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LEARNING APP IN A SYSTEMATIC REVIEWING

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Abstract
The purpose of the study was to find out a systematic reviewing of apps for instruction in the context of creative arts in Nigeria Junior Secondary Schools. The study also investigated the influence of gender students' taught with apps. The quasi-experimental design, which is of the pre-test and post-test was used. The research sample was drawn from two randomly selected secondary schools. One intact class in each sampled school was also randomly selected for the study. The students from the sampled class were further stratified along with gender boys and girls. The Learning App, Validated test, and Marking guide were the instruments. Two hypotheses were tested using Analysis of Covariance and t-test. Findings indicated that students taught with apps performed significantly better than those taught without. It also revealed the gender of students was not a factor in the performance of students when they were taught using apps this was because there was no significant difference between the performance of male and female students. Based on these findings, it was recommended that the use of apps should be encouraged in teaching creativity in Nigeria schools.

Keywords: learning apps, students' gender, systematic reviewing

Introduction
Learning involves a process that supports individuals to build up capabilities through the gaining of knowledge, values, skills, and attitudes for societal and personal development (Odewumi, 2017). Educational stated goals will be difficult to be accomplished without providing the needed technologies because technology broadens the application of proficiency by the instructors to disseminate knowledge, manage and provide new methods for learners (Hong & Songan, 2011). Information and Communication Technology (ICT) has greatly influenced the interaction services and pedagogical rendered by instructors within and outside the students' environment during and after instructional delivery (Omiola, 2011). In essence, ICT is a novel technological process and development that enables collect, process, and disseminate learning contents (Iyeke, 2011).

According to the study by Garcia, Welford, and Smith (2016) ICT has diverse sets of instruments and devices that facilitate and brought improvement to knowledge. In the same vein, Zubairu and Isyaku (2015) stated that the utilization

of ICT provides the learners' needs, it also promotes independent and collaboration knowledge acquisition in the context of both the learners and instructors. The use of ICT in education facilitates easy dissemination and effective utilization of pedagogies in learning, this provides learners with the privilege to acquire knowledge either collaboratively or independently (Hismanoglu, 2012). Also, Geer and Sweeney (2012) submitted that using educational technological tools would facilitate instructors and learners to be comfortable in achieving the stated goals in instruction. More so, the study of Odewumi, Adeniran, and Falade (2018) stated that the advent of ICT, coupled with the internet has revolutionized instruction dissemination from classroom-based to content sharing and delivery via m-learning and e-learning making it significantly and ubiquitous contribute to the pedagogical process. Mobile technology has facilitated myriads of experiences through learning creativity with apps.

Previous studies have confirmed the creativity in arts as relevant and significant in developing the learners. Although, the study of Unegbu (2014) established that there are abundant life and continuity in creativity in terms of child arts. Odewumi (2015) submitted that fine arts bring out a great value of creativity in an individual child. Soetan and Odewumi (2016) mentioned that fine arts serve as a preservation of creativity in the cultural heritage of learners. Odewumi, Okeke, Abdulhammed, Uzoma, Okuche (2015) expressed that art and cultural heritage develops and prepare an individual in creative ways for a valuable living within the society. The authors further divided Art into Non Visual and Visual. Visual art is visible products while non-visual art is those whose products that cannot be seen with our naked eyes, they are purposely for entertainment and recreations. Creative art is a branch of visual art.

Creativity can be understood as having the power or quality to express individuality in his way. Children prefer to learn in creative ways, they learn better and sometimes faster creatively mostly things they see rather than just memorizing abstract information given by their tutor or parents (Usman, Odewumi, Obotuke, Apolola, & Ogunyinka, 2014). Elufadejin (2016) affirmed that arts education is valued in that it develops creativity and cultural awareness, it also creates a particular form of knowledge that requires work and understanding of skills. The author further mentioned that the aforementioned skill assists the learners to link with other subjects on the school curriculum. It was concluded that arts education generally includes music, dance, drama, and visual art. Similarly, Thormann (2008) submitted that arts education provides a creative ability to support the power of transformation and exhibition in different fields of art. It plays a vital role in the life of art students. Arts education fosters developmental knowledge acquisition and skill gained. It is a powerful instrument that prepares the future of students with special needs through direct contact of experiences from the instructors. In essence, it supports the complete development of the child and prepares the child for a better life filled with opportunities, learning, joy and plays a crucial role in the overall success of the learners (Catterall, 2009).

A study by Weller and Anderson (2013) confirmed that teaching and learning have metamorphosed to be positive through the use of technologies. In teaching

and learning of fine arts, relevance technological instructional tools have been employed. For example, Ikponmwosa (2013) study confirmed that the teaching strategies with technology have helped the students to move forward on intentions to take up Fine and Applied Arts as a career. Kuratko and Hodgetts (2007) expressed that the conception of an individual which included the willingness has created a successful collaborative team on creative skills acquisition through technological tools. The skills acquisition is a product of m-learning and E-learning.

Mobile learning is believed to be a branch of e-learning which utilizes the ubiquity and flexibility of mobile devices to offer students additional learning opportunities (Fan, Radford, & Fabian, 2016). The mobile devices are based on the ideology of the internet which assists the application software to function effectively (MacNeill, 2015). This application is sometimes called apps (Wasserman, 2010). Railean (2012) explained the apps as instructive empowered learner-centered tools based on the ideology of online and creates solutions globally for classroom teaching and learning.

In recent times mobile apps provide the potential for instruction through the use of technological devices. A number of mobile apps have been developed and used for instruction in the classroom context based on mobile platforms (Alqahtani & Mohammad 2015). However, studies have argued that few learning apps were effective in learning, while the majority of the apps have not been pedagogically useful, because of how it was developed and the purpose it was meant for. Nevertheless, the inception of mobile technological devices like phones has brought instruction to a standardized stage and teaching and learning become more meaningful through online podium (Huet & Tcheng, 2010).

Furthermore, researchers affirmed and established that the ideology of mobile technologies is built on the internet, this earnestly promotes accessibility to learning resources online, adequate instruction acquisition anywhere and anytime (Fu, Su, & Yu, 2009). Studies have confirmed the perceived usefulness of online resources for instructions. For example, the study of Hashim, Ahmad, and Ahmad (2011) stressed the introduction of Java as a useful online learning material for sciences, languages, and calculations. Similarly, Alhazmi and Rahman (2012) confirmed the frequent use of the online tool in educational institutions for learning. In essence, an online environment, promotes social integration, collaboration, and group cohesion for instruction (Zydney & Seo, 2012).

Mobile apps create an innovative scheme for instruction globally (Kim, Rueckert, Kim, & Seo, 2013). It provides a prospective clue for teaching and learning at anytime and anywhere via learners utilizing different mobile technological devices (Egbert, Akasha, Huff, & Lee, 2011; Hoven & Palalas, 2011). Mobile apps promote significant improvement in collaboration between instructors and learners (Choi, Kim, & Kim, 2016).

Although, Mobile devices, such as iPods, tablet PCs, and mobile phones have been acclaimed as an integral part of learning apps (Kim, Kim, & Choi1, 2016). The empirical researches on mobile devices issues by researcher have different findings bordering on divergent discipline. The study of Hsu and Ching (2013) concluded that mobile devices were useful, positive, and enhance learners'

performance in learning.

Despite the advantages of mobile devices in learning, the study by Kim, Rueckert, Kim, and Seo (2013) mentioned some obstacles confronting learning through the use of mobile technology devices. For example, learners' easy of usage and adaptation of mobile devices for communication and entertainment is a general problem of the app for learning. Despite, the connectivity, mobility, learner's skillfulness, ability, and self-control, management is another obvious problem facing students' usage of mobile devices (Okeke & Umoru, 2012). Moreover, the digital tools in research have been acclaimed on both opportunities and challenges (Davidson, Paulus & Jackson, 2016). Nevertheless, the study of Hsu and Ching (2012) mentioned the provision of adaptability and ease of use to the mobile device in terms of connectivity as a means of solution.

Empirical studies on apps for instructions remained controversial among scholars. For example, the study of van Arnhem (2015) mentioned the usefulness of apps in the study of the library as very effective. Similarly, Zou and Li (2015) emphasized the teaching of the English language with apps as positive among the learners. In the same vein, Widodo (2017) expressed the use of apps for the teaching of Mathematics was productive and successful. In essence, Alqahtani and Mohammad (2015) submitted that recitation of the Holy Quran as being effective when utilizing apps for teaching the verses among teenagers.

Previous researches have revealed the effectiveness of apps in the delivery of instruction globally, some of them are Hsu and Ching (2013) whose study examined the educators utilized limited programming and experiences to design apps for collaboration, guidance, and peer support. The authors stressed that apps are the web-based program for inventive and functioning instruction. It was concluded that apps met the diverse need of learners in teaching and learning. Also, in the study of Railean (2012) on mobile apps and instruction, the author stressed that apps provided the possibilities of learning among undergraduate and K-12 education. It was further concluded that different steps should be embarked on to ensure the dynamicity and flexibility in learning.

The problems of learning of creative arts have been stressed by many scholars. For example, Olurinola (2016) submitted that lack of interest, inadequate enough teaching arena, and unfavorable time table as a major defect. Archibong (2012) further mentioned the scarcity of relevant textbooks and qualified teachers. Poor attitude of administrators, community, and parental ideology brings discord to the learning of fine arts. Despite this, creative arts reduce joblessness and the creation of handiwork labor for the youthful age (Adeyemo, 2013). The problem of its teaching can be alleviated through the use of apps.

Although the most known researches on apps are on designing, developing, and usage which was basically on language acquisition skills. Although Cummins-VanHerreweghe (2017) argued that a learning app is a tool for teaching in collaboration between the instructor and learners. Nevertheless, the current study attempts to fill the existing gap by looked into learning apps in the context of learning creativity in arts. The study also attempts to see the influence of the variable of gender when utilizing apps as m-learning and e-learning strategy in Nigeria Junior Secondary School. Furthermore, the study researched into the

students' performances when they embarked on educational apps for learning of selected creative arts topic in the context of Nigeria Junior Secondary school.

In this study, the following research questions were addressed: First, what is the difference in the performance of students taught with learning apps and those exposed to conventional teaching? Second, what is the difference in the performance of male and female students taught with learning apps? These null hypotheses were tested in the course of this study: Firstly, there is no significant difference in the performance of students taught with learning apps, and those taught using conventional teaching. Secondly, there is no significant difference in the performance of students when they were taught with learning apps.

Method

The design used by the researcher for the study was the quasi-experimental designed, which consists of pre and post-test. Purposive random sampling is applied to select two Junior Secondary Schools offering creative arts as a subject on the school curriculum. These schools which have been in existence for more than ten years were selected based on the following criteria: Equivalence in having standardized Creative art studio. Experienced instructor teaching creative arts. School ownership belongs to the government. The mixed school composition of both male and female students. Also, learners made available Mobile devices like a mobile phone with enough space.

Intact classes in the two schools were selected and randomly re-grouped to experimental (apps) and conventional groups through simple random sampling. Also, the students were grouped according to their sexes (male & female). The instrument used were; Creative Arts Learning Apps (CALA). Test, Making guide, Methodology, and instructional materials for the conventional group. Creative Arts Learning Apps (CALA) was developed by the researchers in relating to the Junior Secondary School Two curriculum on creative arts as approved by NADEREC. The design, creation, and development of the CALA were prepared by the researchers with the help of the Heads of the Department of creative and visual arts of the two schools, the Internet and available Creative arts and Visual Arts Textbooks, this was given to computer specialist to produce the app in mp3 format.

The learning instrument CALA was later given to a specialist in Fine and Applied Arts, Educational Technology, and Computer Science, for the face and content validity of the apps. The validated test instruments consisted of Creative Arts Test (CAT) of 50 multiple choice objective items taken from the validated Junior Secondary School III past question prepared by the Ministry of education Oyo State. The Test (CAT) was on the topics taught. And contained five options (A-E) as possible answers to the question. Students were asked to carefully pick the correct answers by shading the letters out of "A" to "E", which is the correct option for each item. CAT was first administered to both the experimental and control groups as a pre-test and again for the post-test after it had been rearranged.

The apps contained six weeks' topics. The sample consisted of 60 creative arts students of 31 males and 29 females which form the two research. The first week was used to familiarize the learners with the lesson and checking of the

suitability of the mobile devices in terms of space, speed, and suitability for the intended work. The treatment group was given the topic through Bluetooth into their various mobile phones on weekly bases.

On experimental procedure, the aims and objectives, including the modality of the experiment was written in the instructional booklet given to both concerning instructors and learners. The experimental groups were guided on how to use the instruments' apps and were instructed to be heedful and take notices of instruction given. The content to be taught weekly is recorded in the memory card with mp3 format. The mp3 and the memory card in which the content to be taught weekly are handled to each student at the beginning of each week. The instructor explains in detail the operating of the apps. The students access the learning content through the mp3 players provided at the venue of the lesson and the instructor evaluates each weekly topic along with the students while the mp3 is collected back at the end of the lesson.

The treatment lasted for six weeks after which the test was administered. The control group was team taught with along with the two researchers. On completion of teaching and learning on the prescribed week of study, the test was given to both groups. The students (both groups) were examined in the classroom with writing materials on paper-based test under the supervising the creative arts teachers and researcher's assistance. The marking guides were given to creative arts teachers to mark the students' work and record their marks immediately. The students' raw scores were collected and analyzed using t-test and Analysis of Covariance (ANCOVA) with Statistical Package for Social sciences (IBM SPSS Statics) version 21 at 0.05 alpha level.

Hypothesis testing:

Ho_1: There is no significant difference in the performance of students taught with learning apps and those taught using conventional teaching.

The hypothesis was tested with the ANCOVA statistic method, to compare the mean scores of students in the experimental group with the pre-test scores serving as covariates. The result is as reflected in Table 1.

Table 1. ANCOVA Table of Students Taught with Apps and Taught with Conventional Method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1351.723[a]	6	225.287	6.173	.001
Intercept	5998.089	1	5998.089	164.352	.000
VAR00001	322.606	1	322.606	8.840	.008
VAR00003	1240.811	5	248.162	6.800	.001
Error	656.917	18	36.495		
Total	134796.000	25			
Corrected Total	2008.640	24			

Significant at 0.05

Table 1 reveals that the calculated F value of 6.800 is significant because .001 significance level is less than 0.05 alpha levels. This indicates that there is a significant difference in the post-test mean score of the students. Therefore, the null hypothesis is not rejected.

Ho_2: There is no significant difference in the performance of male and female students taught with learning apps.
The hypothesis is tested with t-test statistic methods to compare male and female mean. This is shown in table 2.

Table 2. t-test Statics of Girls and Boys Taught with Apps

Variables	No	Mean	SD	Df	t-value	p-value
Boys	31	64	12.0			
				48	13.690	.000
Girls	29	32	5.3			

Table 2 shows that the calculated F value of 13.690 is significant because the significant value of 13.690 is lower than 0.05 alpha levels. The result implies that there is a significant difference between post-test mean scores of male and female students. That is, male students' score differs significantly from the female students score when both were taught with apps. Therefore, the null hypothesis is rejected.

Findings and Discussion

The two hypotheses in this study were rejected. There seems to be similarity in the findings of this research with those of some researchers. The finding is agreed with the findings of MacNeill (2015) who confirmed that there is positive in learners' respondents on apps, attitudes towards use, and inclusion in the research academic environment. The findings conform to the study of Alqahtani and Mohammad (2015) who findings stressed that students have high satisfaction while engaged in the use of apps for study. The findings are in line with the findings of Moonen, (2015), Suwantarathip and Wichadee, (2014) whose findings declared apps as given learners more benefit in a solitary way. The finding favored the findings of Brodahl and Hansen (2014) who findings declared apps are being positive in relating instruction and contribution given to their learners. The results of the findings are in line with Zou and Li (2015) who mentioned the significance of apps in terms of motivation and given relevancy to subjects on the school curriculum. Also, it was in agreement with the findings of the study of Kutluk and Gülmez (2014) who findings students strongly agree with easy-to-navigate content in m-learners.

More so, the result of this study agreed with the finding of Railean (2012) whose findings stressed that apps promote highly intention to use and promote convenient resources accessible for learning instruction. The finding supports the findings of Kitsantas and Dabbagh (2010) who expressed that using of apps by students bestow self-regulated learning. The findings are in line with the findings of Brodahl and Hansen (2014), Zheng, Lawrence, Warschauer, and Lin (2015) whose findings inveterate / confirmed that apps improve learning in collaborative ways with their peer. The findings are in agreement with the findings of Shea and Bidjerano (2013) whose findings confirmed that apps play a significant role in Malaysian education.

The findings contradict the findings of Chantoem and Radanovich (2015) who study reacted that using apps indirectly promotes positive and collaboration group assignments with the learners.

Conclusions

The following were the conclusions derived from the findings. Learning apps can enhance students' understanding of fine arts concepts and acquisition of skills and improve their performance. On gender, male and female students exposed to learning apps performed significantly different. The following recommendations arose from the findings of the study. First, the use of apps could be encouraged in teaching arts. Second, educational technologists could be encouraged to develop apps as an instructional aid for students in secondary school arts. Third, school principals or representatives of the government are advised to support teachers financially to enable them to produce learning apps.

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