



ABSTRACT

The study investigated the effect of videotape instructional package on basic school students' performance in basic technology in Ikorodu, Lagos, Nigeria. It further investigated the gender differences in the performance of the subject. Twenty upper

EFFECT OF VIDEO-TAPED INSTRUCTIONAL PACKAGE ON BASIC SCHOOL STUDENTS' PERFORMANCE IN BASIC TECHNOLOGY IN IKORODU, LAGOS, NIGERIA

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INTRODUCTION

Instructional media is imperative in teaching and learning. The teacher used instructional media to communicate information or ideas to students in the most effective way. Instructional media encompasses all the materials and physical means which an instructor might use to implement instruction and facilitate students' achievement of instructional stated goals. These include traditional materials such as chalkboards, hand-outs, charts, slides, overheads, real objects, and videotape or film, as well as newer materials and methods such as computers, DVDs, CD-ROMs, the Internet, and



basic school students were randomly selected from two basic schools in Ikorodu. Each school was assigned to experimental and control groups respectively. Three hypotheses were formulated and tested. The researchers developed video- taped instructional package on basic technology was used as treatment for the experimental group. While the control group had the traditional method. A 30-item Basic Technology Performance Test (BPT) was the instrument used to collect data for both the pretest and posttest. The instrument was prepared by the researchers and duly validated. The data collected were analyzed at 0.05 significant level using statistical measures of means, standard deviation and Analysis of Covariance (ANCOVA). From the analysis of data, it was discovered that students taught with videotape instructional package performed better than those taught with conventional method. Also, it was discovered that there was no significant gender difference in the performance of students taught using videotape instructional. From these findings, the implications to education in Nigeria were highlighted. It was concluded that the use of videotape instructional package in teaching enhances effective learning and better performance.

Keywords: *Videotaped, Instructional Media and Gender*

interactive video conferencing (Nasaba, Esmaeili & Saremc, 2015) However, these materials can be categorized as; unprocessed materials like wood and stone, projected media comprising: motion and still pictures, slides and film strips, opaque projectors, non-projected media comprising boards, displays and exhibitions, graphic materials and three-dimensional objects. They are the most effective instructional media of all (Olayinka, 2016). As indicated above, there are different types of media for instructional purposes. Projected



media are audio, visual or both. These projected media include different types that include films, Over-head projectors (OHPs), power point, audio cassettes, video, television, slides and reel films.

Science has contributed immensely to the development of the modern world and has been recognized as the bedrock on which modern day technological breakthrough is hanged. **Gambari**, Gbodi, Olakanmi and Abalaka (2016) stated that Science is a dynamic human activity concerned with understanding the workings of our world. Facilities and personnel are employed to provide and education designed for classroom learning, which aims to prepare all the students to work and participate in the society which they live, these technologies are of different type.

Studies also established that video as a useful tool for leaning. For example, the study of Bajramia and Ismailia (2016) confirmed that video came into existence due to the invention of educational technology. Yusuf (2006) described video as all the instructional video, video tape or video disks are tapes or disks on which sound and pictures are recorded. These are paramount use in classrooms or in other educational settings for disseminating crucial information to the learners. Alamri (2016) reported that video-taped instruction has the qualities of providing a semi-permanent, complete and audio's visual record of event, reduces abstractions as well as boredom among students. In the same vein, the benefits of colour, sound and motion attached to videotaped package was of interest to learners and they have positive attitude to the learning. Osokoya (2007) highlighted the advantages of video tape as an instructional package of interest over the traditional method.

Previous researches demonstrated the effectiveness of instructional packages to learning. For example, Jocelyn (2010) submitted that instructional materials are important and significantly increase



students' achievement and retention in all discipline. Also, **Gambari**, Falode, and Yusuf (2014) stressed that instructional packages as those teaching materials used in the classroom for instructions and demonstration by both teachers and students. Jotia and Matlale (2011) opined that, a resourceful instruction needs to give all students the opportunity to grasp the content taught at a time. Barford and West (1997) also pointed out that instructional materials assist teachers to discharge other professional duty which is the differentiation of instruction. Madhavan (2010) instructional packages are used to aid the transfer of information from one person to another and also, assists teacher to make a lesson much clearer and meaningful to the learners. Amosa, Ogunlade and Atobatele (2015) asserted that instructional packages assist the learners to with sense organs.

In the same vein, James, Gambari and Olumorin, (2013) mentioned that video increase students' achievement by supporting meaningful learning. It is a concreteor physical objects which provides sound, visual or both to the sense organs during teaching (Linebarger, 2015). A supplement delivery approach adopted by the teacher (Akerеле, & Afolabi, 2012).

Studies have stressed the importance of Videotaped instruction (VTI). For example, Yusuf (2005) mentioned that video is an instructional delivery that combines still and motion pictures that are used to achieve various teaching and learning objectives. Obinna and Nnenna, (2010) expressed that video has the higher potential in the teaching and learning situation for it is based on audio and visual senses organ. Also, Zorbaz , Ulas, and Kizildag (2015) reported that video-taped has the potentials of increasing the probability that students will learn more, retain better and thus improve performance. The author further assumed that videotape (VT) in teaching and learning process is necessary to supplement conventional efforts of the teacher.



Empirical studies in Nigeria involving video-taped instructional packages have been limited to the teaching and learning in basic school. Literature has also established that video-taped instruction has greatly improved the performance of students with special needs and slow learning abilities (Zakaria, Solfitri, Daud & Abidin, 2013). It also produces better results in students with normal learning abilities which are the target of this study. This study attempt to determine the effect of video-tape instructional package on basic school students' performance in basic technology.

Basic technology is a pre- vocational subject offered at junior section of post primary education (FRN, 2004). Basic technology exposes students at the junior secondary school (JSS) level to technology through exploratory activities. In other words, Basic Technology is an aspect of general education curriculum which attempts to provide learning experiences that would assist students in understanding the industrial and technological aspects of life (Elisha & Ugochukwu 2014). The performance of students differs, some has high performance while others has low. These differences in performance was be caused by various factors. Some of the factors that affect student's performance include: interest, training materials, influence of qualified teachers, management and parental attitude, teaching method, availability of laboratory and workshops, tools, equipment, and teacher incentives. However, Basic technology, like other science subjects, recorded poor students' performance in examination (Sa'ad, Adamu & Sadiq, 2014). Many factors have been listed on the poor performance of students in basic technology examination. These factors include; Inability of the teachers to put across the concepts to the students, lack of skills and competence required for teaching, shortage of qualified basic technology teachers and lack of teaching materials and necessary equipment.



Similarly, Davison (2015) reported that, there was scarcity of teachers for the basic technology programme. In a nationwide survey on the teaching of basic technology conducted by the NERDC (1992) stated that unqualified teachers were teaching the subject and male and female teachers did not major in Basic technology yet, they teach the subject.

Gender issues are currently the main focus of discussion and research all over the world, Nigeria inclusive (Abdu-Raheem, 2012). The influence of gender on students' achievement in science and especially basic technology has for a long time been a concern to many researchers and science educators. Male supremacy and gender stereotyping are factors among others that were identified to influence occupational choice Babalola (2007). Anulobi (2009) are of the opinion that science and technology is a male-dominated subject and that the females tend to shy away from scientific and technological fields. Studies conducted across African countries, including Nigeria, have reported disparity in the education of girls and women in science and technology. Females are grossly under-represented and many of them are noted to under-achieve in the science and technology discipline (Nzewi, 2010). According to Okeke (2001), the under-representation and under-achievement of females in science and technology disciplines are historical and have been brought about by several inter-related socio-cultural and inter-acting school factors which act singly and jointly to depress female interest, enrolment, participation and achievement in subjects at various levels of Nigerian Education System. The study of Aderere, Odewumi, and Adelokun (2017) threw up the same pattern of interaction in science classes, the author concluded that male and female students have unequal opportunities for learning science in Nigeria classrooms.



Looking at gender of students' performance at secondary school level Dani (2014) and Joseph, John, Eric, Yusuf, and Olubunmi (2015) found no significant difference between male and female students taught, physics and history respectively using computer-assisted instructional package. According to Kolawole and Ala (2014) teachers are expected to provide assistance, equip the students, provide the techniques involved and at the end clarify students' worksheet. Hence, Basic technology teachers should be involved in using Videotaped instructional package for teaching. On this basis, this study investigated the effect of videotaped instructional package on the performance of Basic technology students in Ikorodu Lagos State.

Research Purposes

The purpose of the study was to;

1. examine the difference between the performance of Junior secondary school students taught Basic technology using videotaped and those taught with the conventional method.
2. examine gender influence on the performance of Junior secondary school taught Basic Technology using videotaped and those taught with the conventional method.

Research Hypotheses

The following hypotheses will guide the study:

- Ho₁: There is no significant difference between the performance of Junior secondary school Student taught Basic technology using videotaped and those taught with the conventional method.
- Ho₂: There is no significant difference in the performance of Junior secondary school Students taught Basic technology using videotaped and those taught with the conventional method based on gender.



Methodology

This study was a Quasi - experimental design of pre-test post-test non-randomized control group design was used to compare the performance of students who were exposed to videotaped instructional packaged on Basic technology (VIPBT) and those that were exposed to the conventional method. The design is a 2x2 factorial design. This paradigm represents two levels of treatment: (experimental group) and the Conventional Instruction (control group); and two levels of gender (Male and female). Two Upper Basic secondary school were randomly selected. Two schools were randomly assigned to experimental and control groups. Ten (10) Upper Basic students (5boys and 5girls) were randomly selected from each school and a total of 20 students took parts in the study. The research instrument used in collecting data was the Basic Technology Performance Test (BPT). The instrument developed by the researcher and made up of 30 items prepared based on the Upper Basic Pupils curriculum on Basic Technology. The 30 items were multiple-choice question based on Bloom's taxonomy of educational objectives. The instrument was scored over 100. The instrument was subjected to both the face and content validation by experts. This was further subjected to field testing. The test-retest method was used for reliability of instruments. A reliability coefficient of 0.75 derived from Kuder Richardson (KR21) was recorded. Hence the instrument was adjudged to be reliable for the study.

The Treatment

The treatment comprised of videotaped instructional package on Basic Technology. The following three topics were covered (Information and Communication Technology, Machines and Light Energy). Videotape instructional package is a systematic instructional



design package that could be used for group or individualized study. It could also be used for instruction and remediation purposes. It is researcher-developed and dully validated for content by experts in curriculum and educational technology for its technicalities. Interesting and motivating science activities (such as colour effects, background, audible sounds, etc.) were incorporated into each lesson of the package. This was also field tested and necessary corrections were made.

Procedure for Data Collection and Analysis

This study was conducted with Basic 9 students from two selected schools in Ikorodu Lagos. . In each of the schools, ten (10) students comprising five males and five females were randomly selected for the study. The two Basic school used for the study were selected because they were owned by privately individuals and are well equipped with teaching facilities and manpower. Before the commencement of the treatment, the BPT was administered to sampled students as pretest. The control group was taught using the ordinary chalkboard drawing and sketches method while the experimental group had videotape instructional package on the topics treated. The test was 30 items multiple choice objectives type administered, marked and scored.

After three weeks of administering the posttest, the same instrument was administered as post-test in order to determine the students' level of retention. Both the pretest and post-posttest were scored over one hundred percent. The score formed the basic data for testing the hypotheses. The study lasted for four weeks of three periods per week. T-test interferential statistics were used to analyze the data.



Results

Hypotheses testing

Based on Research Question One and Two Hypotheses 1 and 2 Were Formulated and Tested

Hypothesis 1: There is no significant difference in the performance of Junior secondary school Student taught Basic technology using videotaped and those taught with the conventional method based on gender.

To determine whether there was significant difference in the posttest mean scores of students in the experimental (Videotaped) and control group (Conventional Lecture), Analysis of Covariance using the pretest as a covariate was done as shown in Table 5.

Table3: ANCOVA Result of the Mean Performance Scores of Experimental and Control Groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	22.126 ^a	2	14.063	2.098	.132
Intercept	219.783	1	279.783	41.741	.000
Main effect(Treatment)	9.265	1	9.265	1.382	.245
Pretest	17.709	1	17.709	2.642	.110
Error	112.058	17	6.703		
Total	400.000	20			
Corrected Total	310.183	19			

An examination of Table 5 revealed that an $F(1, 17) = 1.382, p < 0.05$ was significant. The results revealed the supplementary instructional tool (video -taped) produced a significant effect on the posttest achievement scores of students when covariate effect (pretest) was controlled. Hence, hypothesis one was rejected. Therefore, there was



significant difference between the performance of students taught Basic technology using instructional videotaped and those taught with conventional method of teaching selected in favour of the experimental group.

Hypothesis 2: There is no significant difference in the performance of Junior secondary school Student taught Basic technology using videotaped and those taught with the conventional method based on gender.

Table4: ANCOVA Result of the Mean Performance Scores of Male and Female Students Exposed to Videotaped.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	15.119 ^a	2	7.559	1.032	.370
Intercept	154.363	1	154.363	12.066	.000
Main Effect (Gender)	15.041	1	15.041	2.053	.163
Pretest	.259	1	.259	.035	.852
Error	197.848	7	7.328		
Total	2661.000	20			
Corrected Total	212.967	19			

An examination of Table4 revealed that an $F(1, 27) = 2.053$, $p > 0.05$ was not significant. The results revealed that there was no significant difference in the performance of upper basic secondary student exposed to videotaped based on gender. Hence, hypothesis two was not rejected.

Discussion

The result of the analysis of covariance on the performance of students taught Basic technology using video-taped instructional packages and those taught with conventional classroom instruction indicated a significant difference in favour of the students in the



Experimental groups. These findings are consistent with earlier findings of (Agommuoh & Nzewi, 2003) whose findings established that video-taped instruction has greatly improved the performance of students with special needs and slow learning abilities. Similarly, the findings agreed the earlier findings of Bada (2006) whose findings indicated that the use of videotape (VT) in teaching and learning process is necessary to supplement conventional efforts of the teacher. This study could not locate any other study to supports or contradict its findings. The influence of gender on the academic performance of students in Basic technology when taught with videotaped instructional package in using hypotheses two.

The result of the analysis of covariance (ANCOVA) showed no significant gender difference for learners exposed to videotaped instructional package. These findings showed that gender had no influence on the performance of students in basic technology. These findings on gender disagree with the earlier findings of Okonkwo (2012) whose findings indicated that science and technology is a male-dominated subject and that the females tend to shy away from scientific and technological fields. It also inconsistent with the conclusions of Israel, (2007). According to Gambari, Yaki, Gana, & Ughovwa (2014). whose findings showed that females are grossly under-represented and many of them are noted to under-achieve in the science and technology discipline and gender. Thus, it can be deduced that the use of vide taped instructional package enhanced the performance of both male and female students.

Conclusion

The male and female students were affected positively and equally by the use of videotape instructional package in teaching basic technology. This showed that the effect of videotape instructional package is not gender dependent.

Recommendation

Based on the findings and conclusions, recommendations were made that the use of videotaped instructional package for teaching and



learning in Upper Basic schools should be encouraged and teachers should try their best to use instructional media like videotape instructional package for their lessons.

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