EFFECT OF VIDEO COMPACT DISC INSTRUCTIONAL PACKAGE ON ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL BIOLOGY STUDENTS IN UYO LOCAL GOVERNMENT AREA OF AKWA-IBOM STATE

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Abstract

This study investigates the effect of Video Compact Disc Instructional Package on students' Biology achievement. Two hypotheses were postulated to guide the study. A simple random sampling technique was used to select two intact classes of 50 students each for experimental and control. The control group was taught with the conventional lecture method, while the experimental group was taught with Compact Disc Instructional Package containing Biology contents. Biology Achievement Test (BAT) was developed and validated with a reliability co-efficient of 0.74 and was used to collect data. The results were analyzed with the t-Test statistics. Findings revealed there was no difference between the achievements of the students in the control and experimental groups at pre-test. This shows that all the subjects used in the study were at the same entry level with regard to academic ability before the Biology topics were taught. There was a significant difference between the academic achievements of students taught with Compact Disc Instructional Package. Recommendations were made that Video Compact Disc Instructional Package be used in teaching Biology to enhance learning.

Introduction

Education is one of the most important tools for the development of any nation. This development will be farfetched if innovative educational strategies are not introduced into our school system. Educational innovation according to Etim (2006) is the introduction of new ideas and strategies in the teaching- learning process. It is a continuous planned objective-oriented change aimed at improving already existing educational practice. Some educational innovations include; individualized instruction, Multimedia instruction, community resources, Creative development, Cooperative teaching and Open classroom (Bates&Poole, (2003). The current technological changes in teaching and learning process and the presence of the information and communication media have accelerated a wider use of multimedia teaching and learning approaches in schools by teachers. Biology is one of the major science subjects with great importance in technological development this is why it is made compulsory for all students. The role of Biology can be seen in many areas of life. The subject has made contributions to other fields of learning such as Agriculture, Pharmacology, Medicine, Psychology and Nursing. In spite of the importance of this subject to technological development, reports from the West African Examination Council (WAEC), the body responsible for the conduct of Senior Secondary School Certificate Examination, revealed that students' performance in Biology has been generally low (WAEC, 2010). Many researchers have traced the poor achievements in Biology to lack of resourceful and creative science teachers (Okoye 2003 ;Yusuf and Afolabi 2010). While some attribute it to socio-economic background others attribute it to low intelligence, low aptitude and non-availability of necessary facilities for the teaching of science (Ogunleye,2000; Nwagbo, 2006). They found out that areas where qualified teachers are available, the instructional materials used are poor. The instructional strategies applied by the teachers are not satisfactory. The lessons are dull and make students passive. Kareem (2003) in the same vein stated that the low level of performance in Biology is due to the type of instructional materials used and

the method of teaching employed. It was discovered that most instructional materials used for presenting the content to be taught were not relevant and not well organized. The teacher is a facilitator of learning and a creative teacher is an effective teacher who engages the learning process by breaking the barrier between abstraction and theory by the utilization of appropriate instructional materials. Instructional materials perform very important specific functions. These functions range from simplifying teaching to making teaching very effective. Instructional materials make learners understand faster and retain longer (Edet, 2006). They make learning more permanent and stimulate self-activity on the part of the students. Ekanem (2007) defined instructional materials as resources or teaching materials, which a teacher utilizes in the course of presenting a lesson in order to make the content of the lesson understandable to the learner. They are devices that assist an instructor to transmit to the learner facts, skills, attitudes, knowledge, understanding and appreciation. They are potent starters and motivators in teaching and learning.

To improve learning and teaching process, teachers have to change their teaching styles from the traditional expository approach to activity-based methods, employing educational media as essential tools (Yusuf and Afolabi 2010). It is reasoned that the application of technology in the teaching learning process would help students learn better. It was discovered that in the conventional educational methods used by teachers instructional materials were not appropriately used in instruction (Eshiet, 2009). Accordingly, they only make limited contributions to improvement in learning. The instructional materials lacked motivation, which is a very important weapon for learning. Ogunleye (2000) found out that though we are in the era of technological advancement, technology has had minimum impact on education. This is because 80% of teachers in Nigeria are solely using the chalkboard and textbook method (conventional method) in teaching. Anulobi (2006) reported that though Compact Disc Instructional package has a strong influence on learning, most teachers seldom use them because they are not aware of their effectiveness. This has resulted in the continuous use of traditional methods of teaching, which has not helped in any way to improve students' performance in science subjects.

Okoye (2003) was of the opinion that to improve learning, teaching techniques should be varied from the traditional methods towards method that will likely generate motivation and interest. It was concluded that the application of the new communication media and technologies will make a dramatic change in our schools. Biology being one of the compulsory subjects in our schools should not be excluded from the use of this innovative educational media. The high rate of failure in this subject should be a very important reason why teachers should change from conventional approach of teaching to technological approach. This technological approach is the use of Compact Disc Instructional Package to improve learning in our schools.

Video Compact Instructional Package is an instructional material that uses the stimuli of sight and hearing. They are used to depict motion and sound on screen. They are meant to motivate students to learn more. VCDIP are instructional media that can hold the attention of learners because they add motion to the projected visual image. They can be used to achieve educational objectives in the cognitive, affective and psychomotor domains of education. They can be used as enhancement to conventional instruction to produce higher achievement than the use of conventional method alone. They allow repetitive viewing and Psychologists, believes that nothing absolutely new is ever learned effectively with one exposure. The function of repetition is to reinforce and extend learning and to make the learned information more enduring. They can also be used to increase the participatory role of a learner. According to Skinner (1965), the greater the association with the instructional material, the more likely the material or concept presented will be retained. This study investigates the effectiveness of the use of Video Compact Disc Instructional Package Biology on academic achievement of students.

Research questions

Two research questions were formulated for the study:

1. How does Video Compact Disc effect the academic achievement of students in Biology?
2. Is there gender effect on the performance of Biology students when taught with Video Compact Disc?

Research Hypotheses

Two hypotheses were formulated to answer the research questions raised in the study. The hypotheses are:

1. There is no significant effect of Video Compact Disc Instructional Package on the academic achievement of Biology students
2. There is no significant difference in the academic achievement of males and females students taught with Video Compact Disc Instructional Package

Methodology

The study adopted the experimental design. A pretest- posttest, treatment-control design with two schools randomly selected was used for the study. From each school, one intact class of fifty students each was used for the experimental and control group making a total of 100 students. A Video Compact Disc with circulatory system content was used for the experimental group while the control group was taught using the lecture strategy. A researcher made instrument that was used to collect data was a 20-item multiple choice questions. This was validated with a test-retest reliability of 0.74. Mean scores and t-test were used for analysis of data collected.

Results

Below are the results of data analysed

Research Question One: How does Video Compact Disc Instructional Package affect the academic achievement of students in Biology?

Table 1: Mean and standard deviation of students' scores from pre-test and post-Test

Group	N	Mean Pretest	Mean Posttest	Mean Gain	SD
Control	50	27.21	47.14	19.93	7.04
Experimental	50	28.28	62.28	24.00	5.83

Table 1 show that the mean of experimental group 62.28 with standard deviation of 5.83 is greater than that of the control which is 47.14. This shows that the experimental group who were exposed to VCDIP performed better than the control group

Research Question Two: Is there gender effect on the performance of Biology students when taught with Video Compact Disc?

Table 2: Mean and standard deviation of male and female students' scores from posttest

Group	N	Mean Pretest	Mean Posttest	Mean Gain	SD
Control	57	27.21	62.53	7.08	8.27
Experimental	43	26.45	61.95	7.06	8.59

Table 2 shows that the mean scores of males and females students exposed to Video Compact Disc Instructional Package are 62.53 and 61.95 respectively which is basically the same. This shows that VCDIP enhanced the performance of male and female students alike.

Hypothesis One: There is no significant difference between the academic achievement of students in the control and experimental group.

Table 3: Comparison of the Post-test Scores of the Experimental and Control Groups

Group	N	Mean	SD	df	t	Sig.
Control	50	47.14	7.04	49	12.16	0.143
Experimental	50	62.28	5.83			

The result of the analysis in table 3 shows a significant effect of the use of VCDIP on the academic achievement of Biology students (t =12.16, df =49, with .143 level of significance) this means t-cal was statistically significant at P< 0.05. This shows that the experimental group performed better than the control group. Based on this, the null hypothesis was rejected meaning there is a significant effect of use of Video Compact Disc on the academic performance of the experimental group. This difference can be attributed to the use of Video Compact Disc in the teaching since all other conditions were the same for both groups.

Hypothesis 2

There is no significant difference between the academic achievement of males and females in the experimental group

Table 4: Analysis of the Posttest Achievement Scores of males and females

Group	N	Mean	SD	df	t	Sig.
Control	57	62.53	7.08	49	1.49	0.000
Experimental	43	61.95	7.06			

The result of the analysis as shown in table 4 reveal there is no significant difference in the performance of male and female students with t value of 1.49 and df of 49 at .000 level of significance. Therefore the null hypothesis was upheld meaning that there is no significant effect of use of Video Compact Disc on academic performance of males and females Biology students in the experimental group. This study showed that gender has no effect on the use of Video Compact Disc in the learning process.

Discussion

The result of the study revealed that there is a significant difference in academic achievement of students taught with Video Compact Disc and those taught without it. This is in consonant with the report of Anulobi (2009) and Etim (2006) who discovered that the use of Video Compact Disc in teaching Fine Art and Agriculture enhanced students academic achievements. Again, the study showed that gender did not affect the use of VCDIP as males and females performed basically the same. This is also in line with Eshiet (2009) who reported that there is no gender related difference in achievement when computer-graphic aided-instructional packages was used to teach textile design.

Conclusion and recommendations

The study showed that students instructed using the Video Compact Disc performed significantly better than their counterparts taught using the conventional method. VCD helped in improving the academic achievement of students and enriched the learning of Biology concepts. Gender did not have any effect on the performance of students when taught with Video Compact Disc. The following recommendations are therefore made

(i) Video Compact Disc should be developed so that Biology teachers could employ them in the teaching of the subject
(ii) Government and non-governmental organizations should equip schools with media facilities (computers) for effective teaching and learning to take place in schools
(iii) Curriculum developers should expand the curriculum to include the use of Video Compact Disc for effective teaching
(iv) There should be provision for regular supply of electricity in schools at all times

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