Students' Perception of Mobile Application for Learning and Teaching Among Colleges of Education Students in North-Central Region of Nigeria

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A B S T R A C T

This study examined the perception of Colleges of Education students in using Mobile Learning (M- Learning) applications, the viability to solve inadequate facilities and limited access to high-quality education. It checked how both male and female students perceived M-Learning in the colleges. Survey research design was adopted for the study. The population of the study comprised students of three Colleges of Education in North-Central Zone of Nigeria. 300 students selected through Purposive and stratified random sampling approach, constituted the sample for the study. Data were collected through primary and secondary sources with self-structured questionnaire tagged Students' Perception of Mobile Application for Learning and Teaching in Tertiary institutions (SPMALTTI) with 40 items. A reliability of the instrument was obtained as r = 0.74 with Cronbach alpha at 0.05 level of significance. The questionnaire is rated using a five-point Likert Scale of measurement. The hypotheses are tested using statistics measurement of Z- test and ANOVA analysis, SPSS Version 23.0 was used as statistical tool to analyze the data collected. The findings revealed that M – Learning applications encourage good communication among instructors and students, it was also revealed that mobile applications make online learning and teaching to create innovativeness, decisive reasoning and make students exceptionally motivated. The findings of the study further revealed that Mobile application technology is reliable, effective and efficient in improving instructional delivery and evaluation. it was suggested that M- Learning application is a helpful tool that each instructor ought to use for teaching and learning on the web.

Keywords: Students' Perception, Mobile Learning, Mobile Application, Learning and Teaching, Communication

INTRODUCTION

An electronic method of gathering, processing, storing, and transmitting information is known as Information and Communication Technology (ICT). With regards to ICT, mobile applications are understood to include the use of a variety of technologies with interfaces on many types of mobile devices technology, particularly mobile phones with the Apple and Android operating systems, among others. ICT has been useful for both learning at a distance and delivering instruction in formal school settings. These innovative advances show that our society has transformed into a global community where digital technology permeates every aspect of human life, including security, business, and education. Similarly, (Adekotujo et al, 2020) put it, that ICT has an impact on every aspect of education, whether it be in a formal, casual, or semi-formal context. In the 21st century, mobility of instruction is crucial because it helps schools make the shift from a teachers-centered to a learners-centered model. The ongoing instructing and growing experience is not the same as the past, where classes are held straightforwardly (Physical Class Room).

Students' perception can be seen as away students view, see, or their perspective about a peculiarity. Whether positive or negative in the manner they see quizalize feedback from its utilization by the students. The students' perception would be examined from the orientation viewpoint to check whether both male and female would see, view or use the application the same way. Learning exercises in the research facility include four significant sorts of reasonable work: works out, encounters, shows and examinations (Sukmawati, 2019). Consequently, the instructors should have the option to utilize the different innovations and furthermore configuration, gather, guide and survey understudies' undertakings. Assets and administrations should be composed with partners and other experts. This customary technique for instructing is educator focused, where instructors utilize visual supports the type of show slides, whiteboards and visualizers. The ongoing instructing and growing experience is not the same as the past, where classes are held straightforwardly (Physical Class Room). This customary technique for instructing is educator focused, where instructors utilize visual supports the type of show slides, whiteboards and visualizers. Learning exercises in the PC research facility include four significant sorts of reasonable work: works out, encounters, shows and examinations (Sukmawati, 2019).

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education, colleges contributed in crucial part in Nigeria's educational system. They confront difficulties with convectional method as the other advanced educational foundations in Nigeria, notwithstanding the availability of education. This study determines the perspectives of students in colleges toward m-learning considering the impact of educators on students in colleges of education in Nigeria. The qualities of mobile learning are individualized, contextual, real, and spontaneous learning. Since cell phones are more broadly accessible, less expensive, and power-dependent than PCs, m-learning is seen as a superior choice for enhancing existing educating and learning rehearses in Nigeria (Adekotujo et al, 2020). Even while Nigeria has not yet fully utilized the capability of regular m-learning, its adoption may not have produced the expected outcomes due to other issues such the expensive cost of computers, limited internet speed, and inadequate power supply, among others.

The advancement of gaining strategy has diligently developed from one day to another to get the powerful and proficient way in school system. In a similar time, it is to guarantee that the improvement of learning strategies in accordance with current development including innovation advancement. M-learning permits growing experience to be persistent whenever paying little heed to geological area. The utilization of local applications on cell phones is given to help learning. Additionally, understudies could customize mobile application because the understudies kept cell phones during the exploration. Acquainting portable learning conditions with pre-administration instructors is viewed as pivotal. This review is supposed to add to the exact and hypothetical explores. However, this study focuses solely on M- Learning and Teaching among Colleges of Education Students in North Central Region of Nigeria and their readiness for mobile learning, as well as to identify potential barriers to adoption and the viability of using mobile learning to overcome some of the difficulties associated with educating and learning in Nigerian Schools of Training.

Literature Review

In spite advancement in technology worldwide, it appears learners are still subjected to rigorous classroom circumstances in the physical world. Regardless of their location, students can use mobile technology to access curriculum-based learning. Nigeria's population expansion at an exponential rate, along with its ethnic, religious conflicts and psychological oppression access to high-quality training is turning into a very difficult problem perhaps because of poor teaching and inadequate learning facilities; a sizable portion of the population 26% does not approach schooling. Several approaches, notably online-learning also Mobile learning (M-learning) investigated in higher education. Thus, the educators should have the option to utilize the different advancements and furthermore configuration, assemble, guide and survey students' project. Assets and services should be composed with associates and other professionals. This new task is challenging and requires the need for an alternate way to deal with instructor proficient turn of events.

The detachment of regular teachers is shaped with one another and the outside world should be wiped out given this totally different type of education system. The pedagogical features of mobile applications created for educational purposes can include courses, assessments, tutorials, and more. The result is a user-supplied URL that the browser displays as either a hyperlink or read-only HTML. Basically, there are two operating systems that are widely used on smartphones: the iPhone Operating System (iOS), which is used for devices made by Apple, and the Android operating system, which is made by Google (there are a few others, like Windows and Blackberry, but iOs/Android) (Adekotujo et al, 2020). He also expressed that using mobile technologies in the classroom makes it a part of the mobile community. Students in Nigeria use their mobile devices to browse the Internet for information, watch movies, send text messages, live chats (text, image, and video), and listen to music. Information Technology (IT) encompasses public endurance and improvement for changing worldwide climate, and difficulties to devise strong and brave drives to address a large group of significant financial issues like social-economic, open government and other basic issues of limit building. The Federal Republic of Nigeria stated this in the National Policy for IT, which was titled "USE IT." To achieve sustainable development among nations, it has been argued that ICT use in education is a necessary first step (Nitin, 2019).

To explain the variables that influence the acknowledgment and utilization of m-learning in various circumstances, this section analyzes studies that make use of UTAUT. The approach compares popular technology acceptance ideas, which frequently offer opposing or incomplete viewpoints on the topic, to provide experimental understanding into innovation acknowledgment. According to UTAUT research, the hypothesized components explain 70% of the change being used expectation. Nitin (2019) examined the variables influencing higher education students' acceptance of technology Universities. They introduced two new constructs, namely individual imaginativeness and administration quality, notwithstanding three constructs were developed in their work, specifically performance expectancy, effort expectancy, and social influence, involving cell phone application experience filling in as a directing variable. With effort expectancy as the main predictor, their model can explain 52% showed variance in behavioral intention.

Numerous studies from around the world show that m-learning has the potential to be a viable answer for various instructing and learning challenges. Torruam (2019), demonstrated that mobile applications (also known as mobile apps) are pieces of application software created specifically to run on mobile devices like smartphones and tablets. They provide users services that are comparable to those obtained on PCs. The usage of mobile applications is justified because they carry out operations much more quickly than mobile websites because they store data locally on mobile devices as opposed to websites that often use web servers. Data retrieval proceeds quickly on mobile apps as a result. Consequently, mobile websites are inherently slower. Because of the ability to provide users with a personalized experience, Nitin (2019) argues that mobile users today outnumber desktop users. Users of mobile applications may be able to set their preferences up front, based on which they may receive specialized material. The usage of multimedia content, including text, images, animations, and videos, is permitted. The interface for mobile applications gives the designer the chance to build the user interface and produce content. Additionally, it enables the formation of learning objects instructions that are more sophisticated thanks to the usage of programming languages.

Educators and students will not have numerous papers to work with, since the class is based online. At the point when educators transfer tasks to the classroom, they are at the same time saved to find out about an application used for the online learning. students can get to class missed, resources and

assets they might require also showed a correlation with students' age and satisfaction with m-learning. (Okmawati, 2020). He assessed pre-administration educators' acknowledgment of m-learning learning with respect to their age and orientation shows that there are no orientation and age contrasts regarding the reason for involving mobile phones for learning.

Problem Statement

M-learning is improving how people learn in schools where both students and teachers have access to computers and the Internet. Mobile applications were first developed due to the significance and necessity of mobile learning. Administrators at higher institution require information on student attitudes to help them make decisions about integrating mobile learning applications. This was noted based on other research that have been consulted, including works by Glaser (2019) and Alharbi and Drew (2021) conducted research on the use of digital technology in education, these tools are used to enhance more conventional methods of instruction. However, studies have shown that a greater comprehension of the various worldview identified is necessary, particularly regarding instructors and their attitudes toward teaching and learning. Same time, challenges arise from such vision statements and planning documents due to misconceptions and myths about the difficulties of educating and learning. Technologies available to support online instruction, the support and compensation required for high-quality instructors, and the requirements of online students. The problem of the study is to transform a standard face-to-face classroom into one that is more participatory and interesting for the passive students.

Purpose and Objectives of the Study

This study examined Students' Perception of Mobile Application in Learning and Teaching among Colleges of Education Students in North - Central Region of Nigeria. Specifically, the study sought to:

i). examine the perceived usage of m-learning to improve students' learning in achieving performance expectation among Colleges of Education Students in North - Central Region of Nigeria.

ii). determine the disposition of new students using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.

iii). investigate the limitations of m-learning application among Colleges of Education Students in North - Central Region of Nigeria.

iv). identify some solutions to m-learning utilization among Colleges of Education Students in North - Central Region of Nigeria.

Research Questions

The study was guided by the following research questions:

1. What is the perceived usage of M-Learning to improve students' learning in achieving performance expectation among Colleges of Education Students in North - Central Region of Nigeria.?

2. What is the disposition of new students using M-Learning application among Colleges of Education Students in North - Central Region of Nigeria.?

3. Are there limitations students are facing while using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.?

4. What are the possible solutions to challenges of m-learning utilization by the students among Colleges of Education Students in North - Central Region of Nigeria.?

Hypotheses

H01: There is no significant differences among students' perceived usage of m-learning to improve students' learning in achieving performance expectation among Colleges of Education Students in North - Central Region of Nigeria.

HO2: There is no significant difference between male and female new students disposition using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.

HO3: There is no significant difference between male and female new students in their limitations in using M-learning application among Colleges of Education Students in North - Central Region of Nigeria.

Methodology

The study adopted descriptive survey research design. The population of the study included students in three Colleges of Education namely; Al-Hikma College Of Education, Kogi state, *College of Education Oju, Benue State,* and Federal college of Education, Abuja, Nigeria the nation's North-Central geopolitical region. This zone was chosen to reflect Nigeria's diversified population and cultural heritage as a result of its cosmopolitan aspect, each of the school was chosen from private, state and federal colleges of education in north-central. The instrument used for data collection was self-structured

questionnaire "Students' Perception of Mobile Application for Learning and Teaching in Tertiary institutions" (SPMALTTI) with 40 items. A reliability of the instrument was obtain as r = 0.74 with Cronbach alpha at 0.05 level of significance. The survey is to be divided into two sections; demographic data and student impressions of mobile learning, as the first section. The second section is titled "Perceptions," include scores on a Likert scale with a maximum score of 5, with 1 to denote "strongly disagree," and 5 will be used to denote "strongly agree". To determine the reliability of instruments for clarity of the items and consistency of the responses, a pilot study will be conducted, and the instrument will be pre-tested using the Crouchback Alpha Reliability Co-efficient Method in the Statistical Packages for Social Science (SPSS) version 26. Expert in the field of science education ensured face and the instrument designed by the researchers. Correlated responses ensured to correspond to reliability coefficient of .74. Mean, Z- test together with ANOVA were used as statistical measures for the study.

Results and Discussion

Research Question 1. What is the perceived usage of m-learning to improve students' learning in achieving performance expectation among Colleges of Education Students in North - Central Region of Nigeria.?

Table 1: Perceived usage of m-learning to improve students' learning in achieving performance expectation among Colleges of Education Students in North - Central Region of Nigeria

S/N	Items	M	SD
1	Mobile- learning application help me answer my assignment questions better	3.19	0.69
2	It helps in collaborative learning	3.17	0.66
3	Collaboration study is enhanced through mobile learning	3.19	0.64
4	It ensures adequate result	3.08	0.66
5	It enhances students' ambition	3.07	0.69
6	It is very fast	2.94	0.68
7	It ensures the organization of resources while in class	3.09	0.69
8	M-learning application has answering mode for proper way of answering question	3.15	0.67
9	It improves opportunity and endless creativity for teaching and learning	3.17	0.71
10	It creates awareness	2.96	0.68
	Mean Average	3.09	0.67

Source: Fieldwork, 2024.

The results obtain in Table 1 shows that student agreed to all the 10 items with the regard to the perceived usage of m-learning to improve students' learning in achieving performance expectation. This was revealed as the mean items was above the mean of 2.50 criterion. It can be drawn from the table that Mobile- learning application students answer their assignment questions better and enhanced collaborative learning.

Research question 2: What are the dispositions of new students using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.?

Table 2 : The disposition of students towards usage of M-learning application among Colleges of Education Students in North - Central Region of Nigeria.

S/N	Item	M	SD
11	Books and educational resources have provided better learning through the usage of M-learning	3.00	0.66
12	It has increased my thinking abilities and possibilities	3.08	0.66
13	It acts as good motivation to students	3.09	0.68
14	My Information Communication and Tecgnology skill has been increased	3.05	0.68
15	The application is exciting and fun while using it	3.13	0.67
16	M-learning has proven to be an application that provide an effective environment for teaching and learning	3.07	0.68

17	It brought about productivity	3.02	0.68
18	Critical and analytical thinking skills are ensured	3.15	0.68
19	It does not create room for invasion of privacy	3.07	0.67
20	M-Learning application has created a great collaborative between students and teachers	2.83	0.69
	Average Means	3.04	0.67

Source: Fieldwork, 2024

Table 2 shows that students agreed to all the 10 items as regard to the dispositions of new students using m-learning application. This was revealed as the mean items was above the mean of 2.50 criterion. It can be deduced from the finding that m-learning stand out to increase students thinking abilities, the application provides excitement and critical thinking skills capabilities to the students.

Research Question 3: Are there any limitations students are facing while using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.?

Table 3: Limitations facing by new students while using m-learning application among Colleges of Education Students in North - Central Region of Nigeria.

S/N	Item	M	SD
11	M- learning application does not permit access from various spaces.	3.49	0.51
12	No integration of google calendar to ensure accurate time table	3.54	0.50
13	There are some icon and button that was difficult to use	3.49	0.7
14	No automatic operation in feedback, the application needs to be refreshed each time of operation	3.61	0.47
15	It is not easy to disseminate information across	3.45	0.50
16	Student can delete part of information	3.53	0.53
17	M-learning does not provide computerized materials	3.55	0.50
18	M-learning has no features that allow users to communicate	3.47	0.51
19	Teachers and students' interaction can only be achieved through online document	3.41	0.52
20	Live chat not feasible through M-learning	3.76	0.47
	Average Means	3.53	0.52

Source: Fieldwork, 2024.

Table 3 shows that students agreed to all the 10 items as the regard to Limitations face by new students while using m-learning application. This was revealed as the mean items was above the mean of 2.50 criterion. The table shows that no special features that allow students to communicate. Hence, It was not easy to disseminate information across, no automatic operation in feedback, the application needs to be refreshed each time of operation. Live chat not feasible through M-learning.

Research Question 4: What are the possible solutions to challenges of m-learning utilization among Colleges of Education Students in North - Central Region of Nigeria.?

Table 4: possible solutions to challenges of m-learning utilization among Colleges of Education Students in North - Central Region of Nigeria

S/N	Item	M	SD
11	Putting in place blended learning	3.22	0.44
12	ICT tools should be deployed	3.16	0.55
13	Learning of Communication tools and management system	2.97	0.45
14	It was not possible for students to gain access to same services while using m-learning application	3.66	0.49

15	Student should be connected to Computer assisted learning	3.07	0.49
16	Connecting to live interaction while using m-learning	3.10	0.49
17	Be moderate and accessible	2.54	0.46
18	Cooperation and well organized among m-learning users	2.49	0.41
19	This limitation can be solved by technology services such as watsup, telecommunication and e-mail	3.11	0.52
20	Improvement in social activities	3.20	0.45
	Average Means	3.05	0.48

Source: Fieldwork, 2024.

Table 4 shows that students agreed to all the 10 items as regard to possible solutions for m-learning utilization by the students. The finding revealed that, the mean items was above the mean of 2.50 criterion. Hence, the table shows that It was not possible for every student to gain access to same material while using m-learning application, blended learning one of the teaching techniques that can provide good teachers and students interaction.

Hypotheses I

HO1: There are no significant differences among students' perceived usage of m-learning to improve students' learning in achieving performance expectation.

Table 5:ANOVA for the difference in students' perceived usage of m-learning to improve students' learning in achieving performance expectation.

Source	Sum of square	df	Mean of Square	Fcal	Ftab	Remark
Between group	460.548	5	92.110	8.555	2.23	Hypothesis rejected
Within group	3165.801	295	10.769			
Total	3627	300				

Table 5 shows that one-way ANOVA result reveals a significant difference in students' perceived usage of m-learning application to improve students' learning in achieving performance expectation among the six (06) departments because the Fcal value of 8.555 is higher than Ftab of 2.23. It means the result is significant at .05 levels.

Hypotheses II

HO2: There is no significant difference between male and female new students disposition using m-learning application

Table 6: Z Test Analysis of Difference between male and female new students disposition using m-learning application

Variable	N	M	SD	df	Zcal	Ztab	Remark
Male	128	46.83466	3.620410	298	1.644855	1.97	
Female	172	46.87862	3.861296				

Z Test Analysis was used to test the difference between male and female new students disposition using m-learning application as shown in table 6. The disposition mean score for male is 46.83466 and that of female is 46.87862. The finding shows that Zcal result is 1.644855 which is lower than that of Ztab of 1.97, null hypothesis is given as there is no significant difference between male and female new students disposition using m-learning application, is therefore accepted. The implication can be interpreted that there is a significant difference in male and female new students disposition using m-learning application.

Hypotheses III

HO3: There is no significant difference between male and female new students in their limitations in using M-learning application

Table 7: Z Test Analysis of difference between male and female students in their limitations in using M-learning application

Variable	N	M	SD	df	Zcal	Ztab	Remark
Male	24	21.69566	31.828835	298	1.644855	1.97	Hypothesis rejected
Female	276	24.57763	4.721054				

Z Test Analysis was used to test the difference between male and female new students in their limitations in using M-learning application as shown in table 7. The mean limitation score for male is 21.69566 and that of female is 24.57763. The finding shows that Zcal result is 1.644855 which is lower than that of Ztab of 1.97, null hypothesis is given as there is no significant difference between male and female new students in their limitations in using M-learning application, is therefore accepted. The implication can be interpreted that there is a significant difference in male and female new students in their limitations in using M-learning application.

Discussion

The result from research question 1 indicated that most of the students agreed on the perception that m-learning application aids students to answer their assignment questions better and enhanced collaborative learning between them and their teachers. Through the use of this application, effective improvement and learning outcome are guaranteed as a result of delivery of information, learning process and performance expectation can be achieved more optimally. The result of the finding corroborates with the outcome of Cetin, (2018) and Elmahdi, Al-Hattami, Fawzi, (2018) where it was revealed that m-learning enhanced collaborative learning also improve teaching and learning to achieve performance expectation of the students.

The result from research question 2 showed that m-learning improved thinking abilities, the application also provide excitement and critical thinking skills of the dispositions of new students using m-learning application. The result of the finding is in agreement with the view of Kassim (2021) who found that m-learning provides a platform where class activities could be transmitted to online platform. The result also revealed that m-learning acts as an application that provided great collaborative between students and teachers for productive academic's purposes. The study also, in line with those of Elmahdi, Al-Hattami, Fawzi, (2018), who found out that m-learning provide better online resources, the application helps students and teachers to download online materials and adequate educational resources to enhanced blended learning.

The result from research question 3 showed that it was not easy using m-learning application to disseminate information across, no automatic operation in feedback, the application needs to be refreshed each time of operation, therefore live chat not feasible through M-learning. The result is in line with that of Maheran et al. (2020), who revealed that there were notable problems associated with m- learning application in teaching and learning , the applicantion was easy to disseminate information across, no automatic operation in feedback, the application needs to be refreshed each time of operation. Live chat not feasible through M-learning. The study also, showed that there were limitations and problems posed to some students in school environment. At the initial stage students experienced difficulty in understanding the web based platform, it was also noted that no automatic in feedback operations. The study further showed that high-cost rate and maintenance of digital tools has reduced the availability and usage by teachers.

The result from research question 4 showed that that It was not possible for every student to gain access to same material while using m-learning application, blended learning one of the teaching techniques that can provide good teachers and students interaction. The finding also revealed that, lack of internet connectivity made the students to get difficulty in getting the learning material or submission of task online. The result of the finding corroborates with the outcome of Cetin, (2018) who came out with idea that adoption of technology by the students which involved the efforts of students, teachers and software engineers. M-learning application, enhanced blended learning as one of the teaching techniques that can provide good teachers and students interaction. The study also, agreed that it was easier to connect to live interaction while using m-learning application. This study also in agreement with Suryani et al. (2021) whose finding revealed that integration of ICT in classroom requires the cooperation of students, teachers, software developers and availability of good networks. Therefore, it is overt that Mobile learning is a web-based developmental learning and assessment platform that helps educators to create a functioning competitive, connecting with fun and learning environment to improve students' expected performance.

Conclusion

Based on the findings of the study, It can be concluded that m-learning application assists students with arranging their tasks and it cultivates better communication among educators and students; Mobile- learning application help students answer their assignment questions better and it, makes innovativeness and decisive reasoning. It is further concluded that that , if ICT tools could be deployed it would improve blended learning and that the mobile application is easy to use and ensured adequate results.

Recommendations

Based on the findings and conclusion of the study the following recommendations are made:

1. School management of the different higher institution utilizing on the web instructive programmes should endeavor to consider the utilization of them-learning application as a digital developmental assessment facility for conducting the developmental assessment.

2. The coordinators of a web-based instructive programme must consider the integration of m- learning application for formative evaluation in the web-based instructive teaching and learning environment.

3. Since the M-learning is a valuable application that can be used in engaging in online interactive session, educators are therefore employed to utilize the M-learning digital tools to achieve web-based collaborative classes

4. M-learning is a proficient and straightforward method for taking learning on the web for both in-class and remote research, the application should be used to achieve expected academics performances of the students and educators utilizing m-learning should email and update everyone in individuals tab for seamless and effective communication.

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