RESOURCE APPLICATION OF MOBILE-LEARNING PEDAGOGY IN KWARA STATE TERTIARY INSTITUTIONS

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Abstract

The study examine the resource application of mobile-learning in Kwara state tertiary institutions. It discusses the challenges confronting the availability, accessibility and usage of mobile-learning pedagogy in the areas of study. Mobile learning is vital to pedagogical resourcefulness because of its unrestricted geographical barriers and global intellectual interaction. The article adopts descriptive methodology. A structured questionnaire was used to collect data from 146 participants randomly selected from three institutions in the state. Cronbach Alpha was used to determine the reliability of the questionnaire and 0.78 reliability co-efficient was obtained. Data collected were analyzed using descriptive statistics and Pearson Correlation. Finding showed that majority of the participants own different mobile devices especially smart phones (91.78%). There was poor access to internet and usage of m-learning for teaching and learning. However, there is positive and significant relationship between teaching effectiveness and availability, accessibility and usage of mobile learning. It was recommended that the management of various educational institutions provide internet facilities on their campuses and encourage the use of m-learning as source of educational materials for teaching and learning activities.

Keywords: *Availability, accessibility, usage, mobile learning, tertiary institution*

INTRODUCTION

Education as an instrument for development captures deliberate provision of teaching and learning with the purpose of transmitting accumulated knowledge, skills and values from one generation to another (Adebayo, 2013). It is aimed at building human capacity, empowering recipients to become reliable and productive while acquiring values in a more convenient means (Oladosu, 2004). Scientific and technological developments have significant influence on the pursuit of educational advancement. In an effort towards achieving a functional education system, successive Nigerian governments have employed various measures towards encouraging the use of Information Communication Technology (ICT) and incorporating ICT into school (NPE, 2014).

The role of ICT in social and economic developments of any nation cannot be over emphasized. Its impact on educational development is felt in the provision of innovative instructional strategies that are more learner-centered and enhances learning outcome. The emergence of ICT has influenced all aspects of our lives including teaching and learning activities from primary to tertiary education level. In this regards, one of the emerging trends is the provision of educational resources and contents, which enhance better communication between teacher and learners, and collaboration among students (El-Sofany & El-Haggar, 2020). Hence, technological devices such as smart phone, tablet, ipad, etc., which are personal and mobile in nature serve as digital learning devices and tools for M-Learning. Therefore, M-Learning involves the use of mobile gadgets with or without other ICT software, which enables learning to take place at anytime and anywhere. Also, it gives room for individual learning by allowing students to learn at their own individual pace.

Furthermore, M-Learning usage helps learners to embrace more resourceful learner-centered teaching approaches, which improve students' achievement and retentive capacity. M-Learning provides educational resources that are useful both in the classroom and outside the classroom. Learners can share these educational resources instantaneously among themselves without losing the contents. This gives room for immediate learning feedback. Mobile learning is an e-leaning that involves the use of mobile devices and wireless transmission to enhance effective teaching and learning. It is an instructional strategy that facilitates learning through the use of ICT without geographical or distance restriction (Boyinbode & Akinyele, 2008; Quinn, 2015).

Tertiary institutions always seek for more efficient teaching techniques that emphasis learners' effective participation in teaching and learning activities. Hence the use of technology based on inter-relationships is encouraged. In the new Tertiary Educational learning environment, M-learning is therefore rated high. This is because, it is more flexible and creates platform for active involvement of learners in teaching-learning process. In comparison with other pedagogical resources it has unrestricted geographical barriers and global intellectual interaction. Also, it supports collaborations and connections among learners. M-learning has the potential to enhance effective teaching, promote learners participation and improve learning outcomes in schools, colleges and universities (Boyinbode & Akinyede, 2008; Hashemi et al., 2011; Kneil-Boody, 2012; Osang et al., 2013). However, it is imperative to note that M-learning is not the same as e-learning, while m-learning uses mobile devices, e-learning uses devices that are less portable such as laptop and notebook computers.

Access to M-learning facilities explains the level to which ICT resource is easier to use and extent of its accessibility (Aramide et al., 2015). Access can be qualified at various levels: the individual, the household and the community. Availability of ICT resources determines the level of accessibility. Thus, poor availability of ICT resources hinders accessibility of resources for instructional purposes. Few ICT facilities such as computers, audiotapes, projectors and instructional videos are easily accessible to the science teachers, while ICT facilities, such as simulations, models and web-based laboratories were found not too frequently assessed by science teachers (Aramide et al., 2015). Olorundare (2015) argued that the use of ICT resources in school work worldwide has been necessitated by the usage of electronic technological devices to prepare the present generation of young people for future workplace, desire for high academic achievement and ability to work independently. The integration of technology in tertiary institutions is becoming increasingly vital in a global society. In this regards, the role of tertiary institutions in adapting technology driven learning is critical. Innovative strategies and tools for effective teaching and learning need to be modeled with appropriate guide on the usage in accordance with the country's social and economic development. However, previous studies have revealed that ICT resources in content delivery in tertiary institutions have not been effectively utilised. Therefore, assessment of availability, accessibility and usability of ICT resources in tertiary institutions becomes imperative.

The provision and pursuit of a resourceful educational system is often determined by an efficient method which effectively promote social, economic and technological advancement. In views of this, successive Nigerian governments have employed different measures to realize a functional education system. Such measures include the use of (ICT) in the schools to enhance teaching and learning through incorporation of ICT into teaching and learning process. The impact of this incorporation is revolutionary, providing new innovations in modern teaching and learning activities. Technological devices such as smart phones, tablets, PDAS, Ipads, mobile phones etc. serves as digital learning devices which are personal and mobile in nature, thus the connotation of M-learning, Mobile learning enables students to learn anytime and anywhere at their own pace.

In spite of the importance of e-learning and m-learning in education system, not many teachers in tertiary institutions are competent in the use of these gadgets in teaching and learning. Hence, this paper investigated availability, accessibility and usage of mobile-learning pedagogy in Kwara State tertiary institutions. Therefore, the main objective of this research is to investigate the availability, accessibility and usage of m-learning pedagogy in Kwara State tertiary institutions. Specifically, the study intends to determine the:

(1) availability of m-learning resources as a learning tool among students of tertiary institutions in Kwara State.
(2) the accessibility of m-learning resources as a teaching-learning tool among lecturers and students.
(3) the usage of m-learning tool for instructional strategy among lecturers and students.
(4) relationship between availability, accessibility, usage and teaching effectiveness.

Research Questions
The under listed are raised as research questions to guide the study:
(1) Are devices for Mobile-Learning available in the selected tertiary institutions?
(2) Do lecturers and students have access to internet and educational software Apps in the selected tertiary institutions?
(3) Do lecturers and students utilize mobile learning in teaching and learning?
(4) Is there relationship between availability, accessibility, usage and teaching effectiveness?

Literature Review:
The study is based on uses and gratification theory. The theory asserts that the evidence of media use such to gain specific wants and satisfy some needs. It sees consumers of media as active and motivated to select the media they are interested. If further explains its awareness of their reasons for selecting from different media options. The theory also opined that such selection often open new avenue in usage of other social media. Credit for the innovation of this theory has been alluded to have its origin in 1940s when scholars began to study had many people consume different forms of media. However, in the contemporary setting Jay Blumbler & Elihu Katz's (1974) are credited for its propagation as media technologists.

Mobile Learning is generally perceived to mean the integration of digital devices such as smart phones, PDAS and MP3 players for use in teaching and learning. This development has provided new flexible techniques in modern education and training. In essence M-learning is more interactive, involves more contact, collaboration and communication with people. It's ability to serve as a channel to provide educational contents, and resources on personal pocket devices as smart phones, tablets, I-pads, PDA's is commendable. M-learning involving the use of mobile technology either alone or in combination of other ICT, enables teachers and learners to learn anytime and anywhere at their own place. M-learning therefore provides access to learning materials, helps in sharing knowledge without limits, propagate a truly learner-centered approach to learning and enhances students' learning outcome (Abidin & Tho, 2018; Adedoja et al., 2012; Hashemi et al., 2011; Sanga et al, 2016; Umoru & Okeke, 2013). However, availability of mobile devices is crucial to a successful M-learning. That is, are mobile devices at students' disposal? This question is very important when thinking about the use of M-learning. Also, ability of the learners to have access to facilities and services plays a significant role in the use of M-learning. Consequently, the usage of m-learning as an instructional strategy depends on the availability and accessibility of resources. Thus, it is important to examine the availability, accessibility and the usage of m-learning especially at tertiary education level.

Several studies have been carried out on M-learning by scholars. For instance, Martin and Ertzberger, (2013) conducted an experimental study on the use of mobile learning with the use of "Here and Now mobile learning" approach. The study involved a pretest posttest design and ANOVA was used to analyze data. Finding from the study showed a significant difference between academic performance of experimental and control group. Also, students showed a positive attitude towards mobile learning. Also, McConatha et al., (2018) assessed the use of m-learning as a new educational tool. Quasi-experimental research specifically a pretest and posttest design was adopted for the study with the use of smart phones through HotLava software. The study involved a total of 42 participants and achievement test was used to collect data while data were analyzed using ANCOVA statistical technique. Result revealed that students exposed to m-learning outperformed their counterparts taught using conventional lecture method.

Similarly, Demir and Akpinar (2018) examined the effect of mobile learning applications on students' academic achievement and attitudes towards learning. The researchers used quasi-experimental design involving 15 students and 26 students for experimental and control group respectively. Academic achievement was measured through achievement test while attitude scale was used to assess students' attitude. Finding showed that m-learning promotes academic achievement among students in the experimental group. Furthermore, students showed positive attitude towards m-learning. Likewise, Mohammadi et al. (2020) examined the use of mobile phone in teaching and learning among faculty members of technical engineering. A concurrent mixed method design was adopted and 87 faculty members were selected through stratified random sampling technique. Result revealed high level of acceptance and positive attitude towards the use of mobile phone for teaching and learning. Also, in a study conducted by Adzifome and Agyei (2022) usage and availability of mobile devices in a University setting was investigated. The study was carried out in Ghana involving 222 university students who were selected randomly. Analysis of data showed that the benefits of m-learning have not been adequately harnessed. Also, subject of the study showed positive experience in the use of mobile devices for learning.

Additionally, Mergany et al. (2021) assessed the effectiveness of mobile learning on students' academic achievement and attitude. The study was conducted in a Sudanese University involving 67 students who were assigned into experimental and control groups (33 and 34 respectively). Achievement test and a 5-point likert scale attitude questionnaire was used for data collection; students' achievement was tested using t-test while chi-square was used to test attitude. Finding revealed a significant difference in the mean scores of the two groups with experimental group having higher mean scores. Also, the students in the experimental group showed significant and positive attitude towards mobile learning

The foregoing are contributions of some scholars on various aspects related to M-learning usage. It is evident that m-learning is an imperative necessity in tertiary institutions in Nigeria but has not sufficiently received attention in its availability, accessibility and usage. Therefore, there is a need for investigation on its availability, accessibility and usage within tertiary institutions in Kwara State.

Methodology
The study adopted a descriptive research of the survey type, because it involved qualitative approach meant to assess a social situation in order to make inference and generalization. The target population comprised of all education students of Kwasu Malete, all NCE II students of Kwara State College of Education, Ilorin, all Health Tech II students of Kwara Health Technology Offa.

The study involved a total of 146 participants (36 lecturers and 110 students) who were randomly selected from the three institutions. Two set of researcher designed questionnaires were used to collect data. One set for students to respond to certain question items while the second set was for lecturers to respond. Reliability of the instruments were determined with the use of Cronbach Alpha statistical method. Descriptive statistics was used to answer research questions while relationship between variables was determined with the use of Pearson Correlation.

Results and Discussion
Table 1: Demographic Distribution of Respondents

Institution	Lecturer F	%	Student F	%	Total F	%
Kwara State University, Malete	10	20.00	40	80.00	50	34.25
College of Education, Ilorin	18	26.87	49	73.13	67	45.89
College of Health Technology, Offa	8	27.59	21	72.41	29	19.86
Total	36	24.66	110	75.34	146	100

Table 1 shows that 24.66% of the respondents are lecturers while 75.34% are students from the three selected institutions. 34.25% of the participants are selected from KWASU, 45.89% from COED while the remaining 19.86% are selected from CHT. 20% of the respondents from KWASU are lecturers while 80% are students; also, COED has 26.87% as lecturers and 73.13% as Students. The respondents from CHT are 27.59% and 72.41% of lecturers and students respectively.

Table 2: Availability of M-Learning Devices

Institution		Smartphone Avail F	%	N Avail F	%	Total F	%	Laptop Avail F	%	N Avail F	%	Total F	%
KWASU	Lecturer	10	100	-	-	10	100	10	100	-	-	10	100
	Student	38	95.00	2	5.00	40	100	11	27.50	29	72.50	40	100
COED	Lecturer	17	94.44	1	5.56	18	100	14	77.78	4	22.22	18	100
	Student	41	83.67	8	16.33	49	100	7	14.29	42	85.71	49	100
H.TECH	Lecturer	8	100	-	-	8	100	8	100	-	-	8	100
	Student	20	95.24	1	4.76	21	100	3	14.29	18	85.71	21	100
	Total	134	91.78	12	8.22	146	100	53	36.30	93	63.70	146	100

Table 2 reveals that 100% of lecturers from KWASU have both smart phones and laptop. Also, 95% of students from the institution are in possession of smart phones while 27.50% have laptop. In COED, 94.44% and 83.67 of sampled lecturers and students respectively have different types of smart phones while 77.78% of lecturers have laptop, only 14.29% of students have laptop. Also, 100% of participated lecturers from CHT use both smart phones and laptop while 95.24% of students have smart phones only 14.30% have laptop. In all, 91.78% of the respondents have smart phones while the remaining 8.22 do not have smart phones. Also, 63.70% of participants do not have laptop while the remaining 36.30% have. This implies that majority of the respondents own different mobile devices while only few of the participants have laptops. This finding is in agreement with previous studies (Mcconatha et al., 2008; Adzifome & Agyei, 2022; Mohammadi et al., 2020).

Table 3: Accessibility to Internet and Educational Software

Institution		Internet						Educational Software					
		Acces		N Acces		Total		Acces		N Acces		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
KWASU	Lecturer	10	100	-	-	10	100	9	90.00	1	10.00	10	100
	Student	38	95.00	2	5.00	40	100	10	25.00	30	75.00	40	100
COED	Lecturer	-	-	18	100	18	100	4	22.22	14	77.78	18	100
	Student	-	-	49	100	49	100	10	20.41	39	79.59	49	100
H.TECH	Lecturer	-	-	8	100	8	100	6	75.00	2	25.00	8	100
	Student	-	-	21	100	21	100	4	19.05	17	80.95	21	100
	Total	48	32.88	98	67.12	146	100	43	29.45	103	70.55	146	100

Table 3 demonstrates that only KWASU provides internet service for staff and students as 100% of lecturers and 95% of students have access to internet. Only 32.88% of the respondents have access to internet while the remaining 67.12% do not have access to internet. This agrees with the finding of Adzifome and Agyei, (2022).

Table 4: Usage as Source of Education Materials, Teaching and Learning

Institution		Source of Education Materials						Teaching and Learning					
		Use		N Use		Total		Use		N Use		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
KWASU	Lecturer	10	100	-	-	10	100	2	20.00	8	80.00	10	100
	Student	25	62.50	15	37.50	40	100	6	15.00	34	85.00	40	100
COED	Lecturer	13	72.22	5	27.78	18	100	4	22.22	14	77.78	18	100
	Student	10	20.41	39	79.59	49	100	8	16.33	41	83.69	49	100
H.TECH	Lecturer	8	100	-	-	8	100	1	12.50	7	87.50	8	100
	Student	3	14.29	18	85.71	21	100	3	14.29	18	85.71	21	100
	Total	69	47.26	77	52.74	146	100	24	16.44	122	83.56	146	100

Usage as source of educational materials and usage for teaching and learning were analyzed in table 4, the result shows that majority of the respondents do not use mobile devices as source of educational materials (52.74%) while the remaining 47.26% of the respondents use mobile devices as source of educational materials. Also, only 16.44% of the participants employ mobile devices in teaching and learning activities while 83.56% do not make use of the devices for teaching and learning. This is in line with the study of Mohammadi et al., (2020) but contradicts the findings of Adzifome and Agyei, (2022).

Table 5: Relationship between Availability, Accessibility, Usage and Teaching Effectiveness

Variables	N	r	Sig
Availability of M-learning and Teaching/Learning Effectiveness	146	0.58	0.000
Accessibility of Internet/Education software and Teaching/Learning Effectiveness	146	0.26	0.001
Usage of M-learning and Teaching/Learning Effectiveness	146	0.40	0.000

Table 5 shows that relationship between availability of m-learning devices and teaching effectiveness is strongly positive and significant ($r = 0.58$, $p < 0.05$). Also, accessibility of internet and education software has a positive and significant correlation with teaching effectiveness ($r = 0.26$, $p < 0.05$). Likewise, there is a positive and significant relationship between usage of m-learning and teaching effectiveness ($r = 0.40$, $p < 0.05$). Thus, availability of mobile devices, access to facilities/services and usage of m-learning have positive and significant correlation with teaching effectiveness. This implies that the three variables have the potential to enhance effective teaching and learning. This finding agrees with the study of Demir and Akpinar (2011), El-Sofany and El-Haggar (2020), McQuiggan et al (2015) and Sanga et al (2016).

Conclusion and Recommendations

The study investigated availability, accessibility and usage of mobile-learning in Kwara state tertiary institutions. 146 participants (36 lecturers and 110 students) were surveyed using a structured questionnaire. Descriptive statistics and Pearson Correlation were used to analyze data. Finding of the study revealed that majority of the participants own different mobile devices especially smart phones (91.78%) while access to internet and usage of m-learning for teaching and learning was poor. However, there is positive and significant relationship between teaching effectiveness and availability, accessibility and usage of mobile learning.

Therefore, based on the findings of the study the researcher recommended as follows;

(a) All tertiary institutions in Kwara State should make a possession of quality smartphone a prerequisite before final registration on admission to read any course in their Colleges or University.
(b) Deliberate effort should be made to ensure all tertiary institutions to make available internet services available and accessible to all staff and students on campus.
(c) All tertiary institutions in Kwara State should synchronize their curriculum content and implementation to give room for the use of M-Learning devices which abounds in their comprises.
(d) Efforts should be made by all educational stakeholders to make available needed M-Learning resources in various tertiary institutions in Kwara State.
(e) In view of the positive impact of M-Learning resources accessibility to provide educational software, managements of all tertiary institutions should expedite action to integrate it for teaching and learning.
(f) Usage of M-Learning resources plays vital roles to stimulate retention, learning cooperation, research collaboration, hence we recommend sound quality measures to be put in place as ethics guiding its usage and guide against abuse of the innovation.

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