



## EFFECT OF COMPUTER ASSISTED INSTRUCTIONAL PACKAGE ON THE PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS VISUAL ART IN SHAGAMU, NIGERIA

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### Abstract:

This study investigated the effects of computer assisted instruction packages (CAIP) on performances of senior secondary school students' in visual art in Shagamu, Nigeria. Gender influence on students' performance was also examined. The sample comprised of 50 students drawn from two secondary schools. Validated researchers' designed computer assisted instructional package and Visual art Performance test were used as treatment and test instrument. Two hypotheses were tested using Analysis of covariance. Finding indicated no significant differences between the performance of students taught with CAIP and those taught using the conventional method and gender was a factor. The findings recommended that computer assisted instructional packages CAIP should be developed for teaching difficult Visual art topics in Nigerian Senior Secondary schools.

**Keywords:** art, visual art, computer, computer assisted instructional, Nigeria, gender

### 1. Introduction

Art brings into existence new things through individual practice and experience. It is also an opportunity to explore and question new possibilities. Art promotes man's ability, skills and aptitude, which, therefore, motivate the man to articulate oneself in

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different styles. It is more of individual than general and it affects every aspect of one's life (BECTA 2003; Otonye 2003; Ibrahim-Banjoko, 2009; Odewunmi, 2009; Alagbe 2012).

Art paved a way for the rapport between the child's culture and brings him/her closer to the deep knowledge of his own culture and others. Art develops the process of creativity through learning in individual and facilitates new potential and creativities through experience (Jensen 2001; Bae, 2004; Elufadejin, 2012).

Visual art education provides the privilege to acquire practically oriented skills through creativities as well as some basic scientific knowledge of education for individual. It is inclusive as an integral of the national development strategies in many development nations, creating avenue for the skilled individual who can effectively work and coordinates his part of the body for creative ideas (The Federal Republic of Nigeria in the National Policy on Education, FNR 2014).

The Art is divided into Visual and Non-visual. Visual art is visible products while non-visual art unseen works of arts purposely for entertainment and recreations. Visual art is a core subject for Nigeria Senior Secondary Schools art students. Its importance felt as a universal expression of unique language, keeping and protecting our cultural heritage, promoting the sense of beauty and promotes the spirit of professionalism and identification. Visual art is a body of fine and applied or industrial art (Usman, Odewumi, Obotuke, Apolola, & Ogunyinka, 2014; Odewumi, Okeke, Abdulhammed, Uzoma, Okuche, 2015).

The Computer a tool which is prominent in visual art especially for Senior Secondary Visual art classes: it is used in all aspect of visual arts: drawings, painting, designs and creates the pattern.

Different motifs, images and photographs are scanned in computer. Painting of images and scenes. Mixing, separating and applying colours in publishing. The Internet also provides the avenue for the online exhibition of art products for the universe to appreciate and purchase (BECTA 2003). Computer technology has been rapidly growing in educational process at all levels, it becomes an integral part of most academic, and has changed the way of teaching and learning, thereby makes the teaching and learning process exciting for both students and teachers (McAllister & Mitchell 2002; Alhayek, 2003). Computer Assisted Instruction is a program of instruction which is effective in a real classroom learning. It is a means of delivery lesson, without the intermediary of a teacher (Christensen & Knezek, 2001; Mill, 2001; Busturk, 2005).

Computer Assisted Instruction has to its credit included stresses the active learning, encourage and enrich collaborative learning, promotes greater students involvement independence and task-based teaching. The study has confirmed the

positive effect on students' achievement of computers to traditional methods (Spinelli, 2001; Liao, 2007). And also, CAI is effective in teaching and learning of diverse disciplines on the school curriculum and studies has been confirmed in the following in Psychology (Worthington, Welsh, Archer, Mindes, & Forsyth, 1996). Geography (Egunjobi, 2002; Karper, Robinson, & Casado-Kehoe, 2005). Physical Education (Alhayek, 2004) Statistics (Busturk, 2005) Musculus skeletal (Ford, Mazzone & Taylor, 2005). Mathematics (Maitoned, Dupaul & Jitendra, 2005) Physics (Gambari & Mogbo, 2006). Metal analysis (Liao, 2007). Music (Gao, 2007; Cheng, 2007). Biology (Yusuf & Afolabi, 2010) English Language (Kılıçkaya, 2007).

On gender and computer, studies have established that male students perform better than the females in science oriented courses like physics, chemistry, and biology (Afolabi & Yusuf, 2010; Gambari, Ezenwa & Anyanwu, 2014). Females users compared with males, are more inclined to hold negative reaction to computers thus resulting in the different way of using computer (Jackson, Ervin, Gardener & Schmitt, 2001). The extent to which computer assisted instruction can enhance instructional delivery particularly in Visual Art in Nigeria is still unknown.

This study investigated the effect of computer assisted instruction on the performance of senior secondary school students in visual art. It also examined the influence on the performance of students taught using computer assisted instruction.

## **2. Research Questions**

1. What is a difference in the performance of visual art students exposed to Computer Assisted instructional packages and those taught using conventional method?
2. Does the gender of students influence their performance of students exposed to computer assisted Instructional packages?

## **3. Research Hypotheses**

The following research hypotheses were tested in the study.

H01 There is no significant difference in the performance of students taught using computer assisted instructional and those taught traditional method

H02 There is no significant difference in the performance of male and female students taught using computer assisted.

## **4. Methodology**

### **4.1 Research Design**

This study was a quasi-experimental type of the pre-test, post-test, non-randomized, control group design. The design is a 2x2 factorial design.

### **4.2 Sample**

The target population of this research was the first year senior secondary visual art students in Shagamu town, Nigeria, drawn from two purposively sampled secondary schools with computer facilities. Fifty students were sampled: 25 girls and 25 boys. They were grouped into experimental and control group through simple random sampling technique.

### **4.3 Research Instruments**

The instruments for this research were the treatment instrument "Computer Assisted Instructional Package (CAIP)" and the test instrument, "Visual Art Performance Test (VAPET)". The treatment instrument, Computer Assisted Instructional Package (CAIP), was developed by the researchers, with the assistance of a professional computer programmer. It was a self-instructional, interactive package that lasted for eight hours, containing six lessons structured into modules. The topics covered in the package are: meaning and sources of clay, uses of clay, materials for clay modelling, clay preparation and preservation, modelling techniques, firing of ceramics wares, all were from the ceramics aspect of the Nigerian senior secondary visual art curriculum. The CAIP passed through computer programmers, senior visual arts lecturers, and experienced visual art teacher for face and content validity.

The test instrument, "Visual Art Performance Test (VAPET)" was made up of 30 items multiple-choice objective test with five options each, selected from validated West African Senior Secondary School Examination Visual art question papers. The Visual Art Performance Test was used to measure the performances of students in the experimental and control groups for both the pre-test (covariate) and post-test. For the experiment group, a multimedia projector was used to teach the lesson after the school hours. The computer instructor handles the projector with the assistance of the visual art teacher. The second researcher taught the traditional group with the appropriate instructional materials. The (ANCOVA) Analysis of Covariance statistic was used to calculate the student pre-test and post-test scores of each student.

#### 4.4 Procedure for Data Collection

All the groups (experimental and control groups) were subjected to the VIAPET as the pre-test. Then, the students in the experimental group were exposed to CAIP which had been installed on Laptop computers using a multimedia Projector to disseminate, while the control group students were exposed to the conventional teaching method on the same content used for experimental groups. They were taught using conventional classroom format with appropriate instructional materials which lasted for six weeks. After the treatment, the two groups were exposed to the VIAPET which had been rearranged as the post test.

### 5. Results

#### 5.1 Hypothesis One

There is no significant difference in the performance of students taught using computer assisted instructional and those taught traditional method.

To test this hypothesis ANCOVA statistic was used to compare the means scores of the student in experimental group and control group with the pre-test scores serving as covariates, the result is as reflected in Table 1.

**Table 1:** Analysis of Covariance (ANCOVA) on the post-test Performance Scores of Students in the Experimental and Control Group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.005 <sup>a</sup>	2	3.003	1.017	.378
Intercept	34.621	1	34.621	11.726	.002
Pre	5.538	1	5.538	1.876	.185
Pre -Test	.460	1	.460	.156	.697
Treat	64.955	22	2.952		
Total	3647.000	25			
Corrected Total	70.960	24			

a. R Squared = .085 (Adjusted R Squared = .001)

Table 1 indicates that the calculated F value of .154 is not significant because the significant value of .697 is greater than 0.05 alpha levels. The result implies that there is no significant difference between post-test mean scores of students. That is, students score did not differ significantly from both taught using CAIP and the conventional method. Therefore, the null hypothesis is accepted.

## 5.2 Hypothesis Two

There is no significant difference in the performance of male and female students taught using computer assisted.

This hypothesis was tested using the ANCOVA statistic methods to compare the means scores of the student in experimental group (stratified into male and female) with the pre-test scores serving as covariates, the result is as reflected in Table 2.

**Table 2:** Analysis of Covariance (ANCOVA) on the Post-test Scores of male and female in the Experimental and Control Group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.384 <sup>a</sup>	2	.192	.171	.844
Intercept	36.152	1	36.152	32.258	.000
Pre	.091	1	.091	.081	.779
Gender	.225	1	.225	.200	.659
Error	24.656	22	1.121		
Total	3459.000	25			
Corrected Total	25.040	24			

a. R Squared = .015 (Adjusted R Squared = -.074)

Table 2 indicates that the calculated F value of .465 is not significant because the significant value of .503 is greater than 0.05 alpha levels. The result implies that there is no significant difference between post-test mean scores of male and female students. That is, male students' score did not differ significantly from the female students score when both were taught using computer assisted instructional packages. Therefore, the null hypothesis is accepted.

## 6. Discussion of Findings

The result of the analysis of covariance on the performance of students taught visual art using computer assisted instructional packages and those taught with conventional classroom instruction indicated no significant difference. The findings contradiction from earlier findings of Ford, Mazzone and Taylor (2005) and the findings of Jegede, Okebukola and Ajewole (1992), Egunjobi, (2002) conducted in Nigeria. It has been confirmed that CAI has been effective in enhancing students' performance as the traditional method.

The result of the analysis of covariance (ANCOVA) showed no significant gender differences for students exposed to CAIP. These findings show that gender had no influence on the performance of students in visual art whether they were taught with CAI. The result is in agreement with the findings of Jarvis (2009), and Yusuf and

Afolabi (2010), which found and reported that there were significant differences in the mean achievement scores of male and female students taught using CAI. Similarly, the findings agree with the studies of Llach and Gallego (2012), who study confirmed that CAI has been effective in enhancing students' performance in other subjects than the conventional classroom instruction.

## 7. Conclusions

Since CAI enhanced and promotes effective instructional delivery in the secondary schools. Computer Assisted Instructional Packages should be developed for the use of Visual Arts settings in schools within the Nigerian for teaching of difficult Subjects topic in Visual Art by the Educational Technologists.

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