to-face mode of learning to E-learning, citing reasons like poor communication between students and lecturers, interruption of online classes due to poor network, inconsistent data bundles, and lack of instant feedback and supervision by lecturers. In conclusion,

great importance was attached to needs assessment survey for students and lecturers on all campuses to identify these challenges to enhance the adoption of the teaching model.

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INTRODUCTION

Online learning (often used interchangeably with e-learning) is a form of distance education that involves using technology as the mediator of the learning process, and teaching is entirely delivered through the Internet (Heng and Sol., 2021). In developed societies, online learning is not new. It is part of the curriculum and students are generally familiar with different aspects of online learning through the use of Moodle, Blackboard, and other learning management systems (Heng and Sol., 2021)

The University of South Africa was the first university to introduce an entire distance education system in 1946, whereas the French National Distance Learning Centre (CNED) was established in 1939 (Lassoued et al., 2020). Statistics done by the Pew Research Centre (2011) show that in the 2010/2011 academic year, 89 per cent of four-year colleges and universities offered courses taught fully online, hybrid/blended online, or other forms of distance instruction (Sun and Chen, 2016).

The COVID-19 outbreak stimulated an outbreak of online learning in many institutions in Sub-Saharan Africa. Educational institutions went beyond fighting COVID-19 through social

distancing norms to tackling Sustainable Development Goal Number Four (SDG 4) with the adoption of online learning as the new modality for instruction (Adarkwah, 2021). Online learning has the propensity to ensure learners from all geographical regions have access to education, thereby addressing the inequalities in education. However, the disparities in the access to digital infrastructure had a negative impact on online instruction in Sub-Saharan Africa. The online learning experience is best described as a "challenge-ridden online learning" with many teachers suffering from burnout and students lamenting limited ICT resources, inadequate access to affordable and reliable internet, power outages, and anxiety over academic outcomes (Adarkwah, 2021).

In Kenya, institutions of higher education have adopted e-learning with the aim of coping with the increased demand for university education and widening access to university training and education. Though there are advantages that accrue from adopting e-Learning; its implementation and provision has not been smooth sailing. It had to contend with certain national, organisational, technical and social challenges that undermined its successful implementation (Kibuku et al., 2020).

Mid-level colleges in Kenya had not embraced e-learning until the outbreak of COVID-19 and the closure of physical learning for all schools and colleges. This necessitated the introduction of innovative ways to facilitate the continuity of learning, hence the recommendation of online learning by the Ministry of Education as the best option (Parsitau and Jepkemei, 2020). The study therefore aimed at assessing challenges to the utilization of online learning

MATERIALS AND METHODS

Study Area

The study was conducted in eight selected campuses training Community Health Nursing (KRCHN), that is; Kisumu, Siaya, Busia, Bungoma, Kitale, Webuye, Eldoret, and Kakamega. The choice for community Health Nursing training institutions was on the basis that the nursing cadre has majority of students owing to its double intake of students (March and September admissions/intake). Therefore, in order to obtain a representative and adequate sample size, researchers chose this group of students.

Target Population

The population in this study comprised first-year diploma nursing students, March and September 2020 classes, with a total population of eight hundred and sixteen (816) students (March and September 2020 KRCHN Admission lists). The choice for March and September 2020 nursing classes was based on the fact that, it's only in nursing that double intake/admission of students exist. The choice hence was aimed at obtaining consistency and uniformity in collected data.

Sample Size and Sampling Strategy

Stratified proportional random sampling was used to obtain an appropriate sample size. This method was chosen because of the availability of students, and their heterogeneity. After the establishment of the sample frame, the selection of individuals to make the sample, in this case, consisted of two steps:

- Allocation of space to each institution
- Selection of students to fill the spaces for each school in proportion to its population size of Community Health Nursing students.

Inclusion Criteria and Exclusion Criteria

The inclusion criteria were that participants are first-year diploma student nurses (March and September 2020 intake) from targeted institutions and attended scheduled online learning sessions. Facilitation of online learning in 2020 for first-year nursing students commenced in September 2020, and was carried out as a block/cohort in regions (Western, Nyanza, and North Rift were placed in one cohort), where the two classes were combined and taught by lecturers from the three regions. Learning for the rest of the students, that is, second and third year was carried out at campus level, hence lacked uniformity. A first-year student nurse who never attended online learning that commenced in 2020 was not allowed to participate in the study.

Sample size determination

The Taro Yamane method for sample size calculation formula (Yamane, 1967) was adapted and used to determine the sample size for student nurses:

$$\text{Sample Size } (n) = \frac{N}{1 + Ne^2}$$

Where: n= signifies the sample size; N signifies the population under study; e signifies the margin error (it could be 0.10, 0.05, and 0.01)

Hence:

$$\begin{aligned} \text{Sample Size } (n) &= \frac{816}{1 + 816 (0.05^2)} = \frac{816}{3} \\ &= 272 \end{aligned}$$

Therefore, the sample size was 272 March and September 2020 student nurses.

The sample size in every college was approximated as indicated in table 1:

Table 1: Determining the sample size of the study population

Campus	Total NO. of March and Sept 2020 student nurses	% of students	Sample size
Busia	102	12.5	34
Siaya	104	12.7	34
Kisumu	99	12.1	33
Eldoret	103	12.6	34
Nakuru	98	12.0	34
Bungoma	100	12.3	33
Kitale	104	12.7	34
Kakamega	106	13.1	36
Total	816	100%	272

In each institution, students were stratified according to gender proportion of the participants' population size.

Data Collection Instruments

Data was gathered between October and November 2021 from student nurses who met the inclusion criteria by means of a self-administered semi-structured questionnaire. A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents (Abawi, 2017). According to Abawi (2017), the method is appropriate for collecting both qualitative and quantitative data. The preference for the method was because of the ability to collect information from a large sample in time, with minimal variations (Kombo and Tromp, 2006).

Data Analysis

Data was analysed between 15/02/2022 and 21/02/2022 using the Statistical Package for Social Sciences (SPSS) version 20 computer software. The outcomes from the analysis were presented in tables, graphs

Ethical Considerations

Permission to conduct the study was sought from the Director and registrar of research. A written consent was availed to all eligible research participants who were voluntarily given informed written consent before participating in the study.

A brief description of the study was done by the researcher, together with the duration of the study and potential harm or risks associated with the study. Participants were informed of the right to withdraw consent to participate or opt out at any stage of data collection without penalty. Confidentiality of participants was maintained; their names or any other identifying information was not recorded or captured to help protect their privacy.

Selection and training of Research Assistants

Eight research assistants were selected from the eight KMTC campuses involved in the study. Purposive sampling was used. The criteria used were that the individual was to be a lecturer facilitating teaching and learning of first-year diploma nursing students (March/September 2020 classes), be IT compliant, and possess knowledge of research. Upon selection, the assistants were updated on data collection, organization, and analysis.

RESULTS

Socio-Demographic Characteristics

A total of 272 student nurses from March/September 2020 classes participated in the study. The participants were sampled from the following campuses: Kisumu, Siaya, Busia, Kakamega, Kitale, Bungoma, Nakuru, and Eldoret.

Table 2: Distribution of Respondents by Age

Age	Frequency	Proportion
18-24 years	188	69.1
25-29 years	65	23.9
30 years and Above	19	7.0
Total	272	100

The majority of participants were aged between 18-24 years (69.1%). Participants who were above the age of 30 years were very few (7%). There was also a significant proportion of respondents between 25 and 29 years (23.9%).

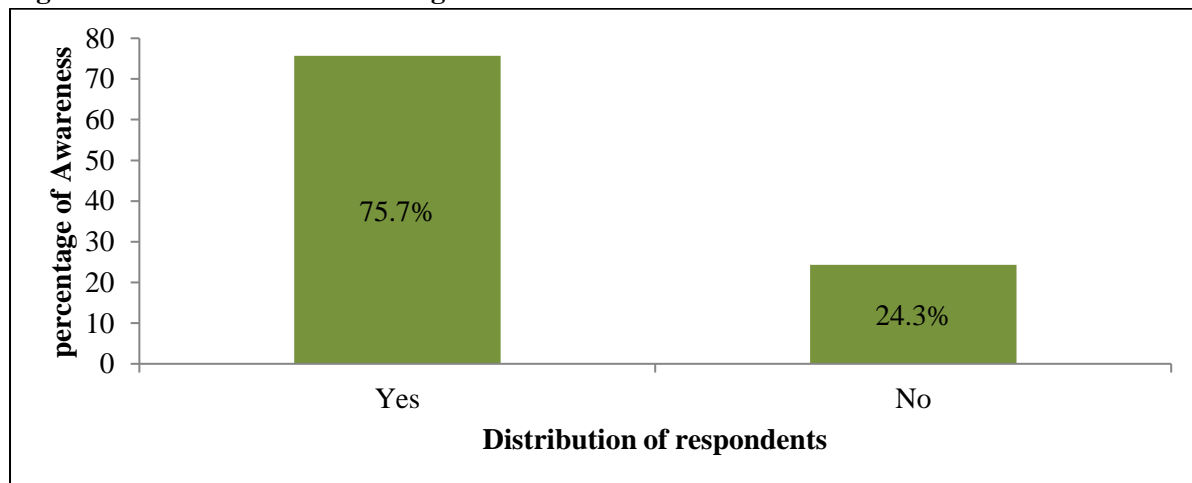
Male participants were represented by 36.8% (n=100), whereas that of females was 63.2% (n=172). More than half of the participants were female student nurses. 53.3% (145/272) of participants were from the September 2020 class, whereas 46.7% (127/272) were from March 2020

class. 53.3% (145/272) of participants were from the September 2020 class, whereas 46.7% (127/272) were from March 2020 class.

Student-Related Challenges to Utilization of Online Learning

The majority of respondents, 75.7% (n = 206) reported having heard of e-learning before admission to Kenya Medical Training College while 24.3% (n= 66) had never heard of e-learning before admission.

Figure 1: Awareness of e-Learning before admission to KMTC



Source: Primary data

A great percentage of respondents (43.3%) learned about the existence of e-learning through media. 22.8% and 7.7% of participants learned through school and during computer classes respectively, whereas 26.2% specified other sources of information being from friends, elder brothers and sisters who were in institutions of higher learning

Ownership of a Personal Device Used for Online Learning

The majority of respondents; 89.7% (244/272) indicated that they owned a personal device that they used for online learning while 10.3%

(30/272) did not own any device for online learning. Those who lacked devices stated that they were forced to borrow from friends or families members during learning sessions.

Attendance of Online Learning Sessions in 2020 According to Learning Timetable

60.7% (n= 162) of respondents indicated that they were able to attend online learning sessions according to the provided learning timetable. 39.3% (n= 107) were not able to attend the sessions as scheduled.

Experiences of Student Nurses during Online Learning at Home

About 61.8% (n= 168) of respondents indicated that they had full knowledge regarding the use of online learning, that is, joining a class session with the link provided, recording a lecture, muting and unmuting, leaving class and chatting. The majority of respondents; 88.2% (n= 240) indicated that online learning at home was a challenge due to competing tasks, disruptions from family members, and limited space. 70.2% (191/272) stated that most online classes were

attended halfway due to lack of supervision. The majority of respondents; 83.1% (226/272) indicated that the level of concentration on online learning was not sustainable throughout the learning session. 80.1% (n= 218) of the respondents indicated that poor network at home interrupted e-learning due to the geographical location of their home. 90% (n= 245) of respondents indicated that data bundles were expensive for e-learning. Students also reported that at times they ran out of bundles before the e-learning session was over (86.1% (n= 234).

Table 3: Experiences of student nurses during online learning at home

Experiences	SA %	A %	NS %	D %	SD %	Mean	Std. Dev.
I have full knowledge regarding the use of online learning, that is, joining a class session with the link provided, recording a lecture, muting and unmuting, leaving class and chatting.	29.8	32.0	16.5	9.9	11.8	3.58	1.323
Online learning at home is a challenge due to competing tasks, disruptions from family members, and limited space	63.2	25.0	4.8	2.9	4.0	4.40	1.001
Most online classes are attended halfway due to lack of supervision	42.6	27.6	14.0	8.1	7.7	3.89	1.257
The level of concentration in online learning is not sustainable throughout the learning session.	49.3	33.8	8.8	5.1	2.9	4.21	1.005
There is a poor network at my home that interrupts e-learning on my smartphone due to the geographical location of my home.	63.2	16.9	6.3	9.6	4.0	4.26	1.175
Data bundles are expensive for e-learning.	74.6	15.4	2.9	3.3	3.7	4.54	0.975
Most of the time I ran out of bundles before the e-learning session was over	67.3	18.8	4.4	5.1	4.4	4.39	1.081
Aggregate Score						4.18	1.117

Technological Challenges to Utilization of Online Learning

Type of Internet Connectivity Used for Online Learning While Out of College

Majority of respondents; 96% (n= 261) used mobile data bundles as the kind of internet connectivity for online learning out of college while only 4% (n= 11) used Wi-Fi internet connectivity.

Technological Challenges Experienced During Online Learning

About 46.3% (n=125) of respondents indicated that they sometimes had good communication with their teacher during online classes. Only 19.9% (n=54) of respondents had good communication with their teacher during online classes, whereas 33.8% (n=91) indicated that they had poor communication with their teacher during online classes. The majority of the respondents, 57.1% reported having poor internet connectivity for online classes at their residence. 29.7% said that connectivity was sometimes good, while only

13.2% indicated that the connectivity was good during online classes.

The majority of respondents 80.1% indicated that they experienced frequent internet instability at their home during online classes. Findings reveal that only 19.9% of respondents had stable internet during online classes. Similarly, the majority of respondents (85.3%) indicated that their internet connection was very slow and took too long to load pages. Only 14.7% reported having good internet connection and page loading. 67.8% (n=184) of the respondents stated that their home environment lacked power connectivity to support online learning, as compared to only 32.2% (n=88) of the respondents whose homes had power connectivity for online learning. On the same breadth, findings revealed that there was frequent power interruption that affected internet connectivity, as indicated by 49.3% of respondents, whereas, 50.7% of respondents stated that there were no power interruptions in their areas of residence. Findings further revealed that the majority of respondents' homes were not internet-connected, as cited by 73.8% (199/272). Only 26.2% (73/272) of respondents' homes had internet connectivity. The majority of respondents; 43.4% (n= 118) indicated that the multiple communication that occurs on their gadgets interrupted their online classes. 36.0% (n= 98) of the respondents further indicated that their gadget failed to log in during online class sessions due to incompatibility issues. However, 64 % (n= 174) had had gadgets that were compatible with the KENET media that KMTC used for online learning.

Institutional Challenges to the Utilization of Online Learning

Findings revealed that notes/lecture materials were sometimes available on the e-learning platform, as indicated by 71.7 % (n= 195) of respondents. 64.7% (176/272) of respondents indicated that they sometimes got assignments/homework from subject lecturers after an online learning session. The majority of the respondents; 46.3% (n= 126) stated that the lecturer sometimes provided feedback for their

homework, assignments, and questions through the e-learning platform. 67.3% (n= 183) revealed that there was sometimes clear communication from the lecturer during online learning sessions for a full understanding of the content. Most respondents: 41.9% (114/272) indicated that sometimes evaluation of learning was done online by the subject lecturer. Majority of respondents; 55.5% (n=151) cited lack of preparation for online learning by the institutions. 61.0% (166/272) of respondents indicated that sometimes the link for online classes was shared early enough for them to prepare.

Preference of Online Learning versus Face-to-Face Learning

The majority of respondents; 92.6% (n= 252) indicated that they preferred the traditional face-to-face mode of learning, than online learning. The reasons for preference against online learning were cited as follows: lack of clear communication and understanding between student and lecturer, interruption during online classes due to poor network, face-to-face has better understanding as the lecturer explains better and one can ask questions and seek clarification, there is no instant response, no supervision done, poor internet connectivity in the country, there are some discussions that should be done for more effective learning, challenges in purchasing online learning device and data/bundles, difficult to keep up with the rest of the students who are fast learners, body language of the lecturer is limited which is helpful in explaining complex ideas and access to the skills lab is limited

Only 7.4% (n= 21) of respondents cited their preference for online learning than face-to-face mode. The study went further to ask the majority of the respondents who never appreciated online learning as opposed to face-to-face to give reasons why. Respondents cited the following reasons for preference of online learning: it is more convenient, there is no carrying of books.

DISCUSSION

The findings obtained from the study reveal the existence of challenges that hinder the effective

utilization of online learning by students, especially at Kenya Medical Training College. The situation becomes worse if there isn't a proper transition from the traditional face-to-face model of teaching and learning to the online learning model.

Knowledge of the use of internet infrastructure appeared to be a barrier to many student nurses, who indicated having challenges in joining a class session with the link, recording a lecture, muting, and unmuting, leaving a class or chatting. The findings are consistent with those of Baczek, (2020) who in her study reported that over 60% of respondents had never experienced any form of e-learning, and she associated it with the inability to use internet facilities. It was therefore important for KMTC to have planned for an orientation program, both for learners and facilitators prior to the initiation of e-learning classes. Results of Subedi et al. (2020), also indicated a lack of knowledge regarding media used for online education (like joining, mute/unmute, opening notes, among others).

Students found it very challenging to utilize online learning at home as there was reduced concentration and at times some could not even join a scheduled class session, due to competing tasks, disruptions from family members, and limited space (living room utilized as study area was also used by other family members). This is congruent with the findings of Baticulon et al. (2020), who stated that there were students who could not concentrate because they were constantly exposed to conflict among family members, and apart from that some found it hard to turn down conversations with parents or siblings, and therefore it was hard to find a quiet study area.

Most students had poor networks at home due to their home geographical location. The poor network regularly interrupted e-learning, making students miss out on scheduled classes. The sustainability of a learning session was also a challenge to most students due to inadequate bundles for a session, which made students attend classes halfway. Harerimana and Mtshali (2018),

echoed this in their study where they indicated that slow internet connections and restricted access to certain network sites was a hindrance to effective use of internet and e-Learning. Dancel, (2020) also revealed that owing to socio-economic instability, students found it difficult to split their budgets between personal and household essential needs and internet subscriptions, and therefore students from lower income brackets felt less capable of engaging in online learning. Other students had challenges logging in because their gadgets were incompatible with media utilized for online teaching, hence could not easily log in during online class sessions. Only 30% had compatible gadgets.

Students indicated having poor communication with teachers, owing to poor internet connectivity at their residences. Online learning requires reliable internet connectivity and necessary hardware and software, as echoed by Baczek et al., (2020). Students revealed that though some residents had internet connectivity, the internet was quite unreliable, owing to slow connection and page loading. These sentiments were echoed by Harerimana and Mtshali (2018), who stated that constraints like very slow internet connection (which takes too long to load pages) disadvantaged students from remote areas where connectivity was a problem.

The majority of the students who participated in the study complained of irregular availability of lecture materials and assignments from subject lecturers after an online class session, and that the feedback for homework, assignments, and questions through the e-learning platform wasn't timely. The findings were consistent with those from the study of Subedi et al., (2020) who stated that the majority of students were unable to understand the full course (content) provided by facilitators during online classes, and also cited inadequate attention from facilitators. Students also complained of delays in sharing joining links to enable them to prepare in advance. Similar findings are echoed by Gallagher (2020), who in his study conclusion, reported that

communication channels needed improvement and that students' sentiments needed to be considered to enhance online learning. Students also stated that they were not adequately prepared for online learning by the institution; most of them indicating that there was no orientation to online learning. Harerimana and Mtshali (2018), in their study, stated that the success of internet usage in teaching and learning not only depends on the availability of materials but also on effective orientation and capacity building of nursing lecturers and students in computer literacy, which is in line with training on the use of internet facilities.

CONCLUSION

The findings of the study and the literature support the need to review the initiation and adoption of online learning as a model of teaching. It is clear that challenges to the utilization of online learning exist. The results of this study need to be considered prior to the full adoption of online learning in the institution.

Recommendations

Based on the findings of this study, the following recommendations were put forward with the view of implementing successful e-learning adoption and utilisation in KMTC: KMTC institutions should plan for a needs assessment survey among all students to identify specific limitations to the effective utilization of online learning. KMTC should organize periodic seminars, short courses, and training workshops, which should be tailored to the specific needs of their lecturers, students, and the members of the e-learning management boards.

There should be a deliberate effort made to increase funds for e-learning projects, which should be directed towards helping the KMTC acquire adequate hardware and software e-learning infrastructure on all campuses. Currently, students are being observed struggling with internet connectivity, which makes it hard for a lecturer to plan and institute an online class. The institution is to make plans on ensuring that students are subscribed to free or subsidized

internet bundles, prior to the adoption and utilization of online learning. The lack of sustainability of online class sessions was attributed to the unaffordability of data bundles for class sessions.

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