Effect of Mobile Instructional App on Students' Performance in Christian Religious Studies

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Abstract
Gender differences is becoming critical within the context of teaching and learning education and Nigerian society. Thus, this study examined effect of mobile instruction app on students' performance in Christian Religious Studies from the dimension gender. The research design adopted for this study was a quasi-experimental design T population of the study is 875CRS students in the department of Arts Educatic University of Ilorin. An intact class of 34 (11 males and 23 females) three hundred le undergraduates of Christian Religious Studies was purposively sampled for the stuc Two instruments were developed and used for this study: Mobile Instructional Ap (MIA) and Christian Religious Studies Performance Test(CRSPT.) Descriptive statistic (mean) was used to answer the research question, the only null hypothesis of the stuc was tested using independent samples t-test. Findings revealed that there was n significant difference between male and female undergraduate students' academ performance in the use of mobile instructional app in Christian Religious Studies. It wa recommended that university curriculum should be made flexible to accommodate th use of mobile devices for learning process, and that undergraduates should endeavou to explore the opportunities offered by mobile instructional app for an improve academic performance irrespective of gender difference.

Keywords: Gender differences; Mobile Devices, Mobile Instructional App,Academic Performance

Introduction

Mobile devices include any portable, connected technology, such as basic mobile phones, smartphones, e-readers, netbooks, tablets, iPads and computers. Marc (2001) points out that today students have not just changed incrementally when compared to those of the past. They are the first generation to grow up with electric devices of new technology. He adds that they have been using videogames, video cams, digital music players, cell phones, computers, and all other toys and tools of the digital age almost from their birth and are an essential part of their lives. Marc (2001) further says that today, mobile learning is a need but not a want. It is believed that by allowing students to use mobile devices in the classroom, motivation to learn and to achieve increases.

Kunzler (2011) pointed out that just in the development of technology where these devices are becoming a reality. However, it is yet understood how learning and teaching will change with the access and use of these devices. Without such understanding, we are left with an insufficient analysis that creates the conditions for ill-informed policy decisions at educational institutes. It is of vital importance for teachers to augment or change the way they teach in order to entirely educate students and prepare them for scientific and technological global competitiveness for the 21st century.

Many schools are now moving towards mobile learning in the classroom because of the new electronic devices that offer portability and ease of use on a budget. The new electronic devices include Netbooks, iPads, cell phones, iPods, e-readers and even PDAs. Recent research on use of various mobile devices in classrooms have revealed positive learning outcomes for its use in classroom.

Students are generally positive in using mobile devices for learning, which is essential for 21st century education These devices enable students to control their individual learning and allow learners to switch learning contexts conveniently from formal to infonnal or personal to social. It keeps students engaged, attentive and motivated and allows interaction with the devices. Teachers also benefit from the use of these devices. There is evidence that mobile devices have encouraged independent learning making it easy for teachers to differentiate individual student needs and share resources with students and among each other.

For students, mobile devices are easy to use and attractive. These devices have larger screens, variety of apps, audio and video recording software, higher processing and battery power. Research on ICT and adoption reports that electronic devices have a positive impact on students' engagement with learning (Mango, 2015). The research showed that students tend to spend more time and effort in learning tasks that are of interest to them. Morrone, Gosney & Engne (2012)findings showed increased interest, creativity, enthusiasm, engagement, motivation, independence and self-regulation, and improved productivity in students. Doing activities and discussions facilitated by the mobile device, students find learning more fun as compared to a typical lecture-based classroom.

When mobile instructional app are used in classrooms, they have had a profound impact on teaching and learning according to the research by Nishizaki, (2015). The research also showed that relationship in teaching and learning in the classroom changes and becomes more student centered and student friendly allowing for more creativity of the student. The numerous apps available allow students to work independently, in groups and as part of the whole class, developing a range of knowledge and skills. With an increase in the use of devices, creative processes are possible as the boundaries between formal and informal learning blurs. There is emerging evidence to suggest that apps have a significant potential to support the learning process (Shuler, 2009).

Teachers can create interactive presentations, which include students' observations and comments. Teachers can give lessons, monitor progress and stay organized. Simple-to-use and easy to create presentations with stunning animations and effects. Productivity applications help students and teachers put together professional-looking documents, presentations, and spreadsheets no matter where they are. Teachers' can directly write notes using these mobile devices during interactive discussion and these can be displayed on a projected screen for students. These notes can be saved,

modified, uploaded and can be helpful to students who miss anything. Students can track their assignments, take notes, and study for finals using the notes.

Mobile instructional packages are mostly found as "applications" that are developed for a specific purpose (Otieno, 2015). As the name implies, these packages are mostly on handheld devices of different kinds. These apps are divided into three categories, web applications; native applications and hybrid applications (Ali, 2013; Oyelade, Oladipupo & Oyejoke, 2010). Native application is the commonest package found on Blackberries, iPhones, iPods, androids, and so on. Web application is the type of app usually found on websites for online consumption. Hybrid application comprises the features of both native and web applications. Mobile learning affects learners through cooperation, motivation, availability and information sharing (Adesulu, 2015).

Cohen, Lowrie, and Preston (2011); Ozumba, (2015) reported that education through mobile technology has positive effect on the intensity of motivation. As such, both intrinsic and extrinsic motivation need to be aroused to inculcate students' learning in subjects such as CRS, history, social studies and so on. In spite of the submissions made by scholars that mobile device is an effective learning tool, there are junks of arguments as to who perfoms better academically in the utilization of mobile technology between male and female.

According to Mitra, Willyard, Platt & Parsons (2005), technologies are not utilized in similar ways by males and females and as a result some differences still existed. Previous studies indicate that females are more likely to develop mobile devices involvement (Beranuy, Oberst, Carbonell, & Chamarro, 2009; Billieux, Van Der Linden, & Rochat, 2008; Grellhesl & Punyanunt-Carter, 2012; Hong, Chiu, & Lin, 2012, Walsh, White, Cox, & Young, 2011). However, no differences in how males and females used mobile devices were found in many studies (Bianchi & Phillips, 2005; Junco, Merson, & Salter, 2010; Lenish& Cohen, 2005). Gender is a factor that plays significant role in the record of students' performance. Influence of gender might be neglected but it strongly determines who could do what in the use of ICT tools especially the handheld devices (Anagbogu & Ezeliora, 2007; Cotton, Anderson & Zeynep, 2009; Omonijo & Nnedum, 2012). Gender is a factor that needs to be considered in the use of technology (Yusuf, Gambari & Olumorin, 2012). Survey data indicate that in absolute terms, male mobile readers vastly outnumber female mobile readers in the world (Anagbogu & Ezeliora, 2007). On average, there are approximately 3 male mobile readers to every female. The gender gap is slightest in Nigeria and Zimbabwe (UNESCO,2014).

Girls traditionally have perceived themselves as less skilled in terms of technology this has a lot to do with gender socialization (Cotten et al., 2009). Ifamuyiwa and Akinsola (2008); Onasanya, Nathaniel and Temitayo (2012) are of the view that the use of technology to improve students' academic performance has nothing to do with gender (UNESCO, 2014). Exposure in using technology is different among age and gender. Gender differences exist in use of social and web based media, consumption patterns, attitudes and culture toward technology (UNESCO, 2015). The researcher is of the view that females are more likely to use mobile phone than their males' counterpart. They stayed mostly at home playing games and interacting with friend through social media. Mobile technology has become one of the emerging technologies in the world, with mobile phones as an integral part of the life of students regardless of their gender (Wang & Shen, 2011). Attempt to ascertain who performs better academically between

male and female students in the use of handheld devices triggered the attention of the researchers to carrying out a research on the influence of gender in the utilization of mobile instructional app on undergraduate students' performance in Christian Religious Studies.

Purpose of the Study

The main purpose of this study was to investigate the effect of gender on the usage of mobile app on undergraduate students' academic performance in CRS.
Specifically to determine

1. The academic performance of male and female students in the use of mobile instructional app
2. The academic performance of male and female undergraduate students in the use mobile instructional app based on gender.

Research Question

The following research question was answered in this study:

1. What is the difference in the academic performance of male and female undergraduate students in the use of mobile instructional app in Christian Religious Studies?

Research Hypothesis

Based on the research question, the following null hypotheses was tested:

Ho1: There is no significant difference between male and female undergraduate students' academic performance in the use of mobile instructional app in Christian Religious Studies.

Methodology

A quasi experiment with pretest and postest, non-randomized, non-equivalent comparison design was adopted for the study. All the undergraduate students of University of Ilorin (Unilorin) formed the population of the study. An intact class of 34 (300 level) students was purposively selected as sample for the study. The class was divided into two groups (11 male students and 23 female students). Pretests were conducted to the two groups to determine students' performance baseline, both groups were exposed to the treatment (Mobile Instructional App) for four weeks after which post-tests were conducted. An instrument titled "*Christian Religious Studies Performance Test (CRSPT)* was validated by experts. After a pilot study was conducted, reliability co-efficient of 0.78 was obtained using Kuder Richardson (KR-21) at 0.05 level of significance.

Results

This section presents results from the study as followed:

Research Question: What is the difference in the academic performance of male and female undergraduate students in the use of mobile instructional app in Christian religious studies?

Table 1: Pre-test and Post- test of Experimental Group Based on Gender

Gender	N	Pre-test Mean	Post-test Mean	Mean Gain Scores
Male	11	14.36	18.36	4.00
Female	23	12.04	17.61	5.57

Table 1 presents the pre-test and post-test mean gain scores of the undergraduate students based on gender. Mean gain scores of 4.00 and 5.57 were obtained for male and female respectively. This indicated a slight difference where female undergraduate students performed better than their male counterpart in the subject matter of Christian Religious Studies.

Research Hypothesis: There is no significant difference between male and female undergraduate Students in the Use of Mobile Instructional app in Christian Religious Studies.

Gender	N	Mean	Std. Dev	Df	t	Sig. (2 tailed)	Remark
Male	11	18.36	2.25	32	1.07	0.292	Not Sig.
Female	23	17.61	1.75				

Table 2 presents the result of t- test in respect of the research hypothesis . The mean score for the male and female undergraduate students were respectively 18.36 and 17.61, while the standard deviation for the two groups were 2.25 and 1.75 respectively. The t-test result $t(32) = 1.07$, $p > 0.05$ (two-tailed) revealed that there was no significant difference between male and female undergraduate students' performance in the use of mobile instructional app in Christian religious studies . Thus, the null hypothesis was retained.

Discussion

The result revealed that no significant difference was found in the academic performance on male and female undergraduate students in the use of mobile instructional app in Christian religious studies. This indicated that the use of mobile technology is gender friendly. This is in line with the assertion that the use of technology to facilitate learning ad improve students' performance has nothing to do with gender (Ifamuyiwa & Akinsola, 2008; Onasanya, Nathaniel & Temitayo, 2012). The finding nullified the assertion made by UNESCO (2015)n that gender difference exist in the use of technology for learning among students. It also opposed the affirmation that gender sharply determines who could perform better in the use of technology for learning (Anagbogu & Ezeliora 2007; Cotton, Anderson & Zeynep 2009; Omonijo & Nnedum 2012)

Conclusion

Research on gender differences in the context of learning and performance was generally inconclusive. Though the bulk of literature sources indicated significant differences between male and female students with regards to their utilisation of mobile app for learning and improvement in the academic performance, but the difference were inconsequential to cultural settings and specific subject matter. The previous findings tilted towards higher academic performance of male students such that female students were generally found to be sceptical, naïve and less resistant to mobile app for learning. However, this study found no significant difference between male and female undergraduate students' academic performance in the use of mobile instructional app in Christian religious studies largely due to differences in cultural setting and subject matter.

Recommendation

Based on the findings of the study, the following recommendations were made:

1. University curriculum should be made flexible to accommodate the use of mobile devices for learning.
2. Male and female students should be encouraged to use mobile apps to complement other instructional media in the teaching and learning process.

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