Students' Perceptions of Integrating Mobile Learning Technologies Cell Phone in the Classroom for Improving Active Learning: A Case Study of Delta State University, Abraka, Nigeria

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Abstract

The purpose of this study was to determine student's perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning. A case study of Delta State University, Abraka, Nigeria. 265 male and female 100 level students of 2012/2013 academic session were used for the study. 22-items questionnaire tagged students perceptions of integrating mobile learning technologies cell phone (SPIMCAL) based on Faust & Paulson (1998) catalog of active learning strategy was used in gathering data. The data were analyzed using frequency counts and percentages. Chi-square at 0.05 level of significant was used to test the hypothesis raised. Findings revealed that 81.1% of the students owned mobile cell phone, students generally supports the integration of mobile learning technologies cell phone for active learning as evidenced from 80.4% of students responses, the null hypothesis was rejected indicating a significant difference between male and female students perceptions as the test of significant value of .000 was less than 0.05. The paper concludes that generally students supported the integration of mobile learning technologies cell phone in the classroom for active learning. It was recommended among others that the use of mobile learning technologies cell phone should be integrated into teaching-learning process in Delta State University, as a first step to integrate other forms of mobile learning technologies in the classroom, to enhance the preparation of pre-service teachers for technology integration in the classroom.

Keywords: mobile learning technologies cell phone, integration, active learning.

Introduction

The emergence of computer and internet has ushered in various forms of information and communication technologies use in the classroom, among which are mobile learning technologies cell phone. Mobile learning technologies cell phones are small portable devices that can be used at anywhere and anytime. Muhanna, (2011) defines them as the use of wireless handheld devices for learning. Examples of these wireless devices include mobile cell phones, smart phones, personal digital assistant phones (PDA), ipad among others. Prensky (2005) asserts that these devices are embedded with the following features such as voice, short text messages, graphic displays, download programs, internet browsers, cameras, video clips and global position systems (CPPS).

These common features have led to their widely use for social interactions, business and education. In agreement Heiphetz (2011) asserts that mobile learning technology cell phone can become an engine for learning in the same way as the World Wide Web. The following potential benefits have been highlighted as inherent in the use of mobile learning technologies in teaching and learning:

- Learners can interact with each other and with the practitioner instead of hiding behind large monitors
- It is much easier to accommodate several mobile devices in a classroom than several desktop computers
- PDAs or tablets holdings notes and e-books are higher and less bulky than bags full of files, paper and textbooks, or even laptops.
- Handwriting with the styles pen is more intensive than using keyboard and mouse
- It's possible to share assignment and work collaborate, learners and practitioners can e-mail, cut, copy and paste text, pass the device around a group or beam the work to each other using the infrared function of a PDA or wireless network such as blue tooth (Adedoja & Oyekola 2006:4)

In another report presented to the common wealth of learning, a classification of the use of mobile learning technologies for learning in education at all levels includes among others:

1. Monitoring students progress and being proactive to encourage students and support retention
2. Learner –content interaction
3. Teaching 'niche' subject e.g. languages
4. Quizzes and games designed to enhance learning
5. Context specific activities (e.g. museum visits) and as a tool to enhance classroom learning
6. Whole course delivery including assignment and accreditation (Cambridge, 2009:15)

These features, potentials benefits and their use for learning in education at all levels inherent in mobile learning technologies cell phones can be utilized to achieve the four significant kinds of interactions that influence learning such as: 1. Learner –content interactions 2. Learner – instructor 3. Learner –learner (Moore) 4. Learner interface interactions (Hillman, Willis & Gunawardena in Cui, G., Chen, X; Li; Wi Wang, S; Yang, Z & Meng C; 2012) if properly integrated in the classroom for active learning activities.

Jerry, (2004) defines integration as a means of using technologies as an instructional tool for delivering subject matter in the curriculum in place. While Sheingold in Gorder (2008) asserts that integrating technology in the classroom is not about teaching student to operate computer, but integrating technology is about helping teachers to use technology as a tool for learning. These views of integration have the implication that mobile learning technologies cell phone can be effectively use for improving active learning.

Prince (2004) viewed active learning as activities introduced into classroom. While Bonwell and Elson in Michel, Cater and Varela (2009) described active learning as a process in which students engage in doing things and thinking about what they are doing. In other words active learning is the activities introduced by the instructor and integrated into the teaching-learning process in the classroom to be carried out by the students.

Against this background Faust and Paulson (1998:5-13) in their study active learning in the college classroom provided a catalog of twenty (20) active learning strategy that can be used in engaging students in a teaching-learning process as follows:

1. Clarification pauses
2. One minute paper
3. Muddiest (or clearest) point
4. Affective response
5. Student response to a demonstration (or other teacher-centred activity)
6. Daily (or weekly) journal
7. Reading quiz
8. Wait time
9. Students answers
10. Student summary of another students answer
11. The fish bowl
12. Quiz /test questions
13. Finger signals
14. Flash cards
15. Quotations
16. The pre-theoretic intuitions quiz
17. Puzzles/ paradoxes
18. Discussion
19. Note comparison/ sharing
20. Evaluation of another students work

Review of related literature

Few studies exists on the use of mobile learning technology cell phone in the developed countries and non in developing countries like Nigeria. Adomi (2006) in his study mobile phone usage patterns of library and information science students at Delta State University Abraka Nigeria, finding revealed that students use mobile phones for different purposes including discussing with /passing information about class assignment to their mates. Majority of them use it to communicate with members of their family. In another study Olayinka and Bamidele (2012) teacher's perceptions of integrating these of mobile phones into teaching in public senior secondary schools in Oyo and Lagos state Nigeria. Their findings indicate that teachers use mobile phones for their personal use but not willing to use it for teaching.

ECAR (2005) study in United States and Canada on using mobile technology for enhancing students educational experiences in an on line survey with 35 high school and university students, the findings indicates that students are experienced mobile phones and computer users. They use these technologies daily and with great ease. Mobile phones are not used for educational reasons but only privately.

Attewell, (2005) mobile learning project in UK, Italy and Sweden with 128 learners within the ages of 17-19 revealed that learners were mostly enthusiastic about mobile learning. While Motiwalla (2007) study on the usage of mobile technologies (wireless phones and handheld devices (W/H) in distance learning or traditional classroom environments findings indicate that students in general support the use of (W/H) devices in learning and for sees a strong role for these devices in improving flexibility and efficiency of the learning environment.

Cui, Chen, Li, Wang, Yana, and Meng (2012) in their study Chinese college students perceptions on usefulness of cell phone integration in language learning, generally the findings revealed that students showed great interest in using cell phones in their EFL learning and believed that cell phones could be an effective tool in their EFL education. In Diemer, Fernander and Streepey (2012). Student perceptions of classroom engagement and learning using ipads with 209 undergraduate's students from several degree programmes in Indiana and Purdue University. Their findings revealed large number of students (83:7%) reported high comfort levels using handheld mobile computing devices prior to using ipads in the classroom. Most students (73.7%) owned a mobile device with internet access.

The educational benefits of mobile learning technologies cell phone and its features have been widely discussed in the literature. Its application was mostly for social interactions. The few studies that explored it for learning were especially in the developed countries. None of the studies in developing countries like Nigeria used mobile learning technologies cell phone for educational purpose inspite of the wide coverage of wireless network in Nigeria, high percentage of students with mobile phones and the educational potential inherent in them. It is therefore relevant to investigate students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning.

Statement of the problem

Over 60% of Nigeria has been covered with different wireless networks, such as MTN, GLO, STARCOM, AIRTEL and ETISALITE, with 65.8 percent of the population owing mobile learning technologies cell phone (NCC, 2012). This availability of different wireless networks and high percentage coverage has led to students' carriage of various categories of mobile learning technologies cell phone into the classroom for social interactions. Unfortunately beyond this function of social interactions mobile learning technologies cell phone remain dormant. Studies have showed that mobile learning technologies cell phone has the potentials for learning and one of its unique features is individuality. Learning is no longer a standard process it has transform into a personalized process (Akinoglu & Tandogan, 2007).

Educational institutions in Nigeria need to avail these potentials and the availability of mobile learning technologies cell phone in the classroom and re-direct its purpose to learning resource. 100 level undergraduate students' positive perceptions to engage in Faust and Paulson (1998) catalog of active learning strategies with cell phone will be a positive step to integrating mobile learning technologies in the classroom. Hence the study seeks to examine students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning in Delta State University Abraka, Nigeria.

Purpose of the study

The purpose of the study was to determine the following:

1. Students' perception of integrating mobile learning technologies cell phone in the classroom for active learning activities.
2. The percentage of students with mobile learning technologies cell phone in the classroom
3. Compare male and female students' perception of integrating mobile learning technologies cell phone in the classroom for active learning activities.

Research questions

The following research questions were answered by the study:

1. What is the perception of student's of integrating mobile learning technologies cell phone in the classroom for active learning activities?
2. What is the percentage of students with mobile learning technologies cell phone in the classroom?
3. What is the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning?
4.

Research hypothesis

The following null hypothesis was raised to guide the study:

There is no significant difference in the perceptions of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning activities

Methodology

The study is a descriptive survey design. Two hundred and sixty-fives (265) 100 level undergraduate students, 141 males accounting for 53.2% of the respondents by sex and 124 female accounting 46.8% of the respondents for 2012/13 academic session who had been screened at the time of the study constituted the population for the study.

An alternate yes or no 22 items questionnaire titled students perceptions of integrating mobile learning technologies cell phone in the classroom for active learning activities (SPIMCAL) was used as instrument for data collection. The instrument consists of two sections. Section A: consists of demographic questions such as sex, age and activities performed with cell phone. The demographic summary of the population is as showed below.

Table 1: demographic descriptive of the population.

Demographic Category		Frequency	Percentage (%)
Gender			
	Female	124	46.8
	Male	141	53.2
Age			
	14-17	10	4.0
	18-21	138	55.9
	22-25	67	27.1
	26-29	9	3.6
	30-33	3	1.2
	34-37	1	0.4
	38+	19	7.2
Activities done with mobile technology			
	Browsing the internet	64	37.4
	Research	27	15.8
	Social network	1	0.6
	Calls	26	15.2
	Assignment	9	5.3
	Call, browsing, assignment, Social networking	44	25.7

Section B: consists of 22 items based on Faust and Paulson (1998) catalog of active learning strategy in the classroom. The content validity of the instrument was established by three experts in the department of curriculum and integrated Science Delta State University, Abraka, Nigeria. The initial 35 items raised were modified to 22 items.

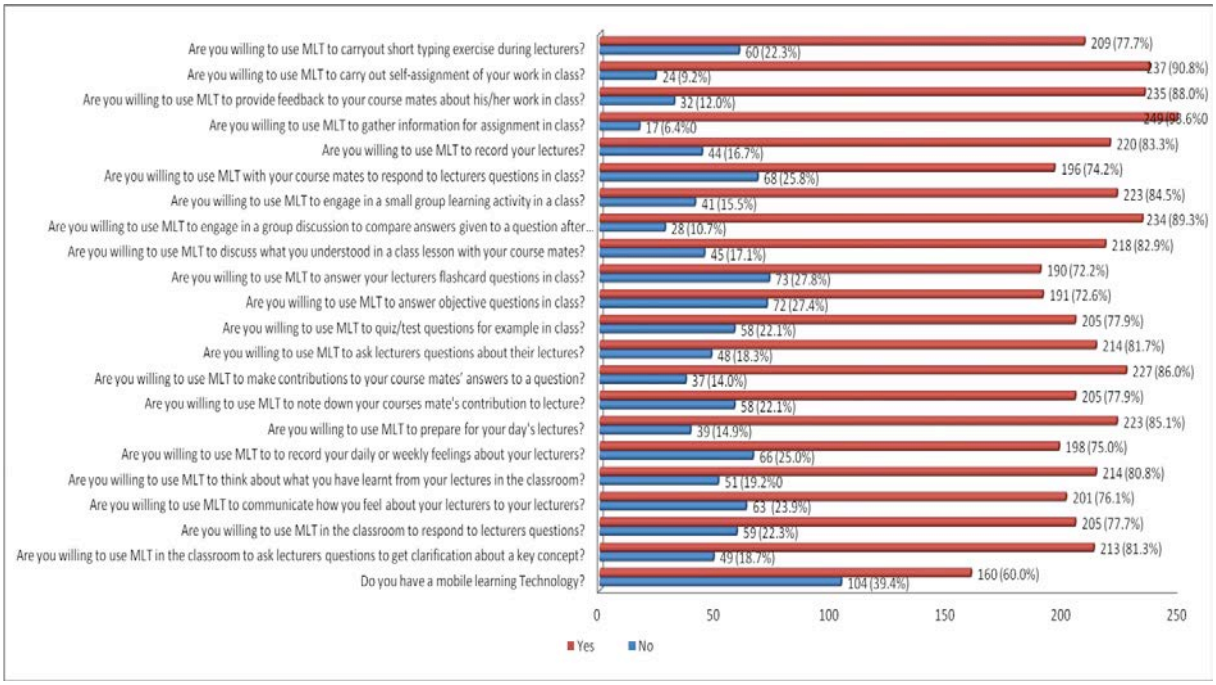
To ascertain the reliability of the instrument, test-retest method was used. The instrument was administrated to 20 students who were not part of the population. After two weeks the instrument was re-administered to them. The generated paired scores gave a Pearson correlation co-efficient of 0.60 at 0.01 levels.

The instrument was administered to the students at the point of screening with the aid of their screening officers and collected back immediately. The three research questions raised for the study were answered using frequency counts and percentages. Chi-square was used to test the hypothesis raised for the study at 0.05 level of significant. Tables and histograph were used for the presentation of results.

Results

Research question 1: What is the perception of students' of integrating mobile learning technologies cell phone in the classroom for active learning activities?

Figure 1: Histogram depicting frequency count and percentage representation of students' perceptions



From figure 1 above 160 (60.6%) of the students have MLT while 104 (39.4%) do not. 213 (81.3%) of the students are willing to use MLT in the classroom to ask lecturers questions to get clarification about a key concept, 205 (77.7%) are willing to use MLT in the classroom to respond to lecturers questions, 201 (76.1%) are willing to use MLT to communicate how they feel about your lecturers to your lectures, 214 (80.8%) will use MLT to think about what they have learnt from your lectures in the classroom, 198 (75.0%) will use MLT to record their daily or weekly feelings about their lectures, 223 (85.1%) will use MLT to prepare for their day's lectures, 205 (77.9%) are willing to use MLT to note down their course mate's contribution to lecture, 227 (86.0%) are willing to use MLT to make contributions to their course mates' answers to a question, 214 (81.7%) are willing to use MLT to ask lecturers questions about their lectures, 205 (77.9%) will use MLT to answer quiz/test questions for in class, 191 (72.6%) will use MLT to answer objective questions in class, 190 (72.2%) will use MLT to answer your lecturers flashcard questions in class, 218 (82.9%) will use MLT to discuss what they understood in a class lesson with their course mates, 234 (89.3%) will use MLT to engage in a group discussion to compare answers given to a question after lectures, 223 (84.5%) will use MLT to engage in a small group learning activity in class, 196 (74.2%) will use MLT with your course mates to respond to lecturers questions in class, 220 (83.3%) will use MLT to record their lectures, 249 (93.6%) will use MLT to gather information for assignment in class, 235 (88.0%) will use MLT to provide feedback to their course mates about his/her work in class, 237 (90.8%) will use MLT to carry out self-assignment of their work in class, 209 (77.7%) are willing to use MLT to carryout short typing exercise during lecturers. Generally, 80.4% of the students support the integration of mobile learning technologies cell phone in the classroom for active learning as against 19.6 % of the students

who do not support the idea. It is therefore students' perception that mobile learning technology be integrated into classroom for active learning.

Research question 2: What is the percentage of students with mobile learning technologies cell phone in the classroom?

Table 2: Frequency count and Percentage of students with a mobile learning technologies cell phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mobile Cell Phone	146	55.1	81.1	81.1
	Laptop	25	9.4	13.9	95.0
	computer & Phone	9	3.4	5.0	100.0
	Total	180	67.9	100.0	
Missing	System	85	32.1		
Total		265	100.0		

Table 2 indicate that 146 (81.1%) students own mobile cell phone in the classroom, 25 (13.9) uses laptop, whereas 9 (5.0%) use both mobile cell phone and laptop. 85 students did not specify the kind of mobile learning technology they use.

Research question 3: What is the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning?

Table 3: Frequency count and percentage response of students' perceptions

		Male responses		Total	Female Response		Total
		no	yes		no	Yes	
item 1	Count	67	80	147	39	81	120
	% within ITEMS	45.6%	54.4%	100.0%	32.5%	67.5%	100.0%
item 2	Count	30	115	145	19	101	120
	% within ITEMS	20.7%	79.3%	100.0%	15.8%	84.2%	100.0%
iteem 3	Count	33	114	147	27	93	120
	% within ITEMS	22.4%	77.6%	100.0%	22.5%	77.5%	100.0%
item 4	Count	31	116	147	32	88	120
	% within ITEMS	21.1%	78.9%	100.0%	26.7%	73.3%	100.0%
item 5	Count	29	119	148	23	97	120
	% within ITEMS	19.6%	80.4%	100.0%	19.2%	80.8%	100.0%
item 6	Count	34	113	147	32	88	120
	% within ITEMS	23.1%	76.9%	100.0%	26.7%	73.3%	100.0%
item 7	Count	24	121	145	15	105	120
	% within ITEMS	16.6%	83.4%	100.0%	12.5%	87.5%	100.0%
item 8	Count	28	118	146	30	90	120
	% within ITEMS	19.2%	80.8%	100.0%	25.0%	75.0%	100.0%
item 9	Count	22	125	147	15	105	120
	% within ITEMS	15.0%	85.0%	100.0%	12.5%	87.5%	100.0%
item 10	Count	27	119	146	21	98	119
	% within ITEMS	18.5%	81.5%	100.0%	17.6%	82.4%	100.0%
item 11	Count	31	115	146	28	92	120
	% within ITEMS	21.2%	78.8%	100.0%	23.3%	76.7%	100.0%
item 12	Count	37	109	146	36	84	120
	% within ITEMS	25.3%	74.7%	100.0%	30.0%	70.0%	100.0%
item 13	Count	35	111	146	38	82	120
	% within ITEMS	24.0%	76.0%	100.0%	31.7%	68.3%	100.0%
item 14	Count	20	126	146	25	95	120
	% within ITEMS	13.7%	86.3%	100.0%	20.8%	79.2%	100.0%
item 15	Count	11	134	145	17	103	120
	% within ITEMS	7.6%	92.4%	100.0%	14.2%	85.8%	100.0%
item 16	Count	25	121	146	17	104	121
	% within ITEMS	17.1%	82.9%	100.0%	14.0%	86.0%	100.0%
item 17	Count	35	111	146	34	87	121
	% within ITEMS	24.0%	76.0%	100.0%	28.1%	71.9%	100.0%
item 18	Count	26	120	146	19	102	121
	% within ITEMS	17.8%	82.2%	100.0%	15.7%	84.3%	100.0%
item 19	Count	12	135	147	5	117	122
	% within ITEMS	8.2%	91.8%	100.0%	4.1%	95.9%	100.0%
item 20	Count	21	127	148	11	111	122
	% within ITEMS	14.2%	85.8%	100.0%	9.0%	91.0%	100.0%
item 21	Count	14	129	143	10	111	121
	% within ITEMS	9.8%	90.2%	100.0%	8.3%	91.7%	100.0%
item 22	Count	34	113	147	26	99	125
	% within ITEMS	23.1%	76.9%	100.0%	20.8%	79.2%	100.0%
T. Count		519	3218	3827	519	2133	2652
% within ITEMS		16.0%	84.0%	100.0%	19.6%	80.4%	100.0%

Table 3 above indicate 80 (54.4%) males, 81 (67.5%) female students were willing to use MLT in the classroom to ask lecturers questions to get clarification about a key concept, 115 (79.3%) males, 101 (84.2%) females were willing to use MLT in the classroom to respond to lecturers questions, 114 (77.6%) males, 93 (77.5%) female students were willing to use MLT to communicate how they feel about your lectures to their lecturers, 116 (78.9%) will males, 88 (73.3%) will use MLT to think about what they have learnt from your lectures in the classroom, 119 (80.4%) males, 97 (80.8%) will use MLT to record their daily or weekly feelings about their lecturers, 113 (76.9%) males, 88 (73.3%) female will use MLT to prepare for your day's lectures, 121 (83.4%) males, 87.5 (90%) females are willing to use MLT to

note down their course mate's contribution to lecture, 118 (80.8%) males, 90 (75.0%) females are willing to use MLT to make contributions to their course mates' answers to a question, 125 (85.0%) males, 105 (87.5%) females are willing to use MLT to ask lecturers questions about their lectures, 119 (81.5%), 98 (82.4%) female students are willing to use MLT to answer quiz/test questions in class, 115 (78.8%) males, 92 (76.7%) female students were willing to use MLT to answer objective questions in class, 109 (74.4%) males, 84 (70%) females will use MLT to answer their lecturers flashcard questions in class, 111 (76%) males, 82 (68.3%) females will use MLT to discuss what they understood in a class lesson with their course mates, 126 (86.3%) males, 95 (79.2%) females will use MLT to engage in a group discussion to compare answers given to a question after lectures, 134 (92.4%) males, 103 (85.8%) females will use MLT to engage in a small group learning activity in class, 121 (82.9%) males, 104 (86%) females will use MLT with their course mates to respond to lecturers questions in class, 111 (76%) males, 87 (71.9%) females will use MLT to record their lectures, 249 (93.6%) will use MLT to gather information for assignment in class, 120 (82.2%) males, 102 (84.3%) females will use MLT to provide feedback to their course mates about his/her work in class, 135 (91.8%) males, 117 (95.9%) females will use MLT to carry out self-assignment of their work in class, 127 (85.8%) males, 111 (91%) females are willing to use MLT to carryout short typing exercise during lecturers. Generally, 84% of the male students and 80.4% of female students supported the integration of mobile learning technologies cell phone in the classroom for active learning as against 19.6 % of the students who do not support the idea. It is therefore students' perception that mobile learning technology be integrated into classroom for active learning.

Research hypothesis: There is no significant difference in the perception of male and female students of integrating mobile learning technologies cell phone in the classroom for active learning activities

Table 4: Chi-Square analysis of significant difference between male and female students' perceptions

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.667[a]	9	.000
Likelihood Ratio	50.643	9	.000
Linear-by-Linear Association	4.497	1	.034
N of Valid Cases	265		

a. 10 cells (50.0%) have expected count less than 5. The minimum expected count is .94.

From table 4 above, N = 265, P≤0.05 at 95% level of significance. The significant test value of .000 is less than 0.05 the null hypothesis is therefore rejected. Thus, there is a significant difference between male and female students' perceptions of integrating mobile learning technologies in the classroom for active learning activities.

Discussion of results

The purpose of the study was to determine students' perceptions of integrating mobile learning technologies cell phone in the classroom for improving active learning. It is evidence from the results in tables 2, 3 and 4 that 80.4% of the students the integration of mobile learning technologies cell phone in the classroom for active learning activities. As clearly depicted in the students own mobile cell phones and both male and female students

supported the integration of mobile learning technologies cell phone in the classroom for active learning activities as depicted in by their percentage response of 84% and 80.4% respectively.

These findings are in consonance with the findings of Motiwalla (2007) his findings revealed that students in general support the use of wireless handheld devices. White the findings of Diemer, Fernander, and Streepey (2012) indicate 83.7% of the students reported high comfort levels using handheld mobile computing device in the classroom and 73.7% of the students own a mobile phone. Also Che, X., Li, W., Wang, S., Yang, Z., and Meng, C., (2012) their findings indicated that college students showed great interest in using cell phones in their English first language learning (EFL). These findings might be due to the high percentage of the students who already own a mobile cell phone. And young people find this type of technology motivating because it fits in with their normal behaviour, custom and practice (Harvey, 2007). Finally, it is evident from table 4 that there was a significant difference between male and female student's perceptions of integrating mobile learning technologies in the classroom for active learning activities. For the significance test value of .000 was less than 0.05 the hypothesis was therefore rejected. These findings might be due to the fact that male students are more ICT compliance than female students Tortora and Rheault (2011) average phone owner is more likely to be male, educated and urban.

Conclusion

The findings of the study revealed that 100 level undergraduate students in Delta State University generally supported the integration of mobile learning technologies cell phone in the classroom for active learning.

Recommendations

Based on the findings the following recommendations were made.

1. The use of mobile learning technologies cell phone should be integrated into teaching-learning process in Delta State University, as a step to integrate other forms of mobile learning technologies cell phone in the classroom, to enhance the preparation of pre-service teachers for technology integration in the classroom.
2. Workshop and conference should be organized for teachers on how to integrate mobile learning technologies cell phone to improve active learning.
3. Lecturers of higher institutions should plan the integration of mobile learning technologies into their lectures to enrich and transform the teaching –learning process.

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