

EFFECTS OF AUDIO AND VIDEO COMPACT DISC INSTRUCTIONAL PACKAGES ON STUDENTS PERFORMANCE IN SENIOR SECONDARY SCHOOLS PHONETICS IN MINNA, NIGERIA

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Abstract

This study investigates the effects of Audio and Video Compact Disc Instructional Packages on the Teaching of Phonetics in Senior Secondary Schools in Minna, Niger State. It examined the significant difference in the post-test achievement scores of students taught using: audio compact disc (ACD); video compact Disc (VCD) and the normal classroom instruction. The sample consisted of sixty (60) senior secondary school students drawn from three equivalent secondary schools within Minna metropolis. The Phonetics Achievement Test (PAT) was administered to students as pre-test and post-test. The results of students were analysed using analysis of variance (ANOVA). Scheffe's test was used for post-hoc confirmation of significant difference. The results indicated that the students taught using Video Compact Disc Instructional Package (VCDIP) and those taught using Audio Compact Disc Instructional Package (ACDIP) performed significantly better than their counterparts taught using the normal classroom instruction. However, there was no significant difference in the post-test scores of male and female students taught Phonetics using Audio Compact Disc Instruction and Video Compact Disc Instruction Packages. These findings indicate that phonetics content could be taught and learnt better through the resourceful integration of Video Compact Disc into phonetics instruction.

Key words: *Oral-English, Phonetics, Audio Compact Disc, Video Compact Disc, Instructional Package*

Introduction

English language is the official language of communication in Nigeria, based on this fact the Federal Government of Nigeria made it a core subject offered by every student from primary to tertiary levels of educational system (FME, 2004). In view of the central position of English Language in the academic, social and economic well-being of the Nigerian student, poor performance in it can be catastrophic, not only to the candidate but also to the society. Deficiency in grammar, lexis and structure and phonetics can be a great limitation to anyone that need to survive in an environment where English is the tool of politics, education, commerce, religion, and information among others (Omojuwa, Timothy & Obiekezie, 2009).

Phonetics which refers to Oral-English is an aspect of English language, which is very important in assessing the performance of the learners. Phonetics concerns the concrete characteristics of the sounds used in languages. Enyeazu (2000) defines phonetics as a systematic study of the sounds of the language and the way in which they are produced. The best way to learn the pronunciation of the language which is embedded in phonetics is by a systematic study of the sound of the language

and initiation of the way in which they are produced. However, native language interferes with pronunciation of English words.

In spite of the importance of this subject to all subjects, reports from the West African Examination Council (WAEC) revealed that students' performance in English Language has been generally poor (WAEC, 2011). The report indicates that most candidates lost all the marks allocated, to grammar, punctuation, spelling and sequence of tenses in their essays because they were unable to handle this aspect of the language correctly. Most of the wrong spellings were traceable to words of similar sounds.

Ayogu (2000) laments that frequent use of lecture method for teaching in Nigeria does not provide for sequence of learning experiences. Ogunleye (2000) reported that technology had not been effectively utilized for teaching and learning in most of the schools therefore it has minimum impact on Nigeria education system. This is because 80% of the teachers in Nigerian are solely using the conventional method of teaching. Educational technologists are of the view that audio and video compact disc instruction has high potential in teaching and learning situation (Abubakar, 2001, & Yusuf, 1997).

Audio disc is the easiest channel for students to listen to variety of speakers on variety of topics in a variety of genres, dialogues, interviews, lectures for receptive skill development. Also, for productive skills, audiotape is the most accessible piece of voice recording equipment and can be used to achieve educational objectives in the cognitive, affective and psychomotor domains of learning (Nworgu, 2000).

Empirical studies in Nigeria involving audiotape and audio compact disc recordings for learning Oral-English have been used by many researchers such as Otegbayo (2005), Adamu (2007) and Kutigi, Gambari and Gana (2010), their findings showed that those taught with audiotape and audio compact disc instructional packages did better than those taught using conventional method. In another study White, Easton and Anderson (2000) found that a combination of audio and print media mode of instruction is more effective than the audio or print mode alone. However, Kareem (2003) found no difference in students' cognitive learning in the use of audio and the conventional methods in college level Biology. Many of these studies were limited to audiotape instruction.

The potential benefits of Video Compact Disc (VCD) cannot be underestimated in the contemporary world. Adams (1990) is of the opinion that videotaped instruction is one of the most influential of all the media for teaching as a result of its to transmit both visual and sound. In the teaching of English language in Nigerian schools, Agusioba (2000) reported that VCD have a strong influence on learning but most teachers seldomly use them because they are not aware of their effectiveness, this has resulted in the continues use of conventional methods of teaching which has not helped in anyway to improve students performance.

Empirical studies on the use of VCD strategy have been mostly limited to the teaching and learning of Sciences, Mathematics and Economics. For instance, Achebe (2005), Gbodi and Laleye (2006), Annie (2007), Gambari and Zubairu (2008), John and Mike (2010), Sani (2011), Ofili and Okore (2012) found that videotape produced better learning outcome when used for teaching home economics, English language, integrated science, practical physics, primary science, instruction of public speaking, chemistry and biology respectively. Their findings also revealed that male and female performed equally better using video instructional packages. Adedapo, Salawu and Afolabi (2004) reported that there was significant difference in the students' cognitive achievement and interest in Economics which were mostly enhanced by the videotape strategy, followed by audiotaped strategy and minimally by the conventional method. However, Ikwuka (2005), Otegbayo

(2005), Adamu (2007) Kutigi, Gambari and Gana (2011) among others are the few researchers that carried out study on the effect of videotape, audiotape in English Language in Nigeria respectively. This study examined the effect of audio and video compact disc instruction on the learning of Phonetics aspect of English Language.

The influence of gender in students' academic achievement had been a major concern to educational researchers for long, yet no consistent result had emerged. Ikwuka (2005) in Oral-English, Achebe (2005) in food and nutrition, Gbodi and Laleye (2006) in integrated science, Gambari and Zubairu (2008) in primary science, Sani (2011) in chemistry, Ofili and Okore (2012) in biology among others reported that gender had no significant influence on performance while Otegbayo (2005) reported otherwise. The situation therefore remains the curiosity of researchers to investigate how achievement may be influenced by gender, audio and video compact disc instruction.

Statement of the Problem

The poor performance of Nigerian Senior Secondary School Students in English Language has always excited the educational stakeholders. Students lost substantial marks in the aspect of Phonetics (WAEC, 2011). The causes of students' mass failure have been attributed to many factors, such as: students' inability to write effectively in English Language, inability of English Language teachers to use instructional media in enhancing the quality of teaching, poor teaching methods, lack of language laboratory in schools, and many others (Kutigi, Gambari & Gana, 2010). Several researchers in Nigeria (Ofili, 2012, Dantani, 2011, Adamu, 2007, Orisabiyi (2007), Otegbayo, 2006, Ikwuka (2005) have investigated on the potentials of audio and video instructional packages but none has compare the effects of audio and video compact instructional packages for teaching and learning phonetics.

Purpose of the Study

The main purpose of this study was to investigate the effects of Audio and Video Compact Disc Instructional Packages on the Teaching of Phonetics in Senior Secondary Schools in Minna, Niger State, Nigeria. Specifically, the study was designed to achieve the following objectives:

- (i) the effect of Audio Compact Disc and Video Compact Disc on the performance of students taught Phonetics at senior secondary schools in Minna, Niger State.
- (ii) investigate the influence of gender on the performance of students taught Phonetics using Audio Compact Disc and Video Compact Disc;

Research Hypotheses

- (i) There is no significant difference in the mean achievement scores of students taught Phonetics with VCD instructional package, ACD instructional package, and those taught with lecture method.
- (ii) There is no significant difference in the mean achievement scores of male and female students taught phonetics using ACD instructional package.
- (iii) There is no significant difference in the mean achievement scores of male and female students taught phonetics using VCD instructional package.

Methodology

The research design adopted for this study was the pretest-posttest experimental control group design. The population for this study was made up of all senior secondary two (SS2) students from school in Minna and Chanchaga local government areas of Niger State. The sample students constitutes 120 (60 males and 60 females) senior secondary class II randomly selected from three secondary schools. In each school 40 students were randomly selected for the study and gender was considered in the selection.

The research instrument was made up of Phonetics Achievement Test (PAT). It was 50-item multiple choice objective test that was validated and its reliability determined as 0.82 using Kuder Richrdson (KR-20). The Audio Compact Disc (ACD) and Video Compact Disc (VCD) instructional packages were jointly developed by the researcher and media specialist. The ACD and VCD were produced after writing the scripts and storyboard. The topics treated were: Vowel sounds; Consonant sounds; Emphatic stress; and Rhythme. All these are from the scheme of work of senior secondary class two.

The teaching was done for four weeks with control group being taught with lecture method and the experimental group I with ACD and experimental group II with VCD instructional packages respectively. The test questions were administered to the students before and after the treatment. Each of the tests were marked and scored accordingly.

Results

The data collected for this study were analyzed using One-way ANOVA statistics and Scheffe post hoc test; and t-test statistics. The One-way ANOVA was used to test hypotheses one while the t-test was employed in testing hypotheses two and three.

To analyze the pretest data the mean scores of the experimental and control groups were computed using the One-way ANOVA. Table 1 presents the result of the One-way ANOVA for the three groups.

Table 1A: ANOVA comparison of the pretest mean scores of the experimental and control groups

Sources of Variation	Sum of Square	df	Mean (X)	F-Value Calculated	P-value
Between groups	6.317	2	3.158	0.218 ^{ns}	0.805
Within Group	1695.675	117	14.493		
Total	1701.992	119			

ns- Not Significant at $P > 0.05$

Table 1 shows the result of one-way ANOVA comparison of the mean achievement scores of students of in the experimental groups and control group at pretest. From the table the results revealed that there is no significant difference in the achievement of students in the three groups ($F_{cal} = 0.218$; $df = 119$; $p > 0.05$). This indicates that there was no significant difference between the mean scores of the experimental groups and the control group before the instruction started.

Hypothesis 1: There is no significant difference in the mean achievement scores of students taught Phonetics with VCD instructional package, ACD instructional package, and those taught without any package.

To test this hypothesis, One-way Analysis of Variance was used, the result is presented in the table 2A.

Table 2A: ANOVA comparison of the posttest means scores of the experimental group one, two, and control groups

Sources of Variation	Sum of Square	df	Mean (x)	F-Value Calculated	Significance Level
Between groups	6423.317	2	3211.658	70.847*	0.000
Within Group	5303.850	117	45.332		
Total	11727.167	119			

* - Significant at $P > 0.05$

Table 2A shows the one-way ANOVA results of the mean achievement scores of students of in the experimental groups and control group. From the table, the results revealed that there is a significant difference in the achievement of students in the three groups ($F_{cal} = 70.847$; $df = 119 < 0.05$). On this basis hypothesis one is rejected. Therefore, there is significant difference in the achievement scores of senior secondary students taught Phonetic using VCD instructional package, ACD instructional package and conventional method.

In other to ascertain the location of the significant difference between the three groups, Scheffe's Post-hoc test was conducted on the data. The result is shown in Table 2B.

Table 2B: Scheffe's post hoc test on the posttest mean scores of experimental groups I, II, and control group

Variable	Variable (j)	Mean difference (i-j)	Significance Level
Experimental group I	Experimental Group II	10.0500*	0.001
	Control Group	17.8750*	0.001
Experimental group II	Experimental Group I	-10.0500*	0.001
	Control Group	7.8250	0.001
Control Group	Experimental Group I	-17.8750*	0.001
	Control Group II	-7.8250*	0.001

* - Significant at $P < 0.05$.

From Scheffe's post hoc test on achievement of the three groups in table 2B, it can be noted that there is significant difference between the mean scores of experimental group I (VCD) and experimental group II (ACD) in favour of experimental group I. There is also significant difference between the mean score of experimental group I and the control group (conventional method), students in experimental group I perform better than control group. However, there is no significant difference between the experimental group II (ACD) and control group (Conventional method).

Hypothesis 2: There is no significant difference in the mean achievement scores of male and female students taught Phonetics using ACD instructional package.

To test this hypothesis, t-test statistic was used, the result is presented in the table 4.

Table 4: t-test comparison of the mean scores of males and females experimental group II (ACD)

Variable	N	df	Mean (x)	SD	t-value calculated	Significant Level
Male	10	19	28.80	7.13	0.35 ^{ns}	0.471
Female	10		27.55	7.07		

ns - Not Significant at $P > 0.05$.

From Table 4, the posttest mean score is 28.80 for the male students and 27.55 for the female group. The male score did not differ significantly from the female scores when both were taught Phonetics using ACD instructional package ($t_{cal} = 0.35$, $df = 19$, $p > 0.05$). On this basis, hypothesis 3 was not rejected. Therefore, there is no significant difference between the mean achievement scores of male and female students taught Phonetics using ACD instructional package.

Hypothesis 3: There is no significant difference in the mean achievement scores of male and female students taught phonetics using VCD instructional package.

To test this hypothesis, t-test statistic was used, the result is presented in the table 3.

Table 3: t-test comparisons of the mean scores of males and females experimental group I (VCD)

Variable	N	df	Mean (X)	SD	t-value calculated	Significant Level
Male	10	19	37.85	6.88	0.35 ^{ns}	0.734
Female	10		38.60	6.29		

ns - Not Significant at $P > 0.05$.

From Table 3, the posttest mean achievement score is 37.85 for the male students and 38.60 for the female group. The male score did not differ significantly from the female scores when both were taught Phonetics using VCD instructional package ($t_{cal} = 0.35$, $df = 19$, $p > 0.05$). On this basis, hypothesis 3 was not rejected. Therefore, there is no significant difference between the mean achievement scores of male and female students taught Phonetics using VCD instructional package.

Discussion of Results

The results of the one-way Analysis of Variance on the performance of students taught Phonetics using VCD, ACD instructional packages and conventional method indicated a significant difference in favour of the students in the experimental group I (VCD). Scheffe test used as post hoc to locate the observed significant difference indicated that there was significant difference between the achievement of the students exposed to VCD and ACD instructional packages. It is to be noted that students exposed to VCD instructional package did better than those exposed to ACD instructional package. Furthermore, between the experimental group I (VCD) and the control group, significant differences were established in favour of the experimental group I (VCD). However, no significant difference was established between experimental group II (ACD) and control Group.

These findings agree with earlier findings of Achebe (2007) in Home Economics, Gbodi and Laleye (2006) in Integrated Science, Annie (2007) in Practical physics, Gambari and Zubairu (2008) in Primary Science, John and Mike (2010) in Instruction of Public Speaking, Ofili and Okore (2012) and Orisabiyi (2007) in Biology, and Sani (2012) in Chemistry who found that students taught using VCD instructional package produced better learning outcome than their counterparts taught with conventional method. The finding supports the finding of Adedapo, Salawu and Afolabi (2004) who reported that there was significant difference in the students' cognitive achievement and interest in Economics which were mostly enhanced by the videotaped strategy, followed by novel nature of the VCD, audio-taped strategy and minimally by the conventional method. It is possible to infer that the significant difference observed may be accounted for, as a result of power of both sight and sound (Adams, 1990).

The influence of gender on the achievement of students in Phonetics when taught with VCD and ACD instructional packages respectively was examined using hypotheses two and three. The result of the t-test statistic showed no significant gender differences for learners exposed to VCD and ACD instructional packages in the two groups. These findings showed that gender had no influence on the achievement of students in Phonetics whether they were taught with VCD or ACD instructional packages. These findings on gender agree with the earlier findings of Achebe (2007), Ikwuka (2005) in English language, Gbodi and Laleye (2006) in integrated science, Gambari and Zubairu (2008) in primary science, and Kutigi, Gambari and Gana (2010), Ofili and Okore (2012) in biology that students taught with VCD perform equally better. Adamu (2007) reported that gender had no significant influence on achievement of students in Oral-English using tape-recorder while Otegbayo (2005) reported otherwise.

Conclusion

The study showed that the use of VCD have the capability of improving the performance of students in Phonetics than ACD and conventional method respectively. Based on the results, the following conclusions were drawn from the findings of the study:

1. The experimental group one exposed to VCD instructional package performed better than the control group that was not exposed to VCD during instruction.
2. The experimental group one taught Phonetics with VCD instructional performed better than the experimental group two taught using ACD instructional package because they saw and heard.
3. No significant difference was established between students taught Phonetics with ACD instructional package and those taught with conventional method.
4. It can be deduced that the use of VCD and ACD VCD instructional packages enhanced the performance of both male and female students.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Necessary attention should be accorded VCD in the secondary school setting, especially for teaching Phonetics in Nigerian schools.
2. Since the findings of this study showed that students who taught Phonetic with VCD performed better than those taught with ACD instructional package, teachers, textbook writers, and curriculum planners emphasized the use of VCD for teaching and learning at all level of education.
3. Further empirical studies should be carried out on the use of VCD instructional package on different subjects at different levels to provide sound basis for the integration of VCD in Nigerian schools.
4. Language laboratories should be provided and adequately equipped with variety of instructional media such as audio stand videotape recorders, overhead transparencies with

projectors containing topics in phonetics, grammar, essay and lexis and structure to improve teaching and learning process.

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