Effect of Edutainment on Students' Academic Performance in Biology

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Abstract
The study investigated the effect of edutainment towards students' academic performance in biology. . The combination of education and entertainment is known as edutainment. Edutainment is a fun related instructional technique. It is to improve the learners' academic achievement. Scientific concepts, such as biology in which most students show lack of interest in and have negative attitudes towards, could be turned to entertaining events or activities using an edutainment approach to instruction to increase the interest and expectation of students. Two research questions and two null hypotheses guided the study. Quasi experimental design with mixed method of qualitative was adopted for the study. The study was carried out in Alimosho Local Government area of Lagos state Nigeria. The sample for the study comprised of 60 SS II students from two intact classes in a private school, in Alimosho Local Government, using purposive sampling technique. The experimental group was taught using edutainment method while the control group was taught using traditional method. The procedure for collecting data lasted for four weeks. The data were collected with the use of edutainment approach to instruction in comparison to conventional method, biology achievement test which comprised of twenty past WAEC questions on digestion was the achievement test used in this study. Data collected were analysed using mean, standard deviation, ordinary percentage and Analysis of Variance (ANOVA). There was significant difference relationship between students taught with edutainment mode of instruction and those taught with traditional method. The results revealed that edutainment instructional approach was superior to traditional method in facilitating students' academic performance in Biology. Based on these findings of the study, recommendations were proffered among others, that teachers should ensure they integrate edutainment and fun based creative classroom learning environment to enhance learning outcomes in the learners

Key words: Edutainment, Traditional methods. Biology, Creative classroom, Learning

Introduction

The combination of education and entertainment is known as edutainment, this new form of education is emerging rapidly for effective classroom instruction; the main purpose of this application is to support tutoring with entertainment (Aksakala 2014, David (2015). The term edutainment was developed by Bob Heyman, while producing document for the National Geographic society in the United State of America. Edutainment means education entertainment, it consists of instructional techniques which engages and motivates the learners as well as enhances learning, it engages more fun and makes learning less boring (Yaylaci and Yaylaci 2016). Edutainment techniques could be in various forms, such as games, movie scene, show, museum, zoos, comedic drama, tele-teaching, in essence the different types of media used would categorise edutainment into their classes though that depend so much ion what an instructor or a teacher wants learners to be exposed to therefore media, technology and instruction cannot be separated, it is a part of new classroom pedagogy (*Green, 2017 and* Alabi, O. 2019,).

Edutainment method of teaching launches students into better instructional method in science. This method offers students access to watch and participate in the process of instruction. It is an indisputable fact that the traditional method of teaching is obsolete. The impact this new trend seems to add to instruction are enormous, there are still problem of teachers and schools not been able to afford modern scientific equipment. Among the prevalent challenges is that majority of teachers and instructors could not differentiated between edutainment as instructional packages and the actual entertainment, in essence they module-up the approach and creating more confusion for learners.

Edutainment is a fun-related instructional technique. It offers teachers opportunity to bring entertainment into the classroom. It is to improve learners' academic achievement and turn the process of instruction to real interaction especially between teachers and students.

Edutainment is a modern technological approach in education; scientific concepts could be turned to entertaining events or activities (Anikina and Yakimenko 2016). For edutainment to be effective, training of students is essential. Students' capability for self-directed learning and self-growth could be developed. Through learners' personality could be modified through learning entertainment which could transform their existing behaviour for the best.

Contrary to expectation it has been revealed that there has not been a great improvement in the achievement in science in Nigeria and this is so surprising with the fast rate of development that is on-going globally. Part of the factors responsible for this is lack of facilities; studies have shown that most schools lag behind in terms of facilities, equipment which invariably affects students' achievement in science in secondary school levels (Alabi, 2017).

There are many reasons why students have difficulties in learning science, the nature of science itself and its teaching methods, the mew trend is that mode of instruction should adapt to different application and at the end make students happy (*Gelt, (2015)*, the overloaded curriculum, the abstract and interdisciplinary nature of scientific concept and difficulties with the textbooks are some of such factors preventing students from learning science effectively. It has also been reported that students' diminishing interest in learning science is due to the curriculum content being overloaded and not generally related to working life, the lack of discussion of topics of interest, the absence of clear expression could lead to no opportunity to manifest creative ability, the alienation of science and prevalence of isolated science subject. Even the STEAM education that was introduced in the 21st century has not been able to provide the expected changes in science instruction. It was pointed out that to assimilate the curriculum became a big challenge especially in the developing nation. There is difficulty in separating the course of integration from the purpose of integration and

curriculum integration is characterized by the emphasis on horizontal linking than vertical depth fusion in which different games (online or analogue)could be used to facilitate learning (Jaeho, Yangrak, and Hyun-Kyung, 2015)

In secondary schools, biology is a subject offered by most of the senior level students as a natural science that involves the study of life and living organisms.

To improve the quality of teaching and learning in schools, students' perception ought to be taken into consideration; this would help in determining the factors that negatively affect students' attitude towards biology. To overcome students' predicaments and make their biology learning more effective, it was suggested that strategies through the use of visual materials, teaching through practical work, reducing the content of the biology curriculum, using various study techniques and connecting biology topics with daily life would go a long way (Ekici 2010, Atilla (2012),). Biology learning could be effective if teachers could bring contemporary trends into teaching and learning, to this generation of students, life is fun-fair, edutainment is here to provide fun and learning, it is a ways of improving teaching and learning in school. Technological gadgets came with different media that could make classroom activities less stressful, it is against this background that these researchers embark on a study effect of edutainment towards students' students' academic performance in Biology.

Statement of Problem

In most schools in Lagos, more importantly private schools, the level of instruction is highly disappointing, because the old method of teaching is highly prevalent. Students sit passively in the process of instruction. Teachers of science lack fun related instructional strategies to make instruction interactive; the trend in the global community is that the mode of instruction is now technology.

It is expected that in private schools, where parents pay exorbitant fees for education, the mode of instruction should commensurate with the money paid. To avoid boredom in the mode of instruction, teachers of science subjects should explore every avenue provided by technology in instruction. Classroom instruction that is technologically packed should boost students' performance in science subjects. In most private schools approach to instruction is archaic, out-dated and conventional; most students' academic performance in science has nothing to write home about.

In order to satisfy one's curiosity on knowing how of technology could make a difference in learning this study embarked on looking at effect of edutainment towards students' students' academic performance in biology.

Purpose of the Study

The purpose of the study was to observe the effect of edutainment towards students' students' academic performance in biology

The specific objectives included to:

i. determines the effect of the use of edutainment method on academic performance of students in biology.
ii. ascertain if there is any significant difference between the effect of edutainment method and traditional methods of teaching biology on students' academic performance.

Research Questions

The following research questions were formulated to guide this study:

i. What is the effect of the use of edutainment method of teaching on academic performance of students in biology?
ii. Is there any significant difference between the effect of edutainment and traditional methods of teaching biology on students' academic performance?

Research Hypothesis

The following research hypotheses were formulated to guide this study.

i. Ho_1: Edutainment method of teaching biology does not have any significant effect on the academic performance of students.
ii. Ho_2: There is no significant difference between the effect of edutainment and traditional teaching method on students' academic performance in biology.

Significance of the Study

The study will give an insight as to how edutainment method of teaching affects students' academic performance in a concept of biology. It could be addressed to meet the competitive requirement within the educations sector and globally. Beneficiaries of these are students, teachers, academia and individual.

To the government, the findings from the research will enable her and her agencies to fully explore advantages in policy formulation and implementation for preferred teaching and learning practice among secondary schools. It will assist in effective planning and execution of edutainment method as it relates to expected students' performance in science subjects.

To the students this study will provide the avenue to assist them in becoming competent in their study habit. This is because it will afford students the opportunity to improve their knowledge and skills in science related subject through practical demonstration i.e. edutainment method of teaching.

Scope / Delimitation of the Study

The study was delimited to the effect of edutainment approach to teaching on students' academic performance in biology on the topic Digestion in Senior Secondary Schools with preference to private schools.

Limitation of Study

The limitations that abounded in the study included time constraint, as regards the number of period allocated to teach biology in the school used, unavailability of technology-based instructional materials, unstable supply of electricity and effort to get total co-operation of the students and the school authority during research work to spare the needed time for the research work.

In finding solutions to these limitation, the

researchers sought for permission from the principal of the school to allocate more periods for biology instruction for the research work, sought for help in form of donation towards the availability of technology based instructional materials, organized an alternative source of electricity and ensured the students and biology teachers were duly informed about the research work, the biology teachers in the schools contributed as assistant researchers and proper permission was obtained from the school authorities of the school used.

Research Design

The study was experimental in nature, quasi experimental research design and quantitative method was employed which involved two groups i.e. the control and experimental group. The purpose sampling technique was used to draw the subjects for the study for the selected school. Intact class of 30 SS 2 students was used as the control group and another intact class of 30 SS 2 students was used as the experimental group. Pre-test was carried out on the control and experimental group to determine their Pre-knowledge on the topic (Digestion), this was done with the use of adopted retrieved WAEC biology questions. The control group was taught with the traditional method and the experimental group was taught with the edutainment method. Post-test was then carried out on the control and experimental group, using the same set of adopted retrieved WAEC biology questions used for the pre-test to determine their post knowledge on the same topic

Population for Study:

The population consisted of all students in private schools in District 1 educational district of Lagos State.

Sample and Sampling Technique:

Purposive sampling technique was used, being an experimental study; intact classes were selected from a private school. The school was used because the school has been rated as 1st in top 20 schools by WASSCE in the year 2012-2014 and 13th in the top 100 schools by WAEC in 2014 and because of the convenience it provided for the researchers. Two intact SS2 classes of 30 students were used; a class was used as the experimental class, while the second one was used as control group class.

Instrument for Data Collection / Research Instrument:

The research instruments for the data collection for this study were edutainment approach lesson plan, traditional method lesson plan, and biology achievement test, which comprised of past WAEC biology questions on digestion used for pre-test and post-test. For standard and justification of the questions used for the study a number of questions on digestions were picked from WASSCE June 1993 to 2016. The edutainment and traditional lesson plans were planned while traditional method of teaching was used for the control group and edutainment method of teaching was used for the experimental group. The biology achievement test was used to test the pre and post knowledge of the students after the treatment was effected.

Validation of Instrument

The biology achievement test comprised of questions extracted from past WAEC questions in biology were used retrieved from Ordinary level WAEC exam. These questions were used because of the standard of WAEC O' Level exam which were presumed to have been originally validated. Content and face validation of edutainment and traditional lesson plans and methods of instruction were carried out by the experts in education.

Reliability of Instrument

A pilot study was done in another private school which is within the study area; there were two groups, the control and experimental group. The control group was taught using the traditional method and the experimental group was taught using the edutainment method on the topic digestion. Test re-tests method was used to establish the reliability of the instrument that was administered twice on the control and experimental group over a two week period. A coefficient of stability of 0.96 was determined for the instrument.

Method of Data Collection

The researchers obtained permission from the principals of the selected schools to conduct the study. There were two groups for the research work, the control group which comprised of an intact class of 30 SS2 students and the experimental group which comprised of another intact class of 30 SS 2 students. The biology achievement test was administered as the pre-test before the edutainment and traditional lesson plans were implemented separately on the two groups. The same sets of pre-test questions were administered to carry out a post test on the control and experimental group with the help of assistant researchers after teaching both groups separately. The biology achievement test was used to assess the academic performance of the students. The answered post test questions were then collected from the subjects with the help of the assistant researchers and scored appropriately by the researchers. The data were then grouped into appropriate variable and subjected to data analysis.

Method of Data Analysis

The procedure for analysing data collected includes the collation of the scores of the pre-test and post-test used for the control and experimental groups which were computed and analysed using ANOVA while Statistical Package for social science (SPSS) were utilised for the two hypotheses at 0.05%.

The result

Hypothesis One

$H0_1$: Edutainment method of teaching biology does not have any effect on the academic performance of students

Table 1: ANOVA (Analysis of variance) Summary of the Effect of Edutainment Method of Teaching on Academic Performance of Students

Source of Variation	DF	SS	MS	F- stat	P- value
Between group	1	156.82	156.82	34.61	0
Within group	58	262.83	4.53		
Total	59	419.65			

Note, DF=degree of freedom, SS= sum of squares, MS= mean square

In table 5 above, since P- value is less than 0.05, the null hypothesis is rejected at 5% level of significance. Hence there is significant effect of edutainment method of teaching on academic performance of students in biology. The null hypotheses is rejected, there is significant effect of edutainment of teaching on academic performance of students in biology

Hypothesis Two

$H0_1$: There is no significant difference between the effect of edutainment and traditional teaching methods on students' academic performance in biology

Table 2: Post-test ANOVA (Analysis of variance) Summary of Mean Achievement of the Effect of Edutainment Method and Traditional Method of Teaching on Academic Performance of Students

Source of variation	DF	SS	MS	F- stat	P-value
Between group	1	86.4	86.4	34.24	0.00001
Within group	58	146.33	2.52		
Total	59	232.73			

Note, DF=degree of freedom, SS= sum of squares, MS= mean square

In the table above, since P- value is less than 0.05, the null hypothesis is not accepted at 5% significance level. Therefore there is significant difference in the mean achievement score of the students taught biology with edutainment and traditional method respectively. The null hypothesis is rejected; hence it is concluded that there is significant difference between the effect of edutainment and traditional teaching method on students' academic performance in biology.

Summary of the Findings

It can be deduced from the findings of the study that edutainment approach to teaching has significant effect on academic performance of students in biology. There is significant relationship between edutainment and academic performance

It can also be deduced from the findings that difference exist between those taught with edutainment and those taught with the traditional approach. Hence, there is significant relationship between students taught with edutainment and those taught with traditional method.

Discussion of the Findings

One of the findings of this study is that the edutainment approach had relative effect on students' academic performance. This is in accordance with Gordon (2013) who stated that songs are an effective and fun ways to present educational concepts. Also Brabcovaa, D., Lovasovab, V., Kohoutc, J. Zarubovad, J. and Komarekea, V, (2013) stated that educational videos were successfully used in the field of epilepsy as a tool to improve the knowledge of undergraduate students of psychology and to reduce epilepsy-related stigma in this target group.

From the findings it was found that edutainment method has relative effect on students' academic performance in biology than traditional teaching method. This finding agrees with Daniel (2016) who stated that music enhances learning experience, increases accuracy, enhances longer lasting recall and improves problem solving skills and the fact that music has effect on young adults make it apt for instruction. The finding is also in agreement with the finding of Guy and Marquis (2016) who found that students taught with edutainment performed better than those taught with the traditional method. The finding is also in support of the finding of Ruby (2016) who found out that edutainment promotes critical thinking, due to high interaction in class and fun enjoyed in learning.

Conclusion

The use of edutainment in school would be a welcome development among teachers and students. Students would learn better if edutainment are used for instruction in biology.

The use of edutainment will enable students to be more productive and knowledgeable, thereby contributing to national growth and development, which is a major goal of education in Nigeria.

Recommendations

The following recommendations were made based on the result of the finding

- The Government should provide education related entertainment gadgets in all schools and encourage production of edutainment instructional designs and provide audio and video media for classrooms and laboratories instruction.

- Government should organise seminars for practicing teachers on the relevance of edutainment mode of instruction in learning
- The school management should at all level ensure that edutainment techniques are incorporated into mode of instruction and that edutainment gadgets are installed in schools to complement academic achievement in learners

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