



EFFECT OF HEURISTIC METHOD ON STUDENTS' PERFORMANCE IN SHORTHAND IN COLLEGES OF EDUCATION IN KANO STATE, NIGERIA

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Abstract

The study examined the effect of heuristic method on students' performance in shorthand in colleges of education in Kano State, Nigeria. It had two objectives, two research questions and two null hypotheses. Quasi-experimental research design (pre-test post-test) was used in the study. The population of the study was (756) of NCE 1 students of shorthand for 2019/2020 academic session from colleges of education in the State, from which a sample size of 249 was drawn and was purposively selected. Frequency distribution was used in analyzing respondents' genders; mean and standard deviation were used to answer the research questions while independent t-test was used to test null hypothesis one, then pair-sample t-test was used to test null hypotheses two. The findings revealed that a significant positive difference existed between the mean academic performances of students taught shorthand using heuristic method from those taught using lecture method. The study showed that there was no significant difference in the performances of the male and female students taught with heuristic method. The study concluded that heuristic method had effect on students' academic performance in shorthand over the lecture method. The study recommended, among other things, that Heuristic should be introduced as a better method of teaching and learning of shorthand in Colleges of Education.

Keywords: *Heuristic, Shorthand and Performance*

Introduction

"Heuristics" is a word derived from the Greek language. It means to "find" or "discover". It is an adjective for experience-based techniques that help in problem solving, learning and discovery (Katarzyna & Jaszczolt, 2022). A heuristic method is particularly used to rapidly come to a solution that is hoped to be close to the best possible answer, or 'optimal solution'. In Heuristic method, the student is put in the place of an independent discovery. In this method the teacher sets a problem for the students and then stands aside while the students discover the answer and where students did not understand the concept clearly, the teacher explains and it becomes a rule of thumb for the student which aids them in the study of shorthand. According to Armstrong, as cited in Maheshwari (2016) a heuristic method of teaching is a method which involves students finding out instead of being merely told about things". The heuristic method is a method which gives adequate training for discovery, heuristic is rules of thumb,



educated guesses, intuitive judgments. More precisely, heuristics are strategies using readily accessible information to control problem solving in human beings and machine. It is quite different from other methods because it will make the students inquire or check thoroughly the studies in order to get a heuristic idea about the subject taught. Heuristics which can be used in everything from matching nuts and bolts to finding solution to the variables in shorthand problems. However, the researcher wants to try the use of this method in order to see how it will help the academic performance of students in shorthand.

According to Khan, Begum, & Imad, (2019), academic performance is defined as the measure of what a person has accomplished after exposure to an educational program. It is an important parameter for ascertaining the level of mastery attained by the student in a particular course of study. It is assessed by standardized or teacher made test, through which feedback is obtained by the school. Assessing students' academic performance plays significant role in the school system and society at large. It is also crucial at individual levels. Grade level has learning goals or instructional standards that educators are required to teach. Standards are similar to a 'to-do' list that a teacher can use to guide instruction. Student performance will increase when quality instruction is used to teach instructional standards and with good and accurate teaching method or methods. According to Sinha, Ghate, Chatur and Sinha (2017), educational institutions' success is measured by academic performance or how well students meet the standards set out by the institutions. Their performance at each level provides them with a sense of satisfaction which in turn spurs them on to practice further the desired learning activities. So, for a good performance, there is the need for a better method that will help students achieve high grades in their studies of shorthand and equally cope with or accomplish learning experiences given to them by the business education teacher.

Shorthand is the art of representing spoken sounds by written signs. It is a core course taught in business education. It provides students with appropriate skills, abilities and competences, both mental and physical, that equip them with knowledge and make them effective in teaching, office occupation and self-reliant. Njoku (2022) opined that shorthand provides good skills that help students to be marketable in the world of work, especially in a country that is under the pressure of high and rising rate of unemployment. Shorthand has to do with drilling and transcribing of outlines, and also has to do with representation of spoken sounds with written signs. It uses abbreviated symbolic signs which represent phonemes, words and phrase. Shorthand increases speed and brevity in writing when compared to the normal method of writing a language. Shorthand is one of the vital subjects required in business education curriculum as prepared by the National Commission for Colleges of Education (NCCE 2020) in the office option in Nigeria. This subject has a lot of skills like understanding the signs and their sounds of English language consonants, vowels and the phrases which are broken into a larger range than how it is in the



normal English letters and vowels. For example, from the 26 letters of the English alphabets, there are 21 consonants and five vowels but in the shorthand outlines, there are 24 consonants, 12 vowels and 4 diphthongs. These make pronunciation of the sounds heard in English clearly explained and better understood, thereby helping the business education students in speech and writing.

Business education develops in the student critical skills, attitudes and abilities that are relevant for securing jobs in the business world. It has contributed positively to the personal and intellectual developments of the recipient. (Ejeka and Nwokeji 2016). According to (1995) as cited in Enyikit, Onuekwa, and Silas-Dikibo, (2012), the strength of an education system must largely depend on the quality of its teachers and the utilization of teaching methods. The importance of shorthand cannot be overemphasized. This has attracted many methods to be used in teaching shorthand but not at ease, which calls the attention of other methods that can be used in place of the conventional methods, development of skills in shorthand is the teacher's attitude. His approach should be teaching shorthand with a question mark instead of with an exclamation point, that is ; where students listen to the teachings of the teacher and that ends it, the students should put into practice what has been taught. The acceptance of and the quest for unique solutions to the problems that the class is investigating should be a guiding principle in the teacher's approach to the programme of shorthand for students' performance.

Learning shorthand is similar to learning any other subject in the school system, which requires the alertness of different teaching methods in order to achieve cognitive and non-cognitive factors. The learning requirement in the twenty- first century is to develop life-long skills for learners to cope with the various emerging challenges being encountered. In the same vein, heuristic and think-pair-share methods are such that target towards developing a life-long skill for learners. While using the methods to teach shorthand, it is expected that students can learn better than the way they are taught using other methods.

Statement of the Problem

Shorthand is one of the oldest subjects, which has been of much importance to the whole world. It was doing what no machine could effectively produce before the advent of contemporary technology (Pitman 1837). It has been a lucrative subject that is well sellable in the labor market. Shorthand contributes to the office productivity in a way automated equipment may not. For instance, when there is power failure, shorthand can be used to keep records and it can be saved and retrieved in the future. Several researchers have undergone a study about the poor performance of students in shorthand and most of the results showed that the method of teaching this subject contributes to the poor performance of students (Uzoagulu 2011, Emetl 2010, Vundi, Nasongo & Majanga 2011) and also (Umar 2022)



The performance of students in the course is becoming poorer every day. As a teacher of shorthand for the past five years, the researcher has noticed that students dislike shorthand. When the researcher tried to find out the cause of the dislike, students complained that the subject is difficult, blaming the difficulty on the teaching methods used by teachers in teaching the subjects.

The poor performance in shorthand in colleges of education in Kano State of Nigeria was evident in students' performance in the subject in the Federal College of Education, Kano. During the 2013/2014 session, only 38% of students passed shorthand at credit level. In 2014/2015, 23% of students passed shorthand at credit level. In 2015/2016, only 23% of students passed shorthand at credit level. In 2016/2017 12% were able to score credit. Based on the calculation the percentage and the ratio of the students that failed shorthand were always higher than the number of the passes.

It was based on this problem that the researcher carried out this study in order to find a solution to this aforementioned problem in the Colleges of Education in Kano State, Nigeria.

Research Question

The following research questions guided the study:-

1. What is the effect of heuristic method of teaching on the academic performance of student in shorthand in colleges of education, Kano State, Nigeria?
2. What is the difference between the academic performance of male and female students taught shorthand using heuristic method of teaching in colleges of education, Kano State, Nigeria?

Research Hypotheses

The following null hypotheses were tested:

1. There is no significant difference between the mean performance scores of students taught Shorthand using heuristic Method and those taught using Lecture Method in colleges of education, Kano State, Nigeria.
2. There is no significant difference between the academic performance of male and female students taught shorthand using Heuristic Method of teaching in colleges of education, Kano State, Nigeria.

Method

Quasi-experimental (pre-test post test) design was adopted for this **study**. **The area of the study was Kano state Colleges of Education. The population of the study consisted of 756 students. The sample comprised**The Sample size was 249 NCE 1 business education students of Federal College of Education, Kano which was purposely selected because it has been offering shorthand for the past twenty (20) years and has facilities needed for teaching and learning shorthand. The instrument for data collection was Shorthand Achievement Test



(SAT). It was developed by the researcher which was from syllabus of the Federal Government, from WAEC and NECO pass questions base on the minimum standard of the NCCE. There were four (4) sections with forty-five (45) questions. The instrument was subjected to both face and content validity. It was checked and corrected by three experts from the department of test and measurements in the faculty of education, Ahmadu Bello University, Zaria. The test-retest method of testing reliability was used which yielded reliability coefficient of 0.87. The researcher used six weeks for the teaching, marking of the pre-test and post-test with the help of research assistant which the result collected was used as the data for this study. The two (2) research questions were answered using mean and standard deviation, and the null hypothesis one was tested using t-test (independent sample test) while the null hypothesis two was tested using t-test (pair sample t-test), all at 0.05 level of significance. The decision rule was that a mean score of 50% and above was regarded as pass and a mean score below 50% was termed as fail and if the p-value is equal or less than 0.05 level of significant the null hypotheses will be rejected, but if p-value is greater than 0.05 level of significant, the null hypotheses will be retained.

Results

Research Question One: What is the effect of Heuristic method of teaching on the academic performance of students in shorthand in colleges of education, KanoState, Nigeria?

To find out the effect of Heuristic method of teaching on the students' academic performance in Shorthand, the scores of the students exposed to the use of Heuristic approach were computed and compared with those taught with the lecture method. Table 1 shows the mean performance of the students exposed to the two methods.

Table 1: Mean Scores of Students Exposed to the Use of Heuristic and Lecture Methods of Teaching Shorthand

Method of teaching	N	Mean	Std. Deviation	Mean difference
Heuristic Method	83	65.96	10.775	15.00
Lecture Method	83	50.96	10.081	

Source: Field Study, 2018

Table 1 reveals that students exposed to the use of Heuristic method had mean performance of 65.96 and standard deviation of 10.775 respectively while those taught the shorthand with the lecture teaching method with a mean 50.96 and standard deviation score of 10.081 respectively. Then mean difference was 15.00.



Research Question Two: What is the difference between the academic performance of male and female students taught shorthand using the heuristic method of teaching in colleges of education, Kano State, Nigeria?

To establish the difference in the academic performance of male and female students taught shorthand using the heuristic method of teaching, the mean scores of the male and female students exposed to the use of the method were computed and compared. Table 2 shows the scores and the observed difference between the two groups.

Table 2: Mean Scores of Male and Female Students Exposed to the Use of Heuristic Method of Teaching Shorthand

Method of teaching	N	Mean	Std. Deviation	Mean difference
Male	51	64.84	10.201	2.91
Female	32	67.75	11.573	

Source: Field Study, 2018

Table 2 reveals that the female students had mean and standard deviation score of 67.75 and 11.573 respectively compared with their male counterparts whose mean and standard deviation score was 64.84 and 10.201. The mean difference was 2.91 obtained between the two groups.

Test of Null Hypotheses

Null hypothesis One: There is no significant difference between the mean performance scores of students taught Shorthand using Heuristic method and those taught using Lecture method in Colleges of Education, Kano State, Nigeria.

The significance of the observed variability in the mean score of students exposed to the use of Heuristic and those taught using Lecture method for teaching Shorthand in the colleges were tested here with the two sample t-tests. Table 3 shows the summary of the result.

Table 3: The t-test analysis showing difference in the performance score of students taught shorthand using heuristic and lecture methods

Methods	N	Mean	Std. Dev.	t-value	t-critical	DF	p-value
Heuristic	83	65.96	10.775	9.261	1.96	164	0.000
Lecture	83	50.96	10.081				

Source: Field Study, 2018

Table 3 showed the result of independent t-test analysis used for testing difference between the performances of students taught shorthand using heuristic method and lecture method. The data revealed that the group taught



using heuristic method had mean performance of 65.96 and standard deviation of 10.775 while those taught using lecture method had mean performance of 50.96 and standard deviation of 10.081. t-value was 9.261 while the t-critical was 1.96. The result revealed that students who were taught shorthand with the Heuristic method had a significantly higher mean score compared to their counterparts who were taught shorthand with the lecture method. These observations provide sufficient evidence for rejecting the null hypothesis. The null hypothesis that there is no significant difference between the mean performance scores of students taught Shorthand using Heuristic method and those taught using Lecture method is therefore rejected. The test revealed that the use of the Heuristic method has more positive effects in improving the students' academic performance in Shorthand than use of lecture method.

Null hypothesis Two: There is no significant difference between the academic performance of the male and female students taught shorthand using the Heuristic method of teaching in Colleges of Education, Kano State, Nigeria.

The effect of gender on performance of students exposed to the use of Heuristic method in teaching of Shorthand is tested here with the two sample t-test. The result of the test is summarized in Table 4.

Table 4: The t-test analysis showing difference between the performance of male and female taught shorthand using heuristic method

Gender	N	Mean	Std. Dev.	t-value	t-critical	DF	p-value
Male	51	64.84	10.201	1.199	1.96	81	0.234
Female	32	67.75	11.573				

Source: Field Study, 2018

From table 4, the mean score of male 64.84 while that of female was 67.75, showed that the observed t-value was 1.199 and is lower than the t-critical (2.00) and the level of significance is 0.234 ($p > 0.05$). These did not revealed significant difference in performances of the male and female students taught the shorthand with Heuristic method. These observations did not provide sufficient evidence for rejecting the null hypothesis. The null hypothesis that there is no significant difference between the academic performance of male and female students taught shorthand using Heuristic method of teaching in colleges of education, Kano State, Nigeria is therefore retained. The implication here is that performance of students exposed to the teaching method is not affected by gender, which observation implies that the method has no gender effects which in other words means that it enhances the performances of male and female students almost at the same level.

Discussion of Findings



The analysis of data relating to the first research question revealed that students exposed to the use of Heuristic method for teaching shorthand performed significantly better than was obtained for students who were taught the same subject with lecture method. In hypothesis one (1) of the study, the result revealed that the observed difference was statistically significant. The null hypothesis was therefore rejected. The finding revealed that the use of Heuristic method for teaching and learning of shorthand in the colleges has more effect than the use of lecture method. This finding is consistent with Ozen (2022) who explained that discovery involves a process of conceptualize and put into practice what is learnt in a meaningful manner and that Learner works out part of the information and processes it to yield positive result. The finding here are in line with Emiliano (2015) who postulated that Heuristic is a mental shortcut that allows people to get information to solve problems and make judgments quickly and efficiently.

The second research question was tested for significance in null hypothesis two Female had a higher mean score than the male but the result of the tested hypothesis revealed that when observed, there was no significant difference. The null hypothesis was therefore retained. The finding means that the use of the method for teaching and learning of shorthand in colleges has no gender effect. This finding is similar with the finding of Deepak, Al-Umran, Al-Sheikh, and Al-Rubaish, (2011) who reported from a similar investigation that while male performed better in some studies, in other studies female students performed higher than their male counterparts.

Conclusion

The findings of this study revealed that the use of alternative teaching method (Heuristic) could significantly enhance the academic performance of students in shorthand at the Colleges of Education involved in the study. This findings could be valuable to the Colleges of Education Authority, the National Board for Technical Education, Lecturers in Business education and other stakeholders who will be interested in improved academic performance of students in the subject at the Colleges of Education. The findings could provide a base for policy formulation on the use of different teaching method for improving performance of students in Colleges of education.

Recommendations

Based on the findings from the analyzed data in the study, the researcher wishes to recommend as follows:

1. The teaching of Shorthand should not be focused only on the use of lecture method since Heuristic method is found to be a better alternative for improving students' academic performance in the Colleges.



2. Both male and female students should always be encouraged to use the Heuristic method of teaching and learning of Shorthand in the Colleges of Education.

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