

Effects of Edutainment Instructional Packages on Students' Academic Achievement in Economics among Secondary Schools in Niger State, Nigeria.

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Abstract

This study investigated the effect of edutainment instructional package on academic achievement of secondary school students in economics in Niger state, Nigeria. The study adopts a quasi-experimental research design. The total sample size of this research consists of 361 students from six secondary schools in the three senatorial zones. Two schools each from the 3 senatorial zones were purposively selected and randomly assigned to experimental groups I (game base edutainment instructional package), group II (video based edutainment instructional package), group III (audio based edutainment instructional package). One instrument was used for the study titled Economic Achievement Test (EAT). It is a 30 item instrument covering topics in economics. Pearson product moment correlation formula was used to determine the reliability coefficient of EAT using test-retest method which yielded 0.92. Data obtained were analysed using descriptive statistics of mean and standard deviation and inferential statistics of analysis of covariance (ANCOVA). The hypothesis were tested at 0.05 level of significance. The study revealed that there was significant difference in the mean achievement scores of students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. It was shown that there was significant difference in the mean achievement scores of male and female students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. Based on the findings, it was recommended that Edutainment

Instructional Package should be encouraged for teachers use at secondary schools to teach Economics. Government should incorporate the use of instructional facilities like Edutainment Instructional Packages for use at all level of education.

Keywords: Achievement, Edutainment Instructional Package, Economics

1. INTRODUCTION

Education is a process that involves teaching and learning which is the basis for development and empowerment of every nation, this is, because it builds people's character and plays a significant role in transmitting one's culture, belief and values in the society. Education helps in creating innovations and meeting the growing needs of every nation. The development of a nation is not measured through the number of buildings it has built, the roads it has constructed, bridges it has constructed but by the human resources, the nation has developed through a well-defined system of education. The physical facilities are usually important although they are perishable and valuable (Adeyemo, 2010). In the absence of good education, a nation can hardly develop. Education is therefore more crucial not only to equip the new generations with skills so essential for earning a livelihood but also to create among them an awareness to social and environmental realities and inculcate in them scientific temper, independence of mind and spirit which are of paramount importance for them to become responsible citizens. As a result of developments that came with education, innovations on Information and Communication Technology were introduced, this includes entertainment.

Entertainment is a form of activity that capture the attention and interest of an audience, or gives pleasure and delight. It can be an idea or a task, but is more likely to be one of the activities or events that have developed over thousands of years specifically for the purpose of keeping an audience's attention focused. It can be distinguished from other activities such as education though they have learned how to use the appeal of entertainment to achieve different goals (Sayre, 2010). It therefore means that entertainment can be used to achieve educational goals. Entertainment has influenced to a great extent the traditional educational environments with both negative and positive impact on the performance of students at all levels of education. Entertainment has exposed students to media violence which has positively related to

subsequent aggressive behaviour, ideas, arousal, and anger. Additionally, there is negative effect of exposure to violence on subsequent helping behaviour. As noted by Moreno et al. (2009) infrequent exposure is not likely to produce lasting consequences, but parents, particularly need to be urged to protect their children against the kinds of repeated exposures that excessive play with violent video games or immersion in violent television programs is likely to produce a disarray behaviour. Furthermore, Ray and Jat (2010) noted that most children who are exposed to violence through media (entertainment) had poorer school performance and its impact on their psychological adjustment was detrimental.

Children spend more of their total time watching television and spend a significantly shorter amount of time for academic purposes as compared to those who do not (Charsky, 2010). Thus, viewing television causes poor academic performance, peer relationship and thereby increases the risk for social isolation, anxiety disorder, agoraphobia, and antisocial behaviour, including aggression and gang involvement. While entertainment may isolate children, the reverse causal direction is also plausible. Lonely children may turn to television for entertainment and companionship. At this junction, it is essential to note that whenever investigating the relationship between media use and behaviours, violent television viewing may influence younger children to become more antisocial, resulting in their becoming socially isolated which, in turn, attracts them to more violent media. Thus, to optimize children social development and long term mental health, parents, teachers and pediatricians should discourage the viewing of violent television programs (Kara & Yesilyurt, 2007).

Studies also indicate that playing home video games and watching Television has a negative effect on children's academic performance. When children watch home video, they are typically not reinforcing school activities or doing homework. In a survey conducted by Sayre (2010) frequency and times children play video games determine any negative effects, when compared with their academic progress. He stressed further that video game play during the week was harmful to a child's academic progress, but playing during the weekend did not adversely affect a student's performance. Buckingham and Scanlon (2005) sees edutainment as a hybrid

genre that relies heavily on visual material, on narrative or game-like formats computer games-education-implication for game developers, and on more informal, less didactic styles of address. Egloff (2004) stated that edutainment software is a type of software for educating students through entertainment.

The teaching strategies in education have evolved where edutainment has taken its place in the world of education. Edutainment allows students to learn by using various combination of multimedia elements (text, images, video, sound and animation) by simply using a computer mouse to point and click on a particular word, picture or button. This makes the stories as well as information come alive on a computer screen (Hussain et al. 2003). It is also important to note that education and learning can be linked with lucid, playful and pleasurable experiences. Gros (2003) defined edutainment as education that has been placed within the framework of entertainment. The introduction of computers and the Internet has affected traditional educational environments, enabled implementation of a large variety of edutainment types in the learning process thus radically transforming educational paradigm by strengthening the relationship between learning, new media and play. Although, elements of edutainment were already implemented in the educational process sporadically with the advancement of ICT it has become immensely popular and commercially successful with students, teachers, parents and children. In the past, however, edutainment existed but it was not highly utilized as today while today we are facing a growing number of adults that have grown up with technology, entertainment and computer games. We could say that digital natives (Prensky, 2001) who recently were discussed as students and learners are now grownups entering educational process. Edutainment has been known to enhance learning as a result of the learner-centred approach which is a shift from the teacher-centred approach (Guidance of adult and teachers).

The learner-centred approach has greatly influenced the usage of edutainment and the popularity of the Web 2.0 tool such as mind maps, infographics, cartoon/video development, pins, and YouTube videos has brought a variety of options and teaching method in order to increase students' interest and understanding. The principles of edutainment focus on the utilization of entertainment as a learning motivator. Media and activities are hence supporting tools. According to Johnson, et al. (2010) students

naturally learn well through games which contribute to a more effective learning and build their cognitive domains. The building of cognitive domain enhances mental development of a child up to secondary school level where subjects like Economics are offered, therefore there is need to use edutainment in the teaching and learning process of the students so as to make learning interesting and understandable for the students.

The study of Economics plays an important role throughout our life. Today, economic issues are drawing the attention of every citizen directly or indirectly. It is therefore; appropriate to include Economics as a distinct area of study in the system of open school learning particularly because for most of the students it will be a terminal stage. At the same time it fits within the frame of open schooling wherein it is advocated that education should be relevant to the needs of students. Economics, in comparison to other social science subjects has an edge in providing certain job opportunities to the learners and open the gates for various occupations, if they pursue the study of the subject further. Another reason why economics teaching is necessary is that there are many changes occurring in our economy like privatisation, liberalisation and the outside forces are influencing it like globalisation. This makes a strong case for imparting economic education to all students in order to understand these new concepts and issues that are related to the economy. The learning of Economics further helps students to participate effectively in economic and social affairs and make intelligent decisions in day-to-day life. At the same time, the democratic system which is adopted in Nigeria will succeed only when Nigerians win the race on economic fronts. Academic achievement is the performance in a school subject as designated by a score obtained in an achievement test. An achievement test is an instrument administered to an individual as stimuli to elicit certain desired and expected responses, as demanded in the instrument, performance on which the individual is assigned a score representing his achievement. It is concerned with measuring what a candidate has learned (Olatoye & Aderogba, 2011). They added that other unforeseen circumstances notwithstanding, the score measures his possession of the characteristics. In other words, academic achievement is always denoted by a score which represent the amount of learning acquired, knowledge gained or skills and competencies developed, learner's mental ability and learner's

level of intelligence. Also, could be termed as the score obtained by a test measured against an expected score.

1.1 Aim and Objectives of the study

The aim of this study is to

1. Determine the effect of edutainment instructional packages (game-based, video-based and audio-based) on the achievement scores of SS2 economics students in Niger state, Nigeria.
2. Examine the effect of edutainment instructional packages (game-based) on the mean achievement scores of SS2 male and female economics students in Niger state Nigeria.

1.2 Research Questions

The following research questions were raised for the study

1. What is the effect of Edutainment Instructional Packages (Game-based, Video-based and Audio-based) on the achievement scores of SS2 Economics students in Niger State, Nigeria?
2. What is the effect of Edutainment Instructional Packages (Game-based) on the mean achievement scores of SS2 male and female Economics students in Niger State, Nigeria?

1.3 Hypotheses

The following null hypotheses were formulated and were be tested at 0.05 level of significance.

HO₁: There is no significant difference in the mean achievement scores of SS2 Economics students taught using Edutainment Instructional Packages.

HO₂: There is no significant difference in the Mean achievement score of SS2 male and female Economics students taught using Game-based Edutainment Instructional Package.

3. METHODOLOGY

The study adopted a quasi-experimental research design using a pretest, posttest, non-randomized experimental and control group design. The study entails the use of non-randomized sample where the researcher cannot randomly sample and assign subjects hence intact classes was used. There were three independent variables namely, Audio

- based Edutainment Instructional Package, Video – based Edutainment Instructional Package, and Game – based Edutainment Instructional Package and one dependent variable which is achievement. The target population comprises of all Senior Secondary School II Economics students in Niger state which has the total population of 44,317 (25,104 males and 19,313 females) in the 2018 / 2019 academic session. Source ministry of education Niger State.

The study was conducted in six co-educational public secondary schools in Niger state Nigeria. Niger is made up of three senatorial zones (A B and C) A multi-stage sampling technique was used to arrive at the sample size. Two secondary schools each from the three senatorial zones (A, B and C) from Niger state Nigeria were purposively selected and randomly assigned to Experimental Group I, II and Control Group, the reason for selecting the schools is to select school with same environmental condition, gender composition and school type public school. The sample size used for the study was made up of 361 students. The population of male students were made up of 70 while the female students were made up of 42. The sample size were 361 Senior Secondary School Economic students from the three senatorial zone in Niger state, the sample comprises of (Male =227 and Female 134).

The instrument used for the study is Economics Achievement Test (EAT) which was validated and also tested for reliability using pearson product moment correlation coefficient through test retest method with a coefficient of 0.92. Data obtained were analysed using Analysis of Covariance (ANCOVA) in Statistical Package for Social Sciences (SPSS) Version 20.

4. RESULTS

4.1 Research Question One

What is the effect of edutainment instructional packages (game-based, video-based and audio based) on the achievement scores of SS2 economics students in Niger states, Nigeria?

In answering research question one, on the effect of Edutainment Instructional Packages (Game-based, Video-based and Audio-based) on the achievement scores of SS 2 Economics students in Niger State, Mean and Standard Deviation was used. This is shown in Table 1.

Table 1: *Mean and Standard Deviation of Score of Game, Video and Audio at Pretest and Posttest of Achievement*

Group	N	Pretest		Posttest		Mean Difference
		\bar{X}	SD	\bar{X}	SD	
Game-based	112	28.60	11.734	85.35	6.95	56.75
Video-based	125	38.30	12.158	78.33	8.87	40.03
Audio-based	124	41.02	9.694	65.87	8.46	24.85

Table 1 showed that the Mean achievement score of the three groups at posttest differ statistically. Experimental Group I had the highest Mean achievement score of 85.35 with Standard Deviation of 6.95, followed by Experimental Group II which had Mean achievement score of 78.33 with Standard Deviation of 8.87, while the Control Group had Mean achievement score of 65.87 with Standard Deviation of 8.46. There was a Mean difference of 56.75, 40.03 and 24.85 for Experimental I, II and control respectively. This implies that Economics students taught with Game-based Edutainment Instructional Package had higher achievement score as compared to those taught with Video-based Edutainment Instructional Package and students taught with Audio-based Edutainment Instructional Package.

Table 2 shows the result for the null hypothesis one which says, there is no significant difference in the Mean achievement score of SS2 Economics students taught using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional.

Table 2 *Summary of Analysis of Covariance (ANCOVA) of Posttest Score of Game-based, Video-based and Audio-based Edutainment Instructional Package*

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	23168.661 ^a	3	7722.887	115.201	0.000
Intercept	186672.165	1	186672.165	2784.555	0.000
Covariate (Pretest)	0.194	1	0.194	0.003	0.957
Groups	19863.621	2	9931.811	148.151	0.000
Error	23932.713	357	67.038		
Total	2144720.000	361			
Corrected Total	47101.374	360			

*: Significant at 0.05 levels

Table 2 showed the ANCOVA result of the comparison of posttest score of students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. An examination of the Table shows ($F(2, 360) = 148.151, p = 0.000$ as such $p < 0.05$). On the basis of this, Hypothesis One was rejected. Therefore, there was significant difference in the Mean achievement score of students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. Sidak pairwise post-hoc analysis was carried out to locate where significant difference exists as presented in Table 3.

Table 3: Sidak Pairwise Post-hoc Analysis of the Posttest Score of Students in Game-based, Video-based and Audio-based Edutainment Instructional Package

Dependent variable	Treatment (i)	Treatment (j)	Mean Difference (i-j)	p-value	Lower Bound	Upper Bound
Achievement	Game	Video	7.000*	1.129	.000	4.292
		Audio	19.452*	1.170	.000	16.646
	Video	Game	-7.000*	1.129	.000	-9.709
		Audio	12.451*	1.043	.000	9.949
	Audio	Game	-19.452*	1.170	.000	-22.257
		Video	-12.451*	1.043	.000	-14.954

Table 3 showed the Sidak Pairwise post-hoc analysis of posttest Mean achievement score of students in Game-based, Video-based and Audio-based Edutainment Instructional Packages. The table indicates that significant difference exist between the Mean achievement score of students taught Economics using Game-based Edutainment Instructional Package and Video-based Edutainment Instructional Package in favour of Game-based Edutainment Instructional Package. The table also reveals that significant difference exist between the Mean achievement score of

students taught Economics using Game-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package in favour of Game-based Edutainment Instructional Package. Likewise, there was significant difference when Video-based Edutainment Instructional Package was used to compare with Audio-based Edutainment Instructional Package in favour of Video-based Edutainment Instructional Package and vice versa.

4.2 Research Question Two

What is the effect of edutainment instructional packages (game-based, video-based and audio-based) on the mean achievement scores of SS2 male and female economics students in Niger state, Nigeria.

In answering research question two, on effect of Edutainment Instructional Package (Game-based, Video-based and Audio-based) on the Mean achievement score of SS2 male and female Economics students in Niger State, Mean and Standard Deviation was used to answer research question 2. This is shown in Table 4.

Table 4: *Mean and Standard Deviation of Achievement Score of Male and Female Students in Game-based Edutainment Instructional Package*

Group	N	Pretest		Posttest		Mean Gain
		Mean	SD	Mean	SD	
Male	70	42.44	9.556	86.50	6.516	44.06
Female	42	39.90	9.794	83.33	7.193	43.43

Table 4 shows Mean achievement score and Standard Deviation of male and female students taught Economics using Game-based Edutainment Instructional Package. From Table 2, it was observed that the Mean score of the two groups were different where Game-based Edutainment Instructional Package male had Mean achievement score of 86.50 with Standard Deviation of 6.51, Game-based Edutainment Instructional Package female had Mean achievement score of 83.33 with Standard Deviation of 7.19.

Table 5

shows the result for the null hypothesis two which says, there is no significant difference in the Mean achievement score of SS2 male and female Economics students taught using Game-based Edutainment Instructional Package.

Table 5: Summary of Analysis of Covariance (ANCOVA) of Posttest Score of Game-based Edutainment Instructional Package on Gender

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	288.127a	2	144.064	3.065	.051
Intercept	106554.462	1	106554.462	2.267E3	.000
Covariate (Pretest)	17.391	1	17.391	.370	.544
Gender	212.789	1	212.789	4.527	.036
Error	5076.539	109	47.005		
Total	813642.000	112			
Corrected Total	5364.667	111			

From Table 5, it can be deduced that there was no significant difference in the impact of Game-based Edutainment Instructional Package on the mean achievement scores of male and female Economics students in Niger State. An examination of the Table shows ($F(1, 111) = 4.52, p = 0.000$ as such $p < 0.05$). Thus, the hypothesis which states that “there is no significant difference in the mean achievement scores of SS2 male and female Economics students taught using Game-based Edutainment Instructional Package” is rejected.

Table 6: Summary of Analysis of Covariance (ANCOVA) of Posttest Score of Video-based Edutainment Instructional Package on Gender

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	271.013 ^a	2	135.507	1.743	0.179
Intercept	76907.659	1	76907.659	989.266	0.000
Covariate (Pretest)	207.648	1	207.648	2.671	0.105
Gender	32.838	1	32.838	0.422	0.517
Error	9484.539	122	77.742		
Total	776665.000	125			
Corrected Total	9755.552	124			

From Table 6, it can be deduced that there was no significant difference in the impact of Video-based Edutainment Instructional Package on the mean achievement scores of male and female Economics students in Niger State. An examination of the Table shows ($F(1, 124) = 0.42, p = 0.000$ as such $p > 0.05$). Thus, the hypothesis which states that “there is no significant difference in the mean achievement scores of SS2 male and female Economics students taught using Video-based Edutainment Instructional Package” is accepted.

5. SUMMARY

1. Finding revealed that there was significant difference in the Mean achievement score of students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package.
2. It was showed that there was significant difference in the Mean achievement score of male and female students taught Economics using Game-based Edutainment Instructional Package but there was no significant difference in the Mean achievement score of male and female students taught Economics using Video-based Edutainment Instructional Package.

6. DISCUSSION OF FINDINGS

Finding revealed that there was significant difference in the Mean achievement score of students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. It was also revealed that there was significant difference in the Mean achievement score of male and female students taught Economics using Game-based Edutainment Instructional Package, Video-based Edutainment Instructional Package and Audio-based Edutainment Instructional Package. This finding could be as a result of the fact that edutainment games are known as integration between amusement and education using various multimedia and improve many skills for children such as, strategic planning, analytical skills, working within a team and decision making. Edutainment games give users important skills like working within a team, creativity, the ability to explore, and interactivity (Schrader; Deniz., & Keilty;

2016). Edutainment games make users stimulated and involved in interesting learning environment, and enable students to transfer the complicated matters to simple matters that is easy to understand and attractive. Interactivity is the main variance between edutainment games and educational games.

The above finding agrees with the finding of Kara and Yesilyurt (2007) who investigate the effects of tutorial and edutainment software programs related to “genetic concepts” topic on student achievements, misconceptions and discovered that general achievement in GAT increased in favor of experimental groups. The finding also corroborates with the finding of Fernández *et al.*, (2011) who used educational videos with aduration of approximately four minutes and they found out that streaming videos used as supporting material for learning had a positive effect upon students’ perception regarding the enhancement of their learning motivation.

The finding disagrees with Anonymous (2008) who carried out a study on effect of entertainment on students’ academic achievement in secondary school in Nebragaska and discovered that students who watched four or more hours of television decline their grades from 36 to 29 while the students watching an hour or less per weekday mostly increased their grades from 20 to 29 percent.

7. RECOMMENDATIONS

Based on the findings of this study the following recommendations are as follows:

1. Economics students should be exposed to edutainment instructional packages such as game-based, video-based and audio-based so as to enhance effective learning, motivation and also learning through sight, hearing and doing.
2. Edutainment instructional package should be used to complement convectional method of teaching in the classroom situation so as to bring about effective learning among the students.
3. The government should see to it that she collaborate with the ministry of educations in various states so as to give a good training to economics teachers on how to use edutainment instructional package in their classrooms in Nigeria.

4. The curriculum planners should include edutainment instructional package in the Nigerian school curriculum in order to enhance effective teaching and learning situation in the classroom.

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