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EFFECT OF COMPACT DISC VIDEO PRESENTATIONS ON STUDENTS' PERFORMANCE IN BASIC SCHOOL INTRODUCTORY TECHNOLOGY IN KWARA STATE

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Abstract

This study investigated the comparative effect of researcher-designed Compact Disc Video presentations on students' performance in basic school introductory technology in Kwara State, Nigeria. Two hypotheses were postulated and tested at 0.05 level of significance. From the analysis, the following findings were reached: there was a significant difference between the mean scores of Basic Technology students taught with the Compact Disc Video presentations using the Basic Technology Performance Test (BTAT) and those taught without the presentations on the post-test ($t = 15.74$ $df = 39$, $p \leq 0.05$) and that there was no significant difference between the mean score of male and female Basic Technology students taught with the Compact Disc Video presentations ($t = 0.31$, $df = 19$, $p \geq 0.05$). This shows that the BTAT software stimulated males and females alike in learning. Based on the findings of this study recommendations for the improvement of teaching Basic Technology students in Kwara State included that the use of Compact Disc Video presentations for teaching and learning in Junior Secondary Schools should be encouraged, schools should be equipped with computer and internet facilities and other necessary instructional packages like Compact Disc Video presentations and that the role differentiation amongst males and females should be avoided when teaching science and technology.

Keywords: Effect, Compact Disc, Video, Performance, Basic Technology

Introduction

One of the problems of teaching and learning is knowing the most effective method of imparting knowledge to learners. According to Stone (1991), the major difficulty in sciences is the method by which the subjects are customarily taught without regards to instructional materials. The pedagogical approach in imparting knowledge to learners has become inadequate to their needs. Bajah (1995) and Okeke (1986) found that science subjects have not been taught in Nigeria schools the way students would benefit most, as science instruments have mostly been teacher-centered

For the past two decades, science has been facing a lot of difficulties which include poor performance of students in science subjects, recorded poor students' performance both in national and international examinations (Ali, 1983). Many factors contributed to the poor performance of students especially in physics examination. These factors, which are still very evident in science and technology teaching today include: inability of the physics teachers to put across the physics concept to the students adequately; lack of skills and competence required for teaching; shortage of qualified physics teachers and lack of teaching materials and equipment (Akale,

1986, Okebukola & Jegede (1986), Offiah 1987 and Ali 1988).

These factors also significantly relate to and affect other science subjects at the secondary school level in Nigeria. Basic Technology, as a science subject at the Junior Secondary level is very important for the scientific and technological advancement of the nation. Basic Technology is compulsory for all students at the junior secondary school level (Omosewo, 1999; Balogun, 1985; Okuta, 1983; Ogunleye, 1982; Orisaseyi, 1977; Ogunyemi and Eboda, 1974).

Lack of active participation of students in the learning process is one of the factors responsible for students' poor performance in West African Examination Council (WAEC) results of secondary schools where students' performances are generally poor in physics, chemistry, biology and other science-related subjects (WAEC, 2000). This pattern of poor performance in the sciences and technology by students is also observed in tertiary institutions (Onasanya, Otegbayo & Oputa 2011). Olarinoye, 1987; Omosewo 1999 asserted that; "Physics teachers were using the lecture method alone for teaching the subject in secondary schools. The direct

Table 1 shows the means, standard deviations and the result of the t-test analysis.

Table 1: t-test comparison of the mean scores of experimental and control groups on the pretest

Group	Mean	Sample size	Standard Deviation	T	P
CD Video	10.42	60	3.916	6.04	00.1
Traditional	6.883	60	2.227		

The result in Table 1 shows that there is no significant difference (at 0.05 level of significance) between the pretest mean scores of the experimental and control groups were the same entry level with regard to academic before the Basic Technology topics that were presented to them. Their mean scores were statistically the same.

Hypothesis 1: there is no significant different between the mean scores of Basic Technology taught with Compact Disc Video presentation

To test this hypothesis, the means score of the experimental and control groups were compared using the t-test statistic. The result is as shown in table 2.

Table 2: t-test comparison of the posttest mean scores of the experimental and control groups

Variable	N	X	SD	t-table calculated	t-value critical	P	Remark
Experimental Group	60	60	3.82	15.74*	14.755	0.001	Significant
Control Group	60	60	2.23				

*significant at $p < 0.05$

The result (of the t-test analysis) in table 2 shows that there was a significant difference between the post test mean scores of the experimental and control groups at 0.05 level of significant ($t = 15.74$, $df = 39$, $p < 0.05$). Hypothesis 1 was therefore rejected. This means that there was a significant change at 0.05 level of significance between the performances of students taught with the CD Video presentation and those taught without CD Video presentation. Students taught with the CD Videos performed better than those who were taught without the CD

Video. Hence, the ITAT enhanced the learning of Basic Technology.

Hypothesis 2: There is no significant difference between the mean achievement scores of male and female students taught with the video and CD Video presentations.

To test this hypothesis, the post test mean scores of male and female students in the experimental group were computed. The analysis was carried out using the t-test statistic and result is as shown in table 3.

Table 3: Analysis of the post test mean scores of male and female students in the experimental groups

Group	Mean	Sample size	Standard Deviation	T	P
Male	11.10	30	4.35	1.23	ns*
Female	9.73	30	3.40		

From the result in table 3, it can be seen that there was no significant difference between the posttest mean scores of male and female students in the experimental group at 0.05 level of significance ($t = 0.31$, $df = 19$, $p > 0.05$). Hypothesis three was therefore not rejected. The performance of the use of CD Video presentations or the ITAT was gender friendly.

Discussion of the Findings

The result of this study shows that there is no significant difference between the pretest mean scores of the experimental and control groups. Their mean scores were statistically the same. However, it revealed that there was a significant difference between the posttest mean scores of the experimental and control groups. Hypothesis 1

was therefore rejected showing that there was a significant change between the performances of students taught with the CD Video presentation and those taught without CD Video presentation. Students taught with the CD Video performed better than those who were taught without the CD Video. This also shows that the use of video and CD Video presentations enhanced the learning of Basic Technology in the Junior Secondary Schools under investigation.

In comparing the female and male Basic Technology students, there was no significant difference in their performance while there was a significant difference between the post test mean scores of the experimental and control groups. This result corroborated some studies which concluded that students taught mathematics, English phonetics (Onasanya, Otegbayo & Oputa 2011), and Basic Technology with computer and other related technology achieved higher than those taught without computer (Udousoro & Abimbade, 1997; Adeniyi, (1997); Hassan, (1997) and Jonah, (1991). CD Video can, therefore be seen as a tool for effective teaching and learning of science subjects (Falode & Onasanya 2012). It also agrees with the findings of Abdulahi (1982) who found that gender did not influence students' performance in science generally. The male and female students performed equally well. CD Video presentation is an effective tool and could effectively enhance the development of individual cognitive structure, psychomotor and effective abilities.

Conclusions and implications

From the findings of this research, the following conclusions were drawn:

Instructional strategies that teachers employ in teaching science subjects at the junior secondary school level have significant effects on students' performance. The findings of the present study showed that better performance in Basic Technology could be achieved through the use of Compact Disc Video.

The male and female Basic Technology students were affected positively and equally with the use of Compact Disc Video in teaching Basic Technology. This showed that the effect of ITAT is not gender dependent. From the findings of the present study, the following recommendations are made:

1. The use of Compact Disc Video for teaching and learning in Junior Secondary Schools should be encouraged.
2. Federal Government should fully implement Compact Disc Video literacy formulated in 1988.
3. In-service training should be given to teachers on educational technology particularly on the production and the use of Compact Disc Video instructional media.
4. There is need for government and non-governmental organizations to organize seminars, workshops, conferences as well as in-service training for teachers on methodology of teachings as to be able to compare and contrast effects of different methods of teaching on students' achievement.
5. School should be equipped with computer and internet facilities and other necessary instructional packages like Compact Disc Video presentations.
6. The role differentiation amongst males and females should be avoided when teaching science and technology. Each gender deserves equity in exposure to educational experience.
7. Academic cooperation, though not to the point of replication or subjugation should be worked out by departments of mathematics/computer science and educational technology to develop adequate software for effective learning.

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