

# 3D Computer Animation as a Catalyst to Improving Lower Primary School Pupils Attitude towards Yoruba Culture

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## Abstract

*The study investigated 3d computer animation as alternative to improving lower primary school pupil's attitude towards Yoruba Culture. The study adopted quasi experimental research design involving 2 x 2 factorial matrix. Sample comprised of 57 pupils selected from two intact classes. The two groups were randomized into experimental and control group. The Pupils Attitude towards culture Questionnaire was used for data collection. The questionnaire was validated with 0.79 reliability index. The questionnaire was used as pre-test and post-test while data was analysed using Analysis of covariance (ANCOVA). Finding from the study indicated that 3D computer animation have significant effect on lower primary school pupils attitude towards culture ( $F_{(1,57)} = 13.398; p < .05$ ) but gender has no significant effect on lower primary school pupils attitude towards culture ( $F_{(1,57)} = 2.079; p > .05$ ). It was also found that there is no interaction effect of 3D computer animation instruction and gender on lower primary school pupils attitude to culture ( $F_{(1,57)} = .007; p > .05$ ). The study concluded that 3D computer animation instruction has effect on lower primary school pupils attitude towards culture while it is recommended that primary school teachers Yoruba teachers should adopt the 3D computer animation instruction to improve pupils attitude*

**Keywords: 3D animation, Attitude towards culture, Pupils, Yoruba**

## Introduction

Primary school education is the basic education which aims at preparing children to attain the competence needed to advance further in making a worthwhile contribution to the society (UNESCO, 2013). It is thus an important stage which importance not be over emphasized. Hence, it is important for Yoruba subject teacher to making learning interesting for pupils at the level. This becomes very important considering the fact that Yoruba is fast losing its grip of its beautiful culture in the hand of new generation. Culture plays a crucial role in the language and the way it is utilized by its users. According to Aina and Morakinyo (2011), culture is a comprehensive notion that includes people's knowledge, beliefs, art, morals, laws, conventions, and any other habits and competencies gained by humans as members of society. Culture is essentially all of the accepted moral and social behaviours that humans carry down from generation to generation. A group of people's culture is their entire way of life; it consists of the norms, values, beliefs, and symbols that are taught from one generation to the next through communication, observation, and imitation (Tamu, 2014). Sufficient to agree with the position of Ogunlola (2011) who noted that, the main idea of the Yoruba traditional education is to build a child with good character and this is embedded in Yoruba culture. It was also affirmed by Akinola (2015) that learning to speak with wisdom and doing away with bad conducts is part of home training in Yoruba culture. In Yorubaland, children become sociable as they listen to adults and elders when they speak and greet warmly according to season and situation Akanbi and Jekayinfa (2016) reiterated that the virtues emphasised by the Yoruba in the concept of

"?m?lùàbí" are many and acquiring virtuous character is a continuous process.

Paradoxically, According to Alao (2008), the students we teach in our basic education system are increasingly finding it difficult to concentrate effectively in teaching and learning activities at school, and as a result, the school system is finding it increasingly difficult to secure the attention of modern-day students. The situation is no different in the teaching of Yoruba culture. Traditional Yoruba greetings (such as bowing down to elders), chastity (virginity), clothing (traditional garments like Aso Oke, Dansiki, and others), moonlit folktales, and traditional hairstyles for women are no longer taken into consideration (Akinkurolere & Akinfenwa 2018). Private schools often limit the use of vernacular (mother tongue) as a medium of instruction, while many parents are hesitant to enrol their children in "local schools." Ajepe (2014). Furthermore, Ajepe and Ademowo (2016) asserted that younger generations are starting to forget the fundamental principles and virtues of their cultures. The younger generation is now modelling their wardrobe after the people whose language they speak. Akanbi and Jekayinfa (2016) proved again how depressing it is to see Nigeria rife with vices and acts of violence, such as rape, kidnapping, violence motivated by religion, disdain for the law, and terrorism. This suggests that Nigeria's educational model, which upholds Yoruba maxism "omoluabi," is no longer yielding the intended results because it appears to have failed to impart moral principles in children. Many of these young people may become culturally lost as a result of losing their grasp on Yoruba culture, which can have detrimental effects on their social and academic development

(Akeredolu-Ale and Alimi, 2002). Thus there is need to adopt instructional strategy that will assist students to adopt positive attitude towards the learning of Yoruba culture from the foundation, which is the lower level of education.

Attitude contributes to the output of students' learning process. A positive attitude of teachers influences students' motivation, attitudes towards school and schoolwork, self-confidence, and, as a result, personality development (Ulug, Ozden, & Eryilmaz, 2011). Melhim (2009) distinguished between two types of attitudes: positive and negative. Positivity is the choice to accept things as they are. Regretfully, students' attitudes towards teaching the target culture are not positive, according to Dabou et al. (2021). With the identified challenge deficit in attitude of pupils towards learning Yoruba culture, essential is the need for method that will lead to improved students attitude. Such method must be the type that can capture their attention and show them practical aspect of Yoruba culture for emulation. In this wise computer animation seems to have these characteristics.

With the use of information, communication, and technology (ICT) resources, the process of teaching and learning has become more fun. The introduction of computer graphics and animation instructional modalities is one of the various ways that ICT is used in education. It has been found to be successful in teaching a variety of disciplines, including fine arts, religion, drama, and literature (Ala, et al 2023) but its usage is sparse in teaching Yoruba language at the lower level of primary education. Instructional computer animation combines graphics and text presentation in which each can strengthen memory through observation of the images. It is a modern electronic technological instructional method that offers deep learning to students. Computer animation is traditionally defined as an inanimate entity that appears to take on dynamic attributes such as movement, growth and speech which are normally associated with living organisms (Ploatzner & Lowe, 2012)

Instructional computer animation has the potency of bringing down the difficult level of any concept taught with it to the barest minimum (Ebonam, 2023). Use of computer animations together with teaching methods and techniques and having the students actively participate to the process ensure the provision of an effective and efficient education (Daşdemir & Doymuş, 2012). There are many different approaches that go into creating computer animation, but they are all united by the fact that the animation is produced digitally on a computer. While three-dimensional (3D) animation techniques typically create virtual worlds in which objects and characters move and interact, two-dimensional (2D) animation techniques

typically concentrate on image modification (Ebonam, 2018). It is possible to draw the general conclusion from Noor et al. (2022) that computer animation serves a beneficial role. According to Jamalludin and Zaidatun (2003), the use of instructional computer animation makes it easier to explain a concept or showcase a skill, allowing students to use more senses in the process of acquiring knowledge and holding their interest for long.

The place of gender cant also be over looked in relation to pupils attitude when taught with 3D animation. Okeke (2001) defined gender as social differences and relations occurring between males and females which are learned and vary widely among cultures and societies. Adeyegbe (2010) found male students performing generally better than the females However, Olom (2010) revealed significant differences in performance of male and female students in mathematics in favour of females. Hence, the is inconsistency in literature on the effect of gender on students attitude

### Literature Review

Hwang et al (2012) contended that some teachers, due to training and expertise view animation as easier and cheaper mode of instruction, while other look at it into different dimension as a time-consuming and waste to precious classroom hours, with students exhausting their time viewing something that they do not really believe on its educational value. Hwang et al. (2012) and Trevison et al. (2010) remarked that animations are time-consuming to produce; viewing them also may be time consuming. Animations come in varied ways and have a significant impact on education and other social systems such as communication, leisure and entertainment (Sebastian, 2010).

In two different research, Bamidele and Yoade (2017) and Falode et al. (2016) discovered that using computer animation as a teaching tool significantly raises students' academic performance. Idowu (2008), however, found that pupils with high ability outperformed students with medium and poor ability. She looked on how biology students at the College of Education in Southwest Nigeria performed in relation to the subject structure. The study concluded that students' academic success in biology was significantly impacted by their score ability levels, regardless of the manner of treatment.

In order to determine how computer animation might help students learn about chemical reactions and equilibrium, Achor and Ukwuru (2014) conducted a study. The aim of the research was to investigate if computer animation may help students obtain better results in chemical reactions and equilibrium. The study used a quasi-experimental approach with a pretest-posttest non-randomized

control group. 240 Senior Secondary (SS) II pupils in all, selected from ten public schools in Benue State's Oju Local Government Area. While 112 students were taught using a traditional approach, 128 students were taught chemical reaction and equilibrium through instructional computer animation. Chemistry achievement test was developed and administered to the students. The data was analysed using mean, standard deviation and analysis of covariance. The findings of the study revealed that the experimental group that received experimental treatment of instructional computer animation performed significantly better than those taught using conventional method. The efficiency of the Computer Animation Instructional Package (CAIP) on the academic performance of senior high school agricultural science students in animal physiology in Minna, Nigeria, was investigated by Falode et al. (2016). The study's goal was to ascertain whether an instructional package utilising computer animation would raise secondary school agricultural science students' academic performance in animal physiology. Gender influence was also looked at. Pretest, posttest, and nonrandomized nonequivalent design were used in a quasi-experimental setup. 88 senior secondary school students were chosen from intact classrooms at two coeducational public schools in the study area to make up the sample. A control group of 40 students (26 males and 14 females) received training via lecture, whereas the experimental group of 48 students (30 males and 18 females) received instruction via instructional computer animation. An expert-validated 30-item animal physiology accomplishment test with a reliability value of 0.85 was given to both groups as a pretest and posttest. The results showed a substantial difference between the two groups' mean accomplishment scores, favouring the group receiving CAIP instruction. Additionally, the package raised the academic performance of both male and female teachers. Giginna (2013) studied the effect of animation instructional strategy on students' achievement, interest, and retention in chemical bonding. The purpose of the study was to determine whether animation instructional strategy enhances students' achievement, interest and retention in chemical bonding. The population for the study consisted 3221 senior secondary one (SS1) chemistry students in the fifty four (54) schools in Enugu Education Zone of Enugu State and a sample size of five hundred and fifty-four (554) SS1 chemistry students was used for the study. Quasi experimental design of pretest, posttest was adopted. Chemistry Achievement Test (CAT) and Interest Inventory for assessing students' Interest in chemical bonding (IIASICB) were used as instruments for data collection. The two instruments were administered to the students. The research questions were answered using mean and standard deviation of

test scores. The hypotheses were tested at 0.05% level of significance using ANCOVA based on SPSS software for data analysis. Findings revealed that there was significant difference in the mean achievement scores of the two groups in favour of those taught with instructional computer animation. Also, the package improved the interest of both male and female students taught.

In a study conducted by Egbunonu (2012) on the Effect of Computer Assisted Instruction (CAI) on secondary school students' cognitive achievement and interest in Ecological concepts, the purpose was to determine whether computer assisted instruction will enhance students' cognitive achievement and interest in ecology. Quasi experimental research design was employed. A sample of 66 students from two schools in Aguata Educational zone in Anambra state was used for the study. Biology Achievement Test (BAT) and Biology Interest Scale (BIS) were administered to the students for data collection. Four research questions were answered using mean and standard deviation while the hypotheses were analyzed using ANCOVA. Findings from the study showed that Computer Assisted Instruction (CAI) had no statistical significant difference on students' achievement due to gender, but there was a statistical significant difference on students' interest due to gender. Consequently, it was determined that while computer-assisted instruction does not significantly affect male or female students' academic achievement, it does significantly affect their level of interest. The study and the current study are similar in that they both examined students' academic performance and interest in gender-related research projects, but they are different in that the current study is conducted in Awka, whereas the prior study was conducted in the Aguata Education Zone.

### **Objective of the study**

Thus the objective of this study was to improve lower primary school pupil's attitude towards culture through 3D animation

### **Research questions**

1. Will 3D animation instructional technique lead to improved attiyude to culture of lower primary pupils
2. Will male and female lower primary school pupils record different attitude to culture after exposure to 3D animation instructional strategy
3. Will be interaction significant interaction effect of 3D instructional strategy and gender on attitude of lower primary pupils to culture

### **Methodology**

Quasi experimental research design involving pre-test, post-test and control group with 2 x 2 factorial matrix was employed in the study. This is

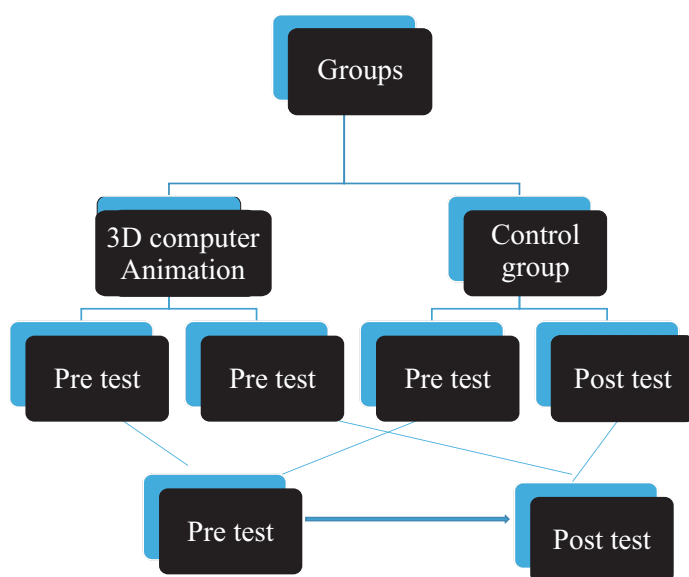
because the design controls for the variance covariates, partial out initial differences in the covariates. A total of fifty seven (57) lower primary pupils from two different primary schools formed the study sample for the study. In order not to disrupt normal classroom activities, the study used intact classroom. The classes selected from each school were randomized into treatment and control group. However, the two schools selected has similar characteristics in terms of pupils age range and gender composition. For data collection, Pupils Attitude to culture questionnaire was used for data collection. The questionnaire is a self developed 4-points Likert's scale and has ten items with 0.87 reliability coefficient. The reliability was carried out

using crombach Alpha method. The study lasted for five weeks.

Matrix layout  
 01 X 02  
 03 04

Where  
 X1= pretest observation in the experimental group  
 X2=posttest observation in the experimental group  
 X3=pretest observation in the control group  
 X4=posttest observation in the experimental group  
 The data collection process is described in figure i  
 Figure i

Flow chart of the data collection process.



The study was carried out under three main stages, at the first stage, pre-test was conducted on the two groups. This involves the administration of the attitude questionnaire. The second stage was where the students were taught for five weeks. The experimental group was taught with the use of 3D computer animation instruction while the control

group were taught using the conventional method without 3D animation. At the third stage, post test was administered on the pupils in the two groups after re-arranging the items in the questionnaire. Data collected was analysed using Analysis of Covariance. (ANCOVA)

Result

**Table1:** Descriptive statistics of Participants

**Descriptive Statistics**

Dependent Variable: Post-attitude

Group	Gender	Mean	Std. Deviation	N
Experimental	Male	37.3571	2.56026	14
	Female	38.6875	.79320	16
	Total	38.0667	1.92861	30
Control	Male	33.6316	5.15548	19
	Female	35.1250	2.99702	8
	Total	34.0741	4.61541	27
Total	Male	35.2121	4.59455	33
	Female	37.5000	2.46718	24
	Total	36.1754	3.98265	57

Table 1 shows descriptive statistics of participants. The table shows that there are 33 male participants, out of which 14 are from the experimental group and 19 from control group. It also shows that there are 24 female participants, out of which 16 are from experimental and 8 from control group. In addition, the table indicates that experimental group have post

test mean score of 38.066 (SD= 5.155) while control group recorded 34.074 (SD=4.615) post test mean score.

1. Will 3D animation instructional technique lead to improved attitude to culture of lower primary pupils

Table 2: *Tests of Between-Subjects Effects of Treatment and Gender on Attitude to culture*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Observed Power <sup>b</sup>
Corrected Model	252.358 <sup>a</sup>	4	63.090	5.159	.001	.953
Intercept	1807.516	1	1807.516	147.810	.000	1.000
Covariate	.060	1	.060	.005	.944	.051
Treatment	163.835	1	163.835	13.398	.001	.949
Gender	25.423	1	25.423	2.079	.155	.293
Treatment * Gender	.083	1	.083	.007	.935	.051
Error	635.888	52	12.229			
Total	75482.000	57				
Corrected Total	888.246	56				

The results in Table 2 showed that there was a significant effect of treatment ( $F_{(1, 57)} = 13.398; p < .05$ ). This implies that there is significant effect of 3D animation on lower primary school pupils attitude. But the table shows no significant effect of gender ( $F_{(1, 57)} = 2.079; p > .05$ ). This implies that gender did not

have significant effect on on lower primary school pupils attitude after been taught with 3D animation. The result of the 2ways interaction effect of treatment and gender was also not significant ( $F_{(1, 57)} = .007; p > .05$ ).

**Estimates**

Table 2: *Estimates of Effect of Treatment on attitude to culture*

Dependent Variable: postattitude			95% Confidence Interval	
Post-attitude	Mean	Std. Error	Lower Bound	Upper Bound
experimental	38.016 <sup>a</sup>	.646	36.719	39.313
Control	34.385 <sup>a</sup>	.742	32.895	35.874

a. Covariates appearing in the model are evaluated at the following values: pre-attitude = 33.7018.

The results in Table 2 revealed that participants in the 3D animation treatment group had a mean attitude towards culture score of 38.016 and standard error of .646 and the control group, the mean score was

34.385 and the standard error was .742. The results of analysis to test whether these mean scores are significantly different are shown in Table 3

**Univariate Tests**

Dependent Variable: postattitude

	Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Contrast	214.447	1	214.447	17.506	.000	17.506	.984
Error	661.491	54	12.250				

The F tests the effect of Post-attitude. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

The results in Table 4 indicated that there was a significant effect of treatment ( $F_{(1, 54)} = 17.506; p < .05$ ) on lower primary school pupils attitude towards culture.

1. Will male and female lower primary school pupil's record different attitude to culture after exposure to 3D animation instructional strategy.

The result of analysis in Table 2 reveals a computed F-value of 2.079 and p-value of .155 ( $p > 0.05$ ) for gender. Since the p-value (computed significance value) is greater than the 0.05 Alpha level of significance ( $p > 0.05$ ). The result indicates that there is no significant effect of gender on lower primary school pupils to attitude to culture.

2. Will be interaction significant interaction effect of 3D instructional strategy and gender on attitude of lower primary pupils to culture?

The result of analysis in Table 2 reveals a computed F-value of .007 and p-value of .935 for the two ways interaction effect of treatment and gender. Since the p-value (computed significance value) is higher than the 0.05 Alpha level of significance ( $p > 0.05$ ). Hence there is no significant interaction effect of treatment and gender on lower primary school pupil's attitude to culture.

The implication of the results is that gender will not significantly interact with the treatment to affect attitude towards culture of lower primary school pupils. The results are graphically presented in Figure 2.

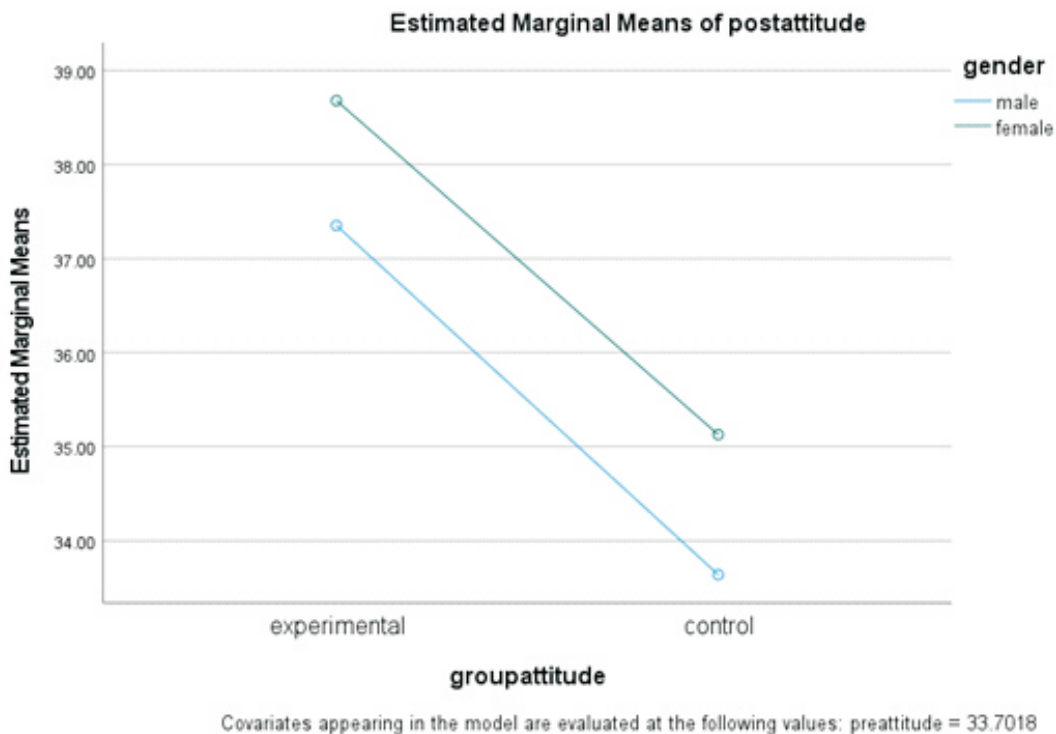


Figure 2 illustrates that no significant interaction of treatment and gender existed in attitude towards culture between male and female students in the treatment group and control group.

### Discussion

The result indicates that 3D animation have significant effect on lower primary school pupils attitude towards Yoruba culture. Yoruba culture is that one that cultivate the spirit of omoluabi in young and olds. However, with the decline in spirit of right Yoruba cultural orientation among young ones, teaching students to develop positive attitude to Yioruba culture have become a child of necessity. Dei (2011) elucidated on the kind of education that should be given to young ones; this should be such

that will place learners' experiences, cultures, and prior home/community knowledge at the center of education to enable them transforms our communities. It agrees with the finding of Falode et al. (2016), which revealed that there was significant difference between the mean achievement scores of two groups in favour of those taught with Computer animation. It also aligns with the outcome of Achor and Ukwuru (2014) finding, who reported that the experimental group that received experimental treatment of instructional computer animation performed significantly better than those taught using conventional method. It was then concluded that instructional computer animation should be used in schools to promote academic achievement of students. Miri and Yehudit (2011) also confirmed in

their report that that animated movies support the use of diverse teaching strategies and learning methods, and can promote various thinking skills among students; that animation can enhance scientific curiosity, the acquisition of scientific language and can also fosters scientific thinking. Bamidele and Yoade (2017); Falode et al (2016); who in their separate studies found that the adoption of computer animation as an instructional mode greatly improve students' academic achievement. However, the finding of this study was in contrast with that of Idowu (2008) who revealed that high ability students performed significantly better than medium and low ability students. It is also similar to the finding of Onal and Sondur (2017) that found positive and moderate relationship between students' use of animation and their attitude towards technology.

But the report shows that gender did not have significant effect on lower primary school pupil's attitude to culture. This implies that male and female students recorded similar attitude towards culture after exposure to 3D instruction strategy by extension, both male and female students responded in similar direction to attitude towards culture. It agrees with the finding of Falode et al. (2016), which revealed that package improved the achievement of both male and female students taught in similar direction. It finding is consistent with the report of Egbunonu (2012) showed that Computer Assisted Instruction (CAI) had no statistical significant difference on students' achievement due to gender.

### Conclusion and Recommendation

Studies have recognized the significance of the use of technology in almost all sectors of human endeavours and education is no exception. Prominent among the intervention of technology in education is the use of 3D animation for teaching and learning purposes. The sue of computer animation has been reported to have the potency of bringing down the difficult level of any concept taught with it to the barest minimum and also encourage students participation in the learning process. The study came to conclusion that 3D computer animation instruction have the potency to bring about change in lower primary school students attitude to Yoruba culture. This is because pupils recorded higher attitude mean gain after the experiment was conducted. It was also conclude that male and female students recorded similar attitude to Yoruba culture thus gender is no barrier to the use of 3D instruction. Based on the finding of the study, it was recommended primary school teachers Yoruba teachers should adopt the 3D computer animation instruction to teach cultural aspect of Yoruba curriculum to improve student's attitude. Also, teach should teach pupils at the lower primary level with Yoruba language as stipulated in the NPE

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