

Perception, Interest and Accessibility to Mobile Learning Pedagogy among Students with and Without Hearing Impairment: A Comparative Analysis

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Abstract

The most significant change in the field of education in the 21st century is the shift to technological engaged instruction. This makes teaching and learning to be easier. The growing trend of technological application in learning among students makes it imperative to examine the acceptability of mobile learning pedagogy. Therefore, this study did a comparative analysis of participants' perception, interest and accessibility to mobile learning. It employed survey research design. Samples of 313 students comprising 80 students with hearing impairment were purposively selected and 233 students without hearing impairment randomly selected from integrated secondary school settings. Three hypotheses were tested at 0.05 level of significant. A self-reported questionnaire tagged Perception, Accessibility and Interest Inventory (PAIMI) with reliability of 0.72 was used to collect data. The data collected was analysed using t-test statistical tool. The results revealed that there was significant difference in the perception of the participants to mobile hearing because $t\text{-cal} > t_{\text{table}} = 1.23 > p = 0.220$, also there was significant difference in the interest of the participants in mobile learning with $t\text{-cal} = 1.57 > p = 0.25$, however, there was no significant difference in the accessibility of the participants to mobile learning because $t\text{-cal} = 0.42 < p = 0.996$. Based on these findings, it was recommended that parents should show equal concern to the education of with and without hearing impairment.

Keywords: perception, interest, accessibility, mobile learning, pedagogy

INTRODUCTION

Mobile communication has influenced every aspect of our lives (Çuhadar, Odabaşı & Kuzu, 2009). These technologies have no small measure provided solution to most life challenges. Regardless of location and occasion, mobile technologies have made interaction to be possible and accessible. In the field of education, So (2008) notes that the emergence of mobile and wireless technologies are already impacting education positively. Most significantly during this information era is the shift from traditional teacher centred instructions to learner-based learning activities which is made possible by some mobile communication technology devices. These technologies which are employed in teaching and learning known as mobile learning is increasingly becoming popular because of its independence, accessibility and no time constraints. The m-learning realized with mobile technologies, is therefore the type of learning characterised by the use of wireless technology, through other personal control of the learning time and space, under an autonomy level and limitation determined by the device (Sharples, Taylor & Wavola, 2005). Quinn (2000) also defines mobile learning as e-learning through mobile computational devices. In the views

of Fragerberg, Rekkedal and Russel (2002) mobile learning is the use of mobile technologies in education. This m-learning belongs to the category of technology supported learning, it naturally occurs within an organisational and pedagogical context, and involves interactions between participants (students) and technology (Valentine, 2004). With these, a new form of teaching and learning are being achieved through hands held mobile communication technologies with autonomous control at anytime and anywhere. It can therefore be said that mobile communication technologies offer significant opportunities for both learners and teachers in the process of knowledge acquisition.

With the increase in the use of mobile learning (m-learning) as an alternative strategy for enhancing learning processes which many educators and researchers are taking advantage of its unique attributes and features. This is because these technologies involve in learning turn out to be well aligned with strategic educational goals such as improving student retention and achievement, allowing students to communicate, aid negotiation and socialisation, learn at the time in a cooperative and collaborative way, supporting differentiation of

learning needs and leading learners who would not otherwise have the opportunity to participate in education (Kukulka-Halme, 2005; Metacalf & Marco, 2006). It was further noted by Savill-Smith and Kent (2003) and Bingstahler (2003) that m-learning provides a motivational stimulus for students, offer easy storage and portability of instructional contents, make easier to produce written work, increase knowledge of computer, offer range of useful functions, readily available at all time, increase participation in classroom discussion, help self-advocacy, provide the students with the access to the full range of educational options, help them enter high-tech career fields, encourage them to participate in community and recreational activities and help in transition from school to career lives.

In these regards, instructional designers have taken these technological characteristics into account to design educational activities based specifically on the use of mobile devices (Cruz-Flores & López-Morteo, 2010). With multidimensional applications of m-learning, different activities based on this pedagogy have been developed and reported by several researchers. These include text-based application such as quiz or class note (Leung & Chan, 2003; White and Byrd, 2000) game and graphical based applications (Milos, Miroslav, Miroslav & Dusan, 2009), video and camera based applications (Yoon, Ahn, Lee, Hong & Kim, 2008) and reality augmented based applications (Spira, 2009; Mark, 2009 & Alapetite, 2010). With these myriad opportunities and applications, it is hope that these technologies used in teaching and learning will improve academic performance, increase socialisation, serve as easy forum for information accessibility and also increase knowledge base on students in different aspects of lives in Nigeria.

However, though m-learning has been reported to be popular and gaining wider acceptance in the field of education worldwide, a number of factors have been reported by researchers as constraints to its application to learning among students with and without disabilities in developing countries in which Nigeria is one. For instance, Çuhadar, Odabaş and Kuzu (2009) note that the use of mobile communication technologies in education (m-learning) is invaluable but not economical for emerging countries. Researchers like Adeniyi (2012), Moore (2009), master and Ng'ambi (2007) and Sharples (2000) also identified factors such, accessibility and barrier for users, ability of for author to visualise mobile phone for service delivery, interest, perception, knowledge and ability to manipulate the wireless technology effectively by the users.

Several researches and literatures have revealed the impact of perception of, interest in and accessibility

to mobile learning as key elements to the success of mobile learning pedagogy in this era of technologies mediated lives. For instance, a study conducted by Lawrence, Bachihfischer, Dyson and Litchfield (2009) to explore the opinion of students regarding the use of mobile devices in learning revealed positive feeling to the engagement of mobile technologies in learning activities. Baya'a and Daher (2009) conduct study on perception of mathematics learning using mobile phones in Arab middle school in Israel revealed that interest in mathematics by the middle school students was basically influenced by the use of mobile technology in learning. The students also submitted that mobile learning helped them to explore mathematics independently, collaboration and team work, carrying out diversified mathematics action and learning mathematics easily and efficiently. In the overall, the students were positively impressed by the potentialities and capabilities of the mobile phone technologies used in learning. Hartwell, Lightle and Maxwell (2005) also study students perception of online and distant learning, the result revealed that students perceived online (mobile learning) to have a significant relative advantage over traditional learning. The results of a study conducted by Ring (2001) on the use of web and WAP to deliver e-learning by wireless phone technology also revealed that about 93% of the participants perceived that they were convenient working with the device. It can then be said that the use of mobile technologies in learning has great promise and value among students in promoting academic and social growth. However, a research conducted Lawrence, Bachfischer, Dyson and Litchfield (2008) to explore the opinions of the students regarding the use of mobile devices in university learning revealed that though students show positive feeling towards this learning approach but demonstrated great fear that the use of mobile devices in the learning environment could weaken interpersonal communication, intrude into privacy and are also insufficient for describing complex tasks.

On the interest of students toward mobile learning pedagogy, students have been reported to have demonstrated different attitude towards m-learning. To record success in any area of life, interest in such activity is highly important. Ismail, Johari and Idrus (2010) conduct a study on whether mobile learning via short message service is accepted by students who enrolled in distance learning academic programe, the result revealed that participants agree that SMS-learning is easy, effective and useful to their study. Also, studies by Ismail, Idrus, Ziden and Loshi (2010); Jairak, Pranaetpograng & Mekhabanchakij (2009) and Shu-Sheng, Marek and Hsiu-Mei (2010) on the acceptance of mobile learning among students revealed high level of acceptance of mobile learning pedagogy. This high level of acceptance indicated the level of interest of students in this new innovative

pedagogy. It can then be revealed that the use of m-learning has been yielding positive results among students.

Considering the accessibility of students to mobile technologies, Çuhadar, Odabaşı and Kuzu (2009) note that the use of mobile technology in education for m-learning is invaluable. Mobile technologies in the industrialised world are accessible to both the learners and their teachers. However, in developing countries in which Nigeria is part, mobile communication technologies is also increasingly used among students with and without hearing impairment. Akinpelu and Oladepo (2012) survey utilisation of mobile technologies among students with disabilities reported that the handled phone are mostly used by the students. However, Çuhadar, Odabaşı and Kuzu (2009) note that these devices are not economical for emerging countries. In line with the submission of Çuhadar et al (2009), Moor (2009), Master and Ng'ambi (2007) and Sharples (2000) identify some factors that may constraint the use of these communication technologies such as connectivity and battery life, accessibility and cost, content security and ability of the author to visualise mobile phone for delivery. It is against this background that this study compared the perception, interest and accessibility of students with and without hearing impairment in Southwestern, Nigeria to mobile learning in view of the fact that this pedagogical innovation is becoming more popular and widely used among students in different nations of the world.

STATEMENT OF PROBLEM

In the recent time, mobile communication technologies popularity is on the increase among learners especially in the areas of communication and social networking. However, in teaching and learning, the adoption of mobile communication technology is on the increase worldwide. But in Nigeria, the focus among its user is majorly on communication which has not made its potentials to be realised. In view of this, it is pertinent to explore the disposition of students towards its usage in learning activities. Consequently, this study investigated; perception, interest and attitude of students with and without hearing impairment to mobile learning in Southwestern Nigeria in order to draw comparison.

HYPOTHESES

1. There is no significant difference in the perception of students with and without hearing impairment about mobile learning in Oyo State.
2. There is no significant difference of the interest in students with and without hearing impairment in mobile learning in Oyo State.

3. There is no significant difference in the accessibility of students with and without hearing impairment to mobile learning in Oyo State.

METHODOLOGY

Research Design

This study employed survey research to investigate the perception, interest and accessibility of students with and without hearing impairment about mobile learning. The variables under investigation were not manipulated.

Population

The target population for this study were students with and without hearing impairment in integrate schools in Oyo State, Nigeria.

Sample

The samples comprised of eighty (80) students with hearing impairment purposively selected due to their availability and two hundred and thirty three (233) non-hearing impaired students that were randomly selected from Methodist Grammar School, Bodija, Ijokodo High School, Eleyele Road, Ibadan and Ibadan Municipal Government School, Oniyanrin and all in Oyo State, Nigeria. The samples were drawn from senior secondary school class.

Instrument

The instrument for the study is a self-reported questionnaire tagged Perception, Accessibility and Interest in Mobile Learning Inventory (PAIMI). The inventory is divided into two sections. Section A reported demographic data such as age, class, sex and audibility range. Section B was sub-divided into three sections according to the variables of interest and were constructed in four likert scale type i.e. (SA, A, D, SD) and examples of probing questions under each of the variables were perception to mobile learning "Mobile phone though good but not for students in secondary school", Accessibility to mobile learning, "Do you believe that all students should have mobile phone", Interest in mobile learning, "I like to study through the use of mobile phone". The reliability coefficient was 0.72.

Data Collection

The instrument were distributed among the participants after permission had been granted by designated authority. The responses were later collected.

Data Analysis

The data were collected and analysed using t-test for comparative analysis.

RESULTS

Hypothesis 1: There is no significant difference in the perception of students with and without hearing impairment about mobile learning in Oyo State.

Table 1: Difference in the Perception of Students with and without Hearing Impairment about Mobile Learning

Variable	N	\bar{x}	SD	DF	t-cal	P	Remark
Non-hearing impaired	233	22.85	6.20	311	1.230	0.22	S*
Hearing impaired	80	22.08	4.31				

S* = Significant 0.05 level

The result revealed that the value of t-cal = 1.23, df = 311 and p = 0.220 (t-cal > p=0.220). Therefore, since t-cal is higher, it implies that there is a significant difference in the perception of students with and without hearing impairment about mobile learning in Oyo State. The null hypothesis is hereby rejected. It

further implies that the non-hearing impaired have better perception of mobile learning because their mean score is higher.

Hypothesis 2: There is no significant difference in the accessibility of students with and without hearing impairment to mobile learning in Oyo State.

Table 2: Difference in the Interest of Students with and without Hearing Impairment in Mobile Learning

Variable	N	\bar{x}	SD	DF	t-cal	P	Remark
Non-hearing impaired	233	14.85	3.29	311	1.57	0.25	S*
Hearing impaired	80	15.30	2.86				

From the table, t-cal is 1.57, df = 311 and P = 0.25 (t-cal 1.57 > p=0.25). Since t-cal is greater, it implies that there is significant difference in the interest of students with and without hearing impairment in mobile learning in Oyo State. The null hypothesis is hereby rejected. It further revealed that students with

hearing impairment showed high interest in this new pedagogy because their area score is higher.

Hypothesis 3: There is no significant difference in the accessibility of students with and without hearing impairment to mobile learning in Oyo State.

Table 3: Difference in the Accessibility of Students with and without Hearing Impairment to Mobile Learning

Variable	N	\bar{x}	SD	DF	t-cal	P	Remark
Non-hearing impaired	233	23.61	6.71	311	0.42	0.996	NS
Hearing impaired	80	23.58	6.09				

The result of Table 3 revealed that t-cal = 0.42, df = 311 and p = 0.996 (t-cal = 0.42 < p=0.996). Since t-cal is lesser, it implies that there is no significant difference in accessibility of student with and without hearing impairment to mobile learning. The null hypothesis is hereby accepted.

DISCUSSION

The result of hypothesis one that revealed that there is significant difference in the perception of students with and without hearing impairment about mobile learning with the mean score of students without hearing impairment having higher value indicated that though both groups perceived mobile learning as good but students without hearing impairment place more value on the use of mobile phone in learning. This can be attributed to number of factors such as the home related factors which include parents interest and priority for students without hearing impairment and limited socialisation and communication face by students with hearing impairment. Students with hearing impairment have limited social interaction and communication with peers and relations which could have affected their perception. The result is in line with Sanders (1971) and Tüfekçioğlu (1992) assertions that communication break of a child with hearing impairment may result in social and emotional problems which in turn affect their education and future lives and work.

The result of hypothesis two revealed that there is significant difference in the interest of students with and without hearing impairment with the mean score of students with hearing impairment having high value. The high interest showed to mobile learning could be adduced to fact that students with hearing impairment see mobile learning as an alternative and easy way to learn because of their limited auditory performance which has been their major disadvantage in a conventional class and language rich world. This result is in line with Kuzu's (2011) position that the widespread use of cell phones and their texting facilities began to be an alternative way of communication for individuals with hearing impairment and also individuals with hearing impairment continuously need some innovative approaches and methods which have an effect on their cognitive and socio-emotional development as well as their academic achievement.

The result of hypothesis three revealed no significant difference in accessibility of students with and without hearing impairment to mobile learning. It can be inferred from the result that the two groups have similar condition that may affect their access to mobile phones which in turn may influence their accessibility to mobile learning. For example Çuhadar, Odabaşı and Kuzu (2009) submitted that though mobile learning is gaining ground worldwide but these devices are not economical for emerging

countries like Nigeria. Furthermore, some conditions inimical to the popularity were presented by Çuhadar et al (2009), Moor (2009), Master and Ng'ambi (2007) and Sharples (2000). Such as cost, content security and ability of the author to visualise service delivery of mobile phone. These can summarily be linked with poverty index in Africa and specially in Nigeria.

CONCLUSION

There is no doubt that mobile learning is becoming more popular in Nigeria. Students and their teachers are increasingly becoming aware of the enormous gains of this innovative technologies in education. The increasing popularity is hinged to a number of factors such as perception, interest and accessibility which had motivated a comparative study of this nature. The results have revealed the status of this innovative approach to learning between students with and without hearing impairment.

RECOMMENDATION

In view of the results above, the following are recommended for immediate action by all stakeholders.

- Parents should show equal concern to the education of students with and without special needs as this will bridge the gap already created by the nature of challenges of special needs individual.
- All students should be encouraged to engage in a worthwhile use of mobile technologies in learning which improve their cognitive and social strategies.
- Teachers should be sent on refresher courses so as to enable them to be skilled in this new pedagogy.
- Government should as a matter of urgency subsidise the cost of essential mobile phones and charges by service providers to make accessibility to internet cheaper for all.

LIMITATION OF THE STUDY

The study encountered some problems in the area of data collection and cooperation of the participants especially students with hearing impairment.

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