

# **EFFECT OF EDUCATIONAL GAMES IN TEACHING NON-MATERIALISTIC VALUES AMONG PRIMARY SCHOOL PUPILS IN ZARIA METROPOLIS, KADUNA STATE, NIGERIA**

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## **Abstract**

The study was conducted to determine the effect of educational games in teaching non-materialistic values among primary school pupils in Zaria metropolis, Kaduna State, Nigeria. Two research questions and corresponding null hypotheses were stated. The study was a quasi-experimental design precisely pretest/posttest non-equivalent control group design. The population consists of primary six pupils in Zaria metropolis, Kaduna State, Nigeria. However, 120 Pupils were purposively selected from Ahmadu Bello University and Nuhu Bamalli Polytechnic Staff schools. The “Non-Materialistic Values Achievement Test” (NOMVAT) was the data collection instrument. The instrument was duly validated by experts in test and measurement, language and Social Studies. The Guttman split half method was used in determining reliability coefficient and 0.78 was realised. The arithmetic means, standard deviations were used in answering the questions raised by the study while independent samples t-test was used to analyse the null hypotheses at 0.05 level of significance. The study found that primary six pupils taught non-materialistic values with educational game (Snakes and Ladders Board Game) significantly outperformed pupils taught non-materialistic values with story-telling method in Zaria metropolis, Kaduna State, Nigeria and that gender has no significant effect on pupils' achievement scores in experimental group. The study offered some recommendations among which is the need for teachers of Social Studies in primary schools in Zaria metropolis need learn and adopt educational game especially snakes and ladders board game in teaching non-materialistic values to pupils

as it has been proven to be more efficacious than story-telling method in improving pupils' achievement scores.

**Key words:** Educational Game, Materialism, Values, Pupils, Snakes and Ladders.

## Introduction

One of the disturbing issue facing teachers today is that of engaging a wide and diverse group of learners'. Learners as a result of entry behaviour and of course family background come to the school with varying degrees of motivation, commitment, ability, and learning styles or approaches (Muhammed, Salihu & Bayero 2016). According to Azriel, Erthal, and Starr (2005:9), 'regardless of age or economic, ethnic, or social background, people understand the language of play'. Games offer a medium for students to explore and interrogate information in a fun and interactive way. This type of animated learning environment is critical for engaging students in the learning given the prominence of iPods, game boys, play stations and a wide variety of highly entertaining and Sci-fi television in young people's lives today. A passive learning environment will not stimulate them as they are used to greater pace and interactivity in life in general and so it is natural that they will need excitement and interactivity to support their learning. In this regard, Biggs (2003) states that active participation in teaching and learning process by the students is better than being passive. Effective teaching methods stimulate students' interest which therefore forms a base for achieving desired objectives of teaching and learning.

According to Salen and Zimmerman (2003), a game is a system in which players engage in an artificial conflict, defined by rules that result in a quantifiable outcome. Moreover, Muhammed, Salihu and Bayero (2016) defined games as any contest among adversaries (players) operating under constraints (rules) for an objective (winning). Regardless of the format of the game, students can simultaneously build their problem solving skills while having fun throughout the process if an instructional game is well-designed (MacKenty, 2006; Harris, 2009).

The main reason why games are considered effective learning resources as opined Kirkland and O'Riordan (2010) is that they spur motivation and students get very absorbed in the competitive aspects of the games; moreover, they try harder at games than in other courses. Naturally when playing games, students are trying to win or to beat other teams for themselves or on the behalf of their team. They are so competitive while playing because they want to have a turn to play, to score points and to win. In the class, students will definitely participate in the activities. Therefore, it is possible for a teacher to introduce students to new ideas, skills, values, attitudes, knowledge and so on. It can be clearly seen that games can capture students' attention and participation. They can motivate students to want to learn more. Moreover, they can transform a boring class into a challenging one (Kirkland & O'Riordan, 2010).

Furthermore, Ruben in Muhammed, Salihu and Bayero (2016) also claims that games can motivate students to learn from a social or affiliated need when the author claims that games offer an opportunity to promote collaboration and fosters active learning. Gaining skills in a variety of teaching methods are a fundamental part of the education of teachers. Different teaching strategies develop different skills in the learners. Varieties of teaching strategies make the teachers' job more stimulating and enjoyable and less boredom.

Materialism is a value where one assigns excessive importance to having and owning material goods (Belk, 1984; Larsen, Sirgy & Wright 1999). It has also been studied at the individual level where it has been conceptualised either as a personal value (Richens & Dawkins, 1992) or as a personality trait (Belk, 1982). As an innate personality trait, a person is materialistic when they are envious, possessive and non-generous with their material goods. Alternately, someone exhibits materialistic values when both the acquisition and possession of material objects are at the centre of their lives, they believe it defines success, and that it is essential to the pursuit of happiness (Richins & Dawson, 1992).

High levels of materialism can also create significant societal effects. Previous studies have shown that the costs of materialism are not localized to materialistic people, but also influence other members of the society who are exposed to the environmental cues. Specifically, research has demonstrated that irrespective of an individual's level of materialism, a consumer mindset resulted in negative well-being or dissatisfaction, depression and social disengagement, general mistrust and diminished feelings of personal responsibility, lowered self-esteem as well as increased self-enhancement values. In addition, materialistic values tend to increase competitiveness and decrease interest in engaging in pro-social activities such as working towards a good social cause (Bauer, Wilkie, Kim & Bodenhausen, 2012).

Materialism according to Kasser (2016) comprises a set of values and goals focused on wealth, possessions, image, and status. These aims are a fundamental aspect of the human value/goal system, standing in relative conflict with aims concerning the well-being of others, as well as one's own personal and spiritual growth. Substantial evidence shows that people who place a relatively high priority on materialistic values/goals consume more products and incur more debt, have lower-quality interpersonal relationships, act in more ecologically destructive ways, have adverse work and educational motivation, and report lower personal and physical well-being. Experimentally activating materialistic aims causes similar outcomes. Given these ills, researchers have investigated means of decreasing people's materialism. Non-materialistic values like sense of compassion for the less fortunate ones, sense of community, compersion, prudence, asceticism, humbleness among others can be taught especially to the younger ones through educational games so that they can grow with it and be free from its negative consequences and its contagion. It is against this

backdrop that this study examines the effect of educational games in teaching non-materialistic values among primary school pupils in Zaria metropolis, Kaduna State, Nigeria.

### **Objectives of the Study**

The main objective of the study was to examine the effect of educational games in teaching non-materialistic values among primary school pupils in Zaria metropolis, Kaduna State, Nigeria. The research was specifically aimed at achieving two objectives which are to:

- i. find out the mean achievement scores of primary six pupils taught non-materialistic values using educational games and those taught using story-telling method;
- ii. determine the mean achievement scores of primary six pupils taught non-materialistic values using educational games in relation to gender.

### **Research Questions**

The study answered the following questions:

- i. What is the difference in the mean achievement scores of primary six pupils taught non-materialistic values using educational games and those taught using story-telling method?
- ii. What is the difference in the mean achievement scores of male and female primary six pupils taught non-materialistic values using educational games?

### **Null Hypotheses**

The following null hypotheses were postulated and tested at 0.05 level of significance:

- H<sub>01</sub>: There is no significant difference in the mean achievement scores of primary six pupils taught non-materialistic values using educational games and those taught using story-telling method;
- H<sub>02</sub>: There is no significant difference in the mean achievement scores of male and female primary six pupils taught non-materialistic values using educational games;

### **Methodology**

The study is a quasi-experimental design precisely, the non-equivalent pretest-posttest control group design. The population consists of primary six pupils in Zaria metropolis, Kaduna State, Nigeria. However, 120 Pupils are purposively selected from Ahmadu Bello University and Nuhu Bamalli Polytechnic Staff schools. The Ahmadu Bello University Staff School (main campus) was taught using Educational Games Learning Environment (EGLE) using 60 pupils (30 males and 30 females) while Nuhu Bamalli Polytechnic pupils were taught using "Story Telling Learning Environment"

(STLE) using 60 pupils (30 males and 30 females). The “Non-Materialistic Values Achievement Test” (NOMVAT) is the data collection instrument. The instrument was duly validated by three experts; one each from the test and measurement, language and social studies. The Guttman split half method was used in determining reliability coefficient which yielded a reliability coefficient of 0.78. The arithmetic means, standard deviation were used in answering the questions raised by the study while independent samples t-test was used in testing the null hypotheses at 0.05 level of significance.

The participants are pre-tested prior to any form of treatment. The participants in an Educational Games Learning Environment (EGLE) i.e. the experimental group were taught non materialistic values using Teacher-modified Snakes and Ladders Board Game.

The experimental group (EGLE), lesson started with a set of induction on the nature of the game and how it is played and the procedures, rules and regulations guiding the game. The pupils are also intimated for a situation that needs to be completed at the end of learning. Teachers who are duly trained for the purpose act as facilitators to monitor the pupils and are willing to answer the questions posed. Then, pupils answered questions to test the topics learned. For the control group (STLE), the same topics were taught using conventional method (Story Telling). The non-materialistic values emphasized in the study are; sense of compassion for the less fortunate ones, sense of community, comparison, prudence, asceticism, humbleness among others. These qualities are to be taught during the game using ladders to elevate the players as a kind of reward. On the other hand, negative values that are opposite to the aforementioned qualities are discouraged in the game using snakes as a form of punishment.

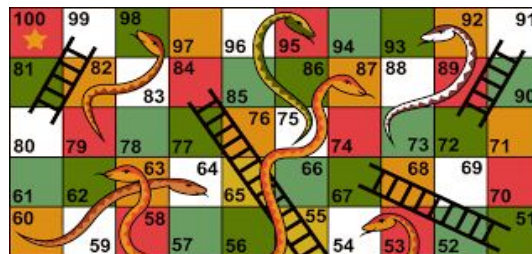


Figure 1: sample Snakes and Ladders Game



Figure 2: Sample Dice

**Results**

**Research Question 1:** What is the difference in the mean achievement scores of primary six pupils taught non-materialistic values using educational games and those taught using story telling method?

**Table 1: Descriptive Statistics on the Mean achievement Scores of Pupils exposed to Educational games and Storytelling method**

| Groups               | N  | Mean  | Std. Dev | Mean diff. |
|----------------------|----|-------|----------|------------|
| Educational Games    | 60 | 68.18 | 7.69     | 28.88      |
| Story-telling Method | 60 | 39.30 | 7.41     |            |

The details in Table 1 shows the mean achievement scores of primary six pupils taught using educational games and pupils taught with Story-telling method. The arithmetic means are 68.18 and 39.30 for experimental and control groups respectively. An examination of the groups mean scores indicate that the post-test score of pupils taught non-materialistic values using educational game (M=68.18) is higher than that of pupils taught using story-telling method (M=39.30). The mean difference stands at (M=28.88) in favour of the experimental group. In addition, their standard deviations stand at 7.69 and 7.41 for experimental and control groups respectively.

**Research Question 2:** What is the difference in the mean achievement scores of male and female primary six pupils taught non-materialistic values using educational games?

**Table 2: Descriptive Statistics on the Mean Achievement Scores of primary six pupils exposed to educational games in relation to gender**

| Gender | N  | Mean  | Std. Dev | Mean diff. |
|--------|----|-------|----------|------------|
| Male   | 30 | 43.47 | 9.88     |            |
| Female | 30 | 43.73 | 8.05     | 0.26       |

Detail in Table 2 shows the mean achievement scores of male and female primary six pupils taught non-materialistic values using educational games. The mean achievement scores are 43.47 and 43.73 for male and female pupils respectively. The mean

difference is 0.26 in favour of the females. Also the standard deviations stand at 9.88 and 8.05 for male and female participants respectively.

### Hypotheses

The hypotheses formulated in the study are statistically tested using independent samples t-test. The outcomes of the statistical analysis are presented to the guide the study on either to retain or reject the null hypotheses set by the study.

H0<sub>1</sub>: There is no significant difference in the mean achievement scores of primary six pupils taught non-materialistic values using educational games and those taught using story-telling method;

**Table 3: Summary of Independent t-Test Sample Statistic on the Mean achievement scores Experimental and Control Groups**

| Groups       | N  | Mean   | Std. Dev | Df  | t-cal | t-crit | Sig (p) | Decision    |
|--------------|----|--------|----------|-----|-------|--------|---------|-------------|
| Experimental | 60 | 68.183 | 7.69     | 118 | 20.98 | 1.96   | 0.000   | Significant |
| Control      | 60 | 39.300 | 7.401    |     |       |        |         |             |

**Calculated  $p < 0.05$ , at DF 118**

Result emanating from independent sample t-test statistic in Table 3 shows that significant difference exists in the mean achievement scores of experimental and control groups. This is due to the fact that the calculated significance (P) value of 0.000 is less than the 0.05 alpha level of significance. In addition, their calculated mean achievement scores are 68.18 and 39.30 for experimental and control groups respectively at Df 118. Therefore, the null hypothesis is rejected.

H0<sub>2</sub>: There is no significant difference in the mean academic performance scores of male and female primary school pupils taught non-materialistic values using educational games

**Table 4: Summary of Independent T-Test Statistics on Mean Academic Performance Scores of Experimental and Groups in Relation to Gender**

| Gender | N  | Mean  | Std. Dev | Df | t-cal | t-crit | Sig (p) | Decision        |
|--------|----|-------|----------|----|-------|--------|---------|-----------------|
| Male   | 30 | 43.47 | 9.88     | 58 | 1.69  | 1.96   | 0.07    | Not Significant |
| Female | 30 | 43.73 | 8.05     |    |       |        |         |                 |

**Calculated  $p > 0.05$  at DF 58**

According to the analysis of the t-test statistic in Table 4, there is no significant difference in the mean achievement scores of male and female pupils taught non-materialistic values using educational games. This is because the calculated p value of 0.07 is higher than the 0.05 level of significance. In addition, their calculated mean achievement scores are 9.88 and 8.05 for male and female participants at Df 58 respectively. Consequently, the null hypothesis is hereby retained.

**Discussions**

The primary six pupils taught non-materialistic values with educational game (Snakes and Ladders Board Game) significantly outperformed pupils taught non-materialistic values with story-telling method in Zaria metropolis, Kaduna State, Nigeria. Both male and female primary six pupils performed significantly well when they were taught non-materialistic values using educational game (Snakes and Ladders Board Game) in Zaria metropolis, Kaduna State, Nigeria.

This is not surprising as game-based teaching and learning form part of the classroom pedagogy that reduces boredom on the part of the teachers and learners alike. They also ensure the retention of what is taught in the classroom and a good way of bringing excitement to teaching and learning. In addition, game-based teaching and learning are good ways of inculcating certain attitudes and values to the learners both planned and unplanned and a way of promoting inquiry skills in the learners. The findings of this study corroborated that of Adoke (2015) which revealed that simulation game (Snakes and Ladders Board Game) teaching strategy increased students' academic performance and it also has equal positive impact on all levels of the Upper Basics in Kaduna State, Nigeria. Also, the current findings corresponded with that of Muhammed, Salihu and Bayero (2016) which found that Modified Snakes and Ladders Ludo Game is effective in teaching entrepreneurial-related personal qualities to Middle-Basic level Pupils in Zaria Education Zone, Kaduna State, Nigeria; and that Modified Snakes and Ladders Ludo game is gender-friendly.

The finding of this study is also corroborated by that of Salihu, Muhammed and Bayero (2017) which found that educational game (Modified Snakes and Ladders Board Game) is more efficacious than story telling method in teaching eco-friendly habits to primary six pupils in Zaria Education Zone, Kaduna State, Nigeria, and that educational games (Modified Snakes and Ladders Board Game) is gender-friendly as far as the teaching of eco-friendly habits is concerned. Moreover, the current finding also tallied with that of Mubaslat (2012) findings which indicate that the post test shows that games have a good effect on improving the achievement for the primary stage. Furthermore, Kirkland and O'Riordan (2008) study found that class that were exposed to game out performed those who did not.

## Conclusion

Based on the findings made, this study concludes that educational games (Snakes and Ladders Board Game) is more efficacious than story-telling method in teaching non-materialistic values among primary school students in Zaria metropolis, Kaduna State, Nigeria; and that educational game is gender-friendly.

## Recommendations

In the light of the findings made by this study, the following recommendations are put forth:

1. teachers of Social Studies in primary schools in Zaria metropolis need learn and adopt educational game especially snakes and ladders board game in teaching non-materialistic values to pupils as it has been proven to be more efficacious than story-telling method in improving pupils' achievement scores;
2. since educational game (snakes and ladders board game) has proven to be gender-friendly approach to teaching non-materialistic values, it is there recommended for primary school Social Studies teachers in co-educational and single sex-schools in Zaria metropolis, Kaduna State, Nigeria.

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