

EMPLOYING EMERGING TECHNOLOGIES OF MOBILE APPLICATIONS FOR FINE ART LEARNING IN SOUTH- WEST NIGERIAN UNIVERSITIES

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ABSTRACTS

This research employed emerging technologies of mobile applications for the learning of fine art in south-west Nigerian universities. Gender was employed as a factor of consideration in the research. Quasi-experimental design involving pre-test, post-test, non-randomized, non-equivalent control group design was used for the study. Sample for the research consisted of two randomly selected universities within south west, Nigeria. Fine art Performance Test (FAPT) and learning applications as a treatment was the instrument used in collecting data. Two hypotheses were tested employing t-test. Findings in the research showed that fine art students taught with learning applications performed better than their counterparts taught with lecture method. Results further indicated that gender of students showed no significant main effect in performance when they were exposed to learning applications. Based on the findings, it was recommended that mobile learning application be encouraged in teaching fine art to enhance the performance of university students in the discipline.

Keywords: Emerging technologies, Mobile applications, Fine art.

INTRODUCTION

Emerging technology in this dispensation has not only brought many changes in the qualities of lifestyle, but they have completely revolutionized the education sector. The learner can more readily relate with his environment that mobile technology provides in this era than at any time of recorded history (Stockwell, 2008; Liu, 2009). Learning in the context of today's world is mostly based on the various technology made available via the net. Information and communication technology (ICT) is drastically in consistent increase and finding striking usage with improved learning process from time to time in many fields. It will be an understatement asserting that the advent of technology has provided tools that have been inculcated to the teaching and learning process globally, providing effectiveness in knowledge impartation and performance of students (Ogunlade 2014; Mathew, Joro & Manasseh, 2015).

Persistence increase and development in technology with the constantly upgrade of associated strategies and policies employed for their use has paved the way for effectiveness recorded in several researches (Bidin & Ziden, 2013). Ali, Holader and Muhammad (2013) have stated that technologies for students have become indispensable for providing and improving learning and acquiring skills for students. Technology in the classroom promotes individual and collaborative active learning in this digital age. Goggin (2006) believes that persistence employment of technological tools has made learners to become increasingly competent in handling computer and has provided first hand grade in manipulating mobile devices in order to enhance instructional activities. Indeed, mobile technology has greatly restructured communication both in developed and developing countries. It has also changed people's way of receiving information and has redefined digital applications. Reffell & Whitworth (2010) maintains that mobile communicate provides easy online contact and increases educational search for immediate information. Research efforts embarked upon has continued to thrive in search of enhancing learning through the employment of various mobile technological devices. Mobile instructional technologies appear as a prolific solution to the educational challenges in the contemporary world. It equally provides increased opportunities for individual and collaborative learning with the acclaimed convenience (Ally

2009). Its meaningful instruction that could happen at a specify time and at any location makes it the more laudable (O'malley 2003).

Ozan, Yamamoto and Demiray (2015) mentioned some common mobile devices for formal and informal instruction to include notebook, mobile tablets, and iPod touch, among others. Omiola (2011) pointed out that the methods employed in handling the products of mobile learning devices could result in improving learning output across all educational stages. The relatively new technology for teaching and learning process has been the focal point of many educational research efforts (Khanghah & Halili, 2015). Mobile and digital learning devices in the educational sector are getting more attention than ever before. This has been made possible because of the advancement of technology in supporting the teaching and learning activities both on individual and at classroom levels (Hujainah, Dahlan & Al-hami 2016). Jones, Scanlon, and Clough (2013) described mobile learning application as a relatively new tool that facilitates cognitive skill, learners' development and solutions provider to complex learning difficulties with effective and efficient outcomes. Godwin-Jones (2011) explained that mobile learning application technology device is tailored toward improving the quality of learning at all phases of life and purposely designed for passing instruction. Its credits encompasses at its most flexibility on the part of the learners and the devices (Shank, 2013; Halili, 2015). Mobile technology devices are seen as efficient and secure (Khanghah & Halili, 2015) and dependable in achieving the stated goals and objectives (Jones, Scanlon, & Clough, 2013). They not only provide but also guide learning in simple ways and their portability features simplifies their mobility from location to location (Jeng, Wu, Huang, Tan & Yang, 2010).

On several learning features, situated learning, the means of creating meaning from what is seen as the real activities of everyday living where learning takes place in a pro-social and informal setting, is a fraction of mobile learning (Hall and Bannon, 2006). Chen, Kao, & Sheu (2003) see scaffolding, several instructional strategies employed in moving the learners systematically and progressively toward profound understanding and, eventually, more solid independence in learning procedure, as capable of enhancing and promoting knowledge transfer. Prensky (2007) suggested the inclusion of digital games as an application solely used for learning. Lan and Sie (2010) believe that constraints of time and location could affect how learners may be motivated to use the mobile applications despite the merits of learning applications. Hanson and Shelton (2008) stated that learning applications often permit learners to experience independent and interactive collection in individual learning. Many advantages have been identified on the ease in using learning application. Wagner (2005) noted that using mobile applications can be influenced by the user's attitude, his adaptation and the quality of the instructor on the technology. Mobile learning applications most often give the opportunity for the users to manipulate and control the information through handy technological devices (Liaw, Hatala, Huang, 2010). Learning application has also been confirmed to have positive influence in disciplines like Mathematics and Sciences (Athanasios & Marios, 2015); in Practical English phonetics (Osipova, Gnedkova, Ushakov, 2016); and in Language Learning (Godwin-Jones, 2011).

One of the basic claims on learning application is the probability and attribute of its capacity in promoting learning on little kids in the form of game (Shuler, 2009). Grimus (2016) pointed out that mobile learning application has influence on gender with boys having upper hand in ease of using learning application, although, the research on mobile phone concluded that there were no significant main effect on the gender on use of mobile phone for creative learning. Creativity finds place in various aspects of art with apparent ease, perhaps, much more than other disciplines, because of the accessibility to the varying expressions in several media, but the means of increasing the creativity among fine artists through technology is facing challenges. Adaptation and utilization of technology devices in fine art instruction are still at its infancy, and technological equipments, tools and materials which could be used for the purpose are very few and scanty. Nevertheless, the contemporary shift towards employing modern technology for instruction in fine art in Nigerian universities calls for investigation. On that note, the present research examined emerging technologies of mobile application for fine art instruction in Nigeria Universities. The extent to which mobile learning application could enhance instructional delivery particularly among the fine art university students in Nigeria was to a large extent unknown. This study, therefore, sought to identify the effect of learning application in teaching of fine art in Nigerian Universities, with gender acting as a factor for investigation on the query.

Research Questions

The following research questions guided this study:

- (i) Is there any difference in performance of students taught employing fine art Learning Applications?
- (ii) Does the gender of students influence their performances in Fine art when they are taught using Learning Applications?

Research Hypotheses

The following research hypotheses were tested in this research:

H₀₁: There is no significant difference in the performance of undergraduate students taught employing

a Learning Application in Fine Art.

H₀₂: There is no significant difference in the performance of undergraduate fine art male and female students taught using a Learning Application in Fine Art.

METHODOLOGY

Research Design:

The research design for this study was based on development of the model type. The study adopted the quasi-experimental design of pre-experimental design of one group pre-test, post-test.

Fig 1 *Research Design Layout*

GROUP	Pre-test	Treatment	Post-test
Experimental	1	X	2
Control	3		4

The interpretations of the design layout are as follows:

- (1) = Pre-test scores of the experimental group
- (2) = Post-test scores of the experimental group.
- (3) = Pre-test scores of the control group
- (4) = Post- test scores of the control group.
- X = represents treatment (Fine Art Learning Application (FAL-App))

In this study, the independent variables were the conventional method of teaching and learning application to teach fine art, while the moderator variables were gender (male and female), type of school. The dependent variable was students' scores in researcher constructed fine art performance test.

Scope of the Study

The population for this study was undergraduate fine art students in Nigerian Universities, but the targeted population was the undergraduate fine art students of South-West Universities in Nigeria. The selection of the universities was based on the following criteria: (i) National University Commission accredited institution, with fine art department for the past five years (ii) undergraduate students studying fine art courses, with availability of human and material resources (iii) undergraduate fine art students in possession of android phone with ease of use (iv) Fine art course as treated in the course of study (Arts History (FNA 203), in the year 2013/2014 academic session.

The choice of 40 students in each of the universities of 200 level students was based on the following criteria: (i) students were familiar with android phone for the past one year, (ii) the Art history course treated as a course of study in part two (200 level) of undergraduate course approved in Nigeria University by the National University Commission. The topics of the research were based on Ife, Benin and Esie art.

Research Instrument

The instruments employed were as follows: Fine Art Learning Application (FAL-App). The Students' Performance Test in Fine Art (SPTF) consisting of items of multiple-choice objective test with four options each and Fine Art Learning Application Questionnaire were employed. The Fine Art Learning Application (FAL-app) is an application that runs on Android platforms. The Learning Application was designed to explain some topics in fine art history course with code number (FNA 203). It is in the undergraduate curriculum of fine and applied art in Nigeria University in line with National University Commission accreditation.

The design and development of the learning application was done by the researcher using the course content of Art History adapted from Degree Program of Ladoke Akintola University of Technology Ogbomosho, Nigeria. Internet facilities and Art history textbooks with the authorization of the Head of Department were also used. The Students Performance Test in Fine Art (SPTF) was designed by the researcher, with the test covering all the course content taught with the FAL-App. The test instruments were made up of 50 items multiple-choice objective test with four options each.

Validation of Research Instrument

Fine Arts Learning Application was given to two lecturers in department of Educational Technology, University of Ilorin and two Computer science lectures in the Department of Computer Science, University of Ilorin for both face and content validity and for the stages of program and graphical user interface (GUI), and content, including the fine art learning application usability Questionnaires (FALU). For the reliability of the test, instrument was administered to part two (200level) undergraduate students in Kwara State University, Malete, Ilorin, Nigeria. A university equivalence to the research sample, but which was not included in the sample of the study and also not used for pilot study in Nigeria, using the test-retest method of three weeks and Pearson Products Correlation analysis revealed a reliability coefficient value of 0.67.

Procedure for Data Collection

Permission was obtained from the head of department of the universities used for the study. The samples were selected based on the thirty undergraduate 200 level fine art students having android phone. The undergraduate students were selected and given the course content through the mp4 format. However, before the content was delivered pre-tested the Students' Performance Test in Fine Art (SPTF) was administered, and the researcher personally administered the instruction on the learning application usability. After the treatment a post-test was conducted to deduce the performances of students. Total scores of each of the students at pre-test and post-test were calculated. T-test statistics was employed to test hypotheses 1 and 2.

DATA ANALYSIS AND RESULTS

The analyses were guided by each of the hypotheses:

Ho₁: There is no significant difference in the performance of undergraduate students taught employing a Learning Application in Fine Art.

To test statistics was used to compare the post test mean score of the experimental group with the pre-test score serving as covariates. The result is as reported in table 1.

Table 1: t-test the post-test performance score of the students in both conventional and learning app.

GROUP	No	X	SD	df	f	sig
LEARNING APP	20	41.70	5.18	19	40	.000
CONVENTIONAL	20	25.80	3.30			

Table 1 indicated that the calculated F value of .40 is not significant because the significant value of .000 is lesser than 0.05 alpha levels. This result implies that there is significant difference between the post-test mean scores of the students in experimental and control groups. By inference, the score is different significantly from the experimental and the control groups. Therefore, the null hypothesis is rejected.

Ho₂: There is no significant difference in the performance of undergraduate fine art male and female students taught using a Learning Application in Fine Art.

This hypothesis was tested using t-test statistic method to compare the post test means scores of the students male and female. The result is shown in table 2.

Table 2: t-test Analysis on the post-test mean score of male and female undergraduate students.

GROUP	No	X	SD	df	f	sig
MALE	20	26.55	4.24	19	28.03	.000
FEMALE	20	25.80	3.31			

Table 2 presents the comparison of the post-test mean scores of male and female students taught with learning application and those taught with the lecture teaching method. The calculated F value of 28.03 is not significant because the significant value of .000 is lesser than 0.05 alpha levels. This result implies that there is significant difference between the post-test mean scores of male and female in the groups. That is, the scores did differ significantly from the experimental and control groups. Therefore, the null hypothesis is rejected.

DISCUSSION OF THE FINDINGS

Findings in this study revealed that mobile learning application is positive in enhancing learning in South-West Nigerian universities. The findings is in consonance with the findings of Marwan and Madar (2013) who reported that students consciously integrate mobile application in learning and recorded the improvement in cognitive ability of students. This finding is also supported with the conclusion of Rogers and Price (2009) who provided the evidence of learning application as being significantly useful in supporting learning and instruction. Similarly, the findings conform to the study of Hussain, et al (2008) who stated that learning application enhances the development of the learners' effectiveness and efficiency; while Clough, Jones, McAndrew, and Scanlon (2008) also expressed learning application providing significantly main effect on learning in different ways. The finding also conforms to the findings of Ching, Shuler, Lewis, Levine (2009) whose finding established that learning technologies application promotes cognitive development significantly and enhances positive achievement on stated learning goals. The finding is equally supported by Felder, and Spurlin (2005) and Jeng, Wu, Huang, Tan, and Yang (2010) whose results showed learning applications

assisting instructors to achieve the stated instructional objectives significantly in learning.

On gender and learning application, the result of analysis employing t-test for analysis shows no significant difference between male and female in their use of learning application. The finding agrees with the study of Purcell, Entner, and Henderson (2010) who stated that application users are mostly youth and that male and female do not differ in usage. The finding also agrees with the study of Huang, Jeng, & Huang (2009) who found that learning application promotes male and female students' achievement in organized learning. It is equally supported by Elfeky and Mazadeh (2016) who discovered that mobile learning do not have significant main effect on both male and female students' academic achievement. The finding contradicts the study of Evans (2013) who reported that learning application for instructional tasks did show significant differences by gender with boys outperforming girls. The finding is not also supported by Jung-Chuan Yen (2011) who suggested that Boys exceeded Girls in self-confidence pertaining to technology application for instruction.

CONCLUSIONS

It was concluded from the study that the Learning Application enhances students' understanding of art history in fine arts concepts, acquisition and improve performances in the fine art, in South-West, Nigerian universities. It is equally profitable for male and female fine art students of the same location. Learning Application could prop up interest for enhanced performance of fine art students of South-West, Nigeria.

Recommendations

The following recommendations from study are made:

Learning Application should be encouraged in teaching art history concepts in South-West Nigerian universities. This could be done through individuals, corporate bodies and government support agencies to schools.

Educational Technologists should be encouraged to develop varieties of Learning Application courses for students.

Seminars, workshops and in-service training should be organized for teachers to enable them acquire necessary skills and also update their knowledge about the development and proper use of blended learning for classroom instruction.

Fine arts authors or textbook writers should be advised to develop Learning-App to complement the textbooks used in the school

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