



Teachers and Students Willingness on the Use of Smartphone in Teaching and Learning Process in Tertiary Institutions in Yobe State

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ABSTRACT

The study investigates "Teachers and Students Willingness on the Use of Smartphone in Teaching and Learning Process in Tertiary Institutions in Yobe State, Nigeria". The design for the study was descriptive survey. The study was guided by two research objectives, two research questions and two null hypotheses which were tested at (0.05) level of significance. The population of the study was 614 teachers and 15103 students from three selected tertiary institutions in Yobe State. A random sampling technique was used to determine the sample from the population. The sample has a population of 202 teachers and 4826 students. The sample size of 132 teachers and 357 students were obtained using Krejcie and Morgan Table for determining sample size. The instruments used for data collection was researcher self-constructed questionnaire titled Teachers Smartphone Opinion Questionnaire (TSOQ) and Students Smartphone Opinion Questionnaires (SSOQ) and was validated by three experts and pilot tested. The result of the pilot testing was analysed using Cronbach's Alpha and yielded a reliability coefficient of 0.86 for teachers and 0.79 for students. Mean and standard deviation were used to answer the research questions and paired sample test was also used in tested the null hypotheses at (0.05) level of significance. From the result, all null hypotheses were rejected. The summary of findings indicates that, Students have higher opinion on the use of smartphone in teaching/learning process than teachers in Yobe state tertiary institutions. The opinion of students on the challenges faced during educational utilization of smartphone is greater than teachers' opinion in tertiary institutions in Yobe state. It was recommend that, Schools should send teachers for short term course in order to learn how to integrate smartphone in to teaching and learning process.

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INTRODUCTION

Teaching and learning in the 21st century require teachers and students preparation by using relevant, meaningful and modern teaching and learning materials. In a reality, teachers and

students owns a multimedia and personal communication devices that requires constant acquisition of new knowledge and skills of information sharing and communication. As a result of the acceleration in technological



development that transformed everything around us in to digital age, we are required to adapt the frequent changes in to our teaching and learning environment.

The penetration of mobile phone in to educational circle changed its basic functions. In recent years, the purpose of mobile phone has shifted from a verbal communication tool to a multimedia tool, which is very useful in teaching and learning process (Amanda, 2015). Smartphones allowed collection, organizing, storing and presenting of information. They are equipped with advanced multimedia players, provide access to recently updated information, store contacts and allow for real time communication using a wide range of Internet environments. They also provide the possibility to synchronize information regularly and access it anywhere, any time. Many smartphones and applications that are being developed are not intended specifically for educational purposes, but can be used in the process of teaching and learning. One example of this is the QR Code generator. Another example is augmented reality digital information, known as "AR". Through AR, learners are able to gain immediate access to a wide range of location-based information, compiled and provided by a variety of sources. Students can be engaged and motivated to explore class materials from different angles (Kerawalla, Luckin, Selijefot, & Woolard 2006) and gain real-world firsthand experience in subjects that were not feasible otherwise (Shelton & Hedley, 2002). These technologies bridge the gap between physical and digital content, since they allow access to digital content and give-room for printing (Mttega, Bernanrd, and Msungu & Sanare 2012). These features of mobile technology require attention from teachers and students in order to support these resources in to teaching and learning process.

Teaching and learning process was disturbed by inadequate materials for effective learning. In most developing countries, schools have shortage of books, laboratory equipment's and other teaching and learning materials (Osaki, 1996). The growing access and use of smartphones by teachers and students may be used in teaching and learning as a technological remedy to the scarcity of teaching and learning resources. The increased use of smartphone at home and in workplaces creates opportunities for teachers to expand the learning environment beyond classroom (UNESCO, 2012). However, different studies have indicated that teachers tend not to take full advantage of these opportunities (Sutherland, Robertson & John, 2009).

One of the reasons for the lackadaisical response to smartphone application in teaching and learning process might be that, technological knowledge is either absent or lacking in the processes that support teachers' planning for teaching (Mttega, 2012). This is in line with Harris & Hofer, (2009) who propose that there is a tendency for teachers not to synergize their content and pedagogical knowledge with their technological knowledge, and this result to the languid interest of smartphone application in to our classroom.

However, there is scanty literature on the use of smartphone in teaching and learning process in tertiary institutions. Although smartphone are the most accessible mobile phone device among teachers and students in tertiary institutions in Yobe State, yet their uses in teaching and learning process is limited.

Therefore, this study explores Teachers and Students Willingness on the use of Smartphone in Teaching and Learning Process in Tertiary institutions in Yobe State, Nigeria.

Research Questions

1. What is the opinion of teachers and students on the use of



smartphone in teaching and learning process in tertiary institutions in Yobe State?

2. What is the opinion of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions in Yobe State?

Null Hypotheses

The following null hypothesis will be tested at 0.05 levels of significance.

1. There is no significant difference between the opinion of teachers and students on the use of smartphone in teaching and learning process in tertiary institutions in Yobe State.
2. There is no significant difference between the opinion of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions, in Yobe State.

METHODOLOGY

The design was descriptive survey research. The design was appropriate in determining the willingness of teachers and students on the use of Smartphone in teaching and learning process in Tertiary institutions in Yobe State.

The population of the study was 614 teachers and 15,103 students from three tertiary institutions in Yobe State. A sample of 202 teachers and 4826 students was selected using simple random sampling techniques. The sample size of teachers and students are 132 and 357 respectively and was obtained using Krejcie and Morgan (1970) table for

determining sample size. To compare the mean of the two groups, there is need to solve the problem of unequal sample size. The simplest way to solve the problem of unequal sample size is to equalize or unified the sample size of the groups through randomly select (How2stats 2012). One hundred and thirty two (132) students' questionnaires were randomly selected from three hundred and forty two (342) returned and fully completed students questionnaires. Therefore, one hundred and thirty two (132) sample sizes for both teachers and students were used when analyzing data.

The instrument used for data collection was researcher self-design questionnaires titled Students Smartphone Opinion Questionnaire (SSOQ) and Teachers Smartphone Opinion Questionnaire (TSOQ). Both instruments comprises of forty one questions using modified Likert scale.

Content and construct validity was ascertained by experts from Educational Technology, English and Measurement and Evaluation Departments. Reliability of the instrument was determined using Cronbach's Alpha and it yielded a reliability coefficient of 0.86 for teachers and 0.79 for students respectively.

RESULTS

Research Question One: What is the opinion of teachers and students on the use of smartphone in teaching and learning process in tertiary institutions in Yobe State?

The responses from teachers regarding research question one is analysed using mean and standard deviation as presented in Table 1.



Table 1: Mean and Standard Deviation of Teachers Opinion on the Use of Smartphone in Teaching/Learning Process

S/N	Items	Mean	SD	Decision
1.	Smartphone disrupt the class with ring tones, reminders and alerts	2.50	1.18	Agree
2.	Students can use smartphones to cheat during examinations	3.33	1.02	Agree
3.	Students engage in cyber bullying with their smartphones	2.86	0.95	Agree
4.	Students use the smartphones to access inappropriate contents from the internet	2.05	0.84	Disagree
5.	Using smartphone during lessons divert students attention.	3.45	0.79	Agree
6.	Students should be allowed to use their smartphones in the classroom.	2.43	1.08	Disagree
7.	The use of smartphone should be banned in our classrooms.	3.75	0.54	Agree
8.	The camera in the smartphones can be used to capture information during lesson and use it in future.	3.55	0.73	Agree
9.	Smartphones can be used to record lectures and played back later.	3.26	0.97	Agree
10.	Smartphone dictionary can be used to get the meaning of any strange words during lesson.	3.63	0.69	Agree
11.	Smartphone should be used in our school to supplement face to face contacts with students	1.82	0.59	Disagree
Cumulative Mean		2.97		

Table 1, present the mean and standard deviation of teachers' opinion on the use of smartphone in teaching and learning process in Tertiary institutions in Yobe State. The Table reveal that, teachers in tertiary institutions in Yobe state has the opinion of using their smartphones in teaching and learning

process due to the fact that, the cumulative mean of 2.97 is higher than the decision mean of 2.50.

The responses from students regarding research question one is analysed using mean and standard deviation as presented in Table 2.

Table 2: Mean and Standard Deviation of Students Opinion on the Use of Smartphone in Teaching and Learning Process

S/N	Items	Mean	SD	Decision
1.	Smartphone disrupt the class with ring tones, reminders and alerts	3.03	0.99	Agree
2.	Students can use smartphones to cheat during examinations	2.89	0.99	Agree
3.	Students engage in cyber bullying with their smartphones	2.02	0.99	Disagree
4.	Students use their smartphones to access inappropriate contents from the internet	2.74	1.03	Agree
5.	Using smartphone during lessons divert students attention.	3.08	1.10	Agree
6.	Students should be allowed to use their smartphones in the classroom/lecture rooms.	1.98	0.98	Disagree
7.	The use of smartphone should be banned in our classrooms.	1.63	0.58	Disagree



S/N	Items	Mean	SD	Decision
8	The camera in the smartphones can be used to capture information during lesson and use it in future.	3.29	0.82	Agree
9.	Smartphones can be used to record lectures and played back later.	2.97	0.90	Agree
10	Smartphone dictionary can be used to get the meaning of any strange words during lesson.	2.94	0.92	Agree
11	Smartphone should be used in our school to supplement face to face contacts with students	1.91	0.75	Disagree
Cumulative Mean		2.59		

Table 2 present the opinion of students on the use of smartphone in teaching and learning. The Table shows that, students have the opinion of using their smartphone in teaching and learning process in tertiary institutions in Yobe state. The evidence to prove this, was deduce from the cumulative mean of 2.59 which is greater than the decision mean of 2.50.

Research Question two: What is the opinion of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions, Yobe State?

The responses from teachers regarding research question two is analysed using mean and standard deviation as presented in Table 3.

Table 3: Mean and Standard Deviation of Teachers Opinion on the Challenges Faced During Educational Utilization of Smartphone

S/N	Items	Mean	SD	Decision
1	Teachers are not facing difficulties when operating smartphones due to the complexity and strange language used by the manufacturers.	2.73	1.12	Agree
2	Teachers face difficulties when uploading, locating and downloading relevant educational documents through smartphones.	3.12	0.89	Agree
3	Online educational documents are very difficult to search through smartphone do to information overload.	2.07	0.67	Disagree
4	Unreliable data connections limit teachers' accessibility to internet.	3.60	0.86	Agree
5	Teachers are complaining about smartphone short battery life.	2.02	0.92	Disagree
6	Teachers are complaining about smartphone screen size.	2.14	0.97	Disagree
7	Teachers download, install and utilize smartphone educational applications with ease.	2.08	0.75	Disagree
8	Teachers lost their smartphones more frequently and easily.	1.89	0.70	Disagree
9	Teachers are complaining about limited text capacity in smartphones.	1.95	0.69	Disagree
10	Smartphones are vulnerable to virus attacks.	2.33	0.96	Disagree
Cumulative Mean		2.39		



Table 3 shows the mean and standard deviation of teacher's opinion on the challenges faced during educational utilization of smartphone in tertiary institutions in Yobe state. According to the Table, teachers are facing challenges during educational utilization of smartphone in Yobe state

due to the fact that, the cumulative mean of 2.39 is less than the decision mean of 2.50.

The responses from students regarding research question two is analysed using mean and standard deviation as presented in Table 4.

Table 4: Mean and Standard Deviation of Students Opinion on the Challenges Faced During Educational Utilization of Smartphone

S/N	Items	Mean	SD	Decision
1	Students face difficulties when operating smartphones due to the complexity and strange language used by the manufacturers.	1.84	0.67	Disagree
2	Students face difficulties when uploading, locating and downloading relevant educational documents through smartphones.	2.74	1.14	Agree
3	Online educational documents are very difficult to search through smartphone do to information overload.	1.96	0.83	Disagree
4	Unreliable data connections limit students accessibility to internet	3.28	1.02	Agree
5	Students are complaining about smartphone short battery life.	3.08	0.93	Agree
6	Students are complaining about smartphone screen size.	2.49	1.08	Disagree
7	Students download, install and utilize smartphone educational applications with ease.	2.32	0.95	Disagree
8	Students lost their smartphones more frequently and easily.	2.15	0.92	Disagree
9	Smartphone limited capacity for text message entry; worry students.	1.70	0.81	Disagree
10	Smartphones are vulnerable to virus attacks.	2.29	1.02	Disagree
Cumulative Mean		2.39		

Table 1.4 present the opinion of students on the challenges faced during educational utilization of smartphone in tertiary institutions in Yobe state. The Table shows that, students agreed with the statement that, they are facing challenges during educational utilization of smartphone in tertiary institutions in Yobe state because the cumulative mean of 2.39 is less than the decision mean of 2.50.

Testing the Null Hypotheses

The null hypotheses were tested using paired sample t-test. The results of the analysis are summarized as follows:

HO1: There is no significant difference between the opinion of teachers and students on the use of smartphone in teaching/learning process in tertiary institutions in Yobe State.



Table 5: t-Test Results of Teachers and Students on the Use of smartphone in Teaching/Learning Process in Tertiary institutions in Yobe State

Variable	N	Df	Mean	SD	t-value	p-value
Teachers	132	131	2.97	0.76	2.49	0.014*
Students	132		3.04	0.49		

*= Significant at $p < 0.05$ alpha value

Table 1.5 shows the mean and standard deviation of teachers and students opinion on the use of smartphone in teaching/learning process in tertiary institutions in Yobe State. The Table reveals that, the mean and standard deviation of teachers are 2.97 and 0.76, while mean and standard deviation of students are 3.04 and 0.49 respectively. The null hypothesis one (1) which says that, there is no significant difference between the opinion of teachers and students on the use of

smartphone in teaching and learning process in tertiary institutions, Yobe State was rejected. Because, the p-value of 0.014* is less than the alpha value of 0.05 (t-value = -2.49, df = 131, p-value = 0.014).

HO2: There is no significant difference between the opinion of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions, Yobe State.

Table 6: t-Test Results of Teachers and Students on the Challenges Faced during Educational Utilization of smartphone in Tertiary institutions in Yobe State

Variable	N	Df	Mean	SD	t-value	p-value
Teachers	132	131	2.39	0.76	18.30	0.000*
Students	132		2.82	0.59		

*= Significant at $p < 0.05$ alpha value

Table 1.6 shows the mean and standard deviation of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions in Yobe state. The mean and standard deviation of teachers are 2.39 and 0.76 while mean and standard deviation of students are 2.82 and 0.57 respectively. The null hypothesis two (2) which says that, there is no significant difference between the opinion of teachers and students on the challenges faced during educational utilization of smartphone in tertiary institutions, Yobe State was rejected due to the fact that, p-value of 0.000* is less than the alpha value of 0.05 (t-value = -18.30, df = 131, p-value = 0.000*).

SUMMARY OF THE MAJOR FINDINGS

1. Students have higher opinion on the use of smartphone in teaching/learning process than teachers in tertiary institutions in Yobe state.
2. The opinion of students on the challenges faced during educational utilization of smartphone is greater than teachers' opinion in tertiary institutions in Yobe state.

DISCUSSION OF FINDINGS

The result of the study reveals that, Students have higher opinion on the use of smartphone in teaching/learning process than teachers in tertiary institutions in Yobe state. This finding is in agreement with that of Seifert (2014),



who found that, teachers and students, participation in smartphone-based activities was eye-opening: it was more of an experiential teaching experience than any lecture could be. After the activity, students were less skeptical about the potential of smartphones in teaching and learning process. In contrary to this finding, Seifert (2014) found that, college students were skeptical regarding the implementation of smartphones in Education. In addition to this finding, it was also reveals that, there was no significant difference between the pre-test and the post-test result regarding the extent to which college students intend to incorporate smartphones in their teaching at school. It was also reveals that, there is no significant difference in the extent to which they thought that school teachers should implement smartphones in their lessons and in the extent to which college lecturers should implement smartphones in their lessons. One of the reasons for the lackadaisical response to smartphone application in teaching and learning process might be that, technological knowledge is either absent or lacking in the processes that support teachers' planning for teaching (Mtega, et al 2012). This is in line with Harris, Mishra and Koehler (2009) who propose that there is a tendency for teachers not to synergize their content and pedagogical knowledge with their technological knowledge, and that this can result in ordinary ways in which mobile phones are used in the classroom. The finding also contradict that of Msuya (2015) who found that, majority of teachers (72%) believed that using mobile phones in teaching could solve the crisis of shortage of teaching and learning resources.

The study also reveals that, the opinion of students on the challenges faced during educational utilization of smartphone is higher than the opinion of teachers in tertiary institutions in Yobe state. This agrees with the finding of Wulystan, Ronald, Andrew & Rachel

(2012) who reveals that, students complained that, when searching for materials only few could be able to read HTML documents. Respondents also complained about the size of the text being uncomfortably small and difficult to read for prolonged periods. It was also identified that some were unable to use some important mobile applications that are useful for teaching and learning. The finding also agrees with that of Mtega. Bernanrd Msungu, & Sanare (2012) who reveals that, incompatibilities of mobile phone programmers with the academic programs such as pdf, words, excel and PowerPoint is a challenge in adopting mobile phone in teaching and learning process.

CONCLUSION

Students have higher opinion on the use of smartphone in teaching/learning process than teachers in tertiary institutions in Yobe state. The opinion of students on the challenges faced during educational utilization of smartphone is greater than teachers' opinion in tertiary institutions in Yobe state.

RECOMMENDATIONS

The following recommendations were drawn based on the research findings;

1. Government should organize a seminar, conferences, workshop to educate teachers on the contribution of using smartphone in teaching and learning process.
2. Schools should also send teachers for short term course in order to learn how to integrate smartphone in to teaching and learning.
3. Mobile phone operators should reduce internet service tariffs so that more people can afford and use mobile Internet services in Nigeria.



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