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Emerging Technologies in the 21st Century: Impact of M-Learning on Teaching-Learning Process among Early Childhood Care Education Pre- Service Teachers in Tertiary Institutions in Imo State: Implication for Counselling

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Abstract

The study investigated Emerging Technologies in the 21st Century: Impact of M- Learning on Teaching-Learning Process among Early childhood care Education Pre- Service Teachers in Tertiary institutions in Imo state. Based on the purpose of the study, one research question guided the study. The population of the study comprise all the 702 teacher educators from the six (6) faculties in Alvan Ikoku Federal University of Education. Thirty – five (35) teacher educators were selected as sample size using purposive sampling technique. The instrument for data collection was M-Learning Questionnaire Scale (MLQS). Three experts completed the face and content validity: two from the field of Measurement and Assessment and one from Early Childhood Education. The reliability of the instrument was Cronbach alpha at 0.79. In order to answer the question, the acquired data were analyzed using mean scores and standard deviation. The outcome demonstrated how M-learning affects the process of teaching and learning in Imo State's postsecondary institutions. It was suggested that educators, administrators, school psychologists, and students should receive awareness training regarding the significance of mobile learning for children.

Keywords: Emerging Technologies, M- Learning and Teaching-Learning

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Introduction

These days, the primary keys to achieving productivity, competitiveness, wealth, and comfort are knowledge and information. Humans have therefore focused on methods for obtaining higher-quality education. In the twenty-first century, education serves as the hub from which all innovations and changes originate. Information technology nowadays can help to make education and learning easier. The knowledge process, including its application, processing, transfer, and creation of information, is referred to as information technology. It involves using computers and communication tools to acquire, organize, store, publish, and use information in the form of text, graphics, sounds, and numbers. Significant technological advancements are now the source of fundamental shifts in classroom instruction. The most significant changes are rooted in technology, which has allowed students to emphasize material outside of the classroom and increased their incentive to learn. Technology use has transformed how education is seen, how it is taught, and what its goals are. When needed, technology can deliver the essential educational content. Technology will inevitably control both the present and the future. We must acknowledge that this is an unavoidable fact. It has governed over several areas of our lives and shaped the way we lead them. There is no denying that computers, and particularly Internet technology, have completely transformed the educational landscape. In this field, it is significant. The introduction of technology-based class structure has resulted in a significant change in the way that students and teachers interact. The instructor now serves as a liaison between students and information rather than as the focal point of the classroom. Students are now actively gathering, organizing, and presenting material rather than just listening passively, and mobile learning is one piece of technology that can significantly improve classroom instruction.

In the twenty-first century, information and communication technology has transformed education in many respects, enhancing lecturers' pedagogical approaches and encouraging efficient time management techniques in the classroom (Muhammad, Mohammad, Danang, Miftachul, & Masitah, 2007). E-learning first appeared as a new technological approach in contemporary training and education systems in the late 1980s. M-learning is the name given to the more modern learning management systems (LMS) environment of e-learning that is accessed utilizing wireless devices (such as mobile phones, smart phones, Apple iPods, tablet PCs, etc.). These devices' applications are integrated with Wi-Fi, 4G, and 5G telecommunication networks, which are primarily based on the use of wireless technologies. This means that students can access learning resources like lectures, homework, and quizzes, as well as collaborate or support fieldwork activities without being constrained by time or place (UNESCO, 2012).

According to Buchholz, Perry, Weiss, & Cooley (2016) and Boyle & O'Sullivan (2016), mobile devices enable students to collaborate with their peers in programs and social media for email, online messaging, blogging, and various social networking sites. These tools also help students advance their programs by earning credits. As a novel model, m-learning encourages flexibility, allowing students to participate in learning ways without being limited by age or skill level (Clark, 2018). A new learning environment that not only immerses students in contextually based content but also allows for greater personalization of the learning process and gives them the freedom to explore knowledge with an unbridled curiosity that is all too often lacking in traditional classroom settings is something that emerging technologies like mobile learning hold great promise for (K–12 Blackboard, 2011). The technique of delivering instruction to students via wireless internet and portable electronics, such as smartphones, tablet PCs, PDAs, and cell phones, is known as mobile learning. The future of learning is thought to be in the rapidly developing field of mobile

learning. With access to learning resources even when not in the classroom, mobile devices improve teaching and learning anytime, anyplace. Students can decrease their idle time thanks to this flexibility, which could improve their work-education balance (Allen, 2011; Shuler, 2009; Kolb, 2011; Quillen, 2010).

The enhancement and proliferation of mobile learning can be substantially facilitated by technological advancements, since portable gadgets are becoming more affordable, lighter, and equipped with enhanced screen analysis, longer battery life, and faster networks. A pedagogy-model based taxonomy of mobile learning with six categories, behaviorist, constructivist, situated, collaborative, informal and lifelong learning, and support for learning and teachingwas proposed by Naismith et al. (2004). When incorporated into the classroom, mobile devices can be utilized to tailor instruction to each student and address educational disparities by creatively influencing practice and policy. Glassett and Schrum in Derick According to Dani Deb (2012), m-learning and other technological advancements could be extremely important in enabling students to exhibit real-world, purposeful learning. According to Chou in Derick Dani Deb (2012), one-to-one learning has the power to turn the classroom into a real learner-centered setting where cooperation, communication, and creative problem-solving thrive to create student-driven learning. This is possible with the right pedagogy and implementation. Through a variety of practices and regulations, mobile technology is also being used to solve educational disparities. Teaching and learning with mobile devices are novel and distinctive, claim Sung, Chang, and Liu in Derick Dani Deb (2012): they promote learning anywhere, anytime; they reach underprivileged children; they foster 21st-century social interactions; they adapt to different learning environments; and they allow for a personalized learning experience (Akpor in Derick Dani Deb, 2012).

One way that technology is important to the education industry is that it may be a helpful tool for improving teaching and learning abilities. Technology makes it simple to provide audio-visual education. A computer is a helpful tool for teaching and learning in all contexts. Schools use multimedia technologies to facilitate idea sharing between teachers and students. Even in developed nations, technology-based education is accessible in Nigeria's postsecondary institutions. Among the newer kinds of education in the twenty-first century are remote training and online learning. Numerous technologies possess the capability to enhance the process of education and learning. Additionally, there is proof that technologies offer rigid and efficient ways to advance instructors' careers. It also makes group instruction easier. To convey and show information, students use mobile devices, recording devices, playback systems, movies, film strips, televisions, audio cassettes, records, teaching machines, computers, and video discs. Online libraries are helpful resources that help students and teachers learn a lot of information. Students are encouraged to view computers as instruments to be used in all facets of their studies as part of the technology curriculum. They must specifically utilize the new multimedia tools at work to organize information, explain projects, and exchange ideas. This calls on them to choose the media that would best communicate their message, organize the data in a hierarchical fashion, and connect the data to create a multidimensional document.

Technology is essential to the development of Nigeria's rural education system and helps to raise awareness of the value of education among the rural populace. These days, e-learning tools like audio and video conferencing are also used by rural schools to teach their students. People view computers as a valuable asset. These serve as a main lure for pupils to attend the school. A computer can be a highly useful educational tool for youngsters living in remote areas. Through the combined efforts of the government, computer-assisted instruction is provided to students in remote areas. Computer-assisted schooling has significantly

decreased dropout rates. In rural locations, EDUSAT offers video education. ISRO launches the EDUSAT. Samudaya is an initiative that uses technology to teach English, Science, Social Science, and Mathematics to 2000 youngsters. 250 teachers were trained using the same approach, and the results were excellent. It significantly decreased the rate of school dropouts and absenteeism while also boosting confidence.

A type of learning called mobile learning, or M-learning, is built on portable digital device approaches. There is a lack of development in the process of training teachers to employ these tactics, although numerous research have positively addressed this issue. The capacity to use the seamless affordances of modern technologies to expand the classroom, provide more individualized and collaborative learning both inside and outside of the classroom, and place learning in more authentic situations are among the key advantages (Burden & Kearney, 2016). The ability of mobile devices to stay connected at all times creates an extremely complex world of interaction and modifies conventional communication.

Weiser (1991) developed the concept of ubiquitous knowledge building; U-Learning, an environment with access to a range of digital services via equipment connected to the Internet whenever and wherever needed; all of these changes the architecture of knowledge in our society by creating new spaces that can be converted into sources of information far removed from the traditional educational framework. Users can produce content and convert any context into a new relation between the user and space and location. These scenarios offer a fascinating area of analysis: the socio-cultural ecology, in which user experimentation in their own surroundings and the independent link between the physical framework, cultural background, and users themselves are becoming more and more significant. Modern users blend the essential components of their culture with the functions of modern technologies, allowing them to become the author-protagonists of messages that may have social consequences for the first time.

M-Learning has a big impact on learning in the classroom. Nowadays, the majority of schools use teaching tools including LCD, overhead, and slide projectors to impart knowledge and information. Teachers will occasionally also employ CD-ROMS, floppy disks, and audio-visual tapes to teach a variety of subjects. The creation of educational materials is greatly aided by computers. In addition, the use of additional resources like clipart, animation, graphics, music, voice, and live contact greatly enhances the effectiveness of classroom instruction. Using multimedia computers to train individual students is a beneficial practice.TV aids in regulating the response of the instruction transmission process in accordance with the learners' comprehension capacity, resulting in a purposeful and context-specific engagement with the information package that is provided. Without using an instructor, this simulates a classroom setting on a computer screen, and the student can peruse the provided package as often as needed to fit it into their own learning style.

Billions of students use the internet today. Students can quickly access a variety of types of information with a mouse click by using Google and MSN. Purchasing books is becoming less expensive thanks to the internet. Students can download educational materials and books from many websites, as well as games, movies, photos, and other content that supports their overall growth. In addition to this, the internet gives students helpful access to scholarly publications, electronic book catalogues, scientific documents, and electronic libraries. Additionally, it supports researchers, instructors, and professors in publishing their articles and publications online. Teachers can access online resources, educational videos, programs, visual aids, and more by setting up the internet in their classrooms. Virtual classrooms, a web-based setting that enables students to take part in life-training activities

without having to travel, are another benefit of the internet. Like in a traditional classroom, students listen to their teachers, ask questions, and receive feedback. If the student has an internet connection, they can do it from any location. As a result, it also advances the goal of remote learning. Both formal and informal education are greatly aided by the Internet in general and the World Wide Web specifically.

M-learning has revolutionized the way that children with special needs are taught. The use of computers in the classroom has made it possible to educate students who are visually or hearing impaired or who have learning disabilities, among other things. It allows kids with visual impairments to use Braille computers for taking notes, studying for exams, and setting up TDDs, which are used by students with hearing impairments. Additional technology tools that help these kids learn in the classroom include cochlear implants, hearing aids, alerting systems, assistive listening devices, television and movie captioning, and text phones. Children with learning problems use hypertext technology because they are unable to follow textbooks as well as their peers. Hypermedia technology is also used by them to search, locate, listen, and view many types of information. Children with impairments can also occasionally get teaching in the classroom through the use of talking books, recorded texts, and lectures. They can learn about numbers and conduct arithmetic with the aid of a unique tool called the Cranmer Abacus. The following are the main benefits of technology: advantages for pupils:

a) **Promotes independent learning for the students**- Without the help of parents and teachers, students can learn on their own. To find the lessons they need to learn, they will simply search the internet. For the benefit of the pupils, prompt accessibility and proficiency with computer use would be highly beneficial,

b) **Easier access to information**- Students have access to a vast amount of knowledge because to computers. They are not limited to relying solely on textbooks and lecture notes. On a computer, people may simply access the information they require,

c) **Promotes exciting way to educate students**- With the availability of movies, graphics, graphs, and text on computers, more kids would experience the thrill of learning through technology. This encourages students to learn.

d) **Accessibility and wider participation**- The emergence of online classes opens doors to many students who could not otherwise participate in educational settings due to time and financial limitations. Online courses offer the non-traditional students the chance to go back to school and improve their lives according to their own schedule.

e) **Prepares students for the future**- From the way technological advancements are going it will be obvious that the future will be digital and technology focused. Well-versed use of technologies will help students in collaborating, communicating, competing and finding better jobs in future.

f) **Co-operative learning**- The internet facilitates co-operative learning, encourages dialogue, and creates a more engaging classroom. For e.g. a LISTSER V will allow students to get involved in class discussions through e-mails in a way which is not possible within the four walls of the classroom.

g) **Locating research materials**- There are many more resources on the internet which a college or a university library can't provide. Students pursuing higher education can use these resources of internet for their research work.

h**) Acquiring varied writing skills**- Internet helps students to develop their hypertext skills. These skills help students to gain experience in non-sequential writings.

Benefits to teachers;

a) It makes it easier to share resources, knowledge, and counsel.

b) It gives educators more freedom to assign and complete various tasks at various times.

c) IT fosters teachers' abilities, self-assurance, and excitement via a variety of instructional strategies.

d) It facilitates lesson planning, lesson preparation, and the creation of instructional materials for teachers.

e) Teachers can present the content in more engaging and eye-catching ways by using graphics, photos, and PowerPoint presentations.

f) Teachers can direct and assist pupils in their search for qualitative information.

g) Interactive technology are used to instruct students, and teachers guide them in using and considering their responses. He might be diagnosing educational issues and assisting pupils in resolving them.

h) Teachers can increase their knowledge and hone their professional teaching skills by utilizing contemporary technology equipment. The major disadvantages of Technologies are:

a. **Results in lack of interest in studying**- As everything is now accessible or through data saved in a computer or mobile devices, it develops poor study habits and lazy attitude among students through education. Now day's students are more dependent on internet instead of their books and input from the teachers.

b. **Discover unusual things in the computer**- Internet do not always help students in search of things that are valuable for them. There are several things found in the internet that are not good for students. As a result student may lead to wrong path.

c. Hindrances academic performance- Instead of using their laptops and tablets for their studies and online test students more often visits social networking sites which may lower their academic performance.

d. **Expensive**- The IT facilities are not available in the schools. Most of the schools are not in a position to afford the purchase, maintenance and other expenditure involved in its use. The cost of laptops, wireless broadband projector for example contributes a large percentage of the school budget.

e. There is a widespread ignorance about the use, applications and advantages of IT on the part of teachers, head of the institution and educational authorities responsible for bringing improvement in the functioning of the school particularly related to teaching learning and organization of co-curricular activities with the help of such technologies.

f. Today's teachers are not well-equipped with modern use of technology. There is a great paucity of such competent and skilled teachers who can use and integrate right.

Studies showing that mobile learning improved academic performance include those conducted by Çelik (2012), Köse, Koç & Yücesoy (2013), Oberer & Erkollar (2013), and others. Ozan (2013) concluded that learning is more persistent when it occurs on a mobile

device. Additionally, students' performance in classes is positively impacted by employing mobile and social media technologies. Evans (2008) highlighted the superiority of mobile learning over books in terms of efficacy, instruction, and learning support. Given the findings of the research, mobile learning provides advantages like immediate access to information for students, a variety of learning styles, contextual learning, control over one's own learning, support and encouragement for learning, increased course participation, a desire to use the technology in the classroom, and positive, significant differences in academic achievement.

Purpose of the Study

The main purpose of the study was toinvestigate the impact of M- learning on teaching-learning process in tertiary institutions in Imo State. Specifically, it seeks;

i. Find out the impact of M-learning on teaching-learning process in tertiary institutions in Imo State.

Research Question

1. What is impact of M-learning on teaching-learning process in tertiary institutions in Imo State?

Method

The study made use of descriptive survey research. A descriptive survey research, according to Maduakonam (2004), aims to gather comprehensive factual data that characterizes the nature of current conditions. It evaluates the traits of the entire population and typically uses a study sample that is selected from the study population. The population of the study comprise all teacher educators in the six (6) faculties of Alvan Ikoku Federal University of Education. The sample size of the study was thirty -five teacher educators was chosen via purposive samplingtechnique. Data were gathered using the 25-item M-Learning Questionnaire Scale, a self-made tool. The pieces were put together using the reviewed literature as a guide. Strongly Agree, Agree, Disagree, and Strongly Disagree were the four points of a 4-point Likert-type structure, with numerical values of 4, 3, 2, and 1 being assigned to each response. Measurements and assessment specialists as well childhoodEducation professionals taught courses that confirmed the instrument's face and content validity. They carefully examined the questionnaire's contents and provided insightful changes and recommendations that resulted in some modifications. The instrument was deemed sufficient after these adjustments and alterations, and the final draft of the questionnaire was created. When the instrument was given to thirty teacher educators who were chosen from two schools and who were comparable to the participants in the main study, its reliability was confirmed. The dependability of the instrument is Cronbach alpha at 0.79, respectively. It was decided that the dependability coefficients were high enough and appropriate for this study's purpose. Mean and standard deviation was used to analyze the research question score.

Results

Research Question: What is impact of M-learning on teaching-learning process in tertiary institutions?

Table 1: Mean and SD on the impact of M-learning on teaching-learning process in tertiary insutitions in Imo State?

S/N	Items	Mean	SD	Remarks
1	I like mobile teaching applications because I can teach at my own time.	3.16	1.9	Accepted
2	The teaching applications on mobile phones enhanced the process of my teaching anytime and anywhere.	3.31	1.4	Accepted
3	Mobile learning applications helped me actively engage my students in learning.	3.19	1.5	Accepted
5	Mobile learning applications has increased my vocabulary when teaching.	3.34	1.3	Accepted
6	The learning applications have encouraged me to increase my speed in teaching.	3.27	1.7	Accepted
7	I know how to choose variety of resources with the help of mobile apps.	3.32	1.4	Accepted
8	When a grammatical mistake occurs, the grammar applications will help me to correct my mistakes.	3.33	1.4	Accepted
9	The learning applications helped me to communicate effectively.	3.35	1.6	Accepted
10	I am able to use a lot of new words when teaching.	3.38	1.0	Accepted
11	The learning applications on mobile phones became an easy-going teacher everywhere and every time.	3.47	1.1	Accepted
12	In general, mobile phone applications helped me improve my teaching and made me productive.	3.29	1.6	Accepted
13	Average Mean	3.03	1.3	Accepted

Results in table 1 shows that all the items scored above 2.50 with average mean score of 3.03 and standard deviation of 1.3. This implies that M-learning impact teaching-learning process in tertiary institutions in Imo State.

Discussion

The study's findings suggested that M-learning enhances the process of teaching and learning in Imo State's higher education institutions. The findings of Çelik (2012), Köse, Koç & Yücesoy (2013), and Oberer & Erkollar (2013) are consistent with our results. Ozan (2013) concluded that learning is more persistent when it occurs on a mobile device. Additionally, students' performance in classes is positively impacted by employing mobile and social media technologies. Evans (2008) highlighted the superiority of mobile learning over books in terms of efficacy, instruction, and learning support. Benefits of mobile learning include increased student participation, positive meaningful differences in academic achievement, quick access to information, a variety of learning styles, contextual learning, control over one's own learning, support and encouragement for learning, and more.

Conclusion

According to the study's findings, tertiary institutions' teaching-learning processes are improved by M-learning. By combining M-learning approaches into a learning management system that offers mobile learning services to students and teachers at any time and from any location, it is implied that m-learning has changed traditional learning methods. The study's findings about the incorporation of mobile technology into instruction include the following: improving students' abilities to use mobile technology, increasing their ability to focus, and providing them with flexible access to m-services for learning resources.

Recommendations

Based on the finding of this study, the following recommendations were made; -

1. School psychologists, teachers, school administrator and students should be sensitized on the importance of mobile learning usage on school students.
2. Seminar, Conferences, Workshops should be held on mobile learning usage on academic performance among students and teacher educators irrespective of their age difference and gender.

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