

Effects of Computer-Aided Instruction on Upper Basic two (JSS II) Students' Achievement in Social Studies

¹Santos David,

²Dr. Irene W. Yakubu

³Shuaibu Saidu

“ 6öÆÆVvR öb VGV6 F–öâÄ !–ær Ät Ä Taraba State•

² & ³Department of Science Technology Education,

University of Jos, Plateau State.

Abstract

This study investigated effect of Computer-Assisted Instruction (CAI) on students' achievement in Social Studies within the Zing Local Government Area (LGA) of Taraba State, Nigeria. The study utilized a quasi-experimental design to compare the achievement levels in experimental and control groups via pre-test and post-test evaluations. The results indicated a substantial enhancement in student achievement following exposure to CAI, as seen by the post-test mean scores of the experimental group. A sample of 119 was used among the upper basic two students in two public schools selected out of the 12 public upper basic schools in Zing Local Government Area of Taraba State. Social Studies Achievement Test (SSAT) was developed and used to collect data. Mean and standard deviation was used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 significance level. The result indicates that CAI is an efficacious pedagogical approach for improving students' learning. This study uniquely demonstrates that CAI significantly improves student achievement without gender bias. This indicates that incorporating CAI into social studies education can foster an inclusive learning atmosphere that accommodates all students uniformly. The study recommends that educators and policy makers should adopt CAI as an effective instructional tool to enhance student engagement and academic achievement. The study further demonstrates that CAI is an effective instructional method for enhancing students' academic performance in social studies within Zing LGA, Taraba State, Nigeria. By closing the gender gap and promoting a more efficient learning process, CAI offers a viable approach for improving educational outcomes in the region.

Keywords: Achievement, CAI, poor achievement, social studies, Upper Basic II, Zing

Introduction

Education is a crucial catalyst for national growth, and without it, envisioning the current state of the globe, particularly Nigeria, is challenging. This is due to its role as the catalyst for numerous nations' technological, social, political, and economic advancement (Kabang & Maikano, 2024; Obro, 2022; Yesilbaq, Korkmaz & Cakir, 2020). Consequently, it functions as a protector of the social order. During their educational experience, adolescents are instructed in the behavioural norms that will facilitate their development into contributing members of society. The function of education was articulated more clearly in Nigeria's National Education Policy (FRN, 2014), which designated education as a tool for national development. Individuals are educated to adjust to evolving conditions. Like other societal institutions, education serves as an instrument for social transformation. It has continued to be utilized to restructure economic, political, and social systems (Missan-Rupee, Obro Akpochafa, 2023). Nigeria's educational system comprises a 9-3-4 framework, consisting of 6 years of elementary school, 3 years of upper basic education, 3 years of senior secondary education, and 4 years of higher education. This educational system mandates some subjects to be made compulsory in the first six (6) years, including mathematics, English, basic science, civic and social studies.

Social Studies as a discipline at the Upper Basic level that addresses societal demands and contemporary subjects of local and global significance. The National Economic Empowerment and Development Strategies (NEEDS) curriculum includes part of the Social Studies component to address issues such as HIV/AIDS prevention, gender issues, peace and conflict, Nigerian peoples and their cultures, media, globalization, and the Sustainable Development Goals [SDGs] (Alasoluyi, 2015). The inclusion of Social Studies in the school curriculum has been advocated by educational authorities, planners, and experts due to its focus on promoting and cultivating the affective domain, which is particularly relevant for young individuals exposed to Social Studies. Social studies curriculum of the Upper Basic school is meant to enhance learners' capacity to adjust to the dynamic nature of their surroundings, foster the growth of responsible and disciplined individuals, appropriate forms of values, and cultivate understanding towards individuals in different cultures, historical backgrounds, and essential aspects that define humanity (Ogwe & Ugwuegede, 2023 & Atubi, 2020). Social studies curriculum is expected to transform students into active and productive citizens after covering seven major subheadings: government and citizenship, Nigeria and the world, economics and development, Social Studies and technology, family and relationship, civic education, and environmental education. These are subheadings based on the magnitudes of the study to be considered simple, too wide, or complex, perhaps, because of the nature of being taught by teachers.

Computer-aided instruction (CAI) is a teaching approach in the upper basic education of social studies curriculum that involves students interacting with computers as a teaching tool and environment (FME, 2017). CAI combines self-directed learning

principles with computer technology, using computers as a complementary and reinforcing element of the teaching process. Teachers need to incorporate these methods into their teaching methods to engage students in learning effectively. CAI is a technological advancement that includes computers, the Internet, visual applications, social networks, and video technology; it is imperative for educators to implement innovative instructional strategies (Byabeng & Bosscher, 2023). It is an instructional method to enhance students' academic achievement (Okro, 2023).

Student achievement is a crucial factor in determining the success or failure of a teaching and learning process (Jimoh, 2022). It is the outcome of a student, teacher, or institution achieving educational goals. It is measured through classroom exercises, assignments, continuous assessment, and internal and public examinations. Achievement is the scholastic standing of a student at a given moment, indicating their intellectual abilities. It can be measured by grades or scores from school-based and external examinations such as the West African Examinations Council (WAEC), National Examinations Council (NECO), and the Basic Education Certificate Examination (BECE) and NECO (Wilson (2017).

Poor achievement of Social Studies in Basic Education Examination Certificate (BECE) is attributed to various factors, including lack of instructional materials, laboratories, unqualified teachers, student interest, and poor teaching methods (Ogwe & Ugwuegede, 2023; Nichole, 2018; Atubi, 2020). Olusegun (2014) found that most Social Studies teachers use lecture methods, such as talks and chalk, to teach students about physical and social environments. This conventional lecture method is the dominant approach in Nigeria, and students are often passive listener throughout the lesson, leading to a teacher-centred approach in learning Social Studies. Many criticisms against the traditional lecture method in teaching Social Studies and the low achievement of students, particularly in physical and social environments. Researchers have explored several methods to improve students' achievement, which include inquiry-based approaches, concept mapping, portfolio assessments, and retraining workshops (Kelfine, Maiyo & Okere (2018) and Quadan(2016). However, significant improvement in student achievement has not been observed despite these efforts, particularly in the physical and social environment. Therefore, further research is needed to find out better teaching methods to enhance students' achievement in social studies. This is particularly important given the criticisms against the conventional lecture method and students' low achievement in the subject. Students-centred instructional methods can help social studies teachers engage students in physical and social environment learning. These methods include experimental learning, cooperative learning, problem-solving exercises, writing tasks, class discussions, case study methods, simulation, role-playing, fieldwork, independent study, and computer-aided instruction.

Objectives of the study

find out the pre-test and post-test Social Studies achievement of upper basic students in the experimental and control groups

find out the interaction effect of treatment and gender on the upper basic students' achievement in Social Studies using CAI.

Research Question

What are the pre-test and post-test achievement mean scores of the upper basic two students offering social studies in the experimental and control groups?

What are the post-test achievement mean scores of the male and female upper basic two students taught social studies using CAI?

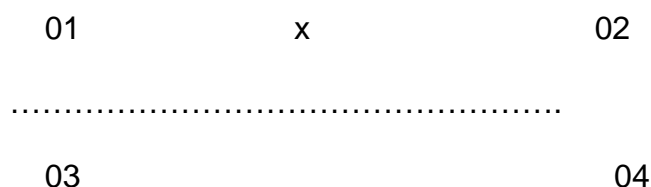
Hypotheses

There is no significant difference between the pre-test and post-test Social Studies achievement mean scores of upper basic students in the experimental and control groups.

There is no interaction effect of treatment and gender on the upper basic students' achievement in Social Studies using CAI.

Methodology

The study adopted a quasi-experimental research design. Specifically, the pretest-posttest non-equivalent control group design. The design uses two groups, namely the control and experimental, which are not composed based on randomization. The two groups in the design are composed of intact groups. The design was chosen because the school authority will not allow interference with the existing class grouping of the school situation so that classroom registers, schedules, and timetables are not disrupted or done away with to accommodate research. Therefore, the quasi-experimental design could be used in the study to determine the causal effects of the intervention on the target population of students. The present study will use the upper basic students in one school as the experimental group and the upper basic students in another as the control group. The pre-test, post-test, and non-equivalent control group research design is represented thus:



Designs 1 and 2 represent the experimental and control groups, respectively. The 01 stands for the pre-test given to the experimental group, while 03 is the pre-test administered to the control group. The 02 and 04 represent the post-test administered

to experimental and control groups, respectively. The X in the design is the treatment or intervention given to the experimental group, while the blank space indicates no treatment for the control group. The dotted line in the design shows the non-random assigning of subjects (students) to the experimental and control groups.

Sample

The sample for the study was made up of 119 upper basic two students in two public schools selected out of the 12 public upper basic schools in Zing Local Government Area of Taraba State, Nigeria. One school was assigned as the experimental group and another as the control group. The sample distribution is shown in Table 2

Table 1: Sample of Public Upper Basic Two Students in Zing LGA of Taraba State

School code

Male

Female

Total

A

35

30

65

B

28

26

54

Total

63

56

Source: Zing Local Government Education Authority (2023)

A purposive sampling technique was used to select two schools using the criteria for having functional computer laboratories and co-educational ones. This is because parts of the activities were built on the computer for the students to study. The study also required comparing achievement between male and female students: The Social Studies Achievement Test (SSAT) was developed by the researcher to serve as an instrument of the study. This SSAT comprised 40 researcher-developed multiple-choice items. The SSAT comprised two sections, A and B. Section A solicited the students' basic information, such as gender and class. Section B consisted of 40 multiple-choice questions with options A to D. The instrument was used to measure the student's ability in physical and social environment concepts of Social Studies. The SSAT was used as a pre-test before the treatment and as a post-test after the treatment. To ensure that relevant and appropriate items were included in the instrument, the following steps were used in developing the SSAT. The items were structured under strict adherence to the specifications table and subjected to expert judgment. The reliability of the SSAT was assessed using the Cronbach Alpha Coefficient method, which measures internal consistency. The instrument was tested on students with similar characteristics and analyzed using SPSS software. Cronbach Alpha is a flexible method suitable for multiple choice and other items. The coefficient obtained was 0.97 for the test items. The study used the Analysis of Covariance (ANCOVA) at a 0.05 significance level to test hypotheses, as it involved two intact classes without randomization. ANCOVA ensured the results were based on categorical variables' effects on continuous dependent variables.

RESULTS AND DISCUSSION

Research Question one

•v† B &R F†R &R×FW7B æB ÷7B×FW7B 6†–Pvement mean scores of the upper basic two students offering social studies in the experimental and control groups?

Table 2: The Pre-test and Post-test Achievement Mean Scores of the upper basic two Students' in the Experimental and Control Groups

Group

Pre-test

Post-test

N

Mean

SD

Mean

SD

Mean Gain

-Gain difference

Experimental

54

35.87

3.18

64.05

4.738

28.18

18.34

Control

65

35.43

3.17

45.29

6.80

9.84

Source: Fieldwork

Table 2 shows the mean scores for the social studies achievement of the upper basic two students in the experimental and control groups. The experimental group obtained a pre-test mean score of 35.87 with a standard deviation of 3.18 and a post-test mean

score of 64.05 with a standard deviation of 7.31, giving a mean gain score of 18.34 This indicated that there was an increase in the achievement of students in Social Studies after exposure to computer-aided instruction. The control group had a pre-test mean score of 35.43 with a standard deviation of 3.17 and a post-test mean score of 45.29 with a standard deviation of 6.80, indicating a mean gain of 1.57 obtained. Students in the experimental group had a higher achievement mean score of 68.11 after exposure to computer-aided instruction than the control group, with a post-test score of 45.29. The mean gain difference of 18.34 was obtained between the experimental and control groups. Thus, computer-aided instruction increased the students' achievement in social studies.

Research Question Two:

•v† B &R F†R ÷7B×FW7B 6†–Pvment mean scores of the male and female upper basic two students taught social studies using CAI?

Table 3: Post-test Achievement Mean Scores of the Upper Basic Two Male and Female Students taught social studies using CAI

Group

Post-test

N

Mean

SD

- difference

Male

28

65.00

6.92

1.97

Female

26

63.03

7.72

Source: Fieldwork, 2025

Table 3 reveals the mean and standard deviation of posttest achievement mean scores of upper basic two male and female students taught Social Studies using CAI. The result for the posttest achievement mean score for male (=65.00 SD = 6.92) while that of female students (=63.03, SD = 7.72) with a mean difference of 1.97, indicating that the achievement of male and female are almost the same in Social Studies after exposure to computer-aided instruction.

Hypothesis one

There is no significant difference between the pre-test and post-test Social Studies achievement mean scores of upper basic students in the experimental and control groups.

Analysis of Research Hypothesis

Table 4: ANCOVA Result on pretest and Posttest Achievement Mean Scores of Experimental and Control Groups

Source

Type III Sum of Squares

Df

Mean Square

F

Sig.

Partial Eta Squared

Corrected Model

10825.570a

2

5412.785

121.229

.000

.676

Intercept

879.582

1

879.582

19.700

.000

.145

ACH_PRE

523.124

1

523.124

11.716

.001

.092

GROUP

9934.290

1

9934.290

222.497

.000

.657

Error

5179.304

116

44.649

Total

360099.000

119

Corrected Total

16004.874

118

a. R Squared = .676 (Adjusted R Squared = .671)

There is no significant difference between the pre-test and post-test achievement mean scores of upper basic two students offering social studies in the experimental and control groups.

Analysis of covariance (ANCOVA) was conducted to determine if a significant difference exists in the pretest and posttest achievement mean scores of Upper Basic Two students offering social studies. Table 4 shows that $F(1, 116) = 222.497$, $P < 0.05$. The null hypothesis was rejected since the p-value of .000 is less than the 0.05 significance level. This indicates a significant effect of computer-aided instruction on students' achievement in social studies in the experimental group. The result further reveals an adjusted R squared value of .671, which means that 67.1% of the variation in the dependent variable, students' achievement, is explained by variation in the treatment of computer-aided instruction. At the same time, the remaining is due to other factors not included in this study. Hence, it could be stated that computer-aided instruction does improve students' achievement in social studies.

There is no interaction effect of treatment and gender on the upper basic students' achievement in Social Studies using CAI

Table 5: ANCOVA Result on Effect of Gender on Achievement of Upper Basic Two social studies students taught using CAI

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	616.822a	2	308.411	7.426	.001	.226
Intercept	235.440	1	235.440	5.669	.021	.100
ACH_PRE	560.651					

1

560.651

13.499

.001

.209

GENDER

.369

1

.369

.009

.925

.000

Error

2118.159

51

41.533

Total

223791.000

54

Corrected Total

2734.981

53

R Squared = .226 (Adjusted R Squared = .195)

Analysis of covariance (ANCOVA) was conducted to determine if there is a significant effect of gender on the achievement of Upper-Basic Two students who were taught social studies using computer-aided instruction. Table 5 shows the main effect of gender yielded $F(1, 51) = .009$, $P > 0.05$. Since the p-value of .925 is greater than the 0.05 significance level, the null hypothesis was retained, indicating no significant effect of gender on the achievement of students taught social studies using computer-aided instruction. Hence, it could be said that gender does not affect students' achievement in Social Studies.

Discussion

The study findings on the effects of CAI on students' achievement in social studies show a difference between the pretest and post-test mean scores, which signifies that there is an increase in achievement of students after exposing them to CAI; both test shows experimental and control groups. Therefore, CAI increased students' achievement in social studies. This, however, concurred with Robb 2015; Mensah & Nabie 2021, Reiman 2021 and Lipscomb (2015) found that the achievement of students increased with technology. Secondly, regarding the difference between male and female students' achievement in social studies, the result of the experimental group of the posttest achievement mean scores showed slight differences, which indicated that there is not much difference between male and female achievement in social studies. This agrees with Iroegbu (2013) and Dania (2014), who both found that gender does not affect academic achievement. Although, most studies revealed different cases like

Ekundayo (2020), Salihu (2021), Aguilon et al. (2020), Ani et al. (2020), and Eseine-Aloja (2021). This supports the previous statements made by Mwihi (2020) and Kisigot, Ogula, and Munyua (2021). The majority were of the opinion that males achieved more in social studies, but few studies also revealed females achieved higher than males, such as the cases of Julius (2018) and Julius et al. (2018), who showed that women outperformed men. This study also shows uniqueness in the sense of introducing CAI with no difference between genders.

Conclusion

The study contributes to the growing body of research supporting the effectiveness of CAI in enhancing student achievement, regardless of gender. And suggesting the integration CAI into social studies instruction can provide an inclusive and effective learning environment. Future research may explore the long-term impact of CAI and its applicability to other subjects and educational contexts.

Recommendations This study yields the following recommendations:

1. Federal Government, State Government and Educational institutions should integrate CAI into social studies instruction to improve students' academic performance and participation.
2. Educators must undergo professional development and training to proficiently incorporate CAI into their pedagogical practices to optimize its advantages.
3. Government and educational institutions must invest in essential ICT infrastructure, including computers, internet connectivity, and educational software, to ensure the effective implementation of CAI.
4. Policymakers should guarantee that male and female students have equal access to CAI resources, fostering an inclusive educational environment.
5. Subsequent research should investigate the enduring effects of CAI on student learning across diverse disciplines and grade levels to evaluate its overall efficacy in varying educational settings.
6. Educational institutions should integrate Computer-Assisted Instruction (CAI) with conventional teaching methodologies to build a more effective and balanced instructional strategy for social studies education.
7. Educational authorities should implement systems to regularly assess CAI program efficacy to guarantee ongoing enhancement and responsiveness to students' requirements.

With the above recommendations, policy implications should be that Policymakers to create national and institutional policies to support CAI implementation in schools, ensuring equal access to technology-based learning for all students. Enough funds

should be set aside for ICT tools, and the Teacher Professional Development Program should be reformed to improve instructional delivery. CAI should be incorporated into curriculum design and policy development, and digital inclusion initiatives should ensure access to resources.

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The Use of Panel Discussion Method to Improve Students' Paragraphing and Punctuation in Essay Writing

Bassi Elia Bitrus

Tel: 08065323498

Email: bassebitrus@gmail.com

Academic Services Department,

National Teachers Institute,

Kaduna, Nigeria.

Dr Judith M. Patrick

Tel: 07036278629

Department of Arts Education,

University of Jos.

Prof. Jeno-Mary Enighe

Tel: 08034746232

Department of Arts Education,

University of Jos.

Abstract

This study investigated the effects of panel discussion method on senior secondary students' achievement in essay writing in Hawul Local Government Area, Borno State, Nigeria. The pre-test post-test quasi-experimental research design of the non-equivalent groups was adopted for the study. The population consists of 1,533 SSII students' simple random sampling techniques was used to select a sample of 108 SSII students from the public secondary schools in Hawul Local Government Area of Borno State. Two research questions and two corresponding null hypotheses guided the study. Data were collected using a test tagged Students' Essay Writing Achievement Test (SEWAT). Data collected were analysed using mean and standard deviation to answer the research questions and Analysis of Covariance (ANCOVA) to test null hypotheses at 0.05 level of significance. The findings of this study revealed that there was a significant effect of panel discussion method on achievement of students in paragraphing. The results further showed that there was a significant effect of panel discussion method on achievement of students in punctuation in essay writing. Based on these findings, it was recommended among others that: teachers of English Language in secondary schools should model panel discussion method to students in the essay writing class and guide them to implement it; the Federal and State Ministries of Education should organise seminars and workshops for the retraining of English Language teachers on the application of panel discussion in the essay writing lesson; curriculum designers should collaborate with English Language textbook writers to incorporate panel discussion activities into the secondary school students' essay writing programmes

Keyword: essay writing, paragraphing, punctuation, panel discussion method.

Introduction

Writing is an essential form of human communication that encompasses the expression of thoughts, ideas and information through the medium of written language. Its essentiality lies in the fact that humans communicate through symbols. Writing involves the deliberate arrangement of words, sentences and paragraphs to convey meaning and evoke emotions. It enables individuals to articulate complex concepts, engage in critical thinking and explore their creativity. Writing can take various forms, including academic essays, creative literature, professional reports, persuasive arguments and personal reflections. It requires a blend of technical skills, such as grammar, vocabulary and sentence structure, as well as the ability to organise thoughts coherently and tailor the message to the intended audience. Effective writing not only conveys information accurately, but also engages and captivates the reader through compelling storytelling,

persuasive reasoning and vivid descriptions (Adewoyin, 2016).

According to Paul (2021), the process of essay writing involves several key components, including selecting a topic, conducting research, formulating a thesis statement, developing an outline, drafting the essay, revising and editing for clarity and coherence and finally, presenting a well-crafted and cohesive piece of writing. The different types of writing include letter writing, memo writing, essay writing, among others. Essay writing is a structured and analytical form of written communication that allows individuals to explore and present ideas, arguments and information in a cohesive and persuasive manner. Effective essay writing involves clear and concise writing style, proper use of grammar and punctuation and adherence to the specific formatting and citation guidelines of the chosen academic or professional discipline. Essay can take various forms, such as argumentative, persuasive, descriptive, expository, or narrative, each with its own purpose and structure. It is important to state that successful essays not only present coherent and well-supported arguments but also demonstrate an understanding of the topic's broader context and implications.

Writing skills that are essential for effective written communication encompass idea generation, sentence construction, paragraphing and punctuation. Of interest to this study are paragraphing and punctuation. Paragraphing is the act of grouping related sentences that revolve around a central topic or idea. It serves as a unit of thought, allowing writers to present and develop their ideas in a coherent and organised manner. Punctuation is the use of signs in writing which make meaning of the sentences become clear and make reading easy to understand about the meaning and separate sentences, words and parts of words. Punctuation marks including commas, periods and quotation marks, aid in clarifying ideas, conveying meaning and enhancing readability (Egudu, 2020; Smith, 2020).

Writing is an important skill that contributes significantly to students' success in academic and career pursuits. In school, writing plays a crucial role in assessing students' knowledge, comprehension and analytical skills. It promotes the development of research skills, the evaluation of evidence and the synthesis of information from diverse sources. Additionally, writing is a significant tool which facilitates effective communication which is a requirement for good performance in internal and external examinations. In professional settings, writing enhances critical thinking skills, encourages intellectual curiosity and fosters ability to communicate complex ideas effectively. Writing skills are utilized to communicate ideas, propose solutions and contribute to meaningful discussions (Paul & Elder, 2018).

In spite of the significant importance of writing to students, essay writing achievement among students in Nigeria has shown significant variations tending to be negative over the years. According to a study conducted by Ogunniyi and Ogundipe (2017), there has been a decline in the quality of essay writing among Nigerian students. They found that students often struggle with organising their thoughts, using appropriate grammar and vocabulary and structuring their essays effectively. This is further highlighted by WAEC Chief Examiner's reports of 2019 to 2023 the candidates manifested such weaknesses

as: poor expression as a result of lack of appropriate vocabulary to convey ideas, faulty analogy and concord, wrong use of tenses, poor use of conjunction, prepositions and articles; poor use of punctuation marks; spelling errors; poor paragraphing resulting in illogical and unbalanced presentation of ideas; inability to construct simple and meaningful sentences; poor knowledge of the basic rules of grammar and the rudiments of writing; and poor organisation of thoughts among others.

The low achievement of students' has been attributed to many factors. According to Akoko (2024), inappropriate teaching methods is one of the factors, Akoko adds that the learning process is teacher-centred and attaches greater importance to grammatical correctness, making it further unproductive. To address the problem of students' poor achievement in essay writing, it is important to adopt instructional strategies like the panel discussion that are collaborative, learner-centred and expose writing to students in meaningful manners.

A panel discussion is a format of organised conversation or debate where a group of experts or individuals with diverse perspectives come together to discuss and exchange ideas on a specific topic or issue. The panel typically consists of a moderator who facilitates the discussion and directs the flow of conversation, as well as panelists who are knowledgeable and experienced in the subject matter. According to Paul (2021), panel discussions provide a platform for in-depth exploration of complex topics, allowing for a comprehensive examination of different viewpoints and insights. Panel discussions often involve a structured format, with each panelist given an opportunity to present their viewpoints or make opening statements before engaging in cross-discussion or addressing audience questions. This format encourages a rich exchange of ideas, fosters critical thinking and promotes a deeper understanding of the topic at hand.

Furthermore, panel discussions provide students with exposure to a range of perspectives and ideas on a particular topic. By listening to individuals with different viewpoints engaging in a lively discussion, students are exposed to diverse arguments and insights that can broaden their understanding and deepen their critical thinking skills. Ogunniyi and Ogundipe (2017) observe that this exposure to multiple perspectives can inspire students to think critically, analyze different viewpoints and develop well-rounded arguments in their essays. Also, panel discussions promote active engagement and participation. Students have the opportunity to ask questions, seek clarification and engage in dialogue with panelists. This active participation helps students build confidence in expressing their ideas and strengthens their communication skills, which are vital for effective essay writing.

Over the years, research has proven that panel discussion is effective in improving academic achievement. Iskandar (2016) studied the effect of panel discussion on the students' reading comprehension in Indonesia. It was found that panel discussion technique significantly enhanced students' achievement in reading comprehension. Similarly, Bagga (2018) conducted a study on the effect of the discussion method on the achievement of students in Economics in senior secondary schools in Kano State,

Nigeria. The findings of the study revealed a significant impact of the discussion method on the academic achievement of students. It was on the basis of this that this study tends to investigate the effects of panel discussion method on senior secondary students' achievement in essay writing in Hawul Local Government Area of Borno State, Nigeria.

Statement of the Problem

There has been public outcry from different quarters that many secondary school students' achievements in essay writing is poor. These days, many secondary school students hardly write logical, comprehensive and presentable essays. Their essays are marred by inappropriate ideas, because they don't generate ideas before they write, they lack even proper organisation of the haphazard ideas that they have and even display improper construction of sentences and paragraph creation. There is a significant gap between the expected level of proficiency in essay writing and the actual achievement of senior secondary school students. This is because in an ideal situation, senior secondary school students are supposed to exhibit exceptional proficiency in essay writing. They are supposed to be capable of constructing well-organised, coherent and thought-provoking essays that not only showcase their understanding of English language but also prepare them for higher education and future academic and professional success. However, the reality paints a different picture. Many senior secondary school students in Nigeria struggle with essay writing. A substantial proportion of them appear to be struggling with fundamental aspects of essay writing such as idea generation, idea organisation, sentence construction, paragraph creation, punctuation marks and capitalization. For example, 72 percent of students in Senior Secondary II in a school in Hawul failed essay writing tasks as lamented by the classroom teacher. This assertion is buttressed by WAEC Chief Examiner's report of 2023 which indicated that most of the students exhibited poor uses of language, poor expression as a result of wrong concord, poor punctuation marks, wrong use of tenses, poor use of prepositions and articles. The examiner went further to state that the students were unable to construct simple and correct sentences and 61 percent of students failed the English Language external examinations (Chief Examiners' Report, 2023). The gap between desired and actual achievement is noticeable and has a considerable impact on students' overall academic development. Several factors contribute to the problem of inadequate achievement in essay writing. Firstly, insufficient resources and materials, such as writing prompts, sample essays and feedback mechanisms, further contribute to the problem. Furthermore, ineffective assessment practices that do not adequately evaluate students' essay writing abilities and provide constructive feedback for improvement exacerbate the issue. Education stakeholders such as curriculum planners, school authorities and teachers have made concerted efforts to address the issue of mass failure in essay writing. They have implemented various teaching methodologies and strategies to enhance students' essay writing capabilities. These strategies include traditional classroom instruction, writing workshops and the incorporation of technology into the learning process. Despite these well-intentioned efforts, the problem of poor essay writing among senior secondary school students has proven to be persistent. Many students continue to struggle, failing

to meet academic standards and failing to grasp the full potential of their education (Itari, 2019). The repercussions of this problem are numerous. The problem of inadequate achievement in essay writing among senior secondary school students will hinder them from developing effective communication skills, both written and verbal, which are essential for academic success and future career prospects. This limitation in the knowledge of writing skills will affect their ability to secure admission into higher institutions because 9 credits was a requirement for registration into any course of study in any Nigeria higher institution and future employment opportunities that require strong written communication abilities. Furthermore, the problem will restrict their ability to express themselves confidently, articulately and coherently in written form, thereby hindering their overall academic and personal growth.

The aim of this study therefore, is to investigate whether implementing the panel discussion method can offer a more effective means of addressing the longstanding challenge of poor essay writing skills among senior secondary school students in Hawul Local Government Area of Borno State, Nigeria. This study seeks to determine the effects of the panel discussion method on senior secondary students' achievement in essay writing in Hawul Local Government Area, Borno State, Nigeria.

Research Questions

The following research questions were raised to guide the study:

What are the pre-test and post-test achievement of students in paragraph creation skill in the experimental and control groups?

What are the pre-test and post-test achievement of students in correct usage of punctuation marks in the experimental and control groups?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

There is no significant difference between the pre-test and post-test achievement of students in paragraph creation skill in the experimental and control groups.

There is no significant difference between the pre-test and post-test achievement of students in correct usage of punctuation marks in the experimental and control groups.

Methodology

This study used quasi-experimental design, specifically the non-equivalent pre-test and post-test control group design. According to Akoko (2024), quasi experimental design is the type of research design that aims at establishing a cause-and-effect relationship

between an independent variable and a dependent variable. It is a useful tool where true experiment cannot be conducted for ethical or practical reasons. This design was used because the researchers had only the option of using intact classes as the school authority did not permit distortion in the class setting and timetable in the course of undertaking the research.

The population for this study consisted of all the 1,533 SSII students in five public senior secondary schools in Hawul Local Government Area of Borno State, Nigeria. The sample for the study consisted of a total of 108 SSII students from two public secondary schools in the study area. The two schools sampled were school A and school B. An intact class in school A comprising 52 students was used as the experimental group (A), while an intact class in school B comprising 56 students was used as the control group (B).

The sampling technique for selecting the schools for the study was the simple random sampling technique, specifically the hat and draw method. This method was used to give each school equal chance of being selected. The intact classes of SS II A students in the two sampled schools were purposely chosen for the study and were assigned the experimental group (A) and control group (B).

The instrument that was used for data collection in this study was a test tagged Students' Essay Writing Achievement Test (SEWAT). The instrument was adapted from the WAEC 2023 Senior School Certificate Examination English Paper II, particularly the question 4 which reads: "You are the main speaker in a debate on the topic: Students in rural schools have more advantages than those in urban centers. Write your argument for or against the motion". The modified question as captured in the SEWAT by the researchers was: "You are the main speaker in a debate on the topic: Students in rural schools have more advantages than those in urban centers. Advance four points for or against the motion." The instrument had two sections: 'A' and 'B'. Section 'A' consisted of students' demographic data which include: school name, class, group identification number. Section 'B' of the instrument was the analytical part focusing on the argumentative essay writing. This part tested students' ability to argue constructively by generating ideas and constructing sentences effectively. It contained the instruction that students should apply their knowledge of essay writing in their arguments. Also, students were required to write not less than 350 words in 45 minutes.

In order to ascertain the content validity, the adapted instrument was subjected to scrutiny by experts. Two experts in English Education Unit, Department of Arts Education and one expert in the Research, Measurement and Evaluation Unit of the Department of Educational Foundations both Faculty of Education, University of Jos. The experts in English Education Unit was required to make sure that items were clearly structured and free of ambiguity and also usefulness and appropriateness of the instruction, the ease of wordings and the relevance of the items to the variables under investigation. The experts in Research, Measurement and Evaluation was required to assess the suitability and adequacy of the instruction as well as ensure that the statement of the item fairly represented the contents it purported to measure (content

validity). They also ensured that instrument was attractive, appealing and well arranged (face validity). All the corrections, suggestions or modifications made by the experts were taken into considerations in the final production of the instrument.

To establish the reliability of the SEWAT, the test-retest method was used. The researchers carried out a pilot study on two intact classes randomly selected from two schools that were not included in the main study. The instrument was trial-tested by being administered to a group of SSII students and re-administered after a period of two weeks. The two scores were correlated using Pearson Product Movement Correlation (PPMC). A reliability coefficient of 0.83 was considered as reliable. This was in line with Ugodulunwa (2020) who suggests that a reliability coefficient of 0.75 and above can be judged as reliable for administration in the main study.

In week one of the exercise, the researchers with the help of the two research assistants, administered the pre-test to the experimental and control groups using the SEWAT. The purpose of the pre-test was to determine the respondents' initial essay writing abilities and the equivalence of the two groups. The exercise was monitored by the researchers to ensure that examination conditions were observed. The scripts were collected for scoring and recording by the researchers.

The treatment training schedule for the experimental group was tagged "Panel Discussion Strategy Training" (PDST). The administration of PDST will be carried out by the research assistant. The purpose of the treatment was to improve secondary school students' argumentative essay writing ability. The activities in the sessions will last for six weeks (week 2-7). The six weeks were used for administering the treatment package and then the eighth was used for post-test. For the control group, the schedule used was the normal English Language scheme of work on essay writing. The students were taught by the research assistant in school B after the administration of the pre-test in the first week. From week two to the seventh, the students in this group were taught using the normal "chalk and talk" method of teaching argumentative essay writing for the period of six weeks; while the eighth week was for post-test.

After the treatment, the post-test was administered on the eighth week using the SEWAT. All the instructions given in the test were strictly observed. With the aid of the research assistants, the instrument was administered simultaneously to both the experimental and control groups under strict supervision which lasted for 45 minutes, then post-test scripts were retrieved for marking. The scoring rubrics of the instrument was a total of 100 marks. This was according to the various components assessed under paragraphing (50%) and punctuation (50%). A marking scheme was provided to guide the marking and scoring of the scripts.

For data analysis, mean and standard deviation were used to answer the research questions. On the other hand, Analysis of Covariance (ANCOVA) was used to test all the null hypotheses at 0.05 level of significance. The use of ANCOVA was to help control any initial differences that may exist between the groups and other extraneous variables that could affect the findings other than the treatment. The analysis was aided

by the SPSS software version 23.

RESULTS

The results presented below are from the data collected based on the two research questions and the two corresponding null hypotheses that guided the study.

Research Question One

What are the pre-test and post-test achievement of students in paragraph creation skill in the experimental and control groups?

Table 1: Pre-test and Post-test Achievement Mean Scores of Students in Paragraph Creation Skill in the Experimental and Control Groups

Group

Pre-test

Post-test

N

Mean

SD

Mean

SD

Mean Gain

Mean Difference

Experimental

29.02

7.506

58.48

11.17

29.46

23.62

Control

56

32.34

7.735

38.18

9.84

5.84

Table 1 reveals the pre-test and post-test achievement mean score of students in paragraph creation skill in essay writing in the experimental and control groups. In the experimental group the post-test achievement mean score was 58.48 and standard deviation of 11.17, higher than the pre-test mean score of 29.02 and standard deviation of 7.51 with a mean gain of 29.46, indicating that there was improvement in the achievement of students in paragraph creation skill after treatment using panel discussion method. For the control group, the pre-test mean score was 32.34 and a standard deviation of 7.74. The post-test mean score of students was 38.18 with a standard deviation of 9.84 indicating a mean score gain of 5.84. The results show that students in the experimental group had a higher achievement mean score (58.48) after treatment than those in the control group (38.18) who were not given treatment with a mean difference of 23.62. This means that at the pre-test the students in both groups had a poor achievement and were at the same level, but after the intervention using panel discussion, the experimental group performed better than the control group. It means that panel discussion method did improve the students' achievement in paragraph creation skill in essay writing.

Research Question Two

What are the pre-test and post-test achievement of students in correct usage of punctuation marks in the experimental and control groups?

Table 2: Pre-test and Post-test Achievement Mean Scores of Students in Correct Usage of Punctuation Marks in the Experimental and Control Groups

Group

Pre-test

Post-test

N

Mean

SD

Mean

SD

Mean Gain

Mean Difference

Experimental

52

29.67

9.45

62.17

8.44

32.5

30.3

Control

56

35.39

10.56

37.59

7.38

2.2

Table 2 shows the pre-test and post-test achievement mean score of students in correct usage of punctuation marks in essay writing in the experimental and control groups. The experimental and control groups have mean scores of 29.67 and 35.39 respectively at the pre-test, indicating that both groups performed poorly and were almost at the same level. At the post-test achievement mean scores were 62.17 and 37.59 and standard deviations of 8.44 and 7.38 and mean gains of 32.5 and 2.2 for the experimental and control groups respectively. The results show that students in the experimental group had a higher achievement mean score (62.17) after treatment than those in the control group (37.59) who were not given treatment with a mean difference of 30.3. This means that after intervention using panel discussion, the experimental group performed better than the control group. It means that panel discussion method did improve the SSII students' achievement in correct usage of punctuation marks in essay writing.

Hypothesis One

There is no significant difference between the pre-test and post-test achievement of students in paragraph creation skill in the experimental and control groups.

Table 3: ANCOVA Result on Post-test Achievement Mean Scores of Students in Paragraph Creation in the Experimental and Control Groups

Source

Type III Sum of Squares

Df

Mean Square

F

Sig.

Partial Eta Squared

Corrected Model

14956.972a

2

7478.486

100.110

.000

.656

Intercept

3586.698

1

3586.698

48.013

.000

.314

Pre-composition

3843.399

1

3843.399

51.449

.000

.329

Group

13517.401

1

13517.401

180.949

.000

.633

Error

7843.796

105

74.703

Total

271153.000

108

Corrected Total

22800.769

107

a. R Squared = .656 (Adjusted R Squared = .649)

Analysis of Covariance (ANCOVA) was conducted to determine if a significant difference exists in the posttest achievement mean score of students in paragraph creation in essay writing in the experimental and control groups. Table 3 shows that $F(1,105) = 180.95$, $p < 0.05$, since the p-value of 0.000 is less than 0.05 level of significance, the null hypothesis was rejected, indicating that there was a significant effect of panel discussion method on achievement of students in paragraph creation in essay writing. The result further reveals an adjusted R squared value of .649, which means that 64.9 % of the variation in the dependent variable which is achievement in paragraph creation skill in essay writing is explained by variation in the treatment of panel discussion method, while the remaining is due to other factors not included in this study. This implies that panel discussion method can help improve students' achievement in paragraph creation in essay writing in Hawul Local Government Area, Borno State, Nigeria.

Hypothesis Two

There is no significant difference between the pre-test and post-test achievement of students in correct usage of punctuation marks in the experimental and control groups.

Table 4: ANCOVA Result on Post-test Achievement Mean Scores of Students in Correct Usage of Punctuation Marks in the Experimental and Control Groups

Source

Type III Sum of Squares

Df

Mean Square

F

Sig.

Partial Eta Squared

Corrected Model

16890.462a

2

8445.231

147.058

.000

.737

Intercept

16448.980

1

16448.980

286.428

.000

.732

Pre-composition

595.050

1

595.050

10.362

.002

.090

Group

16751.203

1

16751.203

291.690

.000

.735

Error

6029.946

105

57.428

Total

286756.000

108

Corrected Total

a. R Squared = .737 (Adjusted R Squared = .732)

Analysis of Covariance (ANCOVA) was conducted to determine if a significant difference exists in the posttest achievement mean score of students in correct usage of punctuation marks in essay writing in the experimental and control groups. Table 4 shows that $F(1,105) = 291.69$, $p < 0.05$, since the p-value of 0.000 is less than 0.05 level of significance, the null hypothesis was rejected, indicating that there was a significant effect of panel discussion method on achievement of students in correct usage of punctuation marks in essay writing. The result further reveals an adjusted R squared value of .649, which means that 64.9 % of the variation in the dependent variable which is achievement in paragraph creation skill in essay writing is explained by variation in the treatment of panel discussion method, while the remaining is due to other factors not included in this study. This implies that panel discussion method can help improve students' achievement in correct usage of punctuation marks in essay writing in Hawul Local Government Area, Borno State, Nigeria.

Discussion

•F†R f-æF-æw2 öb F†—2 7GVG' -æF-6 FVB F† B F†W&R pas a significant effect of panel discussion method on achievement of students in paragraph creation in essay writing. This is because the talks in panel discussion offer a chance for participants to share ideas, question established concepts and investigate novel ways of carrying out tasks. Thus students could organise their ideas in paragraphs using different sentence types. This finding agrees with Iskandar (2016) who reported that panel discussion technique significantly enhanced students' achievement in reading comprehension. this implies that panel discussion is an effective language of instruction for improving students' achievement in paragraphing and essay writing in general.

"f-æF-æw2 gW ther revealed that there was a significant effect of panel discussion method on achievement of students in correct usage of punctuation marks in essay writing. The

reason is that panel discussions often brings together individuals from different backgrounds and disciplines, creating a rich and diverse environment for learning and networking, a cross-pollination of ideas which sparks innovation and lead to unexpected breakthroughs. This also agrees with Bagga (2018) whose study revealed a significant impact of the discussion panel method on the academic achievement of students in Economics. this implies that panel discussion is a good method for enhancing students' ability in punctuate and essays.

Conclusion

Based on the findings of this study, it was concluded that panel discussion is a productive instructional strategy that teachers of English can adopt to improve students' ability to develop effective paragraphs and punctuate their writings. This means that if the strategy is used in the essay writing lesson, students' achievement will be greatly enhanced.

Recommendations

Based on the findings of this study, it is recommended as follows:

Teachers of English Language in secondary schools should model panel discussion method to students in the essay writing class and guide them to implement it.

The Federal and State Ministries of Education should organise seminars and workshops for the retraining of English Language teachers on the application of panel discussion in the essay writing lesson.

Curriculum designers should collaborate with English Language textbook writers to incorporate panel discussion activities into the secondary school students' essay writing programmes.

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Impact of School Infrastructural Facilities Utilization on the Academic Achievement of
Basic Education Students in Taraba State

Dauda Sunsuwa Livala

Department of Physical and Health Education, Faculty of Education

Federal University Wukari, Taraba State, Nigeria

livaladauda@gmail.com 07035579892

Prof. Elizabeth A. Abama

Educational Foundations, Faculty of Education

University of Jos, Plateau State, Nigeria, 08037037343

Godwin O. Akpa,

Educational Foundations, Faculty of Education

University of Jos, Plateau State, Nigeria, 07036883800

Abstract

The study examined the impact of school facilities availability and utilization on Basic Education students' academic achievement in Taraba State. Three objectives were stated; three research questions and one hypotheses were formulated and tested at 0.05 level of significant. The study use ex-post facto design and the population of the study comprised of all the 286 public secondary schools in the 16 Local Government Areas of Taraba State which consist of 4,062 Teachers and 24,134 Upper Basic Education students as drawn from the three senatorial zones of the State. The sample of the study consisted of six Local Government Areas 95 secondary schools, 320 teachers and 95 students' results while a multi-stage stratified sampling technique was used in this study. Three instruments were used to collect data for the study which include Checklist, Questionnaire and School documents (Basic Education Certificate Examination results) which were subjected to validation by four experts. Cronbach alpha reliability method was used on School Facilities Utilization Questionnaire (SFUQ) while Cohen kappa statistics was used to compute Cronbach alpha reliability method. The instruments were administered once and the scores obtained were computed and reliability coefficient of .857 was obtained, which is reliable. For the Checklist, the interrater reliability method was used. Cohen kappa statistics was used to compute the coefficient and 0.762 was obtained. The findings of the study revealed that students from schools with adequate infrastructural facilities had higher achievements than those from schools with inadequate infrastructural facilities. The study also showed that the academic achievements of students from urban secondary school and those from rural school differ significantly. The study recommended that government; parents and other stakeholders should ensure that secondary schools in Taraba State should be provided with functional Infrastructural facilities such as libraries, classrooms, and laboratories equipment in other to enhance students' academic achievement. It was also recommended that government and other stakeholders should set aside substantial amount of money for provision of infrastructural facilities.

Keywords: School Facilities, Academic Achievement, Infrastructural Facilities, Utilization,

Introduction

Education is viewed in every society as an indispensable instrument for human evolvment, empowerment and national development. This therefore presupposes that any nation that is deficient of sound educational culture and philosophy stands the risk of degenerating whereas a nation that prioritizes the development of its educational sector is likely to achieve great success. That is why in recent times, there has been a strong emphasis on ensuring universal access to Basic Education for all citizens across the globe. The quality of education students receive is believed to be closely tied to the availability and adequacy of school facilities. However, educators like school managers and teachers are often held accountable for students' poor academic achievement, whereas critical learning condition such as school infrastructural facilities are often overlooked.

The National Policy on Education (FRN,2013) describes school infrastructural facilities as the physical assets and structures that support the learning environment, such as libraries, classrooms, laboratories, libraries, playgrounds, furniture, and offices, workshops and other buildings that are crucial in providing a conducive environment for the teaching and learning process. In the context of this study, school facilities refer to physical resources that enhance teaching and learning processes, student engagement and motivation and include classrooms, furniture, libraries, and laboratories.

The classroom is described as a learning space or a room where teaching and learning takes place which also provides the immediate environment within which learning be enhanced. On the other hand, unconducive classroom settings can posse distraction which may hinder students' ability to effectively learn (Belfield, 2018). Furniture refers to items like the chairs, tables, desks, shelves, cabinets which are used by learners and teachers in the school environment which can also create a positive environment and promote better attitudes towards learning. Library is viewed as a room containing collection of books, periodicals and recorded audio materials for people to read or borrow. A well-equipped and utilized library can help improve students' research and reading culture, it can also promote collaboration and interaction among students which may enhance good learning and academic achievement of learners.

Laboratory is described as building specially designed for teaching by demonstration of theoretical phenomenon into practical terms using equipment such as Microscope, Reagents, test tubes, Bunsen burners among others. A well-equipped laboratory can enhance students' understanding of complex scientific principles, leading to improved academic achievement.

According to Osuyi, Osaigbovo and Abusomwan, (2021) the influence of availability of infrastructural facilities in promoting effective teaching and learning students'

achievement is indisputable. However, the poor condition of school facilities in Taraba state has become so glaring to the extent that in many schools' lessons are delivered without adequate provision of infrastructural facilities which perhaps may be responsible for the poor achievement of secondary school students in the State. The issue of poor achievement of students in Taraba State has been of great concern among stakeholders like the government, parents, teachers and even the students themselves. The researcher has also observed that some of the secondary schools in the State the teaching and learning take place either under the tree or in a poor learning environment that lacks the basic learning materials that would have ensured effective teaching and learning. It is also common to see students sitting on the floor or stones to receive lessons as a result of inadequate and damaged furniture which to the observation of many appears inconvenient for meaningful learning that can enhance learners' achievement.

Students' achievement is described as the outcome of educational processes, encompassing learners' mastery of knowledge, skills, and competencies in various subjects, often assessed through grades, test scores, and other evaluative measures (Ozgen and Turner, 2018). This study sees students' achievement as the outcome or extent to which students attain educational goals, demonstrated through their exams, quizzes, projects, and other assessments. The documents available at the State Ministry of Education has shown that between 2019 and 2024, there was a downward trend in the achievements of upper Basic Education students in BECE which to many stakeholders may not be unconnected to the problem of insufficient school facilities.

Asiyai, in Akpomi and Raji (2022) argues that students who attend schools that are adequately equipped with both infrastructural facilities are likely to have a better achievement than their counterparts who attend schools that are inadequately equipped. A school is said to be adequately equipped when the facilities are sufficient in quality and quantity to meet its educational goals through effective teaching and learning. On the other hand, inadequate school facilities are the situation where school facilities are not sufficient both in quality and quantity. It is observed that there are a good number of public schools in the state that are inadequately equipped. Educational stakeholders believe that providing essential infrastructure resources can reduce student dropout rates. To achieve an unfettered access to nine (9) years of formal basic education as enshrined in the goals of the Universal Basic Education (UBE), the provision of school facilities, such as a suitable classrooms, libraries and laboratories for all categories of learners cannot be downplayed. It has been observed that most rural secondary schools in the State lack essential facilities, leading to deteriorating conditions of furniture, laboratories, and libraries among others. However, many stakeholders argue that equal access to quality learning facilities can minimize the achievement gap between urban and rural students. Therefore, it is evident that school facilities play a crucial role in ensuring quality achievement. Based on this understanding, the researcher has undertaken this study to propose solutions to the declining quality of the educational system in the State and the nation as a whole.

Statement of the Problem

The declining achievement of Secondary School students in Taraba State in qualifying examinations has triggered a public outcry among many stakeholders in the education sector. It has become worrisome that a considerable number of Secondary school graduates struggle to articulate themselves effectively in English. This has appeared to be prevalent among learners at the Upper Basic Education level, as personal observations and interactions have revealed that most of these lack proficiency in reading and writing in English. A significant number of the students lack basic numeracy and communicative skills and also perform poorly in basic science skills, which violates the objectives of Universal Basic Education as specified in the National Policy on Education (FRN, 2013). This low level of academic achievement has created substantial obstacles for many BECE graduates seeking admission to Unity schools in Taraba State and other parts of Nigeria.

According to data from Taraba State Ministry of Education (MOE, 2019), there has been a decline in the Basic Education students' achievement particularly at the percentage accumulation of Distinction and Credits grade level. The decline is particularly evident with a percentage decrease from 29.5% to 20.7%; from the year 2019 to 2024 respectively, despite significant government investment in funding, recruitment of teachers. Various stakeholders like the Parent Teachers' Association (PTA) have intervened by providing grants and PTA support staff. However, these efforts have not significantly halted the continuous decline in the achievement of secondary school students at the Basic Education level. School supervisors and the PTA have expressed concern over the persistent low achievement at the basic education level and to them; this may be attributed to the poor condition of school facilities in Taraba's public secondary schools.

A cursory look at classrooms in most of the public secondary school in Taraba State reveals a distressing sight as many classrooms have leaking or blown-off roofs while overcrowded, with as many as 80 to 90 students per class, which contradicts the stipulated teacher-student ratio of 1:40 as specified in the National Policy on Education (FRN:24:11). School facilities like the laboratories, libraries are either lacking or in a deplorable condition in most of the schools and this accounts for ineffective teaching and learning. This indicates a setback that may culminate into low students' achievement and unless immediate action is taken, the consequences may be a high rate of school dropout which may limit the educational progress and future prospect of affected students hence the reason for this study.

Objectives of the Study

• The study aims to examine the impact of school facilities availability and utilization on Basic Education students' achievement in Taraba State. Specifically, the objectives of the study are to:

find out the level of availability of infrastructural facilities in secondary schools in Taraba State, Nigeria;

determine the extent of utilization of infrastructural facilities in secondary schools in Taraba State, Nigeria;

find out the difference between achievement mean scores of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities;

Research Questions

In order to achieve the objectives of this research the following research questions have been raised to guide the study:

What is the level of availability of school infrastructural facilities in secondary schools in Taraba State?

what extent are the available infrastructural facilities in secondary schools in Taraba State utilized?•

what extent does difference exist between achievements of students from secondary schools with adequate infrastructural facilities and those with inadequate infrastructural facilities?

Hypotheses

•F†R `ollowing hypotheses are formulated to be tested at 0.05 level of significance.

There is no significant difference between the academic achievement means scores of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities.

Methodology

•F†R 7GVG' W6R Px-post facto design for the study. The choice of ex-post facto design for this study is appropriate because the state of the school facilities under study, whether adequate or inadequate has already occurred in the school system, and this study is therefore interested in investigating its effect on students' achievement in Basic Education Certificate Examinations.

The population of the study comprised of all the 286 public secondary schools in the 16 Government Local Government Areas of Taraba State which consist of 4,062 Teachers and 24,134 Upper Basic Education students as drawn from the three senatorial zones of the State. The study focused on 2023 students' results of Basic Education Certificate Examination from in the following subjects: Mathematics, English Language, Pre-Vocational, Business Studies and Basic Science and Technology for Junior Secondary School level.

Sample

The sample of the study consisted of six (6) out of the sixteen (16) Local Government Areas across the three senatorial zones in Taraba State. In the three senatorial zones (Northern, Central, and Southern Senatorial Zone), two Local Government Area each from the three senatorial zones were randomly selected. From the six (6) Local Government Areas, a sample size of 95 secondary schools, 320 teachers and 95 students' results were selected. A multi-stage stratified sampling technique was used in this study and the study made use of three instruments which include Checklist, Questionnaire and School documents (Basic Education Certificate Examination results). The checklist was titled School Facilities Availability Checklist (SFAC) and School Facilities Utilization Questionnaire (SFUQ) was subjected to the judgment and scrutiny of four experts. On the School Facilities Utilization Questionnaire (SFUQ), Cronbach alpha reliability method was used while on the checklist, Cohen kappa statistics was used where a reliability coefficient of .857 and 0.762 was obtained.

Result

Research Question One

What is the level of availability of school infrastructural facilities in secondary schools in Taraba State?

Table 1 Availability of School Infrastructural Facilities in Secondary Schools

School Facility Availability

FACILITY

A

%

NA

%

Total

1

Library

Collection (Books, journals)

22

23

73

77

95(100%)

Bookshelves

22

23

73

77

95(100%)

Study space

22

23

73

77

95(100%)

Reference materials

22

23

73

77

95(100%)

Reading tables and chairs

22

23

73

77

95(100%)

Catalogue

22

23

73

77

95(00%)

2

Classrooms

White/Chalkboard

95

100

-

95(100%)

Classroom furniture

87

92

8

8

95(100%)

Dusters

95

100

-

-

95(100%)

Visual aids

70

74

25

26

95(100%)

Windows

95

100

95(100%)

Classroom space

95

100

95(100%)

3

Science Laboratory

Microscope

22

23

73

77

95(100%)

Bunsen burners

22

23

73

77

95(100%)

Beakers,

22

23

73

77

95(100%)

Reagents

22

23

73

77

95(100%)

Test tubes

22

23

73

77

95(100%)

Balance- scale

22

23

73

77

95(100%)

4

Furniture

Students Desks and chairs

95

100

-

95(100%)

Teacher's Table and chair

87

92

8

8

95(100%)

File cabinets

34

36

61

64

95(100%)

Practical tables and stools

22

23

73

77

95(100%)

Bookshelves

22

23

73

77

95(100%)

Lockers

38

40

57

60

95(100%)

Table 1 shows the availability of school infrastructural facilities in secondary schools in Taraba State. The available facilities are mostly classroom facilities, which include white and chalkboards, classroom furniture, dusters, windows, and classroom space. Additionally, school furniture, including students' and teachers' desks and chairs, and

lockers, are also available. However, library facilities, science laboratories, and some furniture, such as file cabinets, practical tables and stools, and bookshelves, are not available. This implied that most of the schools in Taraba are inadequately equipped.

Research question 2

To what extent are the available infrastructural facilities in secondary schools in Taraba State utilized?

Table 2 Extent of Utilization of Available Infrastructural Facilities in Secondary Schools

S/N

Infrastructural Facilities

HU

MU

PU

NU

N

Mean

Std

Decision

Library

1

Collections (books, journals)

117

203

-

-

320

3.55

.510

Utilized

2

Bookshelves

100

220

320

3.50

.513

Utilized

3

Study space

117

203

320

3.25

.444

Utilized

4

Reference materials

100

220

320

3.30

.470

Utilized

5

Reading tables and chairs

113

205

2

320

3.25

.550

Utilized

6

Library catalogue

118

202

320

3.55

.520

Utilized

Classrooms

1

White/chalkboard by teachers

89

231

320

3.20

.410

Utilized

2

Classroom furniture

180

140

320

3.50

.513

Utilized

3

Classroom dusters

113

205

2

320

3.15

.489

Utilized

4

Classroom audio visuals

118

202

320

3.30

.470

Utilized

5

Classroom windows

127

190

3

320

3.25

.639

Utilized

6

Classroom space

193

127

320

3.30

.470

Utilized

Science Laboratory

1

Microscope

117

203

320

3.45

.510

Utilized

2

Bunsen burners

100

220

320

3.35

.489

Utilized

3

Beakers

113

205

2

320

3.10

.308

Utilized

4

Reagents

320

3.20

.616

Utilized

5

Test tubes

86

234

320

3.25

.550

Utilized

6

Balance- scale

100

220

320

3.35

.489

Utilized

Furniture

1

Students' desks and chairs

112

207

1

320

3.20

.768

Utilized

2

Teachers' chairs and table

119

201

320

3.25

.550

Utilized

3

School file cabinets

127

190

3

320

3.25

.550

Utilized

4

Practical tables and stools

195

125

320

3.40

.503

Utilized

5

School bookshelves

201

119

320

3.60

.503

Utilized

6

Lockers

118

202

320

3.55

.510

Utilized

Table 2 presents the utilization of available infrastructural facilities in secondary schools in Taraba State. The results show that library facilities, such as library collections (including books), bookshelves, study space, reference materials, reading tables and chairs, and catalogues, are utilized. Additionally, white and chalkboards, furniture, dusters, classroom audiovisuals, and classroom windows are utilized during lesson delivery. Laboratory facilities, such as microscopes, Bunsen burners, beakers, reagents, test tubes, and balance scales, are also utilized.

Research question 3 To what extent does difference exist between academic achievements of students from secondary schools with adequate infrastructural facilities and those with inadequate infrastructural facilities.

Table 3 Difference in the Academic Achievement of Students from Schools with Adequate and

Inadequate Infrastructural Facilities

School Location

N

Mean

SD

Mean difference

Mathematics

adequate

18

48.46

8.13

6.94

inadequate

77

41.52

10.30

English Language

adequate

18

49.81

7.63

5.53

inadequate

77

44.28

10.27

Pre-Vocational

adequate

18

48.92

8.75

4.42

inadequate

77

44.50

11.74

Bus. Studies.

adequate

18

49.89

8.78

3.31

inadequate

77

46.58

10.46

BST

adequate

18

50.79

8.54

10.52

inadequate

77

40.27

Source: Field Work, 2024

Table 3 shows the achievement mean scores of students from schools with adequate and inadequate infrastructural facilities. The results indicate that Students from schools with adequate infrastructural facilities had an achievement mean score of 48.46 and Standard Deviation (SD) of 8.13 in mathematics, while those from schools with inadequate infrastructural facilities had a mean score of 41.52 and SD of 10.30 with a mean difference of 6.94. Students from schools with adequate infrastructural facilities had an achievement mean score of 49.81 (SD = 7.61) in English Language, while those from schools with inadequate infrastructural facilities had a mean score of 44.28 (SD = 10.27) with a mean difference of 5.53. Students from schools with adequate infrastructural facilities had an achievement mean score of 49.89 (SD = 8.78) in Pre-Vocational, while those from schools with inadequate infrastructural facilities had a mean score of 46.58 (SD = 10.46) with a mean difference of 4.42.

The achievement mean scores of students in Business Studies from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities were 49.89 (SD = 8.78) and 46.58 (SD = 10.46), respectively, with a mean difference of 3.31. Similarly, the achievement mean scores of students in Basic Science and Technology from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities were 50.79 (SD = 8.54) and 40.27 (SD = 9.76), respectively, with a mean difference of 10.52

Research Question 4 To what extent does the Academic Achievement Mean Scores of Students from Schools with Adequate Infrastructural Facilities differ based on School Location?

Hypothesis One

There is no significant difference between the academic achievement means scores of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities

Table 4 Academic Achievement Mean Scores of Students' from Schools with inadequate Infrastructural Facilities

School Location
N
Mean

SD

df

t

P-value

Decision

Mathematics

adequate

18

48.46

8.133

513

7.93

0.000

Significant

inadequate

77

41.52

10.300

English Language

adequate

18

49.81

7.632

513

6.45

0.000

Significant

inadequate

77

44.28

10.272

Pre-Vocational

adequate

18

48.92

8.751

513

4.50

0.000

Significant

inadequate

77

44.50

11.735

Bus. Study.

adequate

18

49.89

8.775

513

3.66

0.000

Significant

inadequate

77

46.58

10.460

BST

adequate

18

50.79

8.542

513

12.33

.000

Significant

inadequate

77

40.27

9.762

Source: Field Work, 2024

Table 4 indicates the t-test result on the difference between the mean scores of achievement of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. Students from schools with adequate infrastructural facilities had a mean achievement score of 48.46 with a standard deviation of 8.13 in mathematics, while those from schools with inadequate infrastructural facilities had a mean score of 41.52 and a standard deviation of 10.30. The result yielded $t(513) = 7.93$, $p < 0.05$. Since the p-value of 0.000 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the mean scores of achievement of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. Also, students from schools with adequate infrastructural facilities had an achievement mean score of 49.81 with a standard deviation of 7.61 in the English Language, while those from schools with inadequate infrastructural facilities had a mean score of 44.28 and a standard deviation of 10.27. The results yielded $t(513) = 6.45$, $p < 0.05$. Since the p-value of 0.000 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the achievements mean scores of students in the English Language from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. Furthermore, students from schools with adequate infrastructural facilities had an achievement mean score of 49.89 with a standard deviation of 8.78 in Pre-Vocational studies, while those from schools with inadequate infrastructural facilities had a mean score of 46.58 and a standard deviation of 10.46. The result yielded $t(513) = 3.66$, $p < 0.05$. Since the p-value of 0.000 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded

that there is a significant difference between the achievements mean scores of students in Pre-Vocational from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. Furthermore, the achievement mean scores of students in Business Studies from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities were 49.89 and 46.58, with standard deviations of 8.78 and 10.46, respectively. Lastly, the achievement mean scores of students in Basic Science and Technology from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities were 50.79 and 40.27, with standard deviations of 8.54 and 9.76. This implies that there is a significant difference in the mean achievement scores of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities in Mathematics, English Language, Pre-Vocational Studies, Business Studies, and Basic Science and Technology in 2023

Discussion

The result showed that, the level of availability of school infrastructural facilities in secondary schools in Taraba State. From the result the available infrastructural facilities are mostly classroom facilities. The result also indicates that infrastructural facilities such as libraries, science laboratories and a good number of furniture are not available in most of the secondary schools in Taraba State. The result revealed that secondary schools with inadequately equipped with infrastructural facilities far outnumbered those that were adequately equipped with infrastructural facilities. It also implied that most of the secondary schools in Taraba State are inadequately equipped. This is in agreement with the view of Livala, Bulus and Daver (2021) which holds that school facilities such as laboratories, furniture and libraries are either not available or they are inadequately provided in most Nigerian schools.

The result on the extent to which the available infrastructural facilities in secondary schools in Taraba State are utilized the results showed that infrastructural facilities such as Libraries, classrooms, laboratories and furniture are highly utilized to enhance teaching and learning in secondary schools in Taraba State. This is in line with the view of Osuyi, Osaigbovo and Abusomwan (2021) holds that that facilities in many schools are insufficient hence they are highly utilized.

The difference in the Achievement of Students from Schools with Adequate and Inadequate Infrastructural Facilities, the results showed that the achievement mean score of students from schools with adequate infrastructural facilities was higher than those from schools with inadequate infrastructural facilities in mathematics, English Language, Pre-Vocational, Business, Basic Science and Technology in 2023. This finding is in agreement with the assertion of Akpomi and Raji (2022) which revealed that students in a newer and adequate school facilities schools outperformed students in older and inadequate school facilities.

The results of the findings further revealed that there was a difference in the achievement mean score of urban and rural school students from schools with

adequate infrastructural facilities in Mathematics, English Language, and Business Studies, and Basic Science and Technology, but not much difference in students' achievement in urban and rural schools in Pre-Vocational in 2023. This finding concurred with the view of Wood (2023) which holds that urban students tend to perform better academically in comparison to their rural counterparts who often struggle to keep up with their urban due to the lack of social amenities and support available to them.

The t-test result on the difference between the mean scores of academic achievement of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. Students from schools with adequate infrastructural facilities had a mean achievement score of 48.46 with a standard deviation of 8.13 in mathematics, while those from schools with inadequate infrastructural facilities had a mean score of 41.52 and a standard deviation of 10.30. The result yielded $t(513) = 7.93$, $p < 0.05$. Since the p-value of 0.000 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the mean scores of academic achievement of students from schools with adequate infrastructural facilities and those from schools with inadequate infrastructural facilities. This agrees with the view of Amadi (2019) which asserts that a significant difference exist in the achievements of two sets of students as those from the poorly equipped schools tend to perform far below their counterparts from schools with adequate facilities.

Conclusion

Based on the findings of this study, it was concluded that school facilities constitute an integral part of the education system. Schools Infrastructural facilities such as Classroom, Libraries, Laboratories and furniture have a positive effect on students' academic achievement in Taraba State. The study also concludes that students from schools with adequate infrastructural facilities had higher achievements than those from schools with inadequate infrastructural facilities. The study also concluded that the academic achievements of students from urban secondary school and those from rural school differ significantly.

Recommendations

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

Government, parents and other stakeholders should ensure that secondary schools in Taraba State are provided with functional Infrastructural facilities such as libraries, classrooms, laboratories equipped in other to enhance students' academic achievement.

Government, School principals and other relevant stakeholders should therefore put in place all required supervisory measures in order to ensure there is maximum access and utilization of the available school facilities by all staff students.

Funding: Government and relevant stakeholders should ensure that adequate facilities must be supplied to schools at the right time. The Government and other stakeholders should set aside substantial amount of money for provision of such facilities.

The ministry of Education should not register schools which operate without a science laboratory until all the necessary laboratory requirement are met by school management.

School administrators should engage Community Involvement in school facility management and Maintenance

School managers should frequently carry out comprehensive assessment of the facilities in their schools to determine areas of need.

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Availability and Utilization of Information Communication Technology (ICT) and Teachers' Instructional Delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria

Shangka Filshak Go'ar, Prof. Tolutope I. Oke and Prof Godwin O. Akpa

Department of Educational Foundations, Faculty of Education,

University of Jos, Plateau State, Nigeria

Abstract

This paper assessed the availability and Utilization of information Communication Technology and Teachers' instructional Delivery in Public Senior Secondary Schools in central senatorial zone, Plateau State, Nigeria. Correlational and a cross sectional survey research design were adopted for the study. Four objectives were stated, four research questions were raised to guide the study. Two hypotheses also formulated to be tested at 0.05 level of significance. The population consist of the 749 teachers from 113 public senior secondary schools in central zone. The population sample was drowned from 87 public senior secondary schools and 262 teachers were selected using simple random sampling technique. Two sets of research instruments namely; information community Technology Availability Facility checklist (ICTAFC) and information communication technology Utilization and Teachers' Instructional Delivery Questionnaire (ICTUTIDQ) were developed and used to elicit opinion from the respondents. Statistical means and Pearson Product Moment Correlation were used to analyse the research questions and test the Hypotheses. The study concluded that there was need for a refocus on ICT integration in the education system, which is a common trend in the millennium. Recommendations were made among which, was that government should collaborate with stakeholders in providing adequate ICT facilities, organize seminars and workshops to empower teachers with ICT knowledge and skills. In additions schools administrators should ensure utilization and maintenances of ICT facilities available in their schools.

Keywords: Availability, ICTs, Instructional Delivery, Public senior secondary schools, Utilization

Introduction

Technology has becomes a daily part of life in the developed and developing world, it has also become a part of the educational environment. School systems worldwide are purchasing technologies to be integrated into their classrooms. The rapid development and adoption of technology worldwide have led to the movement to integrate

Information Communication Technology (ICT) Tools into the Classroom. Nigeria is not an exception and it is committed to ensuring nationwide ICT and its accessibility to all citizens. Nigeria is transforming into an information-based society where value is placed on the ability to create, distribute and utilise information. Success in such a society requires education and quality instructional delivery it is nearly impossible to complete a formal education in this scientific and technological age without ICT knowledge; let alone find and maintain a Teaching Profession without Information Technology and computer skills. Properly, Information Technology availability and competency are vital to everyone. Teaching is a professional practice of imparting knowledge to learners; it is an intended activity which is exercised by the teacher. The teacher is the facilitator and ensures that students benefit from the class instruction. Teaching is not as easy as it seems and requires to be done by professionals who have the competence to impact students.

The concept of ICT as applied to education, refers to technologies which include Computers, Tablets, the Internet, Radio, Television, Interactive Board, e-Mails, Blogs, Websites, e-books or e-learning and Telephones that can encourage the conveyance of guidance and learning process itself (Philip & Aksu, 2015). These technologies have been identified in the whole world as constituting important tools for facilitating a new paradigm of learner-centred education that supports learners' needs through differentiated and personal instruction. Components such as providing interactive content, giving immediate feedback, diagnosing students' needs, providing effective remediation, and accessing, learning and storing examples of students' work are critical elements in digital technology that can support learner-centred instruction for diverse learners. The potential of ICT and its utilization in facilitating students' learning improving teaching in institutions and restructuring educational programmes have been established in literature.

In the contemporary educational landscape, the integration of technology has become increasingly prevalent, offering diverse opportunities to enhance instructional delivery. Among the array of technological tools available, laptop computers stand as versatile assets, providing educators with platforms for interactive teaching, multimedia presentations and collaborative learning experiences. Through the utilisation of laptops, teachers can engage students in dynamic activities, accessing a wealth of resources and facilitating personalised instruction tailored towards meeting individual learning needs.

Interactive Boards represent yet another technological innovation revolutionising instructional delivery. These interactive display systems allow educators to create dynamic presentations, annotate content in real-time and engage students through interactive activities by integrating interactive boards into their teaching practices, educators can enhance students participation, foster active learning and cater for diverse learning styles; thereby fostering a more immersive and engaging learning environment.

Instructional delivery in the classroom entails teachers passing information to the

learners in a school setting. In time past, instructional delivery which connotes teaching by teachers to students was mostly done with the talk-and-chalk method only which was teacher-centered. Merriam (2019) asserted that, globally, ICT has developed into a crucial component in educational methodology and curriculum delivery which spans from lesson preparation to the actual instructional delivery and has been recognized as a very important tool for the development of quality teaching and learning.

The National Policy on Education (FRN, 2014) stipulated that all teachers in educational institutions should possess teaching qualifications; their programs shall be structured to contain all that is required to ensure effective delivery of their duties; and that Information Technology (IT) is infused into all teacher-training programs. It is common knowledge today that we are living in a knowledge-based society, where knowledge is the strength of any individual and the asset of a nation. Teachers are seen as the architects of nation-building because of the impact of the knowledge needed for the growth of the nation.

Teachers play the role of transforming the socio-economic conditions of society by educating children and equipping them with skills, knowledge, and habits for survival in the ever-changing world. Teachers are required in the process of teaching children's learning outcomes. Teachers influence not only the test scores of students but also their social and emotional development, their behaviour, knowledge, and thinking development. For teachers to achieve this noble cause in the 21st century there is need for modern educational technologies to add value to the process. Technology is a field of knowledge devoted to creating tools, processing actions, instructional and non-instructional materials and systems. The application of technology typically results in products also known as prototypes while Educational Technology is an academic discipline that focuses on deepening individual understanding and knowledge of creating prototypes of finished products to help solve the identified educational problems through research, design, evaluation, and utilization. Educational Technology helps improve the ways students learn, and are being motivated, by individuals' learning and provides easy access to educational instructional materials to help students learn new things.

Opportunities for realizing the benefits of using ICT in education however face several challenges in developing countries such as Nigeria. Access to ICT facilities is a major challenge facing most African countries with a ratio of one computer to 150 students as against the ratio of 1:1 students in developed countries (Ukata 2018). In sub-Saharan Africa, introducing ICT in schools is largely dependent on the availability and accessibility of ICT facilities. Despite that, schools are increasingly being equipped with ICT gadgets for teaching, learning, and administrative purposes; hence, ICT connectivity is improving. This study therefore assessed how the use of ICT in schools in developing countries, specifically in Public Senior Secondary Schools in the Central Senatorial Zone of Plateau State, influenced teachers' instructional output.

Statement of the Problem

Nigerian secondary education has recently faced some challenges, ranging from COVID-19 to the intermittent strikes by the Academic Staff Union of Secondary Schools Teachers. The strike has given some private secondary schools an edge with a growing student population as well as raised the challenge of instructional strategy to accommodate the rise in population. Traditional instructional pedagogical strategies cannot provide effective curriculum implementation. Thus, there is a need for pedagogical innovation that will incorporate digital technology.

• The Federal Government of Nigeria has been involved in promoting Information Technology to enhance knowledge and skills necessary for effective functioning in a digital and knowledge-based society. Government agencies such as the National Information Technology Development Agency (NITDA) have been mandated to provide developmental regulation, digital literacy, skills, and solid structure for effective ICT. In like manner, the Petroleum Technology Development Fund (PTDF) has the responsibility of providing ICT laboratories to schools across the country. Tertiary Education Trust Fund (TETFUND) also has the mandate to provide funding for educational facilities and infrastructural development in all education institutions. Despite this effort, however, there is still a need for more ICT that can be used across all platforms for teaching and learning in secondary institutions, particularly in Plateau State.

The consequences of these challenges might negatively affect the utilization of available ICT facilities for instructional delivery. For instance, teachers' lack of sufficient ICT skills might be a hindrance to the effective utilization of ICT facilities for instructional delivery. Considering the challenges that might militate against effective utilization of ICT facilities for instructional delivery, the fundamental problem of this study is; what is the difference in instructional delivery of teachers who use ICT facilities and those who do not?

Objectives of the Study

This study aimed to examine the availability and utilization of Information Communication Technology (ICT) and Teachers' Instructional Delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria. The specific objectives of this study were to:

1. To determine the level of availability of ICT facilities for teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria.
2. To investigate the extent to which ICT has influenced instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria
3. To determine the extent to which laptop computers are utilized by teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria.

4.– 66W tain the interactive board utilization level for teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria.

Research Questions

The following research questions were raised for the study.

1.' What ICT facilities are available for teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State?

2. •@o what extent has ICT influenced instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone Plateau State?

3. •@o what extent does the utilization of laptop computers impact teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State?

4. •@o what extent does Interactive board utilization impact teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State?

Hypotheses

The following hypotheses were formulated and will be tested at a 0.05 significance level.

1. •F†W&R —2 æò 6–væ–f–6 çB &VÆ F–öç6†— &WGpeen Laptop computer utilization and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria.

2. •F†W&R —2 æò 6–væ–f–6 çB &VÆ F–öç6†— &WGpeen Interactive boards' utilization and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State, Nigeria.

Research Design

This study adopted Correlational and Cross-Sectional Survey Research Design. The Correlational Survey Research Design is an approach of research that blends quantitative and qualitative data to provide one with relevant and accurate information. It is the process of collecting existing data to use the items to answer questions concerning the current status of the subject under study. According to Leedy and Ormrod (2020), the purpose of Correlational Research is to investigate "the extent to which differences in one characteristic or variable are related to differences in one or more other characteristics or variables" The Cross-Sectional Survey Research Design, according to Ugodulunwa (2020), is a design that requires that data be collected at a particular time, from a sample, to describe the population presented by the sample at that particular time.

Population and Sample

•F†R ÷ VÆ F—öâ öb F†R 7GVG' v—ÆÂ 6öç6—7B öb sC' FV 6†W'2 g&öÖ 2 V lic senior secondary schools in central senatorial zone, plateau state, Nigeria. The central senatorial zone of plateau state comprises five (5) Local Government Areas namely: Bokokos, Kanke, Kanam, Mangu and Pankshin Local Government Areas respectively. A simple and multi stage random sampling technique was used two instruments were used which include: checklist and Questionnaires. The checklist was title, information communication technology availability facilities checklist (ICTAFC) and information communication technology utilization and teachers instructional delivery questionnaires (ICTUTIDQ) were subjected to scrutiny of three experts. On the Questionnaire, cronbach alpha reliability method was used while on the checklist, statistical package was used where a reliability coefficient of 0.89 and 0.79 was obtained.

RESULT•

Research Question One

To what extent are ICT resources available for teachers' instructional delivery in Public Senior Secondary Schools in the Central Senatorial Zone of Plateau State?

Table 1: Extent of ICT Resources Available for Teachers' Instructional Delivery

Facilities

Available

%

Not Available

Total

%

Laptop Computers

5

56

4

9

44

Interactive Boards

5

56

4

9

44

Internet connection

4

44

5

9

56

Projectors

4

44

5

9

56

e-books

4

44

5

9

56

6

e-learning Platforms

5

56

4

9

44

Total

27

27

54

Source: Field Data (2024).

Table 1 reveals the result on the extent to which ICT resources are available for teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the result, laptop computers, interactive boards and e-learning platforms are moderately available in schools, while internet connection, projectors and e-libraries are available at a low rate in most of the schools.

Research Question Two

To what extent has ICT influenced instructional delivery in Public Senior Secondary Schools in the Central Senatorial Zone of Plateau State?

Table 2: Eextent ICT has Influenced Instructional Delivery in Public Senior Secondary Schools

S/N

Instructional Delivery

SA

A

D

SD

N

Mean

Std. Deviation

Decision

1.

Laptop facilities have enhanced teachers' lesson planning.

5

7

3

4

19

2.68

1.108

Agree

2.

e-learning has improved teachers' lesson presentation.

3

11

5

-

19

2.89

.658

Agree

3.

Interactive board facilities have helped teachers in student interactive engagement.

4

7

7

1

19

2.74

.872

Agree

4.

Projectors have enhanced teachers' classroom control.

6

4

5

4

19

2.63

1.165

Agree

5.

The Internet has enhanced teachers in varied use of teaching methods.

2

7

6

4

19

2.37

.955

Disagree

6.

e-books have improved teachers in collaborative teaching.

6

7

6

-

19

3.00

.816

Agree

Grand Mean

2.72

Agree

Table 2 presents the result on the extent to which ICT influenced instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the table, items 1, 2, 3, 4 and 6 have mean scores which range, between 2.63 to 3.00, indicating that teachers agree that laptop facilities, e-learning, interactive boards, projectors and e-book have enhanced teachers' lesson planning, presentations, interactive students engagement, classroom control and collaborative teaching. Also, item 5 has a mean score below the criterion mean of 2.5, which means that teachers disagree with the statement which says "Internet has enhanced teachers in varied use of teaching methods." Since the grand mean of 2.72 is above the criterion mean of 2.5, it implies that the extent ICT influences instructional delivery in Public Senior Secondary Schools in the Central Senatorial Zone is to a high extent.

Research Question Three

To what extent does the utilisation of laptop computers impact teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State?

Table 3: Extent of Utilization of Laptop Computers in Teaching

S/N

Instructional Delivery

SA

A

D

SD

N

Mean

Std. Deviation

Decision

1.

I use laptop computers to demonstrate practical aspects of theories.

8

8

2

1

19

3.21

.855

Agree

2.

I use a laptop computer to rank students' positions.

1

10

7

1

19

2.58

.692

Agree

3.

I use a laptop computer to record and keep students' assessment scores.

8

7

3

1

19

3.16

.898

Agree

4.

I use a laptop computer to present students' results, charts graphs.

4

6

8

1

9

2.68

.885

Agree

5.

I use a laptop computer to analyse students' performance results.

4

7

5

3

19

2.63

1.012

Agree

6.

I use a Laptop computer to organise notes for the students' use.

8

7

4

-

19

3.21

.787

Agree

Grand Mean

2.91

Source: Field Data (2024).

Table 3 reveals the responses on the extent of utilization of Laptop Computer in Teaching. Based on the result, the grand mean scores rated agree range from 2.58 to 3.21. Indicating that the respondents agree with the statements which say that teachers and students use a laptop computer to demonstrate practical aspects of theories, use a laptop computer to rank students' positions, use a laptop computer to record and keep students' assessment scores, use a laptop computer to present students' results, charts graph, use a laptop computer to analyse students' performance results and use a laptop computer to organize notes for the students' use. Since the grand mean of 2.91 is above the criterion mean of 2.5, it implies that the extent of utilization of laptop computers in teaching is to a high extent.

Research Question Four

To what extent does Interactive board utilisation impact teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State?

Table 4: Extent of Utilization of Interactive Board in Teaching

S/N

Interactive Board

SA

A

D

SD

N

Mean

Std. Deviation

Decision

1.

I use interactive boards frequently in teaching students during lessons.

6

7

5

1

19

2.95

.911

Agree

2.

I find the interactive board most effective for teaching.

4

8

5

2

19

2.74

.933

Agree

3.

I use interactive boards to enhance the learning experience for students.

1

13

3

2

19

2.68

.749

Agree

4.

Interactive boards capture the attention of the students.

6

6

6

1

19

2.89

.937

Agree

5.

Interactive boards make the environment more friendly and easy to control.

4

7

6

2

19

2.68

.946

Agree

6.

I use an interactive board to keep students updated.

2

9

7

1

19

2.63

.761

Agree

Grand Mean

2.76

Agree

Source: Field Data (2024).

Table 4 reveals the responses on the extent of utilization of interactive boards in teaching. Based on the results, the mean rated agreement ranges from 2.63 to 2.95. This means that respondents agreed that they use interactive boards frequently in teaching students during lessons, interactive boards are most effective for teaching, use of interactive board to enhance the learning experience, Interactive board capture the attention of the students. Interactive boards make the environment more friendly and easy to control and teachers use interactive boards to keep students updated. Since the grand mean of 2.76 is above the criterion mean of 2.5, it implies that the extent of utilization of interactive boards in teaching is high.

Hypothesis One

There is no significant relationship between Laptop computers' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State.

Table 5: Relationship between Laptop Computers' Utilisation and Teachers' Instructional Delivery

Variables

N

SD

r

Df

P-value

Decision

Laptop Computers' Utilisation

19

17.47

3.84

.768

17

.000

Reject HO

Teachers' Instructional Delivery

19

16.32

3.53

Table 5 shows the relationship between Laptop computers' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the result, Laptop computers' utilisation had a mean score of 17.47 and a standard deviation of 3.84, while teachers' instructional delivery had a mean score of 16.32 and a standard deviation of 3.53. The result further yielded $r(17) = .768$, $p < 0.05$, since the p-value of .000 is less than 0.05 level of significance, the null hypothesis is rejected. It was concluded that there is a significant relationship between Laptop computers' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State.

Hypothesis Two

There is no significant relationship between Interactive boards' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State.

Table 6: Relationship between Interactive boards' Utilisation and Teachers' Instructional Delivery

Variables

N

SD

r

Df

P-value

Decision

Interactive board Utilisation

19

16.58

4.15

.044

17

.859

Accept HO

Teachers' Instructional Delivery

19

16.32

3.53

Table 6 shows the relationship between Interactive boards' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the result, Interactive boards' utilisation had a mean score of 16.58 and a standard deviation of 4.15, while teachers' instructional delivery had a mean score of 16.32 and a standard deviation of 3.53. The result further yielded $r(17) = .044$, $p > 0.05$, since the p-value of .859 is greater than the 0.05 level of significance, the null hypothesis is retained. It was concluded that there is no significant relationship between Interactive boards' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State.

Discussion

The results on the extent to which ICT resources are available for teachers' instructional delivery in public secondary schools in central senatorial zone, Plateau state items like, laptop computers, interactive boards and e-learning platforms are moderately available in schools, while internet connection, projectors and e-books are available at a low rate in most of the schools. This is in line with Gusen (2019) which holds most of the secondary schools in are ICT inclined.

The result on the extent which ICT influenced instructional delivery in public senior secondary schools in central senatorial zone, plateau state. From the table results reveal that teachers agree that the extent ICT influenced instructional delivery in public senior secondary schools in central senatorial zone is to a high extent as rightly described by Hock (2017).

The results focused on extent of utilization of laptop computer teaching. Indicates that the extent teachers utilizes laptop computer is to high extent and it enhanced teaching and learning. This finding is in line with the assertion of Philip & Aksu (2015) that technology have been identified in the whole world as constituting important tools for facilitating a new paradigm of learners-centered education that support learners needs through a differentiate and personal instruction.

Teachers are of the views that, interactive board is one among the fast growing facility that is been utilizes for teaching and learning activities in the zone. The result reveals that is very easy to use, affordable and user friendly which facilitates and enhances teaching in high level as agreed upon by Lawrence (2018)

The data shows the relationship between Laptop computers' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the result, Laptop computers' utilisation had a mean score of 17.47

and a standard deviation of 3.84, while teachers' instructional delivery had a mean score of 16.32 and a standard deviation of 3.53. The result further yielded $r(17) = .768$, $p < 0.05$, since the p-value of .000 is less than 0.05 level of significance, the null hypothesis is rejected. It was concluded that there is a significant relationship between Laptop computers' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. This is in line Gusen (2019) holds that computer and instructional delivery are inseparable considering its versatile nature.

The data shows the relationship between Interactive boards' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. From the result, Interactive boards' utilisation had a mean score of 16.58 and a standard deviation of 4.15, while teachers' instructional delivery had a mean score of 16.32 and a standard deviation of 3.53. The result further yielded $r(17) = .044$, $p > 0.05$, since the p-value of .859 is greater than the 0.05 level of significance, the null hypothesis is retained. It was concluded that there is no significant relationship between Interactive boards' utilisation and teachers' instructional delivery in Public Senior Secondary Schools in Central Senatorial Zone, Plateau State. This is in line with the assertion of Gupta S. (2021) Holds that interactive boards are not unground to be as other ICTs gadgets do to its cost.

Conclusion

From the findings of the study, it was concluded that ICT facilities such as computer laboratories, internet services, e-mail facilities, overhead projectors, laptop/desktop computers, wireless technologies, interactive boards and public address systems among others were not adequately available for use by teachers. The facilities were therefore, not readily utilized to aid the teachers in the delivery of instructions in the study area. However, this was not exclusively due to total absence of those facilities. The teacher factors also had influence on the phenomenon. This ranged from teachers' phobia for use of the facilities and low technical expertise and skills for manipulating the few available facilities. Thus, it could be summarized that ICT facilities, are both generally inadequate and not adequately utilized for instructional delivery of agricultural science in Nigerian Secondary Schools.

Recommendations

Based on findings of the study, the following recommendations were made:

Government should purchase and supply adequate ICT facilities to aid effective instructional delivery and tools to cover all subjects in the secondary schools.

School administrators should liaise with philanthropic individuals and non-governmental organizations for the procurement and maintenance of ICT facilities.

Seminars and training workshops to empower the teachers with skills needed for using

the ICT facilities for instructional delivery in the learning process by the school management and relevant government authorities.

Individual students should be encouraged to purchase some ICT facilities that are within their reach like Laptops for use during classroom instructions and at home.

Federal ministry of power and mine should enhance adequate power supply especially in rural areas for effective ICT application in secondary schools.

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Sociological Analysis of Factors of Access to Basic Education of the Nomadic Fulani Girl-Child in Nasarawa State, Nigeria

BY

Larai Usman Lamus

B.Ed. (Zaria), M.Ed. (Jos)

Department of Educational Foundations,
School of Education,
College of Education Akwanga
Nasarawa State
08036735308
lamususmanlarai@gmail.com

Prof. Matthew Nshim. Sule
Department of Educational Foundations,
Faculty of Education,
University of Jos.
&
Dr. Roseline Walu
Department of Educational Foundations,
Faculty of Education,
University of Jos.

ABSTRACT

The purpose of this study was to provide sociological analysis of factors of access to the basic education of nomadic Fulani girl child in Nasarawa state, Nigeria. The study was necessitated by inability of the nomadic Fulani gild-child to transit from lower to upper basic education despite concerted efforts by the government in ensuring a smooth transition from lower to upper basic level of the education of the nomadic Fulani girl child in Nasarawa state. The study was guided by seven objectives, seven research questions and four hypotheses. The design used for the study was descriptive and ex-post-facto research design. The population for the study was three hundred and fifty

eight (358) teachers, head and pupils. A sample size of two hundred and sixty two (262) head teachers and teacher was selected for the study. Multi-stage sampling technique was used in selecting the sample for the study. The validity of the instrument was established using experts in Sociology of Education and Research Measurement and Evaluation, all in the Department of Educational Foundations, Faculty of Education, University of Jos. The reliability of the instruments was established using Cronbach alpha and a reliability coefficient of 0.83 was obtained which showed that the instrument was reliable. The research questions were answered using mean and standard deviation while the hypothesis was tested using Pearson r product moment correlation. The findings from the study showed that there was more access at lower level and less access at the upper level of basic education. Similarly, lack of community socialization was found to be a major factor that affects access to basic education of the nomadic Fulani girl-child. The findings also revealed that cultural and not socio-economic practices affect school enrolments and transition of nomadic girl-child in basic education programme. There are classroom facilities but furniture for teaching and learning are not available in nomadic schools in Nasarawa State. Learning facilities like chairs, tables, libraries, staff rooms and other sporting facilities are not available in nomadic schools in Nasarawa State. In addition, distance between nomadic school in Nasarawa State and the settlement of nomadic Fulani's' also affect their transition access for full Basic Education of the Fulani girl-child. The findings also revealed that there are enough qualified teachers in Nasarawa State therefore; the low enrolment of pupils in nomadic schools cannot be attributed to the qualification of teachers except for their methods or irregular attendance in school. It was recommended that community socialization is key to achieving the full basic education of the nomadic girl child. All nomadic schools in Nasarawa State should be well equipped in line with the contemporary development and the state government should provide means of transportation to ease the girl's movement to the nearest Universal Basic Education schools across Fulani settlement areas in the State.

Introduction

Education is the process of acquiring knowledge, enlightenment and wisdom through teaching, training and learning to prepare learners to contribute to societal growth and development. Igbo, Muhammad & Olaide, (2022), state that education is the process that helps to develop the whole being physically, mentally, morally, politically, socially and technologically to enable the individual to function meaningfully in any environment in which the individual lives. It is a veritable tool that helps children to utilize and participate fully in the country's affairs. This is in tandem with the assertion of the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018), that education equips individuals to succeed in school, perform productive work, take care of themselves, live a fulfilling life and attain full development of potential in society.

To Sociologists, such as Durkheim (1963) who is a functionalist, views education as a social institution designed to perform the conservative function of social reproduction and the innovative function of bringing about desirable societal change by providing knowledgeable, highly skilled, and innovative manpower. This means, that education

aim at improving the well-being of individuals in society that will contribute to community and national development. In Talcott Parsons submission, the school as an important agent of secondary socialization where children learn societal values, beliefs and rules. The sociologist also argued further that it is the responsibility of the school to prepare children for adult life, and this clearly shows that Parsons is particularly interested in how education facilitates role selection and allocation. To Emile Durkheim, education is concerned with creating a modern society that transmits the shared values and teaching of specialized skills for employment which could only be achieved through a functional educational, policies, methods, administration and curricula. Similarly, (Audu, 2022) submits that to have a functional society, goals are set and directed toward social activities. This implies that government must set educational goals and direct its policies and programmes toward improving the well-being of individuals, as demonstrated in the establishment of the Universal Basic Education (UBE) Programme. Also (Suleiman and Young, 2019) submit that the Nigerian government sets up this agency to equip individuals with the necessary skills and competencies to prepare children to attain full potential development through basic education.

Universal Basic Education within the Nigerian context covers nine (9) years of uninterrupted schooling; that is, six (6) years of primary education and three (3) years of junior secondary education, which is statutorily marked as free and compulsory and close to the child's home, usually a trek able distance of not more than three (3) kilometers to and from school. Part of the objectives of the Universal Basic Education programme is to bridge the learning gap between the nomadic pastoralists and other members of the society and to fully integrate the nomadic children into Nigerian social life through provision and access to quality basic education (Sadiq, Samson, Nabogari, William, & Zira, 2018).

Furthermore, (Olawuyi, Olanrewaju and Adegoke, 2020) assert that Basic Education in Nigeria also includes an education programme for acquiring functional literacy, numeracy and life skills which is available to all categories of school age children. The objectives and scope of the programme is expected to equip and empower all Nigerian nomadic children with the opportunity and convenience to acquire a full nine years of basic education for potential development. The government has also shown concern for the education of the pastoral nomads with the introduction of Nomadic Education in 1986 and the establishment of the National Commission for Nomadic Education (NCNE) in 1989. Despite these provisions, the involvement of nomadic children in basic education is low, particularly the girl child due to social and cultural challenges.

The nomadic schooling arrangement appears to have provided more access to lower and not upper basic level in line with contemporary developments. This implies, the current nomadic education system has not adequately met the 21st century trend in basic education. This may have implications for the nomadic children not achieving full basic education to contribute maximally to community and national development as other children. The transition from lower to upper basic education of most nomadic girl children has not been fully achieved compared to the sedentary girl child (Adelakun, Adeyemi & Anisulowo, 2023).

In an effort to address these challenges confronting school access, the Federal Government of Nigeria in 1999 constitution as amended introduced the Basic Education Programme with the global aim of providing free, universal and compulsory basic education for every Nigerian child aged 6-15 years. However, current statistics in 2019 shows that 1.1 million children are enrolled at the nomadic elementary school level (lower basic) (Statistical Research Institute, 2022) whereas another finding shows that there are 18.5 million out-of-school children with sixty (60) per cent of whom are girls. This implies 10 million school age girls are out of school (Igbo, Muhammed and Olaide, 2022). This is a pointer that access to full basic education is still an issue.

The factors of access that are of interest to the researchers are cultural and socio-economic practices geographical school location and gender inequality.

Statement of the Problem

The enrolment of girl-child in nomadic schools has been low and the dropout rate is high; out of two hundred and three thousand, eight hundred and forty-four (203, 844) were enrolled; only twenty-six thousand four hundred and fifty two (26,452) completed primary education across the States (NCNE, 2019). It is estimated that fifteen million four hundred thousand (15,400,000) migrant groups in Nigeria comprising nomadic pastoralists, migrant fisher folks and migrant farmers, about seven million (7,000,000) are children of school-going age, of which only five hundred and ninety-four thousand, two hundred and thirty (594,230) are currently in schools (NCNE, 2020). Similarly, a progress report on nomadic pupils' enrolment in primary school from (2019-2023) in Nasarawa State, four thousand and seventy five (4,075) pupils enrolled, only one thousand and sixty four (1,064) are girls, representing 26.11% and there is no record showing a transition of these girls to upper level of basic education. Also school enrolment in nomadic schools in Nasarawa state show males graduating in nomadic school is higher compared to the females as a result of constant withdrawal of the girls from school. These practices are observed not to be progressive because it could lead to the girls not achieving full basic education.

Reasons such as poor community involvement in basic education delivery, cultural and socioeconomic practices, unqualified teachers, poor classroom facilities and dilapidated infrastructure among others, have been advanced as likely responsible for the low enrolment of pastoralists children in basic education programme, despite the efforts made by government in providing access to school age children toward a free and compulsory basic education. This indicates that nomadic education programme may still be faced with low enrolment, transition, completion rates and recurrent withdrawal of the nomadic Fulani girl-child in school. This is a disturbing trend that if not checked, could potentially affect the objectives of basic education programmes in Nigeria, considering the role which education plays in human and societal development.

The researcher is not aware of any current effort aimed at analyzing social factors impeding access to basic education of the Nomadic Fulani girl child in Nasarawa State

and this calls for a study to ascertain the extent basic education programme has provided the nomadic Fulani girl child access to full basic education in Nasarawa State. The study therefore, seeks to answer the broad question; what are the factors affecting access to basic education of the nomadic Fulani girl child in Nasarawa State, Nigeria that if they are not addressed can affect the realization of the full objectives of basic education.

Purpose of the Study

The purpose of this study was to determine sociologically analyze factors of access to basic education of the Nomadic Fulani girl-child in Nasarawa State, Nigeria. The specific objectives of this study are, to:

Find out cultural and socio-economic practices affecting enrolment and withdrawal of Nomadic Fulani girl child in basic education in Nasarawa State.

Determine the availability of school infrastructural facilities in nomadic schools for access to basic education in Nasarawa State.

Ascertain the extent to which school location affects the nomadic Fulani girl-child access to basic education in Nasarawa state.

Research Question

The following research questions have been asked to guide the study:

What are the cultural and socio-economic practices causing low enrolment rate and recurrent withdrawal of the nomadic Fulani girl child in basic education in Nasarawa State?

To what extent are school infrastructural facilities available for basic education in Nasarawa State?

To what extent does school location affect the nomadic Fulani girl-child access to basic education in Nasarawa State?

Hypotheses

The following hypotheses are tested at the 0.05 level of significance:

Ho1 There is no significant relationship between cultural practice and access to basic education of nomadic girl-child education in Nasarawa State.

Ho2 There is no significant relationship between school location and access to basic

education of nomadic girl-child education in Nasarawa State.

Methodology

The study employed the Survey research design specifically, the Descriptive survey. The choice of this design is based on the fact that it allows the researcher to elicit information from a representative sample of population after which the information is analysed and described; and then, the results is generalized on the entire population (Adekeye, 2016). With regards to the present study, the researcher collected data from a sample of head teachers and teachers within the study area using a structures questionnaire, analysed the information collected and then, the resulting information were used to generalize on the issues of concern in the study at that particular time in Nasarawa State, Nigeria.

Population and Sample

The population for this study included all the 358 Head teachers and Teachers in the 86 nomadic schools in Nasarawa state. This comprised of 273 males and 85 females in all, from rural and urban areas of the State. The choice of these respondents is because they are directly involved in implementing the Universal Basic Education programme in the study area. The reason for putting Head teachers and teachers together is that they all engage in the teaching of the students. The state has 13 LGAs spread across the three Educational zones A sample of 8 LGAs was taken from the 13 LGAs in the State such that there were 3, 2 and 3 LGAs from the Southern, Northern and Western zones of the State respectively. Also, from the sampled LGAs, 10, 5 and 9 schools were selected respectively from the zones. In all, 262 Head teachers and Teachers were selected from the entire population of study and this is made up of 204 males and 58 females.

Instruments for data collection

Three (3) instruments were used for data collection for the study. These are: Nomadic School Head Teachers and Teachers' Questionnaire (NSHTTQ) developed to elicit information from these respondents, the Pupils Enrolment, Dropout, Transition and Template (PEDTT) to get profile of the pupils with respect to the objectives of the study and the School Facilities for Basic Education Access Check List (SFBEACL).

Description of Instrument

Description of NSHTTQ

The NSHTTQ was structured into two sections of A and B. Section A consisted of the personal data of the respondents such as LGA of origin, Educational qualification, Status (Head Teacher or Teacher) and Gender (male or female). The respondents were required to fill in the necessary details. Section B comprised of statements regarding the objectives of the study and was structured using the Likert Scale such

that we have the options: Strongly Agree (SA) =5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1 for positive statements; and conversely for negative statements. The section B was further divided into four parts, each part with each, addressing issues raised in the objectives of the study. Each respondent indicated his/her opinions by ticking (") on each of the statement. The use of the questionnaire was ideal in obtaining the quantitative data because opinions of respondents will be used to answer the research questions in the study.

Validity and Reliability of Instruments

Validity

The content validity of the NSHTTQ was ensured during the process of generating items for the instrument and ascertained by subjecting the instrument to the judgment of experts in the field of Sociology of Education and Research Measurement and Evaluation in the Department of Educational Foundations, Faculty of Education, University of Jos. These experts were requested to look at and judge the validity of the instrument in terms of the area of coverage in relation to the objectives of the research, research questions the hypotheses. The level of agreement of the experts on validity of the instrument was determined using Kendall's coefficient of concordance which gave a value of 0.83, showing that the instrument has good level of content validity.

Reliability

NSHTTQ

Cronbach Alpha was used to estimate the reliability of the NSHTTQ this was estimated using data from the pilot study. The choice of Cronbach Alpha is based on the fact that the NSHTTQ had different point value. The reliability coefficient of the instrument was estimated and it was found to be 0.861 which indicated that the instrument is reliable as suggested by Rahardja, Aini, Graha and Lutfiani (2019) that a reliable instrument should have reliability coefficient of 0.75 and above.

Method of Data Analysis

The data collected were analyzed using descriptive and inferential statistics. The research questions were answered using mean and standard deviation. The Pearson Product-Moment Correlation was used to test hypotheses. All hypotheses were tested at a 0.05 level of significance.

Results

Research question one

What are the cultural and socio-economic practices causing low enrolment rate and recurrent withdrawal of Nomadic Fulani girl child in basic education in Nasarawa State?

Table 1

Cultural and Socio-economic Practices Causing Low Enrolment and Recurrent Withdrawal of Nomadic Girl Child in Lower and Upper Basic Schools

S/N

Statement

N

SD

Decision

1

Early marriage inhibits the Fulani Nomadic girl child access to full nine (9) years basic schooling

262

3.17

0.64

Agreed

2

Child labour inhibit Nomadic Fulani girl child access to full nine (9) years basic schooling

262

3.11

0.96

Agreed

3

Teenage pregnancy affects the girl child access to full nine (9) years basic schooling.

262

2.76

0.77

Agreed

4

Gender preference affects the Nomadic girl child involvement in access to full nine (9) years basic schooling

262

3.21

0.81

Agreed

5

Animal rearing inhibit girl-child access to full nine (9) years basic schooling

262

2.43

0.87

Agreed

6

Hawking milk inhibit girl child access to full nine (9) years basic schooling

262

3.14

0.79

Agreed

7

Trading to supplement family income inhibit girl child access to full nine (9) years basic schooling

262

2.94

0.91

Agreed

8

Cultural practices like purdah do not impede girl child access to full nine (9) years basic schooling

262

2.41

0.74

Disagreed

9

Religious belief influences Nomadic girl child access to full nine (9) years basic schooling

262

2.34

0.82

Agreed

10

Misconception about formal education affects girl child access to full nine (9) years basic schooling.

262

2.74

0.85

Agreed

Total

2.84

0.83

Agreed

The results from Table 1 revealed that items 1,2,3,4,6,7,9 and 10 were accepted because the items have mean above the criteria mean of 2.5. which implied that cultural factors like early marriage, teenage pregnancy, gender preference, and religious beliefs affect access to full nine (9) years basic education of the nomadic girl-girl, while items 5 and 8 were disagreed because the items have mean below the assured mean of 2.50. This implied that socio-economic practices like animal rearing. Hawking to supplement family income and other form of child labour do not inhibit the nomadic girl-child access to schooling. The results show an overall mean of 2.84, SD=0.83. This shows that most of the respondents agreed that cultural and not socio-economic factors affected full access to basic education of nomadic girl-child.

Research Question two

To what extent does school location affect Nomadic girl-child access to lower and upper basic Education in Nasarawa State.

Table 2

Extent to Which School Location Affects Nomadic Girl-Child attendance in Lower and Upper Basic Education

S/N

Statement

N

SD

Decision

Nomadic schools are located away from Fulani community

262

2.21

0.74

Disagreed

Basic education schools are far away from Fulani communities

262

2.41

1.01

Disagreed

Nomadic schools have access to only lower level of basic education

262

2.17

1.03

Disagreed

Nomadic schools are located close to other communities

262

3.11

1.07

Agreed

Distance between Nomadic schools and Fulani communities affects access to basic education

262

2.54

1.00

Agreed

Upper basic schools' location do not affect Fulani girl child access to basic education

262

2.66

0.89

Agreed

Location of school affects access to basic education

262

3.14

0.76

Agreed

Nomadic schools are located close to other secondary schools

262

3.16

0.91

Agreed

Fulani communities are sparsely located hence it affects access to basic education

262

3.17

0.97

Agreed

Location does not affect Fulani girl child access to basic education.

262

2.14

0.95

Disagreed

The results from Table 2 revealed that items 4, 5, 6, 7, 8, and 9 were agreed upon because the items have mean above 2.50. This implied that nomadic lower level schools are not located close to upper basic schools in nomadic communities this suggested that distance to school affects Fulani girl-child access to full basic education. While items 13 and 10 were disagreed upon because the items have a mean less than

2.50 which implied that Nomadic schools are located away from other communities with secondary schools hence can affect the girl child access to upper basic school. The overall mean of 2.67 is above the assured mean of 2.50 This implied that most of the respondents agreed that school location has high extent on the girl-child access to basic education and this significantly affects the girl child socialization with other children in the community and the society at large.

Research Question three

What is the basic education programme enrolment, transition completion, dropout rates of Nomadic Fulani girl child in lower and upper level of basic education in Nasarawa State?

Table 3

Level of Enrolment, Drop out Completion and Transition in Lower and Upper Basic Education in Nomadic Schools.

Year

Enrolment at the lower basic schools

Completion

Dropout

Transition

2020/2021

315

143(66.5%)

73(23%)

34(10.7%)

2021/2022

342

274(80.1%)

67(19.6%)

74(21.6%)

2022/2023

404

362(89.6%)

120(29.7%)

42(10.4%)

2023/2024

382

263(64.4%)

128(32.7%)

13.9%)

Source: SUBEB 2024

The result of the analysis 3 showed that in 2020/2021 session, three hundred and fifteen (315) of pupils were enrolled in lower basic education, one hundred and forty three (143) representing 66.5% completed the programme, seventy three (73) representing 23% dropped out and only thirty four (34) representing 10.7% transited to upper basic level of education. In 2021/2022 session, 342 pupils were enrolled, 274 representing 80.1% completed, sixty seven (67) representing 19.6% dropped out, forty four (44) representing (12.8%) transited. In 2022/2023 session four hundred and four (404) pupils were enrolled, three hundred and sixty two (362) representing 89.6% completed, one hundred and twenty (120) representing 29.7% dropped out forty two (42) representing 10.4% transited to upper basic level of basic education. In

2023/2024 session, three hundred and eighty two (382) pupils were enrolled; two hundred and sixty three (263) representing 64.4% completed the programme, one hundred and twenty five (125) representing 32.7% dropped out while fifty three (53) representing 13.9% transitioned to upper basic level. The results indicated that the enrolment rates over the years is still low in the state, completion rate is high, drop out is high and transition rate is low. This implied that more sensitization of nomadic girl-child basic education enrolment is needed, reduction in drop rates and increased transition from lower to upper basic levels based on basic education arrangement of 9 years full access.

Hypothesis One

There is no significant relationship between cultural practices and access to basic education of nomadic girl-child in Nasarawa State

Table 4

Results of Pearson product moment correlation r between Cultural and Socio-economic Practices and access to Basic Education of Nomadic Girl-Child

Socio-economic practice

Access

Cultural socio-economic practice

Pearson correlation

Sig (2 tailed)

N

1

262

.166

0.000

101

1

Access

Pearson correlation

Sig (2 tailed)

N

166

0.000

101

262

The results from Table 4 showed the correlation r between cultural and socio-economic practices and access to basic education of the Nomadic girl-child. The results indicate $r(101) = 0.166$, $P < 0.000$. Since the P -value of 0.000 is less than the significant level of 0.05, it can be concluded that there is a weak positive correlation between cultural and socio-economic practices and access to basic education of the Nomadic girl-child. This implied that cultural and socio-economic practices play a significant role in determining the access level of Nomadic girl-child to basic education.

Hypothesis Two

There is no significant relationship between school location and access to basic education of the nomadic girl-child in Nasarawa State.

Table 5

The results of Pearson Product Moment Correlation r Between School Location and

access to Basic Education of the Fulani Girl-Child

Variables

Infrastructure

Access

Infrastructure

Pearson correlation

Sig (2 tailed)

N

1

262

0.359

0.000

101

Access

Pearson correlation

Sig (2 tailed)

N

359

0.000

The result from table 5 revealed the correlation r between school location and access to basic education. The result indicated $r (-101) = 0.359$, $P < 0.000$ the P -value of 0.000 is less than the significant level of 0.05. From the result of the null hypothesis, it can be concluded that there is a significant weak positive correlation between school location and access to basic education of the nomadic girl-child. This implied that the lower and more upper basic schools are closer, there would be increased enrolment and transition to upper basic to access full basic education of the Nomadic girls in Nasarawa State.

Conclusion

The nomadic Education System was put in place by the Nigerian Government to afford the nomadic pastoralist children access to education. In its determination to reform the nomadic education, in line with contemporary 21st century developments in the world, the government introduced the Universal Basic Education Programme in 1999. However, in spite the efforts to reform the nomadic education system; poor community socialization, infrastructural deficit, unfavorable cultural practices, geographical location of schools and gender inequality, among others, have continued to inhibit full access to Basic Education. Surmounting these challenges would afford the nomadic pastoralist girl child opportunity to acquire 21st century literacy and numeracy skills for social development.

Recommendations

Based on the issues raised and discussed in this paper, the following recommendations were made

The current nomadic education system should be reviewed or reformed to incorporate lower and upper basic education in line with the 21st century trend in basic education and global practices.

Education of the nomadic children should be a priority by all States Government. They should establish model nomadic UBE schools in all senatorial districts of the states and such schools should be sited close to the children's home for easy access.

Nomadic community leaders and parents should be made to support the government in

basic education delivery in their communities in the areas of sensitization, provision of teaching and learning materials etc.

The federal government of Nigeria should come out with intervention programmes through cluster training of Teachers for Professional Development to improve the teaching capacity of all nomadic school teachers in Nigeria.

The federal government should ensure that the child rights and Universal Basic Education laws are enforced in all states in Nigeria.

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An Assessment of NCE II Students' Knowledge of Poetry in College of Education Gindri

Nathanael Tanko Noah

Department of General Studies Education

Federal University of Education

Pankshin, Plateau State

Augustine Kwarsen Gideon

Department of General Studies Education

College of Education

Gindiri, Plateau State

Abstract

This paper assessed the knowledge of poetry among NCE II students of English language in the College of Education Gindri, Plateau State, Nigeria. Specifically, it assessed students' knowledge of poetry forms and structures, literary devices, poetic

styles, famous poets, and themes. Fifty one students were purposively sampled and tested using an instrument called Assessment of Students' Knowledge of Poetry Test (ASKPT). Results of the test were collated, analyzed and graphically presented in charts. Key findings reveal that the students' knowledge of basic elements of poetry was grossly inadequate. It is recommended (among others) that the teachers of English language should use effective strategies that can improve their students' knowledge of poetry.

Keywords: poetry, knowledge, poetic style, theme, concepts

Introduction

Students in Nigerian Colleges of Education study English language either as a major course or a teaching course. Both ways the students encounter the elements of poetry as part of their academic journey. Although some teachers and students of English are wary of poetry as a genre of literature (Amasa & Abdulkadir, 2016), when it is brought into a language classroom it becomes a massive repertoire of several intricate elements essential for any language course. Besides assisting the advancement of aesthetics among the students, poetry contributes to educational benefits as well by providing opportunities for considering novel usage of grammar, syntax, text organization as well as vocabulary. A poem obliges students to integrate language skills in order to make meaning of the text. It makes them adapt reading strategies and practice them to deal with peculiar features of verse, while broadening their intellect along with developing appreciation for foreign language (Bobkina, & Dominguez, 2014).

The concept of the knowledge of poetry revolves around understanding and appreciating the art form through its various elements, themes, and purposes. Poetry is not just about words arranged aesthetically; it is a medium that expresses emotions, ideas, and human experiences in a condensed, often symbolic, and rhythmic way. Knowing poetry involves recognizing different forms and structures. Each form has its rules, rhythm, and style. Poets use techniques and symbolism to evoke emotions and convey deeper meanings. Understanding these devices enhances one's ability to interpret poetry. Poetry delves into universal themes and it involves analysing them and the emotions conveyed in the poet's words. Knowledge of poetry includes the ability to think beyond the literal and uncover layers of meaning. In essence, the knowledge of poetry is an interplay between analysis, intuition, and emotional engagement, making it an enriching way to connect with art and human expression.

Poetry is distinguished by its use of language to evoke emotions, paint vivid images, and convey deep meanings. Unlike prose, which primarily seeks to inform or narrate, poetry strives to capture the essence of an experience or a moment in time. It is an art form that values economy of expression, distilling complex ideas and emotions into

carefully chosen words and structures. At its heart, poetry is an exploration of the human experience. It probes into the metaphysical questions that have preoccupied humanity for millennia: What is the nature of existence? What is the relationship between the self and the universe? What is the meaning of life? Through its unique blend of language, form, and imagery, poetry provides a vehicle for contemplating these profound questions. At its core, poetry grapples with themes, exploring the nature of reality, existence, and the human condition.

Poetry serves as a means of self-expression, allowing individuals to articulate their innermost thoughts and feelings. It provides a cathartic outlet for emotions, enabling poets to process and make sense of their experiences. Poetry seeks to connect with readers on a deeper, more profound level. It transcends the limitations of individual experience, tapping into the shared human condition. Through its exploration of diverse themes, poetry invites readers to reflect on their own existence, fostering a sense of empathy and understanding (Majewski, 2023). Moreover, poetry has the power to transform the ordinary into the extraordinary. By imbuing everyday experiences with deeper meaning, poetry elevates the mundane, encouraging readers to see the world in a new light. It is through this process of transformation that poetry reveals its metaphysical dimension.

An effective knowledge of poetry is valuable for students because it nurtures their imagination, creativity, and emotional intelligence. It fosters their experience of the world in a holistic and intuitive way, promotes an appreciation for beauty, art, and the subtleties of life. By engaging with poetry, students can develop critical thinking skills that make their educational journey richer and more meaningful. Literature, with its rich tapestry of genres, offers a solution. From simple rhymes to intricate poems, literature can provide engaging and enriching reading experiences. Poetry, in particular, stands out with its potent blend of emotive content and linguistic richness (Baharuddin et al., 2022; Beaumont, 2022; Concannon-Gibney, 2021). Its inherent metaphoric nature amplifies learning, offering readers varied linguistic perspectives, motivation, emotional resonance, and familiarity with figurative language. Poetry can also elevate speaking skills by accentuating stress, tone, and intonation (Suwastini & Dewi, 2023).

Statement of the Problem

The failure in poetry in external examinations organised by the West African Examinations Council (WAEC) and Nigerian Examinations Council (NECO) affects the final score and grade which hinders many students who wish to study English, Law or Literature from gaining admission into Colleges of Education in Nigeria (Olagundoye & Owolewa, 2019). The researchers have also observed that many of their students in the Department of English underperform in this particular aspect of Literature. The students perceive poetry as abstract and complex. They also display a lack of interest and consider it irrelevant. Preconceived notions about poetry being difficult or unapproachable can discourage students from engaging deeply with the subject (David

& Bassey, 2020).

Aim and Objectives of the Study

This study aimed to assess NCE II students' knowledge of poetry in College of Education Gindiri. Specifically, the objectives of the study are to:

appraise the extent to which NCE II students in the Department of English have knowledge of the forms and structures of poetry

determine the extent to which NCE II students in the Department of English have knowledge of the literary devices of poetry

ascertain the extent to which NCE II students in the Department of English have knowledge of poetic styles

find out the extent to which NCE II students in the Department of English have knowledge of famous poets

evaluate the extent to which NCE II students in the Department of English have knowledge of themes and concepts of poetry

Research Questions

To what extent do the NCE II students in the Department of English have knowledge of the forms and structures of poetry?

To what extent do the NCE II students in the Department of English have knowledge of the literary devices of poetry?

To what extent do the NCE II students in the Department of English have knowledge of poetic styles?

To what extent do the NCE II students in the Department of English have knowledge of famous poets?

To what extent do the NCE II students in the Department of English have knowledge of themes and concepts of poetry?

Literature Review

The form and structure of poetry are fundamental elements that shape its rhythm, flow, and overall impact. The form of a poem refers to its specific style or pattern (Nwakaego & Agwu, 2023). It dictates how the poem is organized and presented. Common poetic forms include: sonnet, a 14-line poem with a specific rhyme scheme (e.g., Shakespearean or Petrarchan sonnets). Haiku is a Japanese form consisting of 3 lines

with a syllabic pattern of 5-7-5, and free verse is without a fixed rhyme or meter, giving the poet flexibility. Each form has its own identity and rules, which contribute to how it conveys meaning. The structure of a poem refers to how the content is organized and laid out. Poetry is typically divided into lines, which may be grouped into stanzas (like paragraphs in prose). Stanzas can range from couplets (2 lines) to quatrains (4 lines) and beyond. Poets may use punctuation or spacing creatively to influence the pace, tone, and emphasis of their work.

Literary devices are techniques that writers use to enhance their storytelling, add depth to their work, and evoke emotions in readers (Hughes, 2017). They can be found in poetry, prose, drama, and other forms of literature. Some common literary devices are metaphor and simile. The former compares two unlike things directly (e.g., "Time is a thief") while the latter compares two unlike things using "like" or "as" (e.g., "Her smile was as bright as the sun"). Personification is giving human qualities to non-human things (e.g., "The wind whispered through the trees"). Hyperbole exaggerates for emphasis (e.g., "I could sleep for a century"). Allusion is a reference to a well-known person, event, or work of art (e.g., "He was as wise as Solomon").

Poetic style refers to the unique voice and approach that a poet brings to their work. It encompasses the techniques, themes, tone, and language choices that define a poet's creations. The poet's attitude (tone) and the emotions evoked in the reader (mood) are integral to their style (Johnson-Laird & Oatley, 2022). A poem could have a hopeful, melancholic, humorous, or contemplative tone, setting the overall feeling of the piece. The choice of words (diction) reflects the poet's style. For example, the poet could use formal diction – elevated, sophisticated language, informal diction which is more conversational or colloquial language, and/or figurative language which is the use of metaphors, similes, and personification. Many poets break conventions to establish their unique style, experimenting with punctuation, spacing, capitalization, or even visual arrangement of words on the page.

There are some renowned poets from around the world, celebrated for their contributions to literature: William Shakespeare (England) was known for his sonnets and plays, Shakespeare's poetic works like "Sonnet 18" ("Shall I compare thee to a summer's day?") remain timeless. Maya Angelou (United States) was a poet and civil rights activist, her works like "Still I Rise" and "Phenomenal Woman" inspire resilience and empowerment. William Butler Yeats (Ireland) was a Nobel laureate. Yeats's poetry, such as "The Second Coming" blends mysticism with political and personal themes. Wole Soyinka, Gabriel Okara, are known for their efforts to make literature more relatable and culturally relevant to African audiences (Taofiq, 2017). By incorporating African historical figures and contexts, they aim to inspire and resonate with readers in a more meaningful way.

Poetry explores a wide array of themes and concepts, reflecting human experiences, emotions, and imagination. There are timeless themes that explore the beauty, complexity, joy, and heartbreak of love (Edwin, 2018). Poems often celebrate or reflect on the natural world, seasons, and landscapes. Many poems ponder the meaning of

life, the inevitability of death, and the legacy left behind. Themes of self-discovery, individuality, and personal struggles are central to many poetic works. Poetry can address inequality, freedom, justice, and resistance to oppression. Poems often express spiritual beliefs, divine connections, or existential questions. Many poems capture the pain and healing process associated with losing loved ones. Poetry can inspire optimism, courage, and perseverance in the face of adversity. Poets examine the horrors, sacrifices, and consequences of war. These themes and concepts allow poetry to connect deeply with readers, offering a space for reflection, inspiration, and shared understanding.

Methodology

The design for this study was a descriptive survey. The design describes the characteristics, behaviors, or opinions of a group without manipulating any variables (Leavy, 2017). The population for the study was all the sixty (60) NCE II students of the Department of English in the College of Education, Gindri, Plateau State, Nigeria. Using purposive sampling, a cohort of fifty one (51) respondents took the Assessment of Students' Knowledge of Poetry Test (ASKPT). NCE II were sampled because they had spent more than one year in College are relatively stable.

For data collection, the ASKPT was designed by the researchers. It consisted of two sections: Section A elicited the bio data of the respondents while Section B consisted 20-objective questions with options A to D. It was themed under five sections: form and structure, literary devices, poetic style, famous poets, and themes and concepts. The ASKPT was given to two experts who are examiners for WAEC and NECO to ascertain the face and content validity. The final draft was made after the corrections made by the examiners were effected. The data collected were analysed and the findings of the study are presented in charts.

Data Analysis and Discussion of Results

Question 1: To what extent do the NCE II students in the Department of English have knowledge of the forms and structures of poetry?

The chart above depicts the results of the students' knowledge of forms and structures of poetry. It shows that 66% of the students who took the ASKPT scored between 0 and 5. Those who scored between 6 and 10 marks constituted 28 %, those who scored between 11 and 15 marks were 4% and only 2% of them scored between 16 and 20 marks.

Question 2: To what extent do the NCE II students in the Department of English have knowledge of the literary devices of poetry?

"6† t 2

The chart above shows that 75% of the students who took the ASKPT scored between 0 and 5 marks. The remaining 25% of the students scored between 6 and 10 marks.

Question 3: To what extent do the NCE II students in the Department of English have knowledge of poetic styles?

"6† t 3

Chart 3 above indicates that 72% of the students scored between 0 and 5 marks on the ASKPT, while only 28% scored between 6 and 10 marks.

Question 4: To what extent do the NCE II students in the Department of English have knowledge of famous poets?

Chart 4

The chart above clearly shows that students who scored between 0 and 5 marks constituted 52%, those who scored between 6 and 10 marks constituted 28%, and those who scored between 11 and 15 marks constituted 18%. Only 2% of the students who took the ASKPT scored between 21 and 25%.

Question 5: To what extent do the NCE II students in the Department of English have knowledge of themes and concepts of poetry?

Figure 5

It is shown in Chart 5 above that 70% of students who took the ASKPT scored between 0 and 5 marks while the other 30% scored between 6 and 10 marks.

Conclusion

From the findings of this study, it is obvious that NCE II students' knowledge of poetry forms and structures, literary devices, poetic styles, famous poets, and themes and concepts was very low. This underscores the need for an urgent intervention by the teachers of poetry as an aspect of the English language curriculum in the College of Education Gindri. It ought to be that every student in the Department of English who is at the NCE II level is very familiar with the basic elements of poetry that equip them to proficiently navigate other aspects of the English language course.

Recommendations

The teachers of English language tertiary institutions should make deliberate efforts to teach forms and structures, literary devices, poetic styles, famous poets, and themes

and concepts of poetry early on during the NCE English language programme.

The students of English language should be encouraged to familiarise themselves with the rudiments of the knowledge of poetry to be better equipped to navigate other textual formats.

Teachers of English language should use effective strategies that can improve their students' knowledge of poetry.

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Effects of Instructional Strategy in Passive Construction on National Diploma two Students' Report Writing Ability in Plateau State Polytechnic

1Veronica Daniel Kagaru, 2Mary Aise Alu & 3Gladys Bulus

Department of General Studies

School of General Studies and PRE ND

Isa Mustapha Agwai I Polytechnic, Lafia

Nasarawa State

Abstract

This study aimed at investigating the effects of instructional strategy in passive construction on students' report writing ability in Plateau State Polytechnic. The study analysed syntactically and statistically 100 National Diploma II students randomly selected from the departments of Science Laboratory Technology, Electrical Electronic Engineering and Hospitality Management of the Plateau State Polytechnic. The study adopted true experimental research design. The instrument that was used for data collection in this study was the researcher's designed instrument known as English Tenses Achievement Test (ETAT) which was administered to the students before and after the treatment. The findings of this study brought out the fact that some students of science and technology were not aware of the importance of using the passive construction in their report writing. Significant attention by the teachers of English language should be given to students of science and technology in terms of teaching English that is related to the fields of science and technology.

Keywords: Instruction, passive construction, sentence, scientific writing, technical writing, reporting writing

Introduction

•F†R →x ÷ tance of writing cannot be overemphasized in achievement and advancement. It is one of the four skills of language. Banat in Alodwan and Ibnian (2014) point out that this skill is invaluable for helping students communicate and understand how the parts of language go together and that it needs to be mastered by

language learners. Writing conveys messages through graphic symbols, which are arranged logically and systematically in words, sentences, paragraphs, and discourses so that the readers understand their meaning (Mantra & Widiastuti, 2021). Since the inception of writing, it has become an important part of daily life, helping people to communicate within and globally through technology like the social networks system and keeping records of things. Science and technology came to be through the efforts of scientists and technologists who wrote down every experiment performed, every data collected, every result obtained, and published results of studies in scientific and technical papers.

Writing is the fundamental means of communicating research findings. The students of science and technology carry out experiments and are expected to write reports, which often follow a format meant to present information that is accurate, concise, fact based and objective in nature. Scientific or technical report is a document that describes the process, progress, or results of scientific or technical research or the state of a scientific or technical research problem (Gary & Robert, 1993). The report aims at presenting data and ideas in detail for readers to evaluate the validity of the results and draw conclusions based on facts presented.

The nature of scientific and technical report writing often requires using passive construction in presenting reports that is personal. The passive construction is a sentence structure where the subject who performs the action is ambiguous and emphasis placed on the results and the object (Coffin, Donohue & North, 2013). The passive construction achieves this by changing the word in a sentence and encouraging the formal and impersonal nature of writing, which is a quality for good academic writing. The passive construction changes the active word pattern to emphasise what happened, instead of the doer of the action. The passive voice is important and compulsory in scientific or technical writing or lab reports. One of the common challenges students have which will be the focus of this study is difficulty they encounter while writing their laboratory reports in the passive and choosing the correct verbs to use under materials and methods writing. The passive construction is used here to retain objectivity in writing procedures.

For students of science and technology to carry out experiments or studies in their science and technical classes, and to write reports for the teacher to evaluate. The organisational structure commonly used to report lab experiments are: Introduction, Materials, Methods, Results, and Discussion (IMMRAD). The introduction of report writing identifies the experiment to be undertaken, the objective of the experiment, the importance of the experiment and the overall background of understanding the experiment. The procedure, often called the materials, methods and discusses how the experiment occurred. Results and discussion are the heart of laboratory report. The conclusion discusses the results in the context of the entire experiment. Though, this organisation does not serve all laboratory reports. Invariably, one format does not necessarily apply to all experiments. Material and method section is considered for use in this study because according to Djuwari (2023) passive

structures are more common in the methodology and results sections of research articles. Therefore, in order to be objective and impersonal in writing report, passive construction is appropriate. Secondly, material and method is an important component of a formal laboratory report that gives detailed account of the procedure to be followed in completing experiments discussed in a report.

English language is very important to students of science and technology in their academic pursues and advancement. It must be communicated effectively, clearly, in words to give meaning to the readers (Day, 1998). English is the language of instruction for students of science and technology in Nigeria tertiary institutions, they students are expected to write their science and technical reports in English. However, most of the students do not have the knowledge of how to write scientifically and technically, and the few that write only copy what have been written in the manuals without having the slightest idea of what the grammatical structure of a scientific writing is.

"FW7 —FR F†R FVÖ æB `or students of science and technology to properly master their use of the simple past tense in passive construction, the curriculum does not reflect the teaching —öb FVç6W2 æB 76—`e construction. So, these students are either taught by their science and technical teachers or are completely ignorant of what the procedures of writing a report in terms of the use of tenses and passive construction entail. Most of the teachers of English are not aware of the way a scientific report is written since it is not specified by the English language syllabus designers of the National Board for Technical Education.

Statement of the Problem

•F†R 7GVFVçG2 öb 66—Væ6R æB FV6†æöÆöw' FVÖöç7G ate incompetence in the use of tenses and passive construction in their report writing. This is because the curriculum of science and technology does not specify the teaching of English for Science and Technology (EST) rather, English is taught as a general course. ETS is the language used in the professional contexts of natural science and technology (Munteanu in Anigbogu, 2016). Students are not aware that writing a scientific report entails using grammatical structures specific to science and technology. The teaching of English to the students of science and technology, is training them to be competent in the area of communication rather than skilled scientists and technicians.

Purpose of the Study

This study seeks to:

Determine the extent to which the students would be able to use simple past tenses to present scientific and technical reports in passive construction before exposure to treat

ment.

Determine the extent to which the students would be able to transform the object to subject case forms in passive construction in presenting scientific and technical reports before exposure to treatment.

Ascertain the effects of instruction in passive construction on students report writing ability after exposure to treatment.

Research Questions•

The following research questions are posed to guide the study:

What is the pre-test and post-test mean score performance of the experimental group and control group in using simple past tenses to present scientific and technical reports before exposure to treatment?

To what extent will the experimental group and control group be able to transform the object to subject case forms in passive construction before exposure to treatment?

What effects does instruction in passive construction have on the ability of students in the experimental group to write accurate report before and after exposure to treatment?

Hypothesis

•The following hypotheses will be tested at 0.05 level of significance:

There is no significant difference between the pre-test and post-test mean scores of the students in the experimental group and those in the control group in their ability to write accurate scientific and technical reports using the simple past tense.

There is no significant difference between the pre-test mean and post-test scores of students in experimental group and those in the control group in their ability to use passive construction appropriately to present scientific and technical information.

There is no significant difference on the effect of instruction in passive construction on the ability of students in the experimental group to write accurate report before and after exposure to treatment.

Literature Review

The Passive Construction

Voice is a grammatical category that is applicable to verbs. It is used in English to show the relationship of the subject to the verb. Brinton (2000) explains that voice is an indication of whether the subject is performing the action of the verb or doing something (active voice) or whether the subject is being affected by the action or being acted upon (passive voice). Crysall, (2003) defines voice as category used in the grammatical description of sentence or clause structure, primarily with reference to verbs, to express the way sentences may alter the relationship between the subject and object of a verb without changing the meaning of a sentence. This implies that the same idea can be expressed in two different ways by either an active construction or a passive construction without altering the meaning of the construction; but there will be a difference in construction. The active voice refers to a sentence format that emphasised the doer of an action. For example, in the sentence: "The doctor discharged the patient." The doer, that is, "the doctor" is more important than the object, "the patient".

According to Choomthong (2011) passive voice is the grammatical construction in which the noun working as the subject of a sentence, clause or verb is affected by the action of a verb or being acted upon by the verb. In the passive voice, the action being performed is emphasised, and the doer may be omitted (Grammar and Writing, 2016). For example: "The patient was discharged (by the doctor)." In this construction, "by the doctor" can be omitted, which means that the reader already knows or does not need to know who the doer is, only the action is important.

Wang (2010) differentiates active-passive at two grammatical 'levels': the verb phrase and the clause. In the verb phrase, the difference between the two voice categories is that the passive adds a form of auxiliary and past participle (-ved) of the main verb. While at the clause level, passivisation involves rearrangement of two clause elements and one passive addition. (b) The active subject becomes the passive agent, (b), the active object becomes the passive subject, and (c) the prepositional by is introduced before the agent. The by prepositional agent phrase becomes an obligatory sentence element in the passive construction. Wang (2010) further states that voice transformation can be expressed in this formula:

Noun phrase + active verb phrase + noun phrase₂ (active)

Noun phrase₂ + passive verb + (by noun phrase) (passive)

Only transitive verbs can be transformed into passive constructions. In English, the passive voice is formed periphrastically, that is the usual form is expressed by joining the auxiliary verb be together with the past participle of the main verb. There are three verb forms in passive construction, be, -ed and by.

Research Design

The study was carried out using the experimental design. Specifically the pre-test/post-test design was used. Here, comparison, manipulation and control were used to ensure control for sources of internal invalidity.

Population and Sample

The population of this study is all National Diploma Two (NDII) students from the Department of Science and Technology, School of Engineering Plateau State Polytechnic Barkin Ladi. The sample for this study was made up of one hundred (100) students from two Departments were purposively selected from the thirteen (13) Departments of School of Science and Technology in Plateau State Polytechnic Barkin Ladi. These Departments are: Electrical Electronic Engineering and Science Laboratory Technology.

Instrument for Data Collection

The instrument that was used for data collection in this study was the researchers designed instrument known as English Tenses Achievement Test (ETAT). ETAT is a test which was administered on the students before and after the treatment. The English Tenses Achievement Test (ETAT) has two different tests, test one and test two. Test one covers the tenses in the active voice and test two covers the tenses in the passive voice.

Method of Data Analysis

Mean and standard deviation was used to answer all the research questions raised for this study, t-test was used to test the hypotheses at 0.05 level of significance.

Results and Discussion

The data generated from the ETAT was analysed using SPSS 17.0 Version and presented under the following headings: Research Questions and Hypotheses.

Research Question One

What is the difference in the mean scores of the control and experimental groups in converting simple present tense to simple past tense to present scientific and technical information before exposure to treatment?

Table 1: Pre-test Raw Scores and Percentage of the Control Group in Converting the Simple Present to Simple Past Tenses Using the Passive forms.

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

05

83.4

11

04

66.7

21

05

83.4

31

04

66.7

41

06

100

2

06

100

12

05

83.4

22

06

100

32

02

33.3

42

06

100

3

06

100

13

05

83.4

23

04

66.7

33

05

83.4

43

02

33.3

4

05

83.4

14

06

100

24

02

33.3

34

01

16.7

44

05

83.4

5

03

50

15

04

66.7

25

0

0

35

03

50

45

04

66.7

6

05

83.4

16

04

66.7

26

03

50

36

02

33.3

46

04

66.7

7

04

66.7

17

02

33.3

27

01

16.7

37

06

100

47

06

100

8

06

100

18

06

100

28

01

16.7

38

04

66.7

48

05

83.4

9

04

66.7

19

06

100

29

0

0

39

05

83.4

49

01

16.7

10

02

33.3

20

05

83.4

30

03

50

40

03

50

50

05

83.4

Group Mean- 65.688 Standard Deviation- 29.4434

Table 2: Pre-test Raw Scores and Percentage of the Experimental Group in Converting the Simple Present to Simple Past Tenses Using the Passive forms.

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

05

83.4

11

03

50

21

01

16.7

31

04

66.7

41

04

66.7

2

02

33.3

12

03

50

22

06

100

32

01

16.7

42

05

83.4

3

03

50

13

0

0

23

04

66.7

33

04

66.7

43

05

83.4

4

02

33.3

14

03

50

24

04

66.7

34

0

0

44

02

33.3

5

04

66.7

15

06

100

25

06

100

35

06

100

45

01

16.7

6

02

33.3

16

0

0

26

05

83.4

36

04

66.7

46

04

66.7

7

02

33.3

17

05

83.4

27

04

66.7

37

0

0

47

06

100

8

0

0

18

02

33.3

28

0

0

38

04

66.7

48

05

83.4

9

0

0

19

04

66.7

29

0

0

39

05

83.4

49

04

66.7

10

02

33.3

20

03

50

30

0

0

40

02

33.3

50

02

33.3

Group Mean- 49.680 Standard Deviation- 32.5724

Research Questions Two

•@o what extent was students in the control and experimental groups transform active constructions to passive constructions to present scientific and technical information before exposure to treatment?

Table 3: Pre-test Raw Scores and Percentage of the Control Group in Transforming Active to Passive Construction

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

0

0

11

03

60

21

02

40

31

03

60

41

03

60

2

0

0

12

02

40

22

02

40

32

02

40

42

03

60

3

0

0

13

03

60

23

03

60

33

02

40

43

04

80

4

0

0

14

0

0

24

02

40

34

03

60

44

04

80

5

0

0

15

02

40

25

03

60

35

02

20

45

03

60

6

0•

0

16

02

40

26

03

60

36

03

60

46

0

0

7

0

0

17

01

20

27

02

40

37

02

40

47

04

80

8

0

0

18

01

20

28

01

20

38

02

40

48

03

60

9

03

60

19

02

40

29

02

40

39

04

80

49

02

40

10

02

40

20

03

60

30

02

40

40

04

80

50

04

80

Group Mean- 40.800 Standard Deviation- 25.8599

Table 4: Pre-test Raw Scores and Percentage of the Experimental Group in Transforming Active to Passive Construction

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

04

80

11

03

60

21

03

60

31

04

80

41

04

80

2

0

0

12

02

40

22

0

0

32

05

100

42

0

0

3

03

60

13

03

60

23

0

0

33

04

80

43

02

03

4

05

100

14

01

20

24

0

0

34

03

60

44

04

80

5

04

80

15

03

60

25

02

40

35

02

40

45

03

60

6

04

80

16

01

20

26

03

60

36

04

80

46

02

04

7

02

40

17

04

80

27

03

60

37

05

100

47

05

100

8

03

60

18

03

60

28

0

0

38

04

80

48

04

80

9

02

40

19

01

20

29

0

0

39

03

60

49

04

80

10

03

60

20

03

60

30

0

0

40

02

40

50

0

0

Group Mean- 50.140 Standard Deviation- 32.6778

Research Question Three

What effect does instruction in passive construction have on the ability of students in the experimental group to write accurate report before and after exposure to treatment?

Table 5: Pre-test Raw Scores and Percentage of the Experimental Group in the Use of Tenses and the Passive Construction

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

09

81.8

11

10

91

21

02

18.2

31

08

72.7

41

04

36.4

2

07

63.6

12

06

54.5

22

08

72.7

32

03

27.3

42

07

63.6

3

08

72.7

13

07

63.6

23

06

54.5

33

05

45.5

43

05

45.5

4

05

45.5

14

09

81.8

24

05

45.5

34

07

63.6

44

01

9.1

5

09

81.8

15

09

81.8

25

0

0

35

03

27.3

45

05

45.5

6

02

18.2

16

05

45.5

26

0

0

36

04

36.4

46

04

36.4

7

11

100

17

01

9.1

27

0

0

37

07

63.6

47

08

72.7

8

08

72.7

18

09

81.8

28

04

36.4

38

11

100

48

02

18.2

9

04

36.4

19

11

100

29

04

36.4

39

05

45.5

49

05

45.5

10

09

81.8

20

07

63.6

30

08

72.7

40

09

81.8

50

04

36.4

Group Mean- 52.732 Standard Deviation- 27.2910

Table 6: Post-test Raw Scores and Percentage of the Experimental Group in the Use of Tenses and the Passive Construction

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

S/n

Score

%

1

11

55

11

13

65

21

15

75

31

17

85

41

17

85

2

19

95

12

15

75

22

15

75

32

16

80

42

11

55

3

17

85

13

12

60

23

16

80

33

15

75

43

17

85

4

17

85

14

16

80

24

12

60

34

15

75

44

18

90

5

20

100

15

13

65

25

12

60

35

17

85

45

14

70

6

18

90

16

14

70

26

19

96

36

15

75

46

14

70

7

18

90

17

09

45

27

15

75

37

14

70

47

16

80

8

15

75

18

15

75

28

17

85

38

14

70

48

12

60

9

19

95

19

15

75

29

16

80

39

14

70

49

14

70

10

15

75

20

16

80

30

15

75

40

18

90

50

11

55

Group Mean- 75.820 Standard deviation- 11.9158

Hypothesis One

•F†W&R —2 æò 6–væ–f–6 çB F–f`erence between the post-test mean scores achievement of the students in control group and those in the experimental group in their ability to convert simple present tenses to simple past tenses using the passive forms to present scientific and technical information.

•@able 7 presents the results of independent sample t-test analysis of post-test mean scores of the control group and the experimental group in their ability to convert the simple present tenses and the simple past tenses using the passive forms to present

scientific and technical information.

Table 7: Analysis of the Post-test Mean Scores of the Experimental and Control groups in the Ability to Convert Simple Present Tenses to Simple Past Tenses Using the Passive Forms

N

Mean

Std. Deviation

T

df

Sig. (2-tailed)

Control group

50

47.004

30.4771

-4.817

98

.000

Experimental group

50

73.932

26.1753

-4.817

94.620

.000

From table 7, the significant value for the 2-tailed t-test is .000. This is below the benchmark level of 0.05, so the null hypothesis is rejected. Consequently, there is a significant difference between the post-test mean scores of the control group and experimental group in their ability to convert simple present tenses to simple past tenses using the passive forms to present scientific and technical information.

Hypothesis Two

•F†W&R —2 æò 6–væ–f–6 çB F–f’erence between the pre-test mean scores performance of students in control group and those in the experimental group in their ability to transform active construction to passive construction to present scientific and technical information before exposure to treatment.

•@able 8 presents the results of independent sample t-test analysis of pre-test mean scores of the control group and the experimental group in their ability to transform active construction to passive construction to present scientific and technical information.

Table 8: Analysis of the Pre-test Mean Scores of the Control groups in the Ability to Transform Active to Passive Construction

N

Mean

Std. Deviation

T

Df

Sig. (2-tailed)

Control group

50

40.800

25.8599

-1.585

98

.116

Experimental group

50

50.140

32.6778

-1.585

93.084

.116

Hypothesis Three

•F†W&R —2 æò 6–væ–f–6 çB F–f`erence between the pre-test and post-test mean scores of the experimental group on the effect of instruction in passive construction in their ability to write accurate scientific and technical report before and after exposure to treatment.

•@able 9 presents the results of paired sample t-test analysis of pre-test and post-test mean scores of experimental group in their ability to use passive construction to write accurate reports.

Table 9: Analysis of the Pre-test and Post-test Mean Scores of the Experimental group in the Ability to Use passive Construction

N

Mean

Std. deviation

T

df

Sig. (2-tailed)

Experimental pre

50

52.732

27.2910

-5561

49

.000

Experimental post

50

75.820

11.9158

-5561

49

.000

From table 9, the significance value for the 2-tailed t test is .000. This is below benchmark level of 0.05, so the null hypothesis is rejected. Consequently, there is a significant difference between the pre-test and post-test mean scores of the experimental group in their ability to use the passive construction to write accurate scientific and technical report.

Discussion

The findings of this study also agree with the findings of Sulaiman and Muhammed (2013) that students face difficulties in recognizing and producing passive constructions. This is to say that passivisation can be problematic to students most especially students of science and technical. But from the findings of this study, it indicates that this problem can be tackled when the students have prior exposure to passivisation.

•6–Ö–Æ ly, the findings of this study brought out the fact that some students of science and technology were not aware of the use of passive construction in their report writing. They were unable to transform from the active construction to passive construction before exposure to the treatment. But after the exposure to the treatment in passive construction, the findings indicated that the students were able to use appropriately the passive construction to present scientific and technical information. This is in agreement with Rhodes in Djuwari and Prestoza (2024) who discovered that the incidence of passive voice verbs was greatest in the fields of science and technology. Consequently, instruction in passive construction to students of science and technology is very important for presenting objective information.

Conclusion

The importance of using passive construction in scientific and technical report writing is necessary to the students of science and technology to attain competence and professionalism. This can be done when the use of passive construction is taught to the students as part of their report writing course by English language teachers. This study can be used effectively to teach students of science and technology in Polytechnics to write accurate and objective reports. The conclusion here is that instruction in passive construction is very effective in improving students' ability to write accurate scientific and technical reports.

Recommendations

•F†R W7F lished importance of the passive construction in scientific and technical reports, ability of students to write accurate and objective reports, the demands on curriculum planners and the teachers of English language to include passive construction as an integral part of the syllable, s and researchers to carry out further studies on led to this study. In view of the findings in this study, the following has been recommended:

Significant attention by the teachers of English language should be given to students of science and technology in terms of teaching English that is related to the fields of science and technology.

Teachers of science and technology should give attention to the teaching of passive construction as part of their report writing course outline especially in the Materials and

Methods section.

Teachers of science and technology should create awareness to their students on the need to write accurate, impersonal and objective reports through mastering of their tenses and passive construction.

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