

Effects of Drill and Practice and Conventional Method on Hausa Language Students' Performance and Retention in Daura Educational Zone, Katsina State, Nigeria

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Abstract

The study investigates the Effects of Drill and Practice and conventional methods on Hausa language students' academic performance and retention in Daura Educational Zone, Katsina State, Nigeria. The study stated that two research objectives, research questions, and hypotheses were formulated. The study used a quasi-experimental research design of pre-test, post-test, non-equivalent, non-randomize control group design. The population of the study was 3,912 SSII Hausa language students in Daura Educational Zone, Katsina State. 101 SS II Hausa language students used purposive sampling to participate in the study. The study used the Hausa Language Achievement Test for data collection. The Hausa language Achievement Test was made up of 40 multiple-choice questions. The instrument was adapted from past questions in the West Africa Examination Council (WAEC). Experts validated the instrument. The reliability of the instruments was established using a test-retest method and a reliability coefficient of 0.669 was obtained. The experimental group was taught using the Drill and practice method while a control group was taught using the conventional method of teaching. The study research questions were answered using mean and standard deviation while the formulated hypotheses were tested using an independent sample t-test. This study findings show a significant difference in the academic performance of senior secondary school students taught the Hausa Language using drill and practice and those taught using the conventional method in favour of the drill and practice method. The study revealed that there was a significant difference between the retention score of students taught the Hausa language using Drill and Practice and those taught using the conventional method in favour of drill and practice group. Also, there was a significant difference in the academic performance of male and female students taught the Hausa language using drill and practice methods. Based on the findings of this study, the study concluded that the drill and practice method can improve students' academic performance and retention in the Hausa language. But it was more favourable to male students. Thus, based on the findings of this study, it was recommended that the Hausa language teachers should use the Drill and practice method to stimulate and boost Hausa language students' academic performance and retention at the senior secondary school level.

Keywords: Computer Assisted Instruction (CAI), Drill and Practice, Conventional Method

Introduction

The Hausa language is one of the most widely spoken languages in Nigeria, primarily in the northern region. It is a Chadic language and serves as a lingua franca not only among the Hausa people but also for various ethnic groups in northern Nigeria and neighbouring countries (Niger, Cameroon, Benin just to mention a few). The Hausa language is among the three major languages in Nigeria. The Hausa language is one of the subjects being taught in a formal school system in Nigeria (Federal Republic of Nigeria, 2014). Hausa language is widely spoken in the North-west, North-central and North-east parts of Nigeria. Some Northern parts of Nigeria adopted the Hausa language as a medium of instruction in schools. For instance; it was adopted as one of the mediums of instruction since the establishment of government schools in Kano. The Hausa language does not only serve as a medium of instruction but a subject of study both nationally and internationally. Degrees and certificates are awarded to deserving students by universities and colleges of education.

Computer Assisted Instruction (CAI) is a means of teaching that helps students experience real simulations that cannot be seen in conventional circumstances (Adebisi et al, 2014; Hussain, 2011). Denby and Holman (2006) reported that students show more engagement, and interest and exhibit a longer attention span when utilizing computers. They further stated that learners can be able to visualize and manipulate complex models, three-dimensional images and movements to enhance understanding and retention of complex language concepts and ideas. Yusuf and Afolabi (2010) In Language studies, a computer can present words to be spelt, sounds to be made, and instructions to be followed. The computer can be used to evaluate students' performance and direct students to the previous lesson pause and move to the next lesson for appropriate learning activities (Bada, 2009). However, different modes of CAI can be integrated into the teaching and learning of the Hausa language. One of these modes is computer-based Drill and practice.

Drill and practice involve a sequence of tasks, exercises, or words repeated again and again until they can be performed without error. In a CAI drill and practice design, the computer screen presents the student with questions to respond to or problems to solve and the student responds. The computer therefore informs the student whether the answer is correct and if the student is right, he or she is

given another problem to solve, but if the student responds with a wrong answer, the computer corrects him or her (Mudasiru and Adedeji 2010). Computers can produce drills of much greater effectiveness than workbooks. Drills and practice are not intended to teach. Drills and practice can be combined with conventional methods as a way of reinforcing what has been learnt in the classroom. This study, therefore, is interested in the effects of drill and practice and conventional methods on Hausa language students' performance and retention in Daura Educational Zone Katsina State, Nigeria.

Statement of the Problem

The teaching and learning outcomes of students depend on the kind of methods employed by the teachers during their lesson delivery. Traditional teaching methods such as the chalk-talk method, lecture method, and demonstration method amongst other methods adopted by the Hausa language teachers in senior secondary schools are often referred to as conventional teaching methods. And, this method is more emphasized on teacher-centered rather than students-centered. This teaching strategy often discourages creativity and disengages students from thinking and reasoning beyond what is presented to them by their teachers. Moreover, poor application of effective teaching methodologies by the teachers is the major issue that may lead to low performance and retention in senior secondary schools. A conventional method of teaching does not favour good student performance and retention. Hence, conventional teaching methods used by the teachers may be responsible for the poor performance and retention of Hausa language students in senior secondary schools. Therefore, to overcome these problems, there is much need to determine the effects of Drill and Practice as an alternative to teaching and learning of Hausa language in senior secondary schools for the improvement of the senior secondary schools' Hausa language students' performance and retention in Daura Educational Zone Katsina State, Nigeria.

In Nigeria, most teachers teach with the traditional (chalk-talk) method otherwise known as the lecture method of teaching which renders students' passive listeners and makes teaching ineffective and as such affect's students' academic performance negatively, especially in the Hausa language. Azikwe (2008) lamented that among the very serious problems of teaching the Hausa language are poor teaching methods, problems of inadequate teaching facilities, poor or lack of motivation, the problem of inadequate and unqualified teachers or

staff, lack of knowledge to operate and apply ICT facilities in teaching and learning, the Hausa language among others. This study thus, this study investigated the effects of Drill and Practice and conventional on Senior Secondary School Hausa Language students' performance and retention in the Daura educational zone, Katsina State, Nigeria. It also determined the influence of gender on the achievement of students taught using the two independent variables.

Objective of the Study

The objectives of the study are to:

1. Ascertain the difference between the mean retention scores of students taught the Hausa language using the Drill and Practice method and those taught with the conventional method in Daura Educational Zone, Katsina State.
2. Establish the difference in the mean academic performance scores of male and female students taught the Hausa language using the Drill and Practice method in Daura Educational Zone, Katsina State.

Research Question

1. What is the difference between the mean retention scores of students taught the Hausa language using the Drill and Practice method and those taught with the conventional method in Daura Educational Zone, Katsina State?
1. What is the difference in the mean academic performance scores of male and female students taught the Hausa language using the Drill and Practice method in Daura Educational Zone, Katsina State?

Hypothesis

- H₀₁. There is no significant difference between the mean retention scores of students taught the Hausa language using the Drill and Practice method and those taught with the conventional method in Daura Educational Zone, Katsina State
- H₀₂. There is no significant difference in the mean academic performance scores of male and female students taught the Hausa language using the Drill and Practice method in Daura Educational Zone, Katsina State.

Methodology

The study adopted a Quasi-experimental design. Specifically, the study used a non-equivalent, non-randomized, pretest, posttest control group design. The choice of this design was due to the nature of the participants who cannot be studied individually (generalization), the impossibility of randomizing the subject (intact class of Hausa Language students) and the need to establish the effect of the treatment on students' learning outcome (comparing students that received treatment with those that did not receive the treatment). When a quasi-experimental study falls under the aforementioned conditions, White and Sabarwal (2014) recommended the design used in this study.

The population for this study comprised all Senior Secondary School II Students (SS II) offering the Hausa Language in Daura Educational Zone, Katsina State. There are 3,912 SS2 students in the public Senior Secondary Schools at Daura Educational Zone for the 2018/2019 Academic Session (Office of the Director, Daura Educational Zone of Katsina State). The sample size of this study was 101 SSII Hausa language Students. Two schools were sampled purposively based on having computer facilities that can serve an intact class, located far from each other, coeducation schools. School "A" has an intact class of 54 SSII-A Hausa Language Students while school "B" has having intact class of 47 SS II -A Hausa Language students. The schools were assigned into experimental and control groups. The instrument used for data collection was the Hausa Language Achievement Test (HAULAT), which was administered in three stages (pre-test, post-test and retention test). At each stage, items of the instrument were reshuffled and the answers to the questions were reassigned to other options. HAULAT is of two sections (A and B). Section "A" elicited information on respondent's bio-data while section "B" contains 40 items of multiple-choice objective questions. Each question contains five options A to E. It was adapted from the National Examination Council (NECO) and West African Examination Council past question papers (1999-2018). The questions covered the taught topics: Places of articulation (GabobinFuruci), Translation (Fassara), Morphology and Comprehension. Two marks were awarded for the correct answer while zero was allocated to each wrong answer.

The instrument was validated by Senior Lecturers, not below a senior rank the reliability of HAULAT, the pilot test was carried out using 30 students from Government Pilot Secondary School (G.P.S.S. Zango). The study used a test-retest approach. Reliability coefficient level of the instrument (HAULAT) used for the study; data collected was subjected to statistical analysis. Hence, the reliability coefficient was determined using Pearson Product Moment Correlation Coefficients (PPMCC) which yielded the reliability coefficient value of 0.669. Hence, this result shows that the instrument is reliable because the closer the result is to one (1) the more reliable the instrument becomes. In this study, data was collected using the Hausa Language Achievement Test (HAULAT) which was administered as a pre-test, post-test and retention test. Initially, the pre-test was administered simultaneously to both the experimental and control groups before the treatment was administered. The purpose of this test is to measure the performance of the students constituting the sample. After the pretest, the experimental group was exposed to the computer Drill and practice mode of CAI, while the control group was exposed to the conventional method of teaching the same content used for the experimental group. After the treatment, the Hausa Language Achievement Test (HAULAT) was administered as a post-test immediately after the treatment. After four weeks, students in the experimental group and control group received a retention test. Pretest, posttest and retention test were marked according to the marking scheme and recorded.

Experimental Group: The Drill and Practice method was used here. The students in this group were taught the four selected Hausa language concepts using drill and practice packages. The computer here presented instructions interactively with each student in this group at a time. Some students in sets depend on the number of available computers for use, but they use the computers in an individualized sequence, and then proceed at their own pace, within a minimum of 45 minutes per lesson. Sets of questions were given to the students via the computer after the instruction and the students provided answers to the questions without any teacher's participation. The teacher's role here was to monitor the students' activities to ensure effective compliance with the instructions by the students.

Control Group: The conventional method of teaching was used here. The researcher here used the questions and answers method and presented lessons on the same selected Hausa language concepts with the experimental group taught using the drill and practice method.

After the treatment, the items in the Hausa Language Achievement Test were reshuffled and re-administered to the students. The scores obtained from the second administration served as post-test scores in the study. The reason for the items reshuffle was to distract the students from realizing that they had responded to such test items in the past. Data was analyzed using descriptive and inferential statistics in responding to the study's research questions and testing of the research hypotheses respectively. Descriptive statistics of mean and standard deviation were used to answer the research questions while inferential statistics of ANCOVA were used in testing the research hypotheses to a 0.05 level of significance.

Results and discussion

Research Question One: What is the difference between the mean retention scores of students taught the Hausa language using the Drill and Practice method and those taught with the conventional method in Daura Educational Zone, Katsina State?

In answering research question two, the mean retention scores of students in control and experimental groups were analyzed using mean and standard deviation as shown in Table 1.

Table 1: The Mean and Standard Deviation of Pretest and Retention Scores of control and Experimental Groups

	N	Mean	Pretest SD	Retention Mean	SD	Mean Gain
Control	54	22.39	4.081	69.56	5.354	47.17
Experimental	47	28.38	2.960	75.40	4.586	47.02

Table 1 shows the mean and standard deviation of the pretest and retention academic performance scores of the control and experimental groups. From the result, it can be seen that the mean score and the standard deviation of the pretest and retention scores of the control group are $X = 22.39$, $SD = 5.354$ and $X = 69.56$, $SD = 5.354$ respectively. The mean gain is 47.17 in favour of the control group achievement score. Similarly, the mean and standard deviation of the pretest and retention scores of the experimental group are $X = 28.38$, $SD = 2.960$ and $X = 75.40$, $SD = 4.586$ respectively. The mean gain is 47.02 in favour of the experimental group achievement score. Also, the result reveals the mean difference of 0.15 pretest and retention mean gain of control and experimental groups.

To further attest to this, the mean gain scores between the pretest and retention of the two groups are shown in Figure 1.

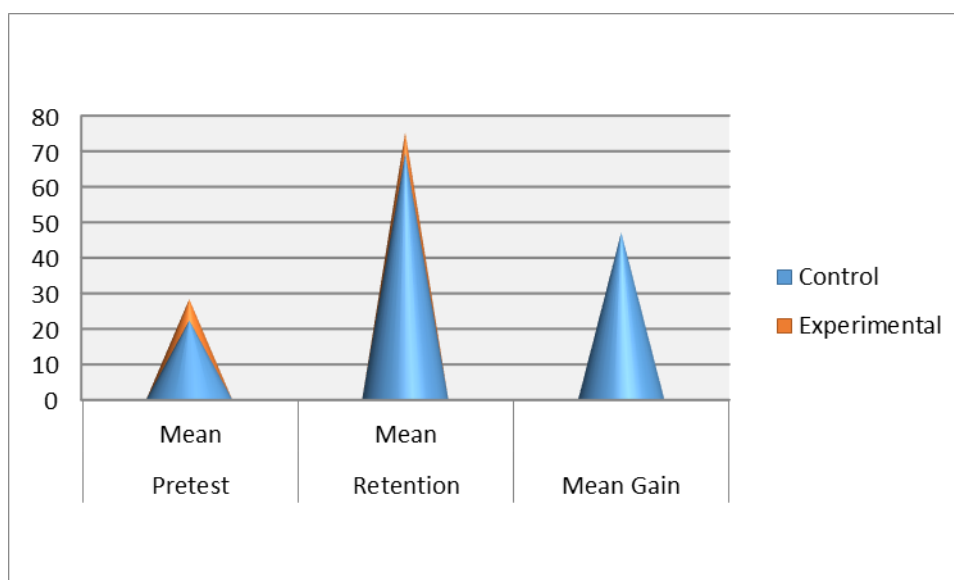


Figure 1: Graphical Representation of pretest and retention of experimental and control Groups

Research Question Two: What is the difference in the mean academic performance scores of male and female students taught the Hausa language using the Drill and Practice method in Daura Educational Zone, Katsina State?

In answering research question three, the mean academic performance scores of male and female students in experimental groups were analyzed using mean and standard deviation as shown in Table 2.

Table 2: The Mean and Standard Deviation of Pretest and Posttest Scores of male and Female Students in Experimental Groups

Gender	N	Pretest		Posttest		Mean Gain
		Mean	SD	Mean	SD	
Male	20	25.72	3.837	77.13	4.281	51.41
Female	27	24.70	5.294	74.56	6.123	49.86

Table 2, shows the mean and standard deviation of the pretest and posttest academic performance scores of male and female students in experimental groups. From the result, it can be seen that the pretest mean score of male students was 25.72 with a standard deviation of 3.837 while the pretest mean score of female students was 24.70 with a standard deviation of 5.294. The posttest mean score of male students was 77.13 with a standard deviation of 4.281 while the posttest mean score of female students was 74.56 with a standard deviation of 6.123. The mean gain of male students was 5.41 while that of female students was 49.86. This shows that the male students' mean score is better than the female students' mean score. The standard deviation of pretest and posttest scores are $x = 24.70$, $SD = 5.294$ and $X = 74.56$,

SD= 6.123 respectively. The mean gain is 49.86 in favour of the control group achievement score. Similarly, the mean and standard deviation of the pretest and post-test academic performance scores of the experimental group are $X= 25.72$, $SD= 3.837$ and $X= 77.13$, $SD= 4.281$ respectively. The mean gain is 51.41 in favour of the experimental group achievement score. Also, the result reveals the mean difference of 1.55 pretest and posttest mean gain of control and experimental groups.

To further attest to this, the mean gain scores between the pretest and posttest of the two groups are shown in Table 2 and Figure 2.

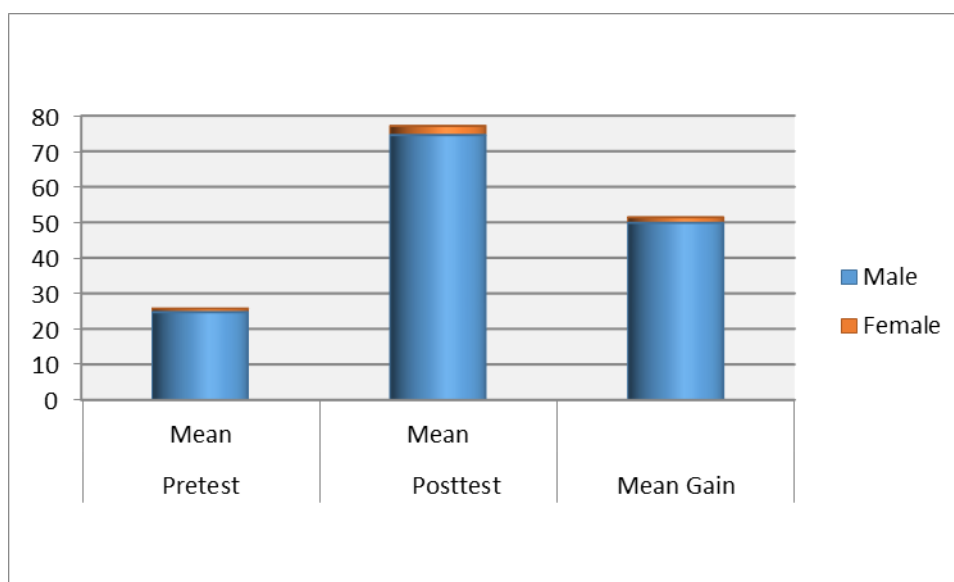


Figure 2: Graphical Representation of Pretest and Posttest of Experimental and Control Groups

H₀₁: There is no significant difference between the mean retention scores of students taught the Hausa language using the Drill and Practice method and those taught with the conventional method in Daura Educational Zone, Katsina State

To test this hypothesis, the retention scores of both the experimental and control groups were compared using Analysis of Covariance (ANCOVA). The results are presented in Table 3.

Table 3: ANCOVA of Retention Mean Scores of Control and Experimental Groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1097.444 ^a	2	548.722	23.913	.000
Intercept	7415.178	1	7415.178	323.145	.000
Pretest	237.859	1	237.859	10.366	.002
Retention	157.937	1	157.937	6.883	.010
Error	2248.794	98	22.947		
Total	530970.000	101			

This shows that the performance of male students in the experimental group was significantly different from that of female students.

Discussion

The research question raised by the study is to establish whether there will be a difference in the retention score of students taught the Hausa Language using the drill and practice method and those taught using the conventional method. The corresponding hypothesis also sought to know whether the observed difference would be statistically significant. The result shows that there was a difference in the retention score of SSII students taught the Hausa Language using the drill and practice method and those taught using the conventional method in favour of the drill and practice method. The corresponding hypothesis revealed that the observed difference between the two groups was statistically significant. This implies that students taught using the drill and practice method retained learnt contents of the Hausa Language more than those taught using the conventional method. This finding is in line with the findings of Achor, Ator and Umoru (2013); Bichi (2010) reported that drill and practice improved students' retention ability than conventional methods. However, the finding of the study differed from the findings of Kareem, (2015) who found no significant in the retention ability of students taught using drill and practice and those taught using conventional methods. This contradiction, however, could be because of the difference in the topics taught. The various literature reviewed so far revealed that computer-assisted learning strategies have added a profound development to teaching and learning processes. However, that does not mean that the research will ascertain the effectiveness of the Drill and Practice learning strategy on the academic performance and retention of Hausa students in the Daura educational zone, Katsina State, Nigeria.

Seo and Bryant, (2009) stated that computer-assisted instruction allows for interaction and immediate feedback as well as increasing the motivation and interest of students. Also, Chang (2006) reported a significant increase in the performance of students when CAI was used to teach. However, some researchers are of the view that computer-assisted instruction should only supplement conventional instruction environments. In meta-analytic study conducted by Christman and Badgett (2006) discovered that students who received instruction supplemented by CAI attained higher academic performance than those who received only conventional instruction.

To summarize the proceeding discourse, it will be concluded that the studies on computer-assisted instruction reveal significant research works made by different personalities and also the number of contributions they gave to knowledge. It has also helped the current researcher to see his studies from the historical perspective concerning earlier critics made on similar issues relating to computer-assisted instruction thereby providing new ideas and approaches to arriving at logical solutions.

Drill and practice instructional strategies have been reported to be very effective in language learning and other science subjects. However, most of the previous studies that used drill and practice for language learning used L2 rather than L1. Therefore, the present study used the drill and practice method on L1. There is scanty literature on whether the positive effect associated with drill and practice instructional method would be repeated when used in teaching local Language.

Conclusion

The study investigated the effects of Drill and Practice on senior Secondary school Hausa language Students' performance and retention. From the findings of this study, it was concluded that the use of Drill and Practice enhanced students' performance and retention of taught concepts of the Hausa language. Furthermore, the study concluded that drill and practice are more beneficial to male Hausa language students than to female Hausa language students.

Recommendations

The following recommendations were made based on the findings of the study:

1. Hausa language teachers also be encouraged to integrate computer-based drills and practice into the teaching of Hausa language to improve students' retention of Hausa language taught concepts.
2. Governmental and non-governmental agencies such as NITDA and NCC among others should provide the needed facilities for the effective integration of computer-based Drill and Practice methods in Hausa language teaching and learning activities.

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