

EFFECTS OF FLIPPED TEACHING STRATEGY ON STUDENTS' LEARNING OUTCOME AND RETENTION IN PHYSICS IN DELTA NORTH SENATORIAL DISTRICT OF DELTA STATE

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ABSTRACT

This study examined the effects of flipped instructional strategy on students' achievement in physics. The study was a pre-test, post-test control group quasi-experimental design with 156 participants sampled from four schools with a population of 297 in Delta North Senatorial District of Delta State. The research instrument for study is Physics Learning Outcome Test (PLOT) which consisted of thirty multiple-choice questions from past West African Examinations Council in the concept of waves motion. The data obtained were analysed using mean, standard deviation, Analysis of Covariance (ANCOVA), and independent sample t-test. The results showed a significant difference between participants taught using blended learning and those taught using lecture method. However, there was no significant difference between male and female students taught in blended classroom among others. Arising from the findings, it was recommended that Physics teachers should use flipped strategy rather lecture method to enhance learning outcome of students in teaching Physics.

Keywords: Flipped strategy, Lecture method, Physics, Achievement, Retention

INTRODUCTION

Physics as a core science is very important subject because, it serves as a gateway to the development of other sciences as well as other professional fields like Engineering and medicine (Abamba, 2021; Abamba & Chukwuka, 2021; Abamba, 2022). Also, the technological kick off of any nation is heavily dependent on effective implementation of the core

science, with physics as the bedrock. In spite of the importance of Physics, studies have shown that students' achievement in Physics is on the decline and thus, need to improve (Abamba, 2022). Also, the use of models in the teaching of the sciences has gained prominence in our ultimate search on how best to teach especially in the science. Models that

are ICT driven are the most focal point of researches due to the globalisation and periods of disasters.

The covid-19 Pandemic has changed the landscape of teaching in the educational sector especially in developing nations like Nigerian. Prior to the pandemic, Institutions of higher learning never saw the need to develop learning management system. Also, secondary education was contented with their lecture method approach to cover content for external exams (Abamba, 2012). To save the educational sector, many secondary schools, especially private schools introduced the use of WhatsApp to upload learning materials and videos to cover lost grounds. Therefore, the COVID-19 Pandemic made teacher to see the importance of using online and social media Apps to teach and engage students.

Flipped learning enables students to have prior knowledge of material to be learned, enhances students' engagement of material to be learned and enables students to share their knowledge and experience by interacting with the materials or objects. According to Talbert (2018), a flipped classroom is an instructional model in which students engage with new content outside of class, typically through online videos or other digital

resources, and then use class time to engage in active learning activities. Talbert emphasizes that the flipped classroom is not simply a matter of assigning homework before class but requires a deliberate approach to curriculum design that emphasizes integrating technology, aligning learning objectives and activities, and developing student-centered learning experiences. In the same vein, Khezrlou and Hajiheydari (2021) defined a flipped classroom as an instructional model in which students engage with new content outside of class, often through online videos or other digital resources, and then use class time to apply and deepen their understanding of that content through collaborative and interactive activities. They emphasize that flipped classroom is a student-centered approach that empowers learners to take ownership of their learning and develop essential skills such as critical thinking, problem-solving, and communication. Flipped classroom is an instructional model in which students learn new content outside of class through self-paced online lessons or other digital resources and then engage in interactive, hands-on activities and discussions during class (Tucker, 2018; Lage & Platt, 2020).

Flipped classroom is a pedagogical approach in which students watch or

read instructional content outside of class, typically through pre-recorded videos or other digital resources, and then engage in active learning and collaboration during class time to reinforce and deepen their understanding of the content. The flipped classroom model aims to shift the focus of classroom time from teacher-led lectures to student-led discussions, problem-solving, and inquiry-based learning. The flipped classroom model aims to shift the focus of classroom time from passive listening to active engagement and participation, with the teacher serving as a facilitator and guide rather than a lecturer (Olusola, 2018; Akinnagbe et al., 2021). Olugbenga and Olutola (2020) defined flipped classroom as an instructional model in which students watch pre-recorded videos or complete online activities before class and then engage in active learning and collaboration during class time to reinforce and deepen their understanding of the content.

Flipped classroom teaching is a teaching strategy where students must watch or read pre-recorded lectures or materials at home before class. Then, class time is used for discussion, problem-solving, and applying the concepts learned. This approach has gained popularity recently and adjudged effective in teaching of the sciences. Some reasons why flipped

classroom teaching can be beneficial for teaching in the Sciences includes: Increasing students' engagement which leads to more engaged and interactive classroom discussions; promotion of active learning and enhancing students' understanding; allowing students to review complex concepts; enhancing critical thinking and developing higher-order thinking skills; allowing flexibility by accommodating students with different learning styles, abilities, and backgrounds. The retention of knowledge is as important as acquiring the knowledge in the first instance and this plays a significant role in their learning outcome as most learned concept are examined over a period of time (Abamba. 2012, Abamba et al., 2021). Also, the question of who performs better between male and female as literature continues to show male dominance in the sciences (Abamba, 2023; Onihuma et al., 2015). While others have shown that the sex bias is known a thing of the past (Sada & Mustapha, 2018).

In Nigeria, a recent study by Abimbade et al. (2020) found that flipped classroom approach significantly improved students' performance on assessments and their attitudes toward learning in undergraduate study in University of Nigeria, Nsuka. Adeyemo and

Ogunleye (2021) investigated the effectiveness of the flipped classroom approach on the academic performance of secondary school students in Nigeria and found a significant difference in flipped classroom and traditional classroom group. The researchers attributed this improvement to the flipped classroom approach allowing students to access learning materials at their own pace and in their preferred mode, facilitating better comprehension and retention of knowledge. Furthermore, Jaja et al. (2021) examined the use of the flipped classroom model to improve teaching in Nigeria. The study results showed that the experimental group, which received flipped classroom instruction, had significantly higher academic performance scores than the control group. The researchers concluded that the flipped classroom model effectively improved students' academic performance in Biology. These studies prove that flipped classrooms can be a practical teaching approach in Nigerian higher education settings, improving student learning outcomes. Ugwuanyi et al. (2020) found that flipped classroom is superior in improving students' achievement and retention in Physics than lecture method.

The traditional classroom model of teaching may not be sufficient to meet

the diverse learning needs of students. Flipped classroom teaching is an alternative approach emphasizing active student engagement and interactive learning. Therefore, the problem addressed in this research study is to examine whether flipped classroom teaching improve students learning outcome and their rate of retention in Physics. The study also sought to determine whether gender affects the effectiveness of flipped classroom learning in physics.

Research Questions

The following research questions were raised to guide this study:

1. What is the difference between the learning outcome of students taught Physics using flipped classroom and those taught using traditional classroom?
2. What is the difference between male and female learning outcome among students taught Physics using flipped classroom teaching?
3. What is the difference between the mean loss of students taught Physics using flipped classroom and those taught using traditional classroom?

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

H₀₁: There is no significant difference between the learning outcome of students taught Physics using flipped classroom teaching and those taught using traditional classroom method.

H₀₂: There is no significant difference between male and female learning outcome among students taught Physics using flipped classroom teaching.

H₀₃: There is no significant difference between the mean loss of students taught Physics using flipped classroom and those taught using traditional classroom?

METHODOLOGY

Research Design

The design of the study is a pretest, Post-test, quasi-experimental design. This design was considered appropriate for the study because intact classes were used.

Participants

The sample of the study consist of 156 SS2 Physics students from four government secondary school with a population of 297 in Delta North Senatorial District of Delta State. The sampling technique used is the simple random sampling technique.

Instrumentation

The instrument for the study was a Physics learning outcome test (PLOT) and a comprehensive three weeks lesson plan on both Flipped teaching strategy and lecture method.

The PLOT was developed by the researcher and consist of thirty multiple choice questions from past West African Examination questions in the concept waves motion (WAEC).

Validity and Reliability of the Instrument

The instrument was validated in content and construct by three experts in the Department of Science Education, measurement and Evaluation and an experience Physics teacher to ensure that items were representative of the content that was covered during the treatment phase of the study. The reliability of PLOT was estimated using Kuder-Richardson formula 21 and a reliability coefficient of 0.83 was obtained. Therefore, PLOT was adjudged reliable and thus administered.

Treatment Procedures

The researcher visited the sampled schools to obtain formal permission from the school heads and the research assistants irrespective the mode of instruction to be employed. After permission, the research assistants for the experimental groups were trained on how to flip teaching strategy in classroom situation. Emphasis was on what videos of wave motions and specific website to watch the videos online prior to instruction. The assistants were made to make the watching of the videos as

an assignment to improve participation. Secondly, the teacher was made to group the students in groups and make provision for groups to share their knowledge of the video watched. The assistants in the experimental groups are to provide a summary of the concepts watched and asking probing questions to expand students' understanding of watched concepts. For the lecture method. There was no formal training since it had been the mode of instruction in schools. They were only encouraged to cover the concepts under consideration and within emphasis here was on the effective coverage of the concept under consideration and within the set time. Instructions commenced the second week after the administration of pretest. The instructions lasted for four weeks for both groups. At the end of instructions, the PLOT was administered to account for the post-

test. Lastly, the test of retention was administered one month after instruction to account for the delayed test. The researcher marked all tests to avoid manipulation of scores. The results were thus analysed.

Data Analysis

The data obtained were expressed in percentage and analysed using Mean, Standard Deviation (SD), Analysis of Covariance (ANCOVA) and independent sample t-test.

RESULTS

Research Question One: What is the difference between the learning outcome of students taught Physics using flipped classroom and those taught using traditional classroom? In determining the difference in learning outcome of participants in flipped and lecture classroom, mean and standard deviation was employed as seen in table 1.

Table 1: Mean and Standard Deviation between Flipped and Lecture Classroom in Physics

Source of variation	Test	N	Mean	Std. Deviation
Lecture Method	Pretest	68	17.6912	4.46297
	Posttest	68	45.3235	8.41896
Flipped strategy	Pretest	88	18.3523	4.33123
	Posttest	88	63.6818	6.24508

The result established a difference in the mean achievement in the learning outcome with mean pretest and post-test scores for lecture method is 17.69 and 45.32 while that of flipped classroom is 18.35 and 63.68 respectively. From the post-test mean, there is a difference in the learning outcome of participants taught with lecture method and those taught with flipped strategy. In

determining whether the difference was significant, ANCOVA was employed in testing hypothesis 1.

Hypothesis One: This states that there is no significant difference between the learning outcome of students taught Physics using flipped classroom teaching and those taught using traditional classroom method. The result is presented table 2 below:

Table 2: ANCOVA on Students Taught with Lecture Method and Those Taught with Flipped Strategy

Sources of Variation	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12949.861 ^a	2	6474.931	122.001	.000	.615
Intercept	24175.572	1	24175.572	455.519	.000	.749
Pretest Method	21.860	1	21.860	.412	.522	.003
Error	12775.998	1	12775.998	240.727	.000	.611
Total	8120.113	153	53.073			
Corrected Total	504702.000	156				
	21069.974	155				

a. R Squared = .615 (Adjusted R Squared = .610)

The report shows $F(1,153) = 240.727$, $p = 0.000$ between the learning outcome of learners under lecture method and flipped strategy. This implies the learning outcome differed significantly in favour of flipped classroom.

Research Question Two: What is the difference between male and female learning outcome among students taught Physics using flipped classroom teaching? In examining the difference in between male and female participants taught using flipped strategy, mean and standard

deviation was used and the result is presented in table 3.

Table 3: Mean and Standard Deviation on Male and Female Students Taught Physics with Flipped Strategy

Variables	N	Mean	Std. Deviation	Std. Error Mean
Male	91	55.5055	12.05393	1.26360
Female	65	55.9231	11.17098	1.38559

The result showed male participant had an average mean score of 55.51 while female participant had an average mean score of 55.92. Therefore, it is concluded that there is a difference in the learning outcome of female and male participants taught Physics with flipped strategy. In determining whether the difference was significant, independent sample

t-test was employed and the result is presented in table 4.

Hypothesis Two: There was to find the difference between female and male learning outcome among participants taught Physics with flipped classroom teaching. The result of the analysis is presented in table 4.

Table 4: Difference between Female and Male Students Taught Physics with flipped strategy.

Variables	N	Mean	Std. Deviation	Df	T	Sig.
Male	91	55.5055	12.05393	154	0.22	0.826
Female	65	55.9231	11.17098			

The result showed t-cal. (0.22) < P (0.826) which is not significant. Therefore, hypothesis two is retained. Hence, it was affirmed that there is no significant difference between female and male participants taught using flipped strategy. In determining which method will help in retaining learned concepts most, the mean loss

of participants was calculated. This was done by deducting the delayed test scores from the post-test scores and expressed in simple percentage. The result is therefore presented as the answer to research question 3.

Research Question 3: What is the difference between the mean loss of

students taught Physics using flipped classroom and those taught using traditional classroom? In answering

the question, mean and standard deviation were employed and the result is presented below.

Table 5: Mean and Standard Deviation on Mean Loss (ML) between Female and Male Physics Participants Taught with Flipped Method

Variables	N	Mean	Std. Deviation	Std. Error Mean
ML Lecture	68	39.5396	18.09620	2.19449
ML Flipped	88	9.2058	4.93468	.52604

The table showed that participants in lecture method had the highest mean loss of 39.54 while those in flipped classroom had a mean loss of 4.93. This established that those in flipped classroom retained learned concepts more than those in lecture method. Therefore, there is a difference in the mean loss of students taught using flipped strategy and participant lecture method.

Hypothesis Three: There is no significant difference between the mean loss of students taught Physics using flipped classroom and those taught using traditional classroom? In confirming whether the difference was significant, hypothesis 3 was tested with t-test and the result is presented in table 6.

Table 6: Difference in Mean Loss (ML) between Female and Male Students Taught Physics with Flipped Strategy

Variables	N	Mean	Std. Deviation	Df	T	Sig.
ML Lecture	68	39.5396	18.09620	154	15.031	0.000
ML Flipped	88	9.2058	4.93468			

The result showed t-cal. (15.031) > P (0.000), which is significant. Hence, there is a significant difference between the mean loss of students taught using flipped strategy and their counterpart taught using lecture method. Therefore, participants taught with flipped strategy retained more concepts than lecture method.

Discussion
The essence of instruction is to bring about long-lasting learning that will culminate in change in behaviour. The result of research question 1 showed a difference in achievement between flipped instruction and lecture method with a post-test mean difference of 18.36. In subjecting it to

inferential statistics, ANCOVA result showed $F(1,153) = 240.727$, $p = 0.000$ which is significant. Also, the Adjusted R Squared value showed flipped strategy contributed 61% to students' learning outcome under flipped instruction. Therefore, the result established a significant difference between participants taught using flipped strategy and those taught using lecture method in favour of flipped strategy. This result is in agreement with Abimbade et al. (2020); Adeyemo and Ogunleye (2021); and Jaja et al. (2021) who found a significant difference between flipped classroom and lecture method when employed in teaching and learning.

In determining the effect flipped on the sex of participants, the result showed a difference in the post-test scores between flipped strategy and lecture method with a mean difference of 0.41. This is evidence of a difference between male and female students taught using flipped classroom in favour female students. In establishing whether the difference is significant, the independent sample t-test was employed to test hypothesis 2. The result showed $t\text{-cal.}(0.22) < P(0.826)$ which is not significant. Therefore, hypothesis 2 was accepted, hence, there is no significant difference between male

and female participants taught Physics using flipped classroom.

In examining the rate of retention, participants in the lecture group had the highest mean loss of 39.54 while the mean loss of 4.93 was obtained for flipped classroom. Hence, the result showed participants in flipped classroom retained learned concepts more than lecture method. Therefore, there is a difference in the mean loss of students taught with flipped strategy compared to those taught using lecture method. Confirming whether the difference was significant, hypothesis 3 was tested using the independent sample t-test and result showed $t\text{-cal.}(15.031) > P(0.000)$, which is significant. Therefore, the mean losses of students taught using flipped strategy and lecture method differed significantly. It was therefore confirmed that participant taught with flipped strategy retained more than lecture method. This result was in consonance with Ugwuanyi, Nduji, Elejere and Omeke (2020) and Adeyemo & Ogunleye, (2021) who confirmed that flipped strategy increases the rate of retention of learned concepts.

CONCLUSION

The results of this work established that achievement differed significantly between participants

taught using flipped teaching strategy and lecture method in Physics. The research also established that flipped instruction is not gender bias as it established that female and male participants did not differ significantly. Furthermore, the rate of retention was significantly higher between in flipped classroom participants compared with participants in lecture method.

RECOMMENDATIONS

The results of the research led to the following recommendation:

1. Flipped strategy should be employed by Physics teachers rather than lecture method to enhance improved students' learning outcome in students.
2. Flipped classroom should be employed in teaching Physics both in single and mixed schools because it is not gendering bias.
3. To improve the rate of retention of concepts, flipped classroom should be used as students retain more concepts because of increased students' participation.

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ERGONOMIC AWARENESS AMONG NURSES IN THE UNIVERSITY OF BENIN TEACHING HOSPITAL, NIGERIA

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ABSTRACT

The study assessed the current state of ergonomics awareness among nurses in University of Benin Teaching Hospital, thereby paving the way for targeted interventions and improvements in ergonomic practices within the hospital setting. The study population was all nurses in University of Benin Teaching Hospital. There are 703 nurses in University of Benin Teaching Hospital, Benin City, Edo State. The sample size of 238 representing 33.85% of the study population was used. The research instrument used for this study was a structured questionnaire for the awareness of ergonomics. The findings revealed that majority of the respondent were unaware of ergonomics in the study. Also, there was a significant difference in the ergonomics awareness among nurses in UBTH based on years of experience and the respondents with less than 5years experience had higher awareness in the study. It was recommended that there is need to establish tailored training programs that cover both basic and advanced aspects of ergonomics, addressing the identified gaps in awareness.

Keywords: Ergonomics, Awareness, Nurses, Safety

INTRODUCTION

The International Ergonomics Association (IEA) define the ergonomics or human factors as the design and evaluation of the products, tasks, jobs, environments and systems in order to make them as a scientific discipline concerned with the understanding of interactions among

humans and other elements of a system as well as ~~and~~ the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance (IEA, 2017). Ergonomists contribute immensely to the compatibility between the needs, abilities, and

limitations of people. Employees are one of the most important tools of any organization in general (Gabčanová, 2011). With positive and creative contributions from employees, the quality of the output of an organization can give an immense competitive advantage over their competitors.

According to Exemplis Corp (2014), it is difficult for an employee to be optimally productive when physically uncomfortable. Any office provisions (including furniture fittings, level of noise, workstations, lighting, temperature etc.) that makes employees uncomfortable in the short or long period, can affect productivity. Exemplis Corp. (2014) identified a 2009 study that shows that an ergonomic office design motivates employees with increase performance. Exemplis Corp. (2014) also advocates employee inputs whenever office furniture fittings are to be replaced or any physical environmental changes are needed. This is because a working environment without ergonomic inputs can lead to the development of musculoskeletal disorders (MSDs) among staff in an organization. This disorder was recognized as the most prevalent of all safety issues in the Nigerian health sector (Obi, 2015), which could invariably reduce the

efficiency and performance of employees.

Ergonomics or Human Factor design is not just limited to office workplace alone as identified by Chartered Institute of Ergonomics and Human Factors (2017) as cited by Alharbi et al. (2021). It also supports the development of the technology that enhances the management of some of the most crowded areas in workplace especially hospitals, whilst maintaining an exemplary safety record. Ergonomics is applied in the workplace so that the health and safety of workers is at a satisfactory level. Not all employees are aware that they are exposed to various types of health hazards in the workplace such as mental and physical health risks, chemical hazards, unsafe work environments and more. Consequently, it could actually affect the worker's physiological condition, work performance, increase accident risk, and injuries. Such condition gives rise to an immense impact toward organization productivity (Makhbul, 2010).

In the different healthcare settings, evidence shows that healthcare workers can be exposed to various work-related hazards, which might be ergonomics, biological, psychological, and physical hazards. For instance, needle stick injuries,

and increased susceptibility to infections are considered as the main significant biological factors to which healthcare workers are frequently exposed during their work. Exposure to chemicals and noise, and slips trips are the main physical factors that have been reported in literature (Alharbi, 2021). Other psychological factors also include stress, violence, and anxiety. Therefore, these factors might attribute to a significant impact on the healthcare workers in the different aspects of their lives.

Work-related musculoskeletal disorders (W-RMSD) are frequently reported among the different healthcare workers, and estimates indicate that surgeons are the most commonly affected. Disorders and injuries related to the backbone, shoulders, wrist, and knees are mainly reported by healthcare workers as relevant ergonomic hazards. Ergonomic hazards are significantly frequent with the healthcare workers, and therefore, the prevalence of the different musculoskeletal disorders is high among them (Ghosh, 2013). Besides, estimates show that around one-third of the sick leaves permits among healthcare workers are attributable to musculoskeletal disorders. Investigations also indicate that these disorders are generally underreported (Yasobant & Rajkumar, 2013).

Only 25.5% in Nigeria and 28.7% in Pakistan in the medical professions were seen to be aware of ergonomics (Oladeinde et al., 2015). However, physicians and nurses have an incomparable position because they have to play a dual role of being a clinician and care givers at the same time. The importance of ergonomics in a health facility cannot be overemphasized because ergonomics benefits both patients and staff. Nurses have put in long hours of shifts; some spend most hours on their feet while some spent most hours on their butts or in other very uncomfortable positions. For their personal wellbeing and for patients' sake, nurses ought to consider ergonomics in its entirety.

Ergonomics generally reduces risks of injury to medical staff; it ensures the medical staff are in comfortable and natural positions while conducting their clinical tasks and it also reduces risk of error. The smallest error in a health facility could have an adverse effect. Good ergonomics ensures that the medical staff does their tasks more effectively, efficiently, and would be less prone to making errors, during documentation or while caring for the patients. Prioritizing the comfort and safety of the nursing staff is the essence of the researchers embarking on conducting

this study to know the level of ergonomic awareness among nurses in a health facility.

Statement of the problem

In the dynamic and demanding healthcare environment, nurses play a pivotal role in ensuring the well-being of patients. The nature of their work as managers of the wards and patients often involves prolonged periods of standing, lifting, and performing various physically demanding tasks. Despite the critical importance of maintaining optimal physical health and well-being for both the nurses and the patients, there is a growing concern about the level of ergonomics awareness among nurses in hospitals, particularly in the context of the University of Benin Teaching Hospital (UBTH) which is the biggest and busiest teaching hospital in the south-south geographical region of Nigeria.

The lack of adequate awareness and implementation of ergonomic principles in the healthcare setting can lead to an increased risk of musculoskeletal disorders, occupational injuries, and diminished overall job satisfaction among nurses. As such, it becomes imperative to investigate and address the extent to which nurses in UBTH are aware of ergonomic principles, guidelines, and practices in their daily activities. This research aims to contribute valuable

insights into the current state of ergonomics awareness among nurses in UBTH, thereby paving the way for targeted interventions and improvements in ergonomic practices within the hospital setting.

Purpose of the study

The aim of the study was to assess the current state of ergonomics awareness among nurses in UBTH, thereby paving the way for targeted interventions and improvements in ergonomic practices within the hospital setting.

Research Questions

The following research questions were raised

1. What is the level of ergonomics awareness among nurses in UBTH?
2. Is there any difference in the ergonomics awareness among nurses in UBTH based on years of experience?
3. Is there any difference in the ergonomics awareness among nurses in UBTH based on their units?

Hypotheses

The following null hypothesis was tested at 0.05 level of significance

1. There is no significant difference in the ergonomics awareness among nurses in UBTH based on years of experience.

2. There is no significant difference in the ergonomics awareness among nurse in UBTH based on their units

Literature Review

The concept of ergonomic awareness is a typical concept on the borderline of sciences and has the nature of a cluster of concepts that should be understood as a conscious analysis of ergonomics as a phenomenon and an interesting problem area. The very concept of ergonomics is defined as a field of knowledge dealing with the adaptation of technical objects and surrounding environmental conditions to human psychophysical abilities, their needs and expectations (Górska, 2015).

Ergonomics can include working and production conditions to create more efficient, better quality and safer work. It may also apply to a product that should be of high quality and safe for the user. The very concept of consciousness in the strict sense is difficult to define and refers to the feeling of experiencing specific psychological states (Encyclopedia, 2010). In general terms, it is defined as a set of beliefs or as knowledge about a given topic or the surrounding world or content of thinking.

There are also presentations of consciousness in terms of individual experiences, postures, concepts,

assessments, images, opinions, views etc., so there is a great variety in this area. Most often, however, consciousness is expressed in terms of knowledge or thinking. Based on the cited literature analysis, it can be stated that, so far, no uniform definition of ergonomic awareness has been developed, which has also been emphasized by other researchers in their publications (Pandve, 2016).

The concept of ergonomic awareness is explained in the most details in the works of Halina Pawlak, Agnieszka Buczaj, Anna Pecyna, Magdalena Konowalek, 2016, and Aleksandra Jasiak, 2017. According to the above studies, “ergonomic awareness is a certain state of mind, perception, based on a proper knowledge of ergonomics, which focuses on ensuring that conditions of external environment were adjusted to person’s psychical and physical conditions” (Jasiak, 2017). In addition, the authors determined the following components of ergonomic awareness (Pawlak et al., 2014; Pawlak et al., 2016):

- Self-knowledge on ergonomic aspects,
 - Ensuring compliance with the principles of ergonomics,
 - Knowledge of how ergonomics is perceived,
 - Due diligence, care for ergonomic working conditions, in connection

with the great importance of this issue.

The issue of ergonomic awareness has been particularly popular in the recent years and more and more researchers are raising this issue in their works. Some researchers deal with the analysis and assessment of ergonomic awareness of employees and employers (Jasiak, 2017; Pawlak, Maksym, Pecyna, 2014; Tariq, Zain, Muneeb, 2019; Okafor et al., 2019; Sneller, Choi, Ahn, 2018), and others by researching training methods that will allow employees to expand their knowledge of ergonomics, promoting safer work and suggesting changes in their behaviour and improvement of working conditions (Gembalska-Kwiecień & Żurkowski, 2015; Kishore et al., 2017).

Study by Ismaila (2010) studied the level of ergonomics awareness in Nigeria. 1000 questionnaires were distributed and 950 representing 95 percent were responded to and were analyzed using percentages. Of the 950 respondents, 100(10.5%) were in transportation business, 50(5.3%) engaged in manufacturing activities, 200(21%) in the educational sector, same number of 200(21%) were in the medical profession, 150(15.8%) in construction business, 50(5.3%) in communication, 150(15.8%) were in the banking sector and 50 (5.3%)

were engaged in petty trading and other sectors of the economy. On the whole, 3.4percent of the respondents were aware of ergonomics signifying that there was very low-level awareness of ergonomics in the country. The educational sector and the medical professionals did not fare better as just 10(1%) and 20(2.1%) respectively were aware of the subject called ergonomics. It was concluded that the very low level of ergonomics awareness may be due to the fact that Nigerians were not conversant with the benefits derivable from ergonomics. The Ergonomics Society of Nigeria was therefore charged to organize seminars and conferences to orientate the public on the benefits of ergonomics and the need to make it part of their lives.

A study by Hasan et al. (2020) assessed the level of awareness and practice of computer-related ergonomics among resident doctors. For better understanding and convenience, the responses were categorized into good, fair, and poor. Awareness level was good in only 15% (n= 34) of residents, fair in 16.7% and the majority 68.3% (n= 155) of residents had a poor level of awareness about ergonomics. Poor computer ergonomics was practiced by 49.5% of residents, while fair and good practice of computer ergonomics were found in 24.2% and

26% of residents respectively. The formal training program on computer ergonomics was unattended by 93.5% of participant residents. In graduation/post-graduation level 81.5% of residents didn't get any lecture on correct posture. To measure the practice of computer ergonomics, we found that 64.3% of residents didn't take breaks regularly while using a computer, 69.2% didn't use an adjustable chair and 59% didn't have armrests in those chairs. Proper positioning of knee, elbow, and wrist during computer use wasn't maintained by 56.8%, 58.1%, and 44.9% of residents respectively. A significant association was found between awareness and resident phase with computer practice.

METHODOLOGY

Research Design

Research in simple terms means search for knowledge. In technical terms however, research is a serious exercise that involves a systematic and scientific search for pertinent information on a specific subject. It is an act of investigation to discover knowledge. The systematic processes involved in the search for knowledge is the methodology of research. This study adopted the non-experimental descriptive cross-sectional study. Quantitative cross-sectional studies are useful for evaluating adherence to

ergonomics in health center among nurses (Adebowale et al., 2017).

Participants

The study population was all nurses in University of Benin Teaching Hospital. There are 703 nurses in University of Benin Teaching Hospital, Benin City, Edo State. The sample size of 238 representing 33.85% of the study population was used. This is valid because Owie (2017) stated that for a small population size, a higher percentage would be an adequate representative sample size. The purposive random sampling technique was employed in selecting the respondents into the study sample. In this, 7 units were randomly selected from a total of 11 units. Therefore, every nurse included in the sample was purposely selected. However, those that voluntarily refused to participate were excluded. The sample size of 238 nurses participated in the study.

Instrumentation

The research instrument used for this study was a self-structured questionnaire for the awareness of ergonomics based on literature reviewed. The questionnaire was divided into two sections; section A and B. Section A focused on demographic data of participants such as age, marital status, years of experience, ethnicity, religion, and the highest educational qualification. Section B contained items which

elicited information on the variable under study.

Validity of the Instrument

The questionnaire was validated by three experts on ergonomics and physiotherapy. Content validity of the instrument was done by the three experts selected and their suggestions helped to ensure that the checklist measure what it ought to measure.

Data Analysis

The data for the study was collected by the researchers with the assistance of three research assistants. Permission was gotten from the ethical committee of University of Benin Teaching Hospital UBTH (ADM/E22/A/VOL.VII14831301) before embarking on the study. The questionnaire that was duly filled was uploaded to a main database, which was accessible only to the researchers. The data was downloaded in Micro Soft (MS) Excel format when the requested sample size was reached. After that, it

was exported to SPSS version 22, in which a final check of consistency was performed as a pre-analysis. The rating and evaluation statistics was used to determine their adherence.

Ethical Points to Consider

Participation by volunteering was strictly adhered to, and the participants had the choice to leave when they pleased.

Consent and Data Anonymity

Regarding the confidentiality of data, data was protected and stored on the researcher drive secure database and no one was able to track data to the participants. This study is non-partisan, non-experimental, non-invasive, and poses no risk to participants, therefore participation was not difficult.

RESULTS

Research Question One: What is the ergonomics awareness among nurses in UBTH?

Table one: Frequency and Percentage on Ergonomics Awareness among Nurses in UBTH

s/n	Ergonomic awareness among nurses in UBTH (University of Benin Teaching Hospital)	Yes	No
1	Are you familiar with the concept of ergonomics in the workplace?	152(63.9%)	86(36.1%)
2	Have you received any training or education on ergonomic principles and practices?	68(28.6%)	170(71.4%)
3	Are you aware of the potential musculoskeletal disorders that can arise from poor ergonomics?	158(66.4%)	80(33.6%)

4	Do you know the correct body postures and techniques to minimize the risk of musculoskeletal injuries at work?	139(58.4%)	99(41.6%)
5	Are you aware of the ergonomically designed equipment and tools available in your work environment?	123(51.7%)	115(48.3%)
6	Do you actively seek ergonomic solutions or adjustments for your workstations or tasks to ensure comfort and safety?	88(37.0%)	150(63.0%)
7	Are you familiar with the specific ergonomic guidelines and standards applicable to nursing practice?	108(45.4%)	130(54.6%)
8	Do you feel that there is a need for more comprehensive training and awareness programs on ergonomics in the nursing profession?	218(91.6%)	20(8.4%)
9	Ergonomic assessments and interventions are necessary only for physically demanding jobs, not for office or administrative work.	95(39.9%)	143(60.1%)
10	Ergonomics only focuses on physical aspects, such as posture and equipment design	136(57.1%)	102(42.9%)

The table one above revealed the ergonomics awareness among nurses in UBTH. It was observed that the majority of the respondents are familiar with the concept of ergonomics in the workplace (63.9%), aware of the potential musculoskeletal disorders that can arise from poor ergonomics (66.4%), know the correct body postures and techniques to minimize the risk of musculoskeletal injuries at work (58.4%), aware of the ergonomically designed equipment and tools available in your work environment (51.7%), feel that there is a need for

more comprehensive training and awareness programs on ergonomics in the nursing profession (91.6%) and ergonomics only focuses on physical aspects, such as posture and equipment design (57.1%). But they were unaware that about any training or education on ergonomic principles and practices (71.4%), there is need to seek ergonomic solutions or adjustments for workstations or tasks to ensure comfort and safety (63.0%), familiar with the specific ergonomic guidelines and standards applicable to nursing practice (54.6%) and ergonomic assessments and

interventions are necessary only for physically demanding jobs, not for

office or administrative work (60.1%).

Table 2: Level of ergonomics awareness

	Frequency	Percent
Aware	114	47.9
Unaware	124	52.1
Total	238	100.0

*Aware (selected 6 to 10 correct responses); Unaware (selected 0 to 5 responses)

The table 2 showed the ergonomics awareness among nurses in UBTH. It showed that majority of the respondents were unaware (124, 52.1%) as they were able to correctly respond to on only maximum of five questions and 47.9% were aware as they were able to answer between six

to ten questions correctly. Thus, majority of the respondent were unaware of ergonomics in the study.

Research question 2: Is there difference in the ergonomics awareness among nurses in UBTH based on years of experience?

Table 3: Mean and Standard Deviation on Difference in the Ergonomics Awareness among Nurses in UBTH based on Years of Experience

Years of experience	N	Mean	Std. Deviation
less than 5years	61	6.21	2.51
5-10years	81	4.92	1.97
10years and above	96	5.28	2.17
Total	238	5.39	2.24

The table three revealed the mean and standard deviation on difference in the ergonomics awareness among nurses in UBTH based on years of experience. It was observed that the respondents with less than 5years work experience had mean of 6.21, 5-10years had mean of 4.92 and those

with 10years and above had mean of 5.28.

Hypothesis One: There is no significant difference in the ergonomics awareness among nurses in UBTH based on years of experience.

Table 4: One way ANOVA on Difference in the Ergonomics Awareness among Nurses in UBTH Based on Years of Experience

Sources of Variations	Sum of Squares	of Df	Mean Sum of Squares	F	Sig.
Between Groups	59.88	2	29.94	6.17	.00
Within Groups	1139.19	235	4.84		
Total	1199.08	237			

The table 4 showed the one-way ANOVA for difference in the ergonomics awareness among nurses in UBTH based on years of experience. It was discovered that the f-value is 6.17 and the level of significance was 0.00 which is less than the set alpha level of 0.05. Hence the null hypothesis which stated that

there is no significant difference in the ergonomics awareness among nurses in UBTH based on years of experience is rejected. Hence there is significant difference in the ergonomics awareness among nurses in UBTH based on years of experience.

Table 5: LSD Pos-hoc Multiple Comparisons

(I) yrs_expe	(J) yrs_expe	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
less than 5	5-10	1.28719*	.37325	.001	.5518	2.0225
	10 and above	.93186*	.36051	.010	.2216	1.6421
5-10	less than 5	-1.28719*	.37325	.001	-2.0225	-.5518
	10 and above	-.35532	.33218	.286	-1.0098	.2991
10 and above	less than 5	-.93186*	.36051	.010	-1.6421	-.2216
	5-10	.35532	.33218	.286	-.2991	1.0098

*. The mean difference is significant at the 0.05 level.

Based on the significant difference observed in the one-way ANOVA for difference in the ergonomics awareness among nurses in UBTH based on years of experience. The LSD posthoc was conducted.

Significant difference was observed between respondent with less than 5years of experience and those with 5-10years of experience (mean difference =1.28) and between those with less than 5years and those with

10years and above. Thus, the respondents with less than 5years experience had higher awareness in the study.

Discussion

The study was conducted to assess the state of ergonomics awareness among nurses in UBTH, thereby paving the way for targeted interventions and improvements in ergonomic practices within the hospital setting. It was observed that majority of the respondents are familiar with the concept of ergonomics in the workplace, aware of the potential musculoskeletal disorders that can arise from poor ergonomics, know the correct body postures and techniques to minimize the risk of musculoskeletal injuries at work), aware of the ergonomically designed equipment and tools available in your work environment, feel that there is a need for more comprehensive training and awareness programs on ergonomics in the nursing profession and ergonomics only focuses on physical aspects, such as posture and equipment design. But they were unaware that about any training or education on ergonomic principles and practices, there is need to seek ergonomic solutions or adjustments for workstations or tasks to ensure comfort and safety, familiar with the specific ergonomic guidelines and standards applicable to nursing

practice and ergonomic assessments and interventions are necessary only for physically demanding jobs, not for office or administrative work. Thus, majority of the respondent were unaware of ergonomics in the study. This is corroborated by Hasan, Salek and Ahmed (2020) when they stated that awareness level was good in only 15% (n= 34) of residents, fair in 16.7% and the majority 68.3% (n= 155) of residents had a poor level of awareness about ergonomics. Poor computer ergonomics was practiced by 49.5% of residents, while fare and good practice of computer ergonomics were found in 24.2% and 26% of residents respectively. Also Ismaila (2010) studied the level of ergonomics awareness in Nigeria revealed that 3.4percent of the respondents were aware of ergonomics signifying that there was very low level awareness of ergonomics in the country. The educational sector and the medical professionals did not fare better as just 10(1%) and 20(2.1%) respectively were aware of the subject called ergonomics. It was concluded that the very low level of ergonomics awareness may be due to the fact that Nigerians were not conversant with the benefits derivable from ergonomics.

In terms of the hypothesis tested, it was discovered that null hypothesis

that there is no significant difference in the ergonomics awareness among nurses in UBTH based on years of experience was rejected. Hence there is significant difference in the ergonomics awareness among nurses in UBTH based on years of experience. The respondents with less than 5 years experience had higher awareness in the study.

CONCLUSION

In conclusion, the findings of the study reveal a mixed level of awareness among respondents regarding ergonomics in the nursing profession at UBTH. While the majority of participants exhibited familiarity with the general concept of ergonomics, awareness of potential musculoskeletal disorders, and knowledge of correct body postures and techniques to minimize risks, there were significant gaps in their understanding of certain aspects. Notably, respondents were largely unaware of specific training or education programs on ergonomic principles and practices, the need for ergonomic solutions or adjustments for workstations, and the existence of specific ergonomic guidelines and standards applicable to nursing practice. Additionally, a prevailing misconception was identified, wherein ergonomics was perceived to focus solely on physical aspects, neglecting the broader scope that

includes administrative and office work.

The study also highlighted a noteworthy outcome regarding the hypothesis testing. Contrary to the null hypothesis, there was a significant difference in ergonomics awareness among nurses at UBTH based on their years of experience. Surprisingly, those with less than 5 years of experience exhibited higher awareness levels compared to their more experienced counterparts. In light of these findings, it is evident that there is a crucial need for more comprehensive training and awareness programs on ergonomics within the nursing profession at UBTH. Addressing these knowledge gaps and misconceptions can contribute to a safer and more comfortable working environment, ultimately enhancing the well-being of nursing professionals and reducing the risk of musculoskeletal injuries. This conclusion underscores the importance of ongoing education and awareness initiatives to promote a holistic understanding of ergonomics in the healthcare setting.

RECOMMENDATIONS

Based on the findings of the study, the researchers recommended

1. Develop and Implement Comprehensive Training Programs: Establish tailored

training programs that cover both basic and advanced aspects of ergonomics, addressing the identified gaps in awareness. These programs should encompass not only physical aspects but also extend to administrative and office-related ergonomic considerations.

2. **Promote Regular Ergonomic Workstation Assessments:** Encourage routine ergonomic assessments for workstations in both clinical and administrative areas at UBTH. This involves identifying and implementing ergonomic solutions or adjustments to ensure comfort, safety, and optimal working conditions for nursing professionals.
3. **Disseminate Information on Specific Ergonomic Guidelines:** Disseminate information about specific ergonomic guidelines and standards relevant to nursing practice. This could be achieved through workshops, seminars, and informational materials, ensuring that nurses are well-informed about industry best practices and standards in ergonomics.
4. **Targeted Awareness Campaigns:** Design targeted

awareness campaigns to dispel misconceptions about ergonomics, emphasizing its comprehensive nature that includes not only physical aspects but also administrative and office work. These campaigns should reach all levels of nursing staff at UBTH and highlight the broader implications of ergonomics on overall well-being.

5. **Monitor and Evaluate Ergonomics Programs:** Establish a system for continuous monitoring and evaluation of ergonomics programs implemented at UBTH. This involves regularly assessing the effectiveness of training initiatives, ergonomic interventions, and awareness campaigns. Adjustments should be made based on feedback and evolving needs to ensure sustained improvement in ergonomics awareness and practices among nursing professionals.

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UNLOCKING THE POTENTIALS OF COMPARATIVE STUDY AND MIXED METHODS IN ASSESSING PROGRAMME EFFICACY

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ABSTRACT

This study explored the untapped potentials of employing a comparative study and mixed methods approach in assessing program efficacy. By combining qualitative and quantitative research methods, researchers can gain a more comprehensive understanding of program effectiveness, identify the contextual factors that influence outcomes, and uncover potential causal relationships. The paper highlighted the benefits of comparative studies, which involved analyzing multiple programs or interventions simultaneously, allowing for cross-comparisons and the identification of best practices. Furthermore, the integration of mixed methods enables researchers to triangulate data, providing a more robust and nuanced evaluation of program efficacy. The findings underscored the significance of adopting a holistic approach that combines both qualitative and quantitative data in assessing program impact, thereby enhancing the validity and reliability of the evaluation process. The paper concluded by emphasizing the importance of embracing the potential of comparative study and mixed methods in future program evaluations to inform evidence-based decision-making and improve program effectiveness.

Keywords: Comparative, Mixed method, Programme, Efficacy

INTRODUCTION

Evaluation is a systematic process that involves collecting, analyzing, and using data to assess the value and effectiveness of a program. Traditionally, evaluation has focused on quantitative data, such as program outputs and outcomes, with less emphasis on qualitative data. However, the limitations of traditional evaluation methods are increasingly recognized, as they may not capture the full range of program

outcomes or account for the complexities of program implementation (Usman, 2017). Comparative study and mixed methods approach offer an alternative to traditional methods, integrating qualitative and quantitative data to provide a more comprehensive view of program outcomes. Program evaluation is an essential tool for assessing the effectiveness of programs and interventions,

informing decision-making, and planning, and improving program outcomes (Xiang et al., 2021). Also, it is a crucial aspect of any organization or institution, as it allows for the assessment of program effectiveness and the identification of areas for improvement. Comparative study and mixed methods are two distinct methodologies that have gained prominence in recent times for evaluating program effectiveness (Joshi & Deshpande, 2019).

By drawing on the strengths of both methodologies, program evaluation can be enhanced, leading to more reliable and valid findings. This topic delves into the exploration of the capabilities of comparative study and mixed methods approaches for program effectiveness evaluation, highlighting their potential for transforming program evaluation practices (Hadi et al., 2019). In recent times, the use of comparative study and mixed methods approaches for program evaluation has gained prominence as an effective means of maximizing program evaluation. The application of comparative study and mixed methods approaches in program evaluation has revolutionized the field, providing evaluators with valuable insights into program effectiveness and outcomes. The use of comparative study and mixed methods approaches in program evaluation offers several

benefits, including the ability to identify program strengths and weaknesses, evaluate the effectiveness of a program relative to other programs, and provide a comprehensive view of program outcomes (Almeida, 2018; Forsythe et al., 2018; Hill et al., 2019).

Comparison and Reasons for a Comparative Study

Basically, comparative study involves comparing two or more programs, interventions, or strategies to determine which one is more effective. This type of study can help identify the strengths and weaknesses of each program and determine which one is most suitable for a particular context. For example, a comparative study can be used to compare the effectiveness of different teaching methods in improving student learning outcomes. To reiterate, comparison involves outlining similarities and differences of two or more different units of analysis. This includes contextual descriptions of two or more different foreign cultures, practices, or systems, which enriches researchers with a diverse outlook on how a particular system works; and how other related factors help in elucidating about similarities and differences of a system (Büchi, 2016). Comparative research exhibits certain features that make it saliently different from other types of research.

For instance, in comparative research the ultimate motive is to explore cases, describe both similarities between the cases or objects of analysis (Esser & Vliegenthart, 2017). Similarly, a comparative study uniquely attempts to establish a relationship between objects and relatively fathom reasons for some of their circumstantial conditions (Esser & Hanitzsch, 2011).

In a broader perspective, comparative study executes various operations that are meticulously interrelated to each other. For example, comparison widens a person's horizon of understanding regarding a particular system by comparing known and unknown two different or similar systems. In addition, its process enables individuals to become much acquainted with other systems and cultures, backgrounds, and successes; hence, conclusions can be made on the likelihood of either backdrop, failure or success of a particular system (Downey & Stanyer, 2010).

In other words, a comparative study provides information that can be used to critically contrast between prevalent issues or practices (Davidov et al., 2014). Likewise, it also provides a ground to test theory across varied settings, evaluate the scope and appraise relevance of certain phenomenon or system; thus,

findings generated can be used universally in the application of that theory (Corley, 2015). Furthermore, comparison constraints researchers from over-generalization based on their findings that shabbily sometimes involve idiosyncratic explanations; and again, comparison exposes a researcher to various alternatives, problems or solutions that can be utilized to solve other prevailing issues within a system or in a society (Norris, 2009).

Sequel to the above compound merits of comparative study, there are other scientific benefits that can be generated while undertaking this type of research. Although, it is quite important before embarking on such investigation to ensure that the cases to be studied are to be explored using the same theoretical framework, models, and methods (Rihoux, 2006). Again, it is also very essential to supplement a comparison with longitudinal dimension known as cross temporal, in a situation whereby spatial comparisons (cross-temporal) are used. This is needed on the basis that systems are not static or solid in their operative nature; however, they constantly transform with the dynamic nature of knowledge, societies, modernization, globalization and commercialization; in essence, these types of transformation can be fully explored

through combining both longitudinal and cross-sectional designs (Esser & Vliegthart, 2017).

Comparative research is interesting and unique in its nature; but what differentiates it from other kinds of research is that comparatists prudently demarcate the boundaries or parameter of the cases under study. To achieve this, researchers should investigate so many features that might be used for comparison. These include political, structural, functional, cultural territorial characteristics (Azarian, 2011). In respect of territorial comparison, the cases might be studies at micro levels; or they might happen to occur either below, above or within a state. Sometimes, it might occur at macro levels involving two different cases from various nations; however, in this aspect a researcher is expected to justify the selection based on similarities and differences within the cases, which could be cultural, functional, and social factors (contextual conditions). Hence, contextual differences are served as guides to interpret different outcomes; whereas similar contextual differences are seen as keys to elucidate similar outcomes (Downey & Stanyer, 2010).

Sequentially, there is what is called a comparative case study that emanates

from comparative study, as general horizon. Comparative case studies call for synthesis and analysis of two or more phenomenon of interest (cases) in terms of their similarities, differences, outlines, but ultimately the cases most have similar focus, which can help easily to generalize or conclude on why and how similar or different policies or programs fail to achieve the stated objectives. Similarly, comparative case studies are carried out over time to compare cases either across or within contexts. Comparative case studies normally employ both quantitative and qualitative methods; and these are mostly useful in investigating the influence of context on an intervention and the possible means to strength or modify the intervention to achieve the desired outcomes (Lijphart, 1975).

Overall, comparative research must fulfil at least four (4) basic conditions before it can be considered as an established and vigorous comparison. Firstly, since from the early stage of the research, there must be a clarified explanation and detailed justifications for the comparison, coupled with defining the research design involved. Secondly, the units or cases of comparison must be explicitly described as well as the other environmental factors involved, such as structure, culture, people, and

practice, who are expected to characteristically influence the cases of comparison. Thirdly, the units of analysis, must be chosen and compared based on having one or more similarities. Fourthly, the comparison should be established based on the similar theoretical framework with equivalent methods and conceptualization; and avoid separate analysis of the cases (Rihoux, 2006).

Mixed Methods Approach: Its Kinds and Benefits

Mixed methods approach combines both quantitative and qualitative research methods to provide a more comprehensive understanding of a program's impact. This approach can help researchers to collect both numerical data (quantitative) and descriptive data (qualitative) to evaluate the program from multiple angles. For example, a mixed methods approach can be used to evaluate the effectiveness of a health intervention by collecting data on both the number of patients who achieved health outcomes (quantitative) and the patient experiences and perspectives on the intervention (qualitative). It is a method of research encompasses both qualitative and quantitative approaches and methods in both data

collection and analysis in one single research work (Doyle et al., 2009). It is stated that mixed method exists as result of disagreements and disputes among scholars on either quantitative or qualitative approach is better to provide answers in social science research work (Tashakkori & Creswell, 2007). Thus, it is widely agreed that mixed method is workable and essential in social science research. It yields all-inclusive and comprehensive findings that are generated through various means of data collection and analysis. However, Creswell and Garrett, (2008), elucidates that to select a mixed method in particular research, there is need for the researcher to make decision in the following components namely, implementation, priority, integration and theoretical perspective regarding the data to be collected.

Accordingly, while utilizing a mixed method approach, there are four (4) cardinal criteria as outlined by Creswell and Garrett (2008), upon which research needs to decide to choose on the type of mixed method to engage upon. These criteria are centred on data collection, analysis, and interpretation decision, whether to start with quantitative or qualitative part. Below are the criteria:

Table 1: Criteria to Guide Researchers' Decision on Choosing Types of Mixed Methods

-
1. Implementation: To determine whether the approach is 'sequence' or 'concurrent'
 2. Priority: To determine which to take much weight; whether equally, or qualitative or quantitative
 3. Integration: At which level, like during data collection, or analysis, or interpretation or combined at two or at all?
 4. Theoretical Perspective: To decide whether it is going to be implicit or explicit.
-

Source: Creswell & Garrett (2008)

Sequel to the above four (4), again, there are six (6) major mixed method strategies expounded by Creswell and Garrett (2008), which includes:

Sequential Explanatory Strategy:

This is also called direct mixed method type strategy in which research begins with the collection and analysis of the quantitative data then proceed to also collect and analyse the qualitative data. Thus, in this type of direct approach, priority is given to the quantitative method. At the interpretation, both qualitative and quantitative approaches are integrated. Purposely, this strategy is normally employed to utilize the generated findings from qualitative results to improve and support the analysis and interpretation of the quantitative findings. Again, this strategy is characterised as simple and easy to conduct, describe and report findings from studies. However, the

process of data collection appears to be time-consuming as it occurs two different stages.

Sequential Exploratory Strategy:

This approach is regarded almost similar with the above discussed strategy, whereby the implementation also occurs in two different stages; and similarly, priority is given to one of the two methods; however, in this strategy, qualitative data is conducted first, hence, it has a priority. Although, the two collected different data are integrated during the stage of interpretation.

Sequential Transformative Strategy:

Likewise, this strategy comprises two various stages for data collection. However, it is more flexible and utilizes equal-based approach in terms of giving priority. In this mixed method, priority can be given first to either quantitative or

qualitative data collection; or both two approaches, especially when it is realized when a researcher sees a chance of accessing the required information. On the integration, the two different collected data are also integrated during the interpretation stage. Contrarily, the sequential transformative design exhibit's theoretical view that provides a roadmap to a study.

Concurrent Triangulation Strategy: This approach appears to be the most used and popular among the six (6) major mixed methods, as it being employed to 'verify', 'confirm', and cross-ratify findings under a one study. Furthermore, in this design, quantitative and qualitative approaches are separately conducted and utilized to offset the weaknesses absorbed from one method by utilizing the strengths inherited from the other method. Accordingly, priority is equally given between the two different methods.

Concurrent Nested Strategy: This approach is almost same with concurrent triangulation strategy. In it, both qualitative and quantitative data are collected simultaneously. It implies a one-time series of data collection approach, meaning at one single phase. Although, this strategy is not exactly similar with concurrent triangulation strategy, as it prioritizes

on predominant method approach that provides a roadmap to the study (either qualitative or quantitative). The less prioritized method addresses different question; or it approaches the raised question using some diverse techniques. Similar with other strategies, the integration happens during the analysis stage.

Concurrent Transformative Strategy: This strategy has almost the same features with sequential transformative strategy as basically a theoretical underpinning guides the study. In other words, in this strategy the study is grounded on a theoretical perspective or supported by a conceptual framework. However, the characteristic of this research is inherited from either nested strategies or triangulation because in this strategy both quantitative and qualitative data are also collected concurrently with having either equivalent or inequivalent priority. Moreover, the integration of both collected data occurs during the analysis stage.

Applications of Comparative and Mixed methods for Program Evaluation

Combining comparative study and mixed methods approaches in program evaluation offers several advantages, including the ability to

identify program strengths and weaknesses, evaluate the effectiveness of a program relative to other programs, and provide a more comprehensive view of program outcomes (Zhang & Bray, 2020). However, there are also challenges in implementing combined approaches, such as the need for specialized skills, resources, and time. Comparative study and mixed methods approach have several advantages in program evaluation. These approaches provide a more comprehensive view of program effectiveness, allowing evaluators to identify program strengths and weaknesses and contextual factors that may influence program outcomes. Additionally, the use of these approaches has been found to enhance the validity and reliability of evaluation findings (Gidron et al., 2019). However, the literature also highlights challenges and limitations in using comparative study and mixed methods approaches. For example, the integration of qualitative and quantitative data in mixed methods research can be challenging, requiring specialized skills and resources (Hill et al., 2019). Additionally, the use of comparative study may be limited by the availability of data and the comparability of programs. To address these challenges, Okolie et al., (2020) recommends that evaluators can take several steps to

maximize the effectiveness of program evaluation using comparative study and mixed methods approaches. First, evaluators should carefully consider the research questions and hypotheses, as well as the available data sources, to determine the most appropriate approach for the evaluation. Second, evaluators should carefully plan and design the evaluation to ensure that the data collected are reliable and valid. Third, evaluators should carefully analyze and interpret the data, using appropriate statistical and qualitative analysis techniques to provide a comprehensive view of program effectiveness. Fourth, evaluators should carefully report the findings, using clear and concise language that is accessible to stakeholders and decision-makers. Additionally, Mitchell (2016), added that it is essential to consider the implications of the evaluation findings for program improvement and decision-making. Evaluators should work closely with program stakeholders and decision-makers to identify areas for improvement and develop strategies to enhance program effectiveness. This may involve developing new program components, revising program policies and procedures, or implementing new training or capacity-building initiatives. To maximize the effectiveness of

program evaluation using comparative study and mixed methods approaches, evaluators should carefully plan and design the evaluation, collect reliable and valid data, analyze, and interpret the data using appropriate techniques, and report the findings in a clear and concise manner. Additionally, evaluators should work closely with program stakeholders and decision-makers to identify areas for improvement and develop strategies to enhance program effectiveness. These might include the followings as suggested by Din et al., (2016):

- Invest in specialized training and resources: Given the complex nature of combining qualitative and quantitative data, it is important to provide evaluators with the necessary training and resources to develop expertise in both methodologies. This can enhance the quality and rigor of the evaluation process.
- Carefully plan and design the evaluation: A well-designed evaluation ensures that the research questions and hypotheses are aligned with the available data sources. This involves selecting appropriate data collection methods and considering the specific objectives of the evaluation.
- Collect reliable and valid data: Rigorous data collection methods should be employed to ensure the reliability and validity of the data. This may include employing standardized measurement tools, ensuring appropriate sample sizes, and using multiple sources of data for triangulation.
- Analyze and interpret the data appropriately: Effective analysis techniques should be employed to integrate qualitative and quantitative data and provide a comprehensive understanding of program effectiveness. This may involve using statistical analysis, thematic analysis, or other appropriate methods.
- Report findings clearly and concisely: The findings of the evaluation should be communicated in a clear and accessible manner to stakeholders and decision-makers. This includes using plain language, visual aids, and concise summaries to effectively convey the results.
- Collaborate with program stakeholders and decision-makers: Engaging with program stakeholders and decision-makers throughout

the evaluation process is crucial for identifying areas for improvement and developing strategies to enhance program effectiveness. This collaboration can ensure that evaluation findings are effectively translated into actionable recommendations.

By implementing these recommendations, program evaluators and decision-makers can enhance the effectiveness of program evaluations and improve program outcomes.

CONCLUSION

In conclusion, the application of comparative study and mixed methods approaches in program evaluation offers valuable insights and benefits for assessing program effectiveness. These approaches provide a more comprehensive view of program outcomes, identify strengths and weaknesses, and evaluate program effectiveness relative to other programs. However, there are challenges in implementing combined approaches, including the need for specialized skills, resources, and time. Despite these challenges, evaluators can take steps to maximize the effectiveness of program evaluation using comparative study and mixed methods approaches. This includes careful planning and design,

rigorous data collection and analysis, clear reporting of findings, and collaboration with program stakeholders to identify areas for improvement and enhance program effectiveness.

RECOMMENDATIONS

Based on the forgone exertion, below are some recommendations for maximizing the effectiveness of program evaluation using comparative study and mixed methods approaches:

- **Invest in Specialized Skills:** Ensure that evaluators possess the necessary skills in both quantitative and qualitative research methods, as well as expertise in comparative analysis techniques. This may involve providing training or hiring professionals with diverse methodological backgrounds.
- **Allocate Sufficient Resources:** Adequate resources should be allocated to support the implementation of comparative study and mixed methods approaches, including funding for data collection tools, software, and personnel.
- **Collaborate with Stakeholders:** Engage with program stakeholders throughout the evaluation

process to ensure their perspectives are incorporated into the design and interpretation of findings. This collaboration can provide valuable insights and enhance the relevance and applicability of the evaluation results.

- **Rigorous Data Collection and Analysis:** Emphasize the importance of rigorous data collection and analysis techniques to maintain the validity and reliability of the evaluation findings. This may involve employing a variety of data collection methods and ensuring data quality through validation and triangulation.
- **Clear Reporting:** Ensure that evaluation findings are communicated clearly and effectively to stakeholders through comprehensive reports that outline the methodology, findings, and implications for program improvement. Use a mix of qualitative and quantitative data visualization techniques to enhance understanding.
- **Continuous Improvement:** View program evaluation as an iterative process aimed at continuous improvement. Regularly review and update

evaluation methodologies in response to feedback and changing program contexts to enhance effectiveness over time.

- **Address Ethical Considerations:** Adhere to ethical guidelines and standards throughout the evaluation process, including obtaining informed consent from participants, protecting confidentiality, and ensuring data security.
- **Disseminate Findings:** Share evaluation findings widely within the organization and with relevant external stakeholders to promote transparency and accountability. This can facilitate learning and knowledge-sharing across programs and organizations.

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POSTGRADUATE DISTANCE LEARNERS' PERCEPTIONS ON THE QUALITY OF THE NATIONAL OPEN UNIVERSITY OF NIGERIA'S VIRTUAL EXAMINATIONS

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ABSTRACT

The study investigated perception of distance learners of the National Open University of Nigeria (NOUN) on the quality of virtual examinations. The descriptive survey design was adopted and 247 participants of the NOUN were randomly sampled in all the six geo-political zones. Two research questions were stated to guide the study. Data were collected using a survey questionnaire. Reliability and validity of the instrument were ensured. Data obtained were analysed using descriptive and inferential statistics. Findings revealed no statistical difference in the perception of distance learners on the quality of virtual examinations. It was recommended that university authorities should embrace the new norm of global digital development to be relevant for quality virtual examinations.

Keywords: Perception, Virtual examination, Distance learners

INTRODUCTION

A virtual examination or remote examination is an examination that a student takes from a location other than the physical classroom or any physical examination center. In a virtual examination, the student is not supervised at a physical location but through a software and webcam. A virtual examination is conducted with the help of the internet, making it location agnostic for both the students and the invigilators. A virtual

examination is similar to a traditional examination. It is time bound and is audited or monitored by an AI-based proctor or a human proctor or both. It works through an online examination management system with remote proctoring features to make it secure, credible, and scalable. Virtually proctored examinations are administered through a robust examination platform that allows

students to take the examination from anywhere.

From these articulations, learners' perception of quality virtual examination involves how learners regard or see the quality of examination they are supposed to in the course of training. Where learners perceive quality of examination to be high and therefore secure, credible, and scalable to achieve their lifelong goals; there is tendency that they will place much premium on it by participating in it. In contrast, where they perceive it to be low, there is the likelihood that they will withdraw themselves from it. Therefore, learners' participation in virtual examinations is a function of their perception of the quality.

Arella (2016) explained that a more authentic, reliable and valid image of the students' learning can be achieved through a blend of formative and summative assessments over time, collected from different websites and books. Chang (2020) in the fourth UNESCO COVID-19 Education Webinar, organized on 9 April 2020 focused on some common issues emerging related to the fairness, authenticity, validity and feasibility of alternative assessments. He advised that learners progress can be assessed to identify learning gaps and offer remedial and accelerated

learning and assessment when schools reopen. It can be viewed that online assessment remotely is quite difficult and it can fail to justify the fairness and validity of students' performance in online testing. Alternative assessment including both formative and summative assessments can be applied with interactive online teaching.

There are traditional assessment tools and alternative assessment tools in open and distance learning. These may be written tests on examinations which may be objectives and essay-based tests/examinations. True/false items, multiple choice, completion and short answer items are all examples of objectives items used in ODL. Technology is seen to have evolved tremendously to offer robust, scalable, authentic and auditable solutions to authorities and institutions, willing to take that step and test new-age technologies to bring in the age of digital examination.

As a result of the Covid-19 pandemic, the initial response in higher education across many countries was to postpone examinations (Crawford et al, 2020). The benefits of virtual examinations include provision of question banks and randomization of questions and automated analysis of

results (Fluck et al., 2009) and reduction in the cost of assessment per student particularly for a large number of students (Karama, 2011). It has the capacity to remove all human errors associated with pen on paper examinations and generate opportunity for students to access their results immediately (Adewaleet al., 2011).

Online teaching seems to be an integral part of post Covid-19 period. Karaman (2011) remarked that online teaching and learning would continue to suit more significant to world universities in order to stay competitive and economically viable. As online teaching and learning become widespread, the attention to online evaluation increases. In the online environment, evaluation is no less critical than in traditional face-to-face environment (Byrnes, Ellis & Ellis, 2006) because measurement and evaluation became an even more exacting part of the educational process. Basically, assessment plays different roles in teaching-learning process. It provides teachers with a means of evaluating the characteristics of their indoctrination. Students also use it to drive and direct their learning. It assesses to measure attainment that is to determine if learning and programmes goals were achieved. Online assessments can be offered at different time, location or

even different test or different student (Harvey & Moge, 1999). This is the modern way of assessment which has come on the scene as a result of the evolution of networks and computers. Although, most of the principles that guide assessment procedures in traditional assessment still apply in e-assessment, e-assessment is largely characterized by online conference discussions which largely depend on technologies that assess communicative ability, demonstration of knowledge and understanding of a topic as well as the demonstration of aesthetic on the spot problem solving skill (Osuji & Okonkwo, 2011).

Conduct of Examinations at the National Open University of Nigeria

Examinations in NOUN are conducted through continuous assessment known as Tutor Mark Assignment (TMA) and pen on paper examinations. The continuous assessment is a web-based assessment that carries 30% of students' final grade. The pen on paper examinations involve essay mode of assessment which carries 70% of students' overall grade. Emphasis in this study is on the pen and paper examination as a major determinant of students' assessment and certification. However, the pen and paper is restricted to students in

300 level and above in all the faculties except in the Faculty of Law where students in all the levels are examined using pen and paper examinations. The conduct of examination as well as the process of producing results at the NOUN had been fraught with various problems leading to inability to release results on time (Adewale, Ajadi & Inegbedion, 2011); certain developmental processes in preparing pen and paper examination questions are fraught with inadequacies which include inappropriate wordings of several questions which led to ambiguity and vague questions (Ukwueze & Eya, 2020). Apart from these anomalies, it is yet to be investigated through research the perception of distance learners to quality of virtual examination in open and distance learning institutions, particularly in National Open University of Nigeria. This underscores the need for this investigation.

As extension of lockdown period of Covid-19 persisted, the problem of conducting pen on paper examinations nationwide in a consistent and transparent manner within a reasonable period of time started becoming intractable. The National Open University of Nigeria came up with the resolution of conducting on-demand virtual examination for students in June 2020

with a rider that once a course is selected for virtual examination, it cannot be made available to the student for physical examination after lockdown order is lifted. In view of this, very few number of NOUN students indicated their willingness to participate in on-demand virtual examinations. This development might not be unconnected with the submission of Adewale et al. (2011) and Ukwueze and Eya (2020) on the conduct of examinations at the National Open University of Nigeria.

Statement of the Problem

School campuses closed due to the Covid-19 pandemic. There is a need to work out how teaching-learning process continued without been able to meet physically with learners. Different countries, institutions and teachers viewed challenges of the Covid-19 on the conduct of examinations in different ways but the common response was the genuine move towards virtual evaluation as students seemed to have found working online from home interesting. Many answers to the problem and measures are being introduced for the examination that learners have been preparing to take. There are many research findings which stated the benefits of virtual assessment from the perspectives of systems, facilitators and students. The perceptions of academics with

regards to online examinations showed concern with using online examinations as the potential for cheating, unreliability of the internet connectivity, ease of use of technology both for the students and for academic.

Apart from these challenges, it is yet to be investigated through research the distance learners' perception of quality of virtual examinations particularly in Nigeria. This underscores the need for this investigation. On this note, the problem of this study is what is the level of postgraduate distance learners' perception of quality virtual examination in National Open University of Nigeria? The difference in the perceptions of the three sets of postgraduate distance learners admitted into the Postgraduate Diploma, Masters and PhD. programmes of the National Open University of Nigeria was also the subject of this study.

Purpose of the Study

Specifically, the study sought to:

- i. investigate the perception of postgraduate distance learners towards the quality of virtual examinations at the National Open University of Nigeria?
- ii. examine if there is any difference in the perceptions of

postgraduate distance learners on the quality of virtual examinations in relation to their programme of study.

Research Questions

The following research questions guided the study:

- i. What are the perceptions of postgraduate distance learners towards the quality of virtual examinations at the National Open University of Nigeria?
- ii. What is the difference in the perceptions of postgraduate distance learners on the quality of virtual examinations in relation to their programme of study?

METHODOLOGY

Research Design

The descriptive survey design was adopted to investigate the perception of the postgraduate distance learners of the National Open University of Nigeria towards quality virtual examinations.

Participants

The population of the study comprised all postgraduate distance learners of the National Open University of Nigeria where 247 of

them were drawn to constitute the sample using convenience sampling technique. During 2021 academic session, the number of study centres of the National Open University of Nigeria rose to 102 and under normal conditions, the stratified random sampling would have been employed, so that we could have a good representation of the population. A breakdown of this sample size indicated 90 were drawn from Postgraduate diploma programmes, while 106 were from Masters’ programmes and 51 from PhD programmes. However, the e-mails of the respondents that registered for postgraduate programmes were collated and only those that responded within a stipulated period were contacted.

Instrumentation

The research instrument was constructed, titled: “Perception of Postgraduate Distance Learners on the Quality of Virtual Examination”, to elicit distance learners’ responses on the quality of virtual examination. The instrument was validated by other scholars with necessary amendments and reliability test as

ensured before it was finally administered on the respondents. It contained two sections – A and B. Section A had demographic variables while Section B were arranged on four-point rating scale consisted of 22 items.

Validity and Reliability of the Instrument

Validity of the instrument was established by two experts in measurement and evaluation. Reliability of the instrument was conducted using Cronbach Alpha method which yielded a coefficient index of .83, a confirmation that the instrument is reliable enough.

Data Analysis

Data obtained were subjected to statistical analysis using mean, standard deviation, t-test statistics and analysis of variance at 0.05 level of significance.

RESULTS

Research Question One: What are the perceptions of postgraduate distance learners on the quality of virtual examinations at the National Open University of Nigeria?

Table 1: Descriptive Statistics of Respondents’ Perception of Postgraduate Distance Learners on the Quality of Virtual Examination

Description	N	Mean	Std. Dev.
Virtual examination is not associated with missing scores	247	2.30	1.06

The issue of sex for marks is more prominent in the conventional methods	247	2.91	1.03
The issue of giving bribes to enhance high marks is less reported in virtual exams	247	2.22	1.13
The purchase of a few lecturers course materials goes a long way to determine who will pass the course in conventional examinations.	247	2.04	1.04
The incidence of irregular matriculation number of students during the virtual examination is not possible.	247	2.92	1.20
The technology used in virtual examination is unreliable.	247	3.17	0.72
Virtual examination are appropriate for my discipline	247	2.48	1.27
Pen on Paper examinations are fairer than virtual examinations.	247	2.30	1.23
When students take examinations without an invigilator, they may find it easier to check answers elsewhere or to discuss the process with others.	247	2.30	1.06
One of the most challenging aspects of conducting remote examinations is ensuring students are not using the internet or other resources to assist.	247	2.91	1.03
Each examination will have a different set of rules, but when conducted remotely it is more difficult to ensure students abide by the rules that are set.	247	1.85	1.14
Students who live in remote areas or areas where connections are bad can face difficulty in completing their examinations on time or even appearing in it.	247	1.68	0.49
Security is one of the critical challenges of virtual examinations.	247	3.53	0.51
Timely examinations can be bad as timing is to be set according to the level of questions.	247	2.11	1.35
Virtual examination provides backup for examination scripts in case of missing scores.	247	2.93	0.58

Carelessness on the part of the examiners could lead to the incidence of missing scripts and irregular matriculation numbers.	247	3.53	0.51
Students who fail to submit the scripts before signing out may not see the results of virtual examination.	247	2.11	1.35
High cost of acquiring computer electronic devices is a challenge to virtual examination	247	1.68	0.49
Learners learn one thing or the other about computers in the process of preparing to write virtual examinations.	247	2.93	0.58
Virtual examination motivates learners to be self-dependent	247	3.53	0.51
Virtual examination can be written at the comfort of my home.	247	2.11	1.35
Erratic power supply is a major challenge to virtual examination	247	1.68	0.49
Aggregate		2.51	

The table 1 showed the mean, and standard deviation of postgraduate distance learners' perception of quality virtual examinations. The mean responses of all the 22 items ranged from 1.68 to 3.53 while the values of the standard deviation ranged from 0.49 to 1.35 with the aggregate mean of 2.51. The table also revealed that 18 out of the 22 items had mean scores above 2.00 which was the yardstick. From this, it could be understood that few of the respondents perceived the quality of virtual examination to be high, secure and credible and devoid of missing scores, immoral and unethical practices. It further revealed that

virtual examinations provided backup for examination scripts. While many indicated that virtual examination had different set of rules, requires huge amount to buy laptop, and those who lived in areas where there is network challenge would find it difficult. Above all their perception on quality of virtual examination was moderate with the weighted mean of 2.51 as compared with norm of 2.50.

Research Question Two: What is the difference in the perceptions of postgraduate distance learners on the quality of virtual examinations in relation to their programme of study?

Table 2: Descriptive Statistics of Perceptions of Distance Learners on the Quality of Virtual Examination based on programme of study

	N	Mean	Std. Deviation	Std. Error
	90	60.26	1.88	0.20
MASTERS	106	59.75	1.93	0.19
PH. D	51	59.51	2.03	0.28
Total	247	59.89	1.95	0.12

Table 3: ANOVA of Perceptions of Distance Learners on the Quality of Virtual Examination based on programme of study

Sources of Variations	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	21.34	2	10.67	2.86	0.06	Not Significant
Within Groups	911.49	244	3.74			
Total	932.826	246				

p > 0.05 (not significant)

The results in Tables 2 and 3 showed that the difference in distance learners’ perception ($F_{(2,246)} = 2.86$) on the Quality of Virtual Examination based on programme of study was not significant ($p = 0.06 > 0.05$). The mean (60.26; 59.75 and 59.51) and standard deviation (1.88; 1.93 and 2.03) values respectively also show insignificant differences in distance learners on the Quality of Virtual Examination based on programme of study.

Discussion

In the study, the finding revealed no

difference in the perception of postgraduate distance learners on the quality of virtual examination of the National Open University of Nigeria. Few of the respondents perceived the quality of virtual examination to be high, secure and credible. The finding of this study is not in tandem with the earlier findings of Attia (2014); Schmidt, Ralph, and Buskirk (2009) who reported that students perceived those virtual examinations saved time, more economical, provided flexibility and trust the result of online than pen on paper examinations. Also, Pagram, Cooper,

Jin and Campbell (2018)) stated that marking virtual scripts was easier and preferred over pen on paper because of the reduction in paper and academics want a system that is easy and quick to create, manage and mark examination. This study negates the insinuations going around with using virtual examination as the potential for cheating and unreliability of the internet connectivity. The finding of this study further revealed that nearly a quarter of the respondents perceived that the conduct of examination, cost of gadgets and internet connectivity cum erratic power supply could pose problems for virtual examinations. The result of this supposition may, therefore, confirm the assertion of Butler and Crawford (2020) that the reliability of the internet connectivity as well as software issues is the more critical concern of the academic. The outcomes of the study might be due to the fact that majority of the learners use smartphones for online engagements and not laptops because some laptops were found to be owned by their parents, relatives, and friends.

No statistically significant difference was observed among postgraduate distance learners on the quality of virtual examination based on programme of study. It contradicts the findings of Rios and Liu (2017) that not all students preferred the idea

of virtual examination, yet studies that considered age and gender identified only negligible differences. Also contradict the earlier findings of Wilcox (2013) that no statistical differences between groups such as academic discipline, age, enrolment status, or previous exposure to college level online coursework, were found to have any effect on students' perceptions of quality in online courses. One possible reason for this unanticipated lack of statistically significant differences between postgraduate distance learners' programme of studies may have been due to the use of a Likert scale with only four choices. Initially, it was thought that a survey using a Likert scale with an even number of options would force students to ultimately decide if they agreed or disagreed with each topic. This lack of choice diversity, ultimately coded to values ranging from one to four instead of one to five, could have possibly led to the statistically similar averages found in the study.

CONCLUSION

The findings of the study have led to the conclusion that no statistically significant difference in the perception of postgraduate distance learners on the quality of virtual examination of the National Open University of Nigeria. It was also obtained that no statistically

significant difference was observed among postgraduate distance learners on the quality of virtual examination based on programme of study. One might have expected differences to emerge in the perceptions of postgraduate distance learners based on programmed of studies (Postgraduate Diploma, Masters and PhD).

RECOMMENDATIONS

In line with the outcomes of this study, the following recommendations are made: Since the findings showed that the mean, and standard deviation of postgraduate distance learners' perceptions on the quality of virtual examinations was above average, this implies that the university authorities should embrace the new norm of global digital development to be relevant for quality virtual examinations. Such a measure is the provision of equipment and internet connectivity at the various study centres and preference should be given to use university computers instead of the learners using their laptops mainly due to issues around operating system compatibility and data loss. There is also a need for the learners to get sophisticated laptops that will enable them to participate actively.

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USING WHATSAPP IN THE TEACHING AND LEARNING OF INTEGRATED SCIENCE

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ABSTRACT

This study explored the use of WhatsApp in the teaching and learning of Integrated Science. Various efforts were made by teachers in simplifying teaching and learning such as applying some digital technologies like WhatsApp, an asynchronous communication to reach the students' presence within any space and time. Despite the facilitation of collaboration between teachers and their students while using WhatsApp, the internet connection related problems including its cost and availability were among the hindering factors for effective collaboration for both students and teachers. The lack of smartphones and computers for some students was among the limitations for the participation of some students. It was recommended that Integrated Science teachers and students should be encouraged to use WhatsApp to advance visualization aptitudes of learning concepts, teachers should supplement their classroom teaching by using novel technologies like WhatsApp group conversation were made.

Keywords: WhatsApp, Integrated Science, Teaching, Learning

INTRODUCTION

The development of technology plays a crucial role in the implementation of Education. This is because education has a very important role in the progress of a nation. Education is one of the effective ways of preparing good generation for better future. As a result, the existence of technology endorses the teaching and learning process in the digital era as it helps the students to be self-determined learners. Modern internet technologies have helped redefine the educational landscape around the

world, and today teachers and learners are witnessing a paradigm shift based on e-learning, which is now slinking persistently through schools. E-learning is a modern method that can be used as a learning tool which utilizes technological applications such as text messaging, images, audio and video. One goal is connecting teachers and students beyond the classroom environment, making it easier to reach diverse learning sources, no matter the time, no matter the place. This is linked to

learning being a result of social interactions in different collaborative contexts. E-learning employs various approaches across different contexts and social interaction situations, thus creating, among other things, a learning environment free from restrictions (Abualrob & Nassal, 2020).

The increasing uptake of smartphones in Sub-Saharan Africa has become an integral part of the contemporary life of students, university lecturers, teachers and learners for engaging with social media (Porter, Hampshire, Milner, Munthali, Robson, De Lannoy & Abane, 2016). Hence, the social networking sites play a definite role in our lives. They are used extensively among students to network and exchange information. On daily basis the number of people joining and using social networking sites is increasing. The emergence of many digital platforms in learning can be an alternative solution due to benefits gained from apps (applications). These made many educators decide to use social networking sites like Facebook, Twitter, BBM, Line and WhatsApp to support their teaching, enhance communication and increase rapport. In addition, all these applications are used on mobile phones that students carry everywhere (Hind et al., 2020). Many secondary school students and teachers alike, have come to

understand the benefits that social network platforms can offer and thus they have started to use them for purposes other than socializing (Asterhan & Rosenberg, 2015). One of such social network platforms is WhatsApp, an application that enables school students to connect with their classmates or teachers at any convenient time to exchange information and instructions via either instant messaging, phone calls or even video calls. By late 2017, WhatsApp had reported around 1.5 billion as active users of the application around the globe (Constine, 2018).

One of the advantages of WhatsApp is enhancing communication. WhatsApp can provide a tool for more consistent and smoother communication between students and teachers, thus creating new venues of education. Teachers are often pressured to cover materials that might be disproportional to the time allocated for each class (arguably owing to the fact that some poorly-performing students need more time for each individual task, which makes the teacher rush to do the rest of tasks under time pressure). WhatsApp also enables immediate synchronous communication, and it is easily accessible by people, including school students and teachers. The application is different from other social networks in that it maintains

the privacy of the people involved, and things they exchange do not go public, as in the case of Facebook, for example (Abualrob & Nassal 2020). To ensure learning takes place in the midst of challenges, some educational institutions have resorted to the use of WhatsApp as one of the platforms for teaching and learning in which Integrated Science as a course of study is not left out (Memić-Fišić & Bijedić, 2017). Therefore, this paper focuses on the use of WhatsApp in the teaching and learning of Integrated Science.

INTEGRATED SCIENCE CURRICULUM AND TECHNOLOGY

The Integrated Science curriculum as reviewed by Chima (2021) is seen as built-in strategies where the learners are required to be involved in inquiry and related activities that can develop critical thinking skills. The integrated science curriculum inculcates the right values and norms of the society to foster development. Furthermore, Yusuf and Alabi (2015) asserted that the overall aim of the Integrated Science curriculum is to ensure the acquisition of appropriate levels of literacy, manipulation, communication and life skills as well as the ethical, moral and civic values needful for laying a solid foundation for lifelong learning. However, according to Chima (2021) the broad

aims of Integrated Science curriculum are to enable students to:

1. Develop interest in and maintain a sense of wonder and curiosity about the natural and technological world;
2. Acquire a broad and general understanding of key science ideas and explanatory framework of science and appreciate how the ideas were developed and why they are valued;
3. Develop skills for making scientific inquiries;
4. Develop the ability to think scientifically, critically and creatively and to solve problems individually or collaboratively in science related contexts;
5. Use the language of science to communicate ideas and views on science – related issues;
6. Make informed decisions and judgments about science related issues;
7. Be aware of the social, ethnical, economic, environmental and technological implications of science and develop an attitude of responsible citizenship; and
8. Develop conceptual tools for thinking and making sense of the world (Yusuf and Alabi, 2015).

USING WHATSAPP IN THE TEACHING AND LEARNING OF INTEGRATED SCIENCE

WhatsApp is a messenger application that works across multiple platforms like iOS and Android and this application is being used among students to send multimedia messages like text messages, pictures, video clips and voice notes (So, 2016). It allows communication between group participants without the need for unity in place or time. Participants are free to choose when they want to access the information posted and can view and interact with other group members regarding the information delivered at any time (WhatsApp Inc., 2020). When learning material is provided via mobile phone, it should be presented in bite-sized chunks which are succinct and precise. WhatsApp is a suitable tool to facilitate this form of learning. Bite-sized materials are stored on the student's device for easy access. Students can conveniently revisit these materials at their own pace and time (Jantjies, 2020).

Integrated Science teachers can teach using WhatsApp by giving an assignment and direction through the WhatsApp group to students. Teachers can use WhatsApp to post integrated science materials, video links, forms, polls and quizzes. Teachers can meet students in real

time and chat any time using voice and camera. Teachers can also administer tests and quizzes. The setback of Microsoft teams is that the platform sometimes goes down and it needs training on both the part of the teacher and students (Suryani, 2017). Procedures that can be utilized in using WhatsApp in teaching Integrated Science are:

1. Use the group chat feature to create Integrated Science learning and study group.
2. Create Integrated Science audio lessons that can be sent directly to students.
3. Stay in contact with students outside the classroom.
4. Send out Integrated Science problems or assignments to students.
5. Send Integrated Science video lessons to students.
6. Send graphics such as pictures or charts directly to students.
7. WhatsApp classes should be held one hour per week to discuss content of Integrated Science courses (Suryani, 2017).

THE IMPORTANCE OF USING WHATSAPP IN TEACHING AND LEARNING

The use of WhatsApp has been adopted for not only socialization but also for teaching and learning processes (Cetinkaya, 2017). This

application empowers students to connect with each other and with their instructors by sharing audios, videos, text messages and documents (La Hanisi et al., 2018). It also provides learners the occasions for online teamwork and collaboration in conjunction with communication and knowledge sharing (Thota & Divatia, 2015).

According to Zan (2015), WhatsApp in the teaching and learning process is used to increase students' motivation, to strengthen communication, to share information, to help the students to learn and to plan their studying process. WhatsApp application is specially designed for educational undertakings that improve communication, creativity, critical thinking and problem-solving skills among students (Kufre & Abe, 2017).

WhatsApp is a social network application that gives the opportunity of sending and receiving direct messages and feedback. It is reasonably a novel educational tool which supports teachers and students relationship by sharing learning activities (Bouhnik & Deshen, 2014). It has been expressed that WhatsApp enhances the environment for communication among educators and learners by sharing content, activities, and videos. WhatsApp helps to clarify concepts by sharing additional content, audio and video for great

clarification. This is in accordance with Suryani (2017) who stated that WhatsApp is a software designed to send text, voice notes and images that are easy to use. The cost of using WhatsApp is very cheap because WhatsApp collects fees from using internet data. When compared to other communication applications such as Instagram, sms, e-mail and others, WhatsApp is still the medium that is widely used today by everyone.

PROBLEMS OF USING WHATSAPP IN TEACHING AND LEARNING

Practically, there must be some obstacles when conducting online learning (Al Faddaa et al., 2020). Firstly, the modality in connecting in the virtual ways is limited. Sometimes teachers and students might experience network problems, thereby making it difficult for teachers to send instructions and materials and also students might have problem downloading the materials sent. Secondly, timing and costs was among the limitations for the participation of some students because it requires the use of high technology like android, smartphone, PC and iPhone for connecting in learning,

CONCLUSION

The main goal of using WhatsApp in education is encouraging student engagement and student-centered education. WhatsApp as a learning

tool is particularly helpful for unconfident, self-effacing students. On WhatsApp, these students can be very open communicators. The confidence they build on WhatsApp will likely help them be more engaged in classroom activities and create in them more positive attitudes toward the learning process. WhatsApp allows one-to-one communication, connects people in closed groups, facilitates interaction through rapid exchanges of text, images, audio and video on mobile phones. These features on WhatsApp are to enhance the teaching-learning process of integrated science.

RECOMMENDATIONS

1. Integrated science teachers and students should be encouraged to use WhatsApp to advance visualization aptitudes of learning concepts.
2. Teachers should supplement their classroom teaching by using novel technologies like WhatsApp group conversation.
3. Educational stakeholders should integrate WhatsApp in teaching and learning to supplement classroom learning.
4. Educational administrators should accept and encourage the use of WhatsApp in

education. WhatsApp should not only be used for communication but also in supporting the process of teaching and learning.

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EFFECT OF TEACHERS' WELLBEING AND JOB MOTIVATION ON ECONOMICS STUDENTS' ACADEMIC PERFORMANCE IN ILORIN METROPOLIS, NIGERIA

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ABSTRACT

This study determined the level of teachers' wellbeing, job motivation, and academic performance of economics students. It also examined the joint and individual effects of teachers' wellbeing and job motivation on economics students' academic performance. A descriptive survey type was adopted for this study. The population consisted of all senior secondary school teachers and students in Kwara state. 200 respondents, which comprised of 50 Economics teachers and one 150 students were selected using convenient sampling method. Results showed that there was a positive significant relationship between teachers' wellbeing, job motivation and students' academic performance. Also, there was a positive significant relationship between teachers' teaching experience and students' academic performance. It was recommended that creating opportunities for collaboration among teachers can have a significant impact on student performance.

Keywords: *Job motivation, Teachers' wellbeing, Academic performance*

INTRODUCTION

Effective teaching and learning are central goals of our educational system. Although seeking to achieve these goals involves many complexities, there are certain factors that have been shown to support them, two of which are teacher well-being and teachers' job motivation. Research has shown that these two factors are linked to teaching effectiveness, resiliency in teaching, quality instructional practices, and students' motivation and achievement.

Professional knowledge, skills and competencies occur when one feels effective in one's behavior. In other words, professional knowledge, skills and competencies can be seen when one is taking on and mastering challenging tasks directed at educational success and performance (Filak & Sheldon, 2019). The above factors are closely similar to efficacy, and, of course, it is well known that many teachers lose or fail to develop self-efficacy within educational settings (Taylor & Ntoumanis, 2019). In addition, teachers' well-being and motivation to work are very essential in the lives of teachers because they form the fundamental reason for working in life. While almost every teacher works in order to satisfy his or her needs in life, he or she constantly agitates for socio-economic

wellbeing. Teachers' well-being in this context is the ability of the teaching job to meet teachers' needs and improve their job/teaching performance.

The importance of well-being among the general population has been well documented. Indeed, philosophers and researchers have been contemplating the issue of well-being for many centuries (Linley et al., 2021). In modern times, research has generally involved consideration of a global measure of teachers' well-being in reference to teachers' life (including both subjective well-being and human flourishing. This type of contextual well-being is known as work-related well-being and refers to a teacher's positive evaluation of and healthy functioning in their work environment (Van Horn et al., 2018). Job Motivation is the drive to act, think, and develop (Deci & Ryan, 2020). Effective motivation requires energy or drive, as well as affective and cognitive guidance. Teachers' can be motivated to undertake an activity because they value it or because there is a compelling external reason (Deci & Ryan, 2020). When motivation results from a teacher valuing an activity, the teacher experiences greater excitement, interest, and confidence, and, in turn, greater performance, persistence, and

creativity in relation to the activity which subsequently lead to enhance student academic performance (Deci & Ryan, 2020). Motivation, therefore, is highly important in students' learning and academic performance.

Motivation of teachers is largely poor in Secondary Schools in Nigeria. Perhaps the forms for motivation are not adequate in terms of salary, allowances and benefits. It could be that non-staff development is ineffective. This implies that there may not be regular training, workshops for teachers. It is probable that the problem of teachers' poor grasp of knowledge affects the rate of learning in classroom activities. Perhaps lack of fringe benefits has made teachers to abandon their role in schools. It is also likely that a poor salary condition hinders the teachers from performing their duties as expected. Teachers' lack of terminal welfare packages could be a factor killing teachers' morale (Ebenezer et al., 2022).

Motivation, therefore, is highly important in students' learning. Motivation is also important in teaching; however, as Watt and Richardson, (2020) have established, research into teacher motivation has been largely overlooked in favour of research on students' motivation. In

spite of this, it is clear that teacher motivation is important for both teachers and students. More specifically, research has shown that teacher motivation is associated with effective instructional practices, greater occupational commitment, greater retention, and reduced emotional exhaustion among teachers. In addition, teachers who are motivated encourage greater motivation and achievement among their students.

Academic performance also known as academic achievement/academic attainment is the outcome of education; it constitutes the extent to which a student, teacher or institution has achieved their educational goals. Academic performance is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important procedural knowledge such as skills or declarative knowledge such as facts.

Economics is a social science that studies how individuals, governments, firms and nations make choices on allocating scarce resources to satisfy their unlimited wants. Economics is concerned with human behavior such as how people earn their living and make a choice between alternatives to satisfy their

wants. It focuses on the study of firms and the government whose activities are geared to the production of goods and services for the satisfaction of human want since economics is concerned with human behavior (Umar & Abdulmutallib, 2017). At the same time, it fits within the frame of schooling wherein it is advocated that education should be relevant to the needs of students (Awotua-Efebo, 2018).

This study examined the effect of teacher's wellbeing and job motivation on economics students' academic performance which has not been effectively researched in Ilorin metropolis of Kwara state, Nigeria. This study is absolutely unique, standout and sacrosanct because of the thoroughness of analytical tools employed to examine the effect of teacher's wellbeing and job motivation on economics student academic performance in Ilorin metropolis of Kwara State.

Objectives of the Study

The main objective of this study is to investigate the effect of teacher's wellbeing and job motivation on economics student academic performance in Ilorin metropolis. The specific objectives of the study are to:

- a. Determine the level of teachers' wellbeing.

- b. Determine the level of teachers' job motivation.
- c. Determine the academic performance of economics student.
- d. Examine the joint and individual effects of teacher's wellbeing and job motivation on economics students' academic performance.

Research Questions

The study attempted to answer the following questions:

- a. What is the level of teachers' wellbeing?
- b. What is the level of teachers' job motivation?
- c. What is the level of academic performance of economics students?
- d. What is the level of joint and individual effects of teacher's wellbeing and job motivation on economics students' academic performance.

Research Hypotheses

The following hypotheses are formulated for the study:

H0₁: There is no significant relative effect of teacher's economics wellbeing and job motivation on student academic performance.

H0₂: There is no significant joint effect of teacher's wellbeing and job motivation on

economics and students' academic performance.

- H0₃:** There is no significant gender difference in teacher's wellbeing
- H0₄:** There is no significant gender difference in teacher's job motivation.
- H0₅:** There is no significant difference in year of experience on teacher's wellbeing.
- H0₆:** There is no significant difference in year of experience on teacher's job motivation.

METHODOLOGY

Research Design

The study adopted a descriptive survey method. The population consisted of all senior secondary school economics teachers and students in Kwara State. Out of the sixteen (16) Local Government Areas, and secondary schools and teachers in Kwara, a total sample of four (4) LGA that form Ilorin metropolis was selected. From where twenty (20) schools were selected, two hundred (200) respondents (fifty (50) Economics teachers and one hundred and fifty senior secondary school students) were also selected using convenient sampling method.

Instrumentation

A questionnaire titled "Effect of Teachers Wellbeing and Job

Motivation on Economics Student Academic Performance in Ilorin metropolis (ETWJMESAP)". The instrument consists of two (2) segments. The first segment (A) is demographic data such as Age, Educational Qualification and Length of service. While the segment (B) was designed to find out "Effect of Teachers' Wellbeing and Job Motivation on Economics Student Academic Performance" (ETWJMESAP) it contains 20 items with four points rating scale used for the participants to indicate their level of agreement or disagreement on the items. Strongly Agree (SA)= 4points, Agree (A)= 3points, Disagree (D)=2points, strongly Disagree (SD)= 1point.

Validity and Reliability of the Instrument

To determine the validity of the instruments, face and content validation were used. The test-retest method was used to ascertain the reliability of the instruments. The data gathered were analyzed using the Pearson Product-Moment Correlation (PPMC) statistic to determine the questionnaire reliability coefficient, and the result obtained was 0.70.

Data Analysis

The frequency count and percentage were used to present the demographic characteristics of the respondents.

Mean was used for answering the research questions 1 to 5, while formulated hypotheses were tested using inferential statistics of Pearson Product-Moment Correlation (PPMC). The hypotheses were tested at a 0.05 significance level. All the analyses were done with the use of a Statistical Package for Social Science (SPSS).

RESULTS

Preliminary Analysis

The demographic characteristics shows that 98.0% (149) are teaching Economics, 0.7% (1) are teaching Accounts, Economics and Marketing respectively. 31.3% (55) are male while 25.6% (45) are female. 28.3% (43) of the respondents are between the age of 36-40, 25.7% (39) are between the age of 31-35, 19.7% (30) are between the age of 26-30, 15.8% (24) are between the age of 41-45, least of the respondents 5.9% (9) are

between the age of 20-25, 3.3% (5) are between the age of 46-50 while 1.3% (2) of the respondents are 51 years and above. Majority of the respondents 38.2% (58) are B.Sc. Ed holder, 37.5% (57) are B.Sc holder, 10.5% (16) are NCE holder, least of the respondents 3.9% (6) are HND holder, while 2.0% (3) are ND holder respectively. Finally, majority of the respondents 59.9% (91) have 1-10 years working experience, 36.2% (55) have 11-20 years working experience, 3.9% (6) have 21 years and above working experience respectively.

Research Question One: What is the level of teachers’ wellbeing?

To answer this research, question the responses of teacher on item 1-8 which is based on teachers’ wellbeing were described and categorized into low, moderate and high levels, and the result is presented in table 1 and 2.

Table 1: Descriptive statistics showing level of teachers’ wellbeing on Economics students’ academic performance

Number of respondents	152
Range	24
Mean	23.44
Standard Deviation	2.94
Minimum	8
Maximum	32

From Table 1, the minimum obtained score is 8, the maximum obtained score is 32 while the mean and standard deviation scores were 23.44 and 2.94 respectively. The computed scores were further categorized as 8-16 “low” level of well-being, 17-25 “Moderate” while 26-32 “High”

level of well-being of teachers on Economics students’ academic performance. The categorizations were subjected to frequency counts and percentages and the profile of teachers’ well-being is presented in Table 2.

Table 2: Descriptive statistics showing level of teachers’ wellbeing on Economics students’ academic performance

Level of teachers’ wellbeing	Frequency	%
Low level	2	1.3
Moderate level	107	70.4
High level	43	28.3

The result in Table 2 shows the level of teachers’ wellbeing on Economics students’ academic performance. From the result, majority of the teachers 70.4% (107) have moderate level of wellbeing, 28.3% (43) have high level of wellbeing while least of the respondent, 1.3% (2) have low level of wellbeing respectively.

Research Question Two: What is the level of teachers’ job motivation? To answer this research question the responses of teacher on item 8-16 which is based on teachers’ job motivation will be describe and categories into low, moderate and high levels, and the result is presented in tables 3 and 4 below

Table 3: Descriptive statistics showing level of teachers’ job motivation on Economics students’ academic performance

Number of respondents	152
Range	24
Mean	24.78
Standard Deviation	2.82

Minimum	8
Maximum	32

From Table 3, the minimum obtained score is 8, the maximum obtained score is 32 while the mean and standard deviation scores were 24.78 and 2.82 respectively. The computed scores were further categorized as 8-16 “low” level of job motivation, 17-25 “Moderate” level of job

motivation while 26-32 “High” level of teachers’ job motivation on economics students’ academic performance. The categorization was subjected to frequency counts and percentages and the profile of teachers’ job motivation is presented in Table 4 below

Table 4: Descriptive statistics showing level of teachers’ job motivation on Economics students’ academic performance

Level of teachers’ job motivation	Frequency	%
Low level	2	1.3
Moderate level	79	52.0
High level	71	46.7

The result in Table 4 shows the level of teachers’ job motivation on Economics students’ academic performance. From the result, majority of the teachers 52.0% (79) have moderate level of job motivation, 46.7% (71) have high level of job motivation while least of the respondent, 1.3% (2) have low level of job motivation respectively.

To answer this question, the academic performance of Economics students was converted into percentage and categorized into secondary school grading system (0-39= F; 40-44 = E; 45-49= D; 50-59= C; 60-69= B; 70 and Above=A) respectively. The categories of academic performance of economics students were subjected to frequency count, percentage and the result is presented in table 5 below

Research Question three: What is the level of academic performance of economics students?

Table 5: Academic performance of Economics students

GRADE	Frequency	%
F	62	40.8
E	15	9.9
D	17	11.2
C	43	28.3
B	12	7.9
A	3	2.0

From the result, majority of the students (40.8%; 62) have ‘F’, (28.3%; 43) have ‘C’, (11.2%; 17) have ‘D’, while (9.9%; 15) have ‘E’ in their Academic performance in Economics, (7.9%; 12 and 2.0%; 3) have ‘B and A’ in their Academic performance in economics respectively.

Research Hypothesis One: There is no significant relative effect of

teacher’s Economics wellbeing and job motivation on student academic performance. To test this research hypothesis, the computed scores of wellbeing and job motivation on students’ academic performance were subjected to multiple regression analysis. The result of the multiple regression is presented in the table 6 below.

Table 6: Simple regression analysis showing significant relative effect of teacher’s Economics wellbeing and job motivation on student academic performance

R=0.075	Unstandardize	Standardized			
R2=0.006	Coefficients	Coefficients			
Adj.R2=-0.001					
F=0.830					
p-value=0.364	B	Std. Error	Beta	T	Sig.

(Constant)	10.606	1.616		6.56	.000
Wellbeing	0.711	0.054	0.646	13.26	0.364>0.05

R=0.016
R2=0.000
Adj.R2=-0.006
F=0.039
p-value=0.843

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	18.804	1.204		15.61	.000
Job motivation	1.037	.092	.583	11.26	0.843>0.05

Dependent Variable: Academic performance

The result of *simple regression* as presented in table 6 shows that each of the independent variables: wellbeing $R(0.016), R2(0.006, AdjR2 (0.001), F value (0.830) P value (0.364>0.05; Not significant)$ and Job motivation $R(0.016), R2(0.006, AdjR2 (0.001), F value (0.039) P value (0.843>0.05; Not significant)$ have no significant relative effect of teacher’s Economics wellbeing and job motivation on students’ academic performance.

Hence, the null hypothesis was not rejected.

Research Hypothesis Two: There is no significant joint effect of teacher’s wellbeing and job motivation on economics and students’ academic performance.

To test this research hypothesis, the computed scores of academic motivations, study habits, creativity of undergraduates were subjected to multiple regression analysis. The result of the multiple regression is presented in the table 7 below.

Table 7: Multiple regression analysis showing significant joint effect of teacher’s Economics wellbeing and job motivation on students’ academic performance

R=0.106 R2=0.011 Adj.R2=-0.002 F-Value=0.829 P-Value=0.438	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	40.747	10.150		4.015	.000

Wellbeing	.571	.449	.129	1.272	.205
Job motivation	-.428	.470	-.092	-.911	.364

a. Dependent Variable: Academic performance

The result of *multiple regression* as presented in the table 7: $R(0.106)$, $R^2(0.011)$, $AdjR^2(0.002)$, $F\ value(0.829)$ $P\ value(0.438 > 0.05;$ *significant*) shows that there is no significant relative effect of teacher’s economics wellbeing and job motivation on student academic performance. Hence, the null hypothesis is not rejected.

Research Hypothesis three: There is no significant gender difference in teacher’s wellbeing. To test this research hypothesis, the computed scores of teachers’ wellbeing was subjected to test of difference using gender as a grouping variable. The result of the t-test is presented in the table 8.

Table 8: t-test showing gender difference in teacher’s wellbeing

	Gender	N	Mean	SD	df	t	P-value
Teacher’s wellbeing	Male	52	23.73	2.91	150	0.168	0.682 > 0.05
	Female	100	23.30	2.97			

The result from Table 8 shows that there was no significant difference in teachers’ wellbeing on Economics students’ academic performance based on gender. Hence, the null hypothesis in not rejected.

To test this research hypothesis, the computed scores of teacher’s job motivation were subjected to test of difference using gender as a grouping variable. The result of the t-test is presented in the table 9 below

Research Hypothesis Four: There is no significant gender difference in teacher’s job motivation

Table 9: t-test showing gender difference in teacher’s job motivation

	Gender	N	Mean	SD	df	t	P-value
Teacher’s job motivation	Male	52	24.67	3.23	150	-0.365	0.133>0.05
	Female	100	24.85	2.60			

The result from Table 9 shows that there was no significant difference in teachers job satisfaction on Economics students’ academic performance based on gender. Hence the null hypothesis in not rejected.

Research Hypothesis Five: There is no significant difference in years of experience on teacher’s wellbeing

Table 9: Difference in years of experience on teacher’s wellbeing

Sources of Variation	Sum of Squares	Df	Mean Squares	F	P-value
Between Groups	135.911	2	67.956	8.598	.000<0.05
Within Groups	1177.668	149	7.904		
Total	1313.579	151			

From the result in Table 9, given the f-value of 8.598, p-value 0.000< 0.05 for teacher’s wellbeing based on year of experience (Rejected). Therefore, the result of the ANOVA shows that there existed a significant difference

in teachers wellbeing based on year of experience.

Research Hypothesis Six: There is no significant difference in year of experience on teacher’s wellbeing.

Table 10: Difference in year of experience on teacher’s job motivation

Sources of Variations	Sum of Squares	Df	Mean Square	F	P-value
Between Groups	18.214	2	9.107	1.143	0.322>0.05
Within Groups	1187.050	149	7.967		

Total	1205.263	151
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From the result in Table 10, given the f-value of 8.598, p-value $0.322 > 0.05$ for teacher's job motivation based on year of experience (Not rejected). Therefore, the result of the ANOVA shows that there existed no significant differences in teacher's job motivation based on year of experience.

Discussion

First, it was discovered that there was a positive significant relationship between teachers' wellbeing and job motivation and student academic performance. In a similar result, Ortan et al., (2021) reported that certain factors such as self-efficacy, promotion, positive student behavior, and working conditions have significant effects on job satisfaction.

This suggests that teachers who possess higher qualifications in the field of Economics are more likely to have a more positive impact on their students' academic achievements. Second, the study reveals a positive significant relationship between teachers' teaching experience and student academic performance. This implies that teachers with more years of experience in teaching Economics tend to have greater influence on their students' academic outcome than those with few years of experience.

Furthermore, the study highlights a positive significant relationship between teachers' subject content knowledge and student academic performance. This implies that teachers who possess a deep understanding and mastery of the subject matter in Economics are more effective in facilitating their students' learning and improving their academic performance. Finally, the findings demonstrate a positive significant relationship between teachers' pedagogical knowledge and student academic performance. This indicates that teachers who are well-versed in effective teaching strategies and methodologies specific to Economics are more likely to contribute to their students' academic success.

CONCLUSION

Based on the results, it can be concluded that the study indicated a positive significant relationship between teachers' wellbeing and job motivation and student academic performance. Also, there existed a significant difference in teachers wellbeing based on year of experience. However, there was no significant difference in teachers job satisfaction on Economics students' academic performance based on gender. Again, that there existed no

significant differences in teacher's job motivation based on year of experience.

RECOMMENDATIONS

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

1. To improve students' academic performance, it is crucial to provide ongoing support and mentorship programs for less experienced teachers. This support can include opportunities for collaboration, observation of experienced teachers, and sharing best practices in teaching Economics.
2. Offering professional development workshops, seminars, and access to scholarly resources can help teachers stay updated with the latest research and developments in the field. As the findings indicate a positive relationship between teachers' pedagogical knowledge and students' performance, it is essential to provide teachers with training and resources to enhance their instructional methods.
3. Offering workshops on effective teaching strategies, classroom management techniques, and student-centred learning approaches can empower teachers to create engaging and effective learning environments.
4. Establish a collaborative learning culture: Creating opportunities for collaboration among teachers can

have a significant impact on student performance. Encouraging teachers to engage in professional learning communities, where they can share ideas, resources, and experiences, can foster a culture of continuous improvement.

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A HISTORICAL ANALYSIS OF DIRECTIONS AND DIMENSIONS OF INNOVATIONS IN HISTORY IN THE 21ST CENTURY

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ABSTRACT

This study analysed the directions and dimensions of innovations in History in the 21st Century from the perspectives of concept definitions and application of theories in the Nigerian context. Over the years, History has witnessed series of innovations whereby unlike the old curricular, which were sketchy and quite abstract, the new thematic curriculum, content-wise, are very informative and direct to issues. Therefore, the focus of this study was to highlight the challenges, prospects, directions and dimensions of innovation in the Nigeria History and Diplomatic Studies.

Keywords: Direction, Dimension, History, Education, Innovation

INTRODUCTION

History is the study and careful evaluation of the past incidence and events that took place in the society. Historians are concerned with what happened in the past, and the reasons for such occurrence in order to prevent a repeat of such ugly past events in the present. History could be viewed as systematic analysis of the past events, in order to build and plan the present for effective future. (Judith, 2007). It is pertinent to mention at this juncture that, many non-professional historians, erroneously believed in the past that history is just mere narration of the

past. Some were of the opinion that history is just about rise and fall of empires. But, professional historians know the Nitti gritty of history. They understand the true meaning of history and the place of history in nation building. Hence, the importance of this work, the study of directions and dimensions of innovations in History in the 21st Century. It critically evaluates the effectiveness and usefulness of History in National Development in the 21st century. There have been quite a number of interesting

development and wonderful innovations in the study of history. In the same vein, there have been a number of new directions and dimensions introduced in the teaching and learning of history. This cut across from the perspective of concept definitions and application of theories in the Nigerian context. (NCSS, 2011).

It could be stated therefore, that the objective(s) of this study is to educate and enlighten the society about the various transformations that have taken place in the study of history and the development which have also occurred locally, nationally and in the global world.

Definition of Concepts

For effective treatment and understanding of the topic, let us first and foremost define the key words:

1. According to the Oxford Advanced Learners dictionary, **direction** refers to the general position of a person or thing, or points towards the general way in which a person develops a purpose or aim. (Judith, 2007)
2. **Dimension:** the same dictionary looks at dimensions as a measurement in space. For example, the height, width or length of something (Oxford Advanced Learners, 2007, p.439)

3. **Innovations:** the introduction of new things, ideas or ways of doing something (Oxford Advanced Learners, 2007, p.838) According to Adewuya (2013), History is a problem approach discipline through which man studies and learns about problems and survival in the environment. History deal with the relationship of human beings to the world in which we live. Also Iyamu (2003) defined History as the area of knowledge which examines and explains how man influences and, is influenced by the physical and cultural environment.

In essence, we can conclude that History is a discipline that studies man, the world around him and how he uses the elements of his environment to adapt to changes and solve his problems. It is therefore a problem-solving approach discipline.

4. Innovations

Before we begin to talk about the new things that have come up in History and Diplomatic Studies, its' important to quickly remind ourselves of the old things of the subject as it is better to learn from the known to the unknown. And so, some of such known developments that could be regarded as being the events that

laid the foundation for the recent innovations can be seen in the areas of:

- (a) Curriculum Development
- (b) Methodology
- (c) Principles and strategies

(a) Curriculum Development:- in the early 1960s when History and Diplomatic Studies was introduced into the Nigerian School system shortly after the independence, one of the first steps taken to encourage the teaching of History in the Nigerian school was the development of a National Primary School curriculum Guild in 1971 and it was revised in 1981 which was considered as a fundamental break through especially in the areas of conception of History, learning outcomes, and the general methods of teaching History and Diplomatic Studies.

SCOPE AND DIMENSIONS OF INNOVATIONS

There is vast array of innovations in History and Diplomatic Studies ranging from teaching methods or strategies (a variety of approaches which a teacher uses to motivate, induce and direct learning) to instructional materials and resources in teaching History and Diplomatic Studies.

For the purpose of this write up the various methods, principles and instructional resources to be discussed here are based on current and innovative ideas/ work about the organization of teaching History for effective learning. (Bolarin, 2000).

- (i) **The use of models:** Recently the use of models has been found to be an effective way of teaching History. According to Akinlaye (2003), there are two aspects of the models for effective learning.
 - (a) The learning principles. This assumes that learning is essentially an individual matter; it mainly revolves around the 3 most important learning theories of Motivation, Reward and Practice (Pavlov's S - R experiment). (Iyamu, 2003).
 - (b) The second aspect of the Pavlov Theory is called the Teaching Principles. These describe a way of organizing teaching which helps to promote effective learning”
- (ii) **Improvement on the curriculum:** Another innovation in History today is the **improvement** that **History curriculum** has witnessed and its introduction into many higher institutions of learning in Nigeria. For

instance, the draft National Curriculum of History for primary school that was revised in 1981 was presented to the reference committee on primary education for approval in 1982. This helped the writers when revising the curriculum to re-emphasize the goals and objectives of the Nigeria Policy on Education in the History curriculum to meet the yearning and aspirations of the learners. (Judith, 2007).

It is informative also that the National Policy on Education has recently in 2014 been revised. This is done with a view of bringing the curriculum of all subjects including that of History up to date since it is the **goals, aims and objectives** that are entrenched in the policy that will eventually indicate the direction of curriculum change and its improvement. As a result of the revision of the National Policy on Education, the objectives of History have been given a boost to accommodate and reflect the changes coming from the society. (Milkey, 2000).

There is another innovation in the area of objectives that makes the content of History and Diplomatic Studies in Nigerian more relevant to the needs of the learners

(iii) The Use of Modern instructional materials (Audio Visual Aids)

When History was first introduced in the early 1960s in Nigeria, there were no such things as audio-visual resources like T.V sets, projectors, computer sets, audio-recorded materials, hand set. But now all these are being put to use in the teaching of History and Diplomatic Studies.

Research has shown that 70-80% of what are heard and seen are usually not forgotten. Researchers therefore recommended that proprietors of schools; the political class should *adequately fund the provision of audio-visual materials to schools and make them functional* (Akinlaye, 1999).

(iv) Methodology: Nowadays teachers are being exposed to new and more appropriate methods of teaching History and Diplomatic Studies. Some of such examples are:

- Learning activities packaged (LAP)

- Mastery learning (ML)
- Advanced organizer (AD)
- Mapping in History
- Solving method which includes the following: teaching behaviours, inquiry discovery, questions, values clarifying strategy, with all these various methods in History, value development in learners which is the crux of the mission of the History and Diplomatic Studies in contemporary Nigeria is easily achieved. (Constance, 2011)

(v) Environmental/Community Resources

These are community-based resources that History educators have discovered to be very effective in the teaching of History. In many History programmes, the community is the focus of study, the learning facilities that are plentiful in the community should make the communities becomes viable History classroom walls. (Johnson, 2001)

(vi) The Use of Specialist Teachers.

There is a new trend that has becomes almost compulsory now that only History graduates are the ones employed to teach the subject in most of our colleges, and tertiary institutions. This will help to eliminate quack

practice and inject professionalism in the teaching of History and Diplomatic Studies in Nigeria. (Lean, 2005)

(vii) Job description

In many institutions of higher learning in Nigeria, the governing councils often engage not only the History teachers in job description exercises but also organize seminars, symposium, in service-training from time to time. And all this helps to expose the History teacher in a more pedagogical way to discharge his/her duties effectively. (Lean, 2005)

(viii) Observance of Cultural Day:

- This is organized in such a way that the pupils are encouraged to dress in their own traditional attires to reveal their tribal identity. In some cases, pupils are allowed to cook their native food and carry to school. This practice enables fellow students to see and learn practically what obtains in other cultures outside their own. (Constance, 2011)

(ix) Sexuality Education:

-The inclusion of sexuality education in History curriculum of recent is another innovative step that is creating a lot of awareness

among our youths to know how to avoid so many health problems associated with sex issues. Sexuality Education is a planned process of education that fosters the acquisition of factual information, the formation of positive attitudes, beliefs and values, as well as the development of skills to cope with the biological, psychological, socio-cultural and spiritual aspects of human sexuality (Judith, 2007).

The main goal of sexuality education is the promotion of sexual health by providing learners with opportunities; respect and value for themselves and others, and acquires the skills needed to make healthy decisions about their sexual health and behaviour. (Judith, 2007)

- Adolescence is a time when young people are learning a great deal about themselves and adjusting to rapid changes in their bodies. They need information and assurance about what is happening to them. As they mature, some feel confused about the changes occurring. Coping with the new sexual feelings, and trying to assess

conflicting messages about who they are and what is expected of them.

- Parents, educators, and community leaders all face the challenge of creating environments that support and mature good sexual health. Many people still believe that sexuality education would encourage “sexual experimentation” but a study commissioned by WHO in 1993 conclusively showed that, contrary to long-held beliefs” no significant relationship existed between receiving formal sexuality education and initiating sexual activity. (Iyamu, 2007)
- Rather, sexuality education results in postponement of education in the frequency of sexual activity and more effective use of contraception and adoption of safer behaviour.

In 1999, the National Conference, on adolescent reproductive health in Nigeria reviewed the status of the country’s compliance with the 1994 conference; they affirmed in their report that “the reproductive health needs of adolescents as a group has been largely

ignored to date by existing reproductive health services.

In 1996, Action Health Incorporated (AHI) convened a National Task Force made up of government and Ngos, to develop the guidelines for comprehensive sexuality education in Nigeria.

- This new guideline incorporated into History curriculum new topics such as sexuality, (Behaviours, Health, etc) Relationship, personal skills (e.g. values, self-esteem, assertiveness). (Mohammed, 2011)

Leah (2005) suggested some ways which can help adolescent to avoid indulging in early sex. She says:

- (i) “you may decide to occupy your time by being a member of Girl Guides, Science Club, Red Cross Society, Conservation Club, School Band, Interact Club, Morality Club, to mention only a few, etc,
- (ii) Also, avoid obscene music and films and staying out late in the night
- (iii) Try to always take to the advice of your parents or guardians.
- (iv) Avoid staying around with opposite sex for too long in isolated places. If you used to

have sexual intercourse, it is not too late to stop it” (Leah, 2005, p.24).

This awareness is also helping parents, school authority and the government alike to minimize frequent sexual problems arising from ignorance of the young ones in handling these sexual matters among themselves. This consequently is helping all parties concerned to avoid wastages of human lives and finances that usually from teenage pregnancies and abortion.

(x) The Formation of History Association of Nigeria (SOSAN)

The Formation of History Association of Nigeria in the late 60’s was another bold step towards the development of History innovations. In presenting a paper recently on – *Historical development of History teaching in Nigeria secondary schools*, Adewuya (2013) noted that “the process of dissemination of secondary school History outside Aiyetoro began in January 1969 at a fourteen-day seminar in which teachers representing 25 secondary schools selected from all over the country took part (p.20).

The seminar group which formulated a scheme of work also constituted the nucleus of the membership of History Association of Nigeria (SOSAN), with Prof. Aliu Fafunwan as its first president involved from 1965 in the

developmental process of History as one of its pioneering members. It was at the National Curriculum Conference held from 8th-12th September, 1969 and at which SOSAN presented a case for a history in the primary and lower classes of secondary schools in Nigeria' that History and Diplomatic Studies in secondary school assumed a new status and dimension through its national recognition and universal adoption as one of the curriculum tools which could be used by Nigerians for self-realization. More specifically, its entry into the Nigeria school system was hailed because of its utility in assuaging the on-going conflict and dissension expressed through the Nigeria – Biafra war (Akinlaye, 1997).

In conclusion, he said that “In the National Policy on Education (Revised Edition, 1981), History was seen as mostly suited for the purpose of uniting and welding Nigeria’s pluralistic culture into a strong progressive polity”.

(xi) Citizenship Education

Citizenship education in History is creating a lot of awareness in this child about his various rights in the society. Those rights that protect his personal security such as:

Right to life, right to fair hearing, right to freedom of association etc. all

help to mould him into a well-balanced secured individual whereas in time past citizenship education was taught only in civic studies in the secondary school but with this innovative trend, children in primary schools are now being taught citizenship education in History and Diplomatic Studies (Akinlaye, 2003).

(xii) Gender Issues: this is a major development that cannot be overlooked in History innovations. Right from primary school, the boy-child or the girl-child is exposed to his/her roles both at home and in the larger society. Gender issues in History curriculum also expose the learners to the careers that are meant for the different sexes and thus they are well guided when making their career choices (Leah, 2005).

(xiii) Safety Education that was hitherto limited to science related courses has now through the wave of innovation found its way into the scheme of History. And it is helping the young learners to identify those things that are dangerous in their environment. And this helps him/her to carefully handle objects that can cause harm either to him or to others when making use them. (Milkey, 2000).

For instance, in safety education in History, learners are taught to:

- (a) Choose a good place to play
- (b) Avoid playing with electricity
- (c) Look left and right and left again before crossing busy roads.
- (d) Avoid handling dangerous objects like razor blade, pin, hot iron, fire, petrol, cutlass, and a host of others.

(xiv) Another innovation in History and Diplomatic Studies in Nigeria is the Recently Developed Senior Secondary School Curriculum which took place in 1984. Though it has not been put to use since then, but its evolution is a sign that soon or later it will be implemented and that will kick off the teaching and learning of History at the Senior Secondary School level in this country (Leah, 2005).

(xv) **HIV/AIDS:** Leah (2005) says “HIV stands for Human Immunodeficiency Virus (HIV). The ‘Human here means that it affects only human not animals.’ Immunodeficiency means that the fighting agents of the body are no longer strong enough to protect his body. Virus is a very tiny living creature that harms the body. It cannot be seen with the ordinary eye. AIDs stand for Acquired Immune Deficiency syndrome. Acquired here means the disease develops as a result of infection. The virus can however be inherited or transmitted. Immune deficiency means that the ability of

the body to fight diseases has been destroyed and the body can no longer protect itself from diseases. Syndrome means it does not come with a single disease but rather with many different normal diseases, like catarrh, cough, diarrhea, skin rash, fever or tuberculosis (Adewuya, 2013)

When the Human Immunodeficiency Virus (HIV) gets into a person’s body, the person is said to be HIV positive. At the early stage when the virus has just entered the body, the carrier will, look seemingly healthy but after sometimes the HIV will start destroying the immunity, that is, the fighting agents which protect the body from the diseases...these diseases called ‘opportunistic diseases attack him (the victim) easily taking opportunity of the fact that his defense system has been destroyed. At this stage he is said to have AIDs. He/she soon becomes very sickly and bony and then dies. HIV develops into AIDs. Aids is the later part of HIV infection”. With this innovative trend in History and Diplomatic Studies, the learners are better equipped with relevant information; they need to know how to protect their health from danger. (LeH, 2005)

(xvi) **Science and Technology**

Skills from science in innovative History and Diplomatic Studies are helping our learners to develop a

greater sense or appreciation for not only natural things around them but only for man-made things in the environment. Thus, they are being stimulated in science related courses. And this has helped courses such as engineering, medicine, architecture, pharmacy, computer science, and mathematics in higher institutions of learning.

Consequently, the nation has witnessed the establishment of more universities of science and technology and polytechnics to create more room for the ever-increasing number of candidates applying for science courses in tertiary institutions of learning. And this in turn has led to the creation of wider job opportunities for the teeming population thereby reducing the menace of stealing and arm robbery in our society today.

This is another way innovative History sets out to transform the school curriculum from the usually dull blend of only history, civics and geography to a program that would engage students actively and even change their lives using a variety of logic ideas, facts, skills, knowledge, concepts, principles, theories and generalization etc. not only from the arts and social sciences but also from the pure sciences.

In technology, learners are made to learn principles, theories that lead to discoveries and inventions. And all these are helping to equip the learners with more adaptation skills in taking mastery of his environment to transform it into a more conducive one from time to time.

That is why today we have better and more sophisticated, modern architectural design in our houses, better and faster moving trains.

We talk of being in the “jet age” because more advanced aeroplanes that travel almost at the speed of light have recently been invented. With all these in the environment of the History learner, his mind is constantly being challenged to put his creative senses to work and the result is an expansion of knowledge and vision that lead to the development and modification of his physical and social environments.

(xvii) Drug Abuse: many of our youths are becoming more constantly aware of the danger of drug abuse as a result of innovation in History and Diplomatic Studies. Cocaine, marijuana, Igbo or grass are some examples of drugs that are abused by young people. Marijuana is gotten from a plant called cannabis sativa. Cannabis or India hemp is one of the most commonly abused drugs in Nigeria. Such abusers according to

Leah Carr are mostly young people, students inclusive that are below the age of 35. She says that the use of Indian hemp has its undesirable effects but by far the most serious is the strong link between cannabis and crime, venereal diseases, dismissal rate among the youths as well as high dropout rate from schools.

Other serious effects she mentions are Distortion of the senses, bloated confidence, hampered performance, major hazards are: users end up with mental illness, commit criminal acts and also constitute serious danger to the society.

Cocaine can cause fever abdominal pain, and vomiting, mental deterioration, weight loss and change of character, death may occur almost immediately after the use of cocaine, over dose or may be delayed by one to three hours. Cocaine and marijuana (which is also called India hemp or Igbo) are very dangerous when used by young people who are still growing to maturity.

It has been observed that most drug abusers use syringes to inject these drugs into their bodies, they don't mind using one syringe for several users. This can lead to the spread of HIV/AIDs and other form of diseases. Some preventive measures are:

- i. Avoid the use of drugs that are not recommended by doctors.

- ii. Always follow doctors' prescription when using any drug.
- iii. Avoid bad friends who can introduce you to discriminate use of drugs.
- iv. Hid the warning of the Federal Ministry of Health that "smokers are liable to die young".
- v. Help the police with information that will lead to the arrest of drug traffickers and abuses.

AIMS AND PURPOSES OF INNOVATIONS

Now that we have seen some of the innovations, let us look at the purposes and aims they serve in the teaching and learning of History and Diplomatic Studies in Nigeria.

- i. **Motivation:** innovations such as computer set, TV set, when used in the teaching and learning of History help to motivate learners since they can see the pictures the teacher is talking about.
- ii. **Retention of memory:** Teachers need to allow students to feel see and touch the specimen or models and this will aid their remembering of what they have learnt. Johnson (2001) said that 70% of what he heard and saw are usually not forgotten.

- iii. They help learners to **adjust** very quickly to what is being taught.
- iv. **Improvement of social relationship:** A lot of these innovations when put to use in History help improve social interactions among learners.
- v. **They foster in learners the spirit of team work:** When they are grouped to use a particular strategy or instructional material, it makes learners to appreciate one another.
- vi. **Innovations make learners more familiar with their environment:** According to Akinlaye and others (1997) innovation “teaches about things that exist in the environment” (p.186), thereby making learners to become familiar with his environment and that makes him to be friendlier with his community.
- vii. **They develop in the learners’ creative thinking.** When the learners are brought in contact with new techniques, ideas, methods, they begin to ask questions in order to find

solution to what they do not know. And this foster in them critical thinking especially when the teacher asks the question without mention the name of any of them. (Iyamu, 2003)

- viii. It makes teachers to bear in mind certain criteria when using innovations or instructional materials/resources. (Iyamu, 2003)

CRITERIA TO CONSIDER WHEN USING SOME OF THE ABOVE INNOVATIONS TO TEACH HISTORY AND DIPLOMATIC STUDIES IN NIGERIA

The teacher must consider the following when using innovations like the computer set, projector, movie-film, tapes, large models etc.

- i. The teacher must consider the **relevance** of the material to what he is going to teach.
- ii. He must also put into consideration the **simplicity and potential** of the new material to highlight the points of the lesson.
- iii. The amount of **time** it would take to present the material must also be

considered because whatever in innovation or new material that the teacher want to use in teaching his History lesson should not take too much of the time of the lesson. (Milkey, 2000)

PRE-REQUISITE PREPARATION BY THE TEACHER BEFORE EMBARKING ON THE USE OF SOME OF THE INNOVATIONS ABOVE

There are some basic things the teacher must do before he embarks upon the use of any innovation at any time.

- i. He must familiarize himself with how to manipulate the material. If he does not, he should bring a resource person who can effectively manipulate the material while he does the theoretical explanation.
- ii. He must not bring *dangerous materials or object* that will create fear in mind of learners to the classroom.
- iii. Finally, the teacher should note that *materials to be used for any lesson in History and Diplomatic Studies must be made ready* before the time of

the lesson. (Johnson, 2001)

CONCLUSION

From the foregoing analysis and discussion, it could be rightly said that perhaps, the greatest hurdle in Nigeria's path towards achieving school-based citizenship education for its schools in the 21st century is politics. As observed by Constance, (2011), "citizenship education has proved to be an infinitely malleable concept in the minds of politicians which is refashioned on a regular basis in line with the prevailing ideology" (p14).

The prospects of innovations in History and Diplomatic Studies are very bright. With several reforms carried out and some on-going prospects such as the reform in curriculum development as well as the introduction of citizenship education, civic education and moral education all aimed at brightening the innovations crusade in History and Diplomatic Studies.

Similarly, it should be noted that Nigeria is richly endowed with human resources including the youth who remain very vibrant and full of potentials for maximum contribution to national development. Finally, meaningful History builds curriculum networks of knowledge, skills,

beliefs, and attitudes that are structured around enduring, understanding, essential questions, important ideas, and goals which promote effective prospects of innovations of the subject. It is important to end this work with one of the quotations of Martin Luther King that, “*the function of education is to teach one to think critically... intelligence plus character equal the goal of true education*”. And that is the essence of dynamic innovations in History and Diplomatic Studies.

RECOMMENDATIONS

The following are recommended in this study namely;

- a. History curriculum should be reviewed periodically to stand the taste of time.
- b. Voluntary organization, religious bodies and professionals should be encouraged to plan and organize leadership and civic education for youth, especially when they are on school vocations.
- c. Parents should be encouraged to make their children participate in holiday civic education programme.
- d. Modern technology should be introduced into schools to facilitate easy teaching/learning activities.
- e. It is therefore no enough for the teacher to teach to develop the

highlighted skills for teaching. Rather, the teacher is expected too equally use his/her teaching to develop highly desirable values and attitudes needed for good citizenship.

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EFFECTIVE CLASSROOM COMMUNICATION IN SECONDARY SCHOOLS IN ILORIN METROPOLIS, KWARA STATE

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ABSTRACT

Effective communication is an essential aspect of classroom setting and a vital tool for student engagement, motivation, information sharing, education and training, socialization and preservation of school culture. This study investigated perception of students on effective classroom communication in secondary schools in Ilorin metropolis. The study was a descriptive design of the survey type. The population comprised of all junior secondary school students in Ilorin metropolis. Using convenient sampling techniques, 500 students were selected as participants for the study. A questionnaire was developed to gather information from participants. Data collected were analyzed using Multiple Regression statistical method. The findings revealed a significant combined positive influence of students' reinforcement, active listening, teamwork and emotional control on classroom communication in secondary schools in Ilorin metropolis. Also, there was a significant relative influence of students' reinforcement, active listening, teamwork and emotional control on classroom communication in secondary schools in Ilorin metropolis due to effect size. It was concluded that active listening on the part of teacher and students should not be ignored as this study has confirmed it significantly influence effective communication in the class. The study recommended that there is the need for teachers to value and respect students' opinion by actively listening to them during and after lessons. In order to achieve success in communication therefore, a teacher has to play different roles of being a facilitator, mentor, motivator, guide, good speaker as well as an active listener.

Keywords: Communication, Reinforcement, Active listening, Teamwork, Emotional control

INTRODUCTION

Education and Communication are intertwined; they complement with multiple interactions. Education is a life-long process needed for human continued existence likewise, information sharing is essential for

the survival of mankind, without it, human being cannot thrive. Communication starts from birth when the child begins to interact with the environment and mother starts to understand the unexpressed behavior

of the child. From childhood, children are nurtured by parents at home and taught by teachers at school through different means and modes of communication. The ultimate purpose is to express feeling and share information which could help to educate the child, train, socialize, motivate, persuade, and further transmit and preserve cultural values. This corroborates the description of education as conceived by scholars (Valente et al., 2022; Mathews & Arulsamy, 2020) to be conscious and unconscious process of cultural transmission and renewal; whereby a child's behavior is developed to the fullest extent through learning acceptable values, morals and principles in a way that both the child and society enjoy maximum happiness and prosperity. Over time, culture began to extend beyond learning good morals from immediate family to skill acquisition through other forms of education making information sharing become imperative.

Premise upon the system theory, the entire education sector cannot operate in isolation, it has to constantly interact with other sub-systems. Its successful operations as a social system is based on effective communication process. Information dissemination in school is necessary as it helps in molding a child's

behaviour, opinion and making an informed decision about the child in particular and the entire education system in general. Overall, effective communication is essential aspect of any classroom setting for promoting a positive learning environment, enhancing student engagement and understanding, and fostering collaborative learning. It involves the exchange of information, ideas and feedback between teachers and students, as well as among students themselves.

Effective communication in the classroom promotes a positive learning environment, enhances student engagement and understanding, and fosters collaborative learning. It requires active listening, clear and concise speaking, and the ability to ask and answer questions. Without effective communication, classroom interactions cannot take place and ultimately teaching and learning will be affected. Thus, if communication is hindered, the process of knowledge sharing and acquisition will be distorted. Therefore, teacher should create a positive and inclusive classroom environment that encourages students to express their thought and opinions to be able to actively participate in discussions and ask questions for clarity.

Neill (2017) posit that classroom communication differs from other

forms of communication in a variety of ways. Specifically, communication between teacher and students is grounded on the existence of formal bond which primarily influence teacher-learner relationship. It therefore necessitates the teacher to uphold the principles and values of teaching while communicating to students in the classroom. Besides, good communication skills are important for all teachers to have in the course of delivering instructions to students (Burns & Seidhofer, 2019; Angela 2017). Hence, teacher plays a significant leadership role in motivating and enthusing the use of pedagogically grounded teaching practices to ensure all students feel involved in the teaching and learning process.

Various forms of communication occur in a classroom setting, some of which include verbal and nonverbal communication. Verbal communication involves speaking and listening, while nonverbal communication involves body language, facial expression and gestures. Both forms of communication are equally important in the classroom (Victoria (2022)). In addition to these forms of communication, technology has also revolutionized communication in the classroom. With the use of online platform and tools, students and

teachers can communicate with each other outside of the physical classroom. With the recent technology, teachers are increasingly drawn to smartboards, projectors and presentation software to communicate in the classroom, manage many aspects of teaching, learning and assessment. Although the superiority of traditional and web-assisted instruction are still controversial, technology has provided opportunities for remote learning, enhanced collaboration among students and consistently produced greater learning outcomes (Merchant et al., 2014; Ferri et al., 2020).

From an educational point of view, Pöysä-Tarhonen et al. (2016) identify a strong connection between the quality of communication and performance, work involvement and motivation. Thus, it is necessary for teachers to concentrate on how they can better interact with students, share understanding and develop strong personality in learners during classroom instruction irrespective of the subject to be taught (McCroskey et al., 2006). One of the most valued effective communication strategies is reinforcement. Though it seems like a very simple technique that all teachers use, but it is not often used effectively as it could be. Rumfola (2017) affirmed that one of the best

ways to ensure effective teaching and learning and good comprehension of lessons is to encourage our learners through positive reinforcement. The use of positive reinforcement can lead to heightened enthusiasm in students and allow accomplishment to be celebrated in the class.

Active listening is an important factor in the classroom communication process. It is a powerful way to promote learning in the classroom and to show learners that their perspective matters (Brinia et al., 2022). Though teacher spends lot of time talking, explaining, leading conversations, giving demonstrations; engaged learning happens when students set aside biases and preconceived notions to carefully listen to their teacher respectfully while teacher take a pause to really listen to students' questions or understand their ideas. Active listening deepens student learning. Students certainly understand and remember all they were taught if they are genuinely part of the conversation as the effect of active listening on student learning could be electrifying (Sudderth, 2022).

Similarly, participating in team activities can help teachers develop essential communication and collaboration skills while preparing

students for success within and outside the classroom. Teamwork promotes communication skills among students and teachers. Through team work, students can practice expressing their ideas in a respectful manner, as well as actively listening to their peers while they develop problem solving skills and find compromise and resolutions (Marie 2022). Teamwork offers a chance for every student to offer their perspectives and use their talents in order to contribute to the mission at hand, thus significantly boosting student self-esteem.

Teaching is an emotional exercise, it plays a fundamental role in teaching and learning process. Mazer et al. (2014) observed connections between teachers' communication behaviors and students' emotional reactions. Pekrun et al. (2022) have investigated in depth the impact of emotions upon learning. The study concludes that while negative deactivating emotions take a negative toll in the classroom while positive activating emotions render a positive effect on student learning. Hagenauer et al. (2015) analyzed emotions both positive and negative generated by the interpersonal relationship between teacher and students, classroom discipline and students' engagement in class activities. Findings revealed that these important relationships

were combined with experiencing the emotions of joy, anger and anxiety. In the same vein, teaching methodologies which are closely tied to student academic achievement is closely related to the emotions of teacher (Trigwell, 2012) while student behavior is a factor that is influenced by teacher emotions (Morris et al., 2013). For instance, if students perceive a gap between them and the teacher, or perhaps, teacher looks down on them; they will not be receptive to the message the teacher passes across to them.

However, observations over the years have exposed the researcher to some of the difficulties learners face in classroom in relation to communication due to lack of confidence, disbelief in their capability and poor motivation to learn all of which have significant effect on their academic progress. In fact, some students with certain skills would rather hid their talent due to lack of self-belief and confidence in portraying such skills and preferably deny themselves of better opportunities life could offer. Shahbaz and Khan (2017) submitted that some of the problems of poor communication in the classroom could be as a result of unknown expectations, lack of comprehension, boring lessons, personality differences, cultural differences,

disruptive behavior of students, negative attitude from teacher and lack of effective teacher training. Considering the importance of communication in meeting the diverse needs of learners, this study aimed at examining the influence of students' reinforcement, active listening, teamwork and emotional control on effective classroom communication in Ilorin metropolis secondary schools.

Objectives of the Study

Specifically, the study determined if there existed:

- a. a combine influence of Students' reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.
- b. a relative influence of Students' reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.

Conceptual Framework

Effective communication in classroom depends on several factors some of which include positive feedback, clarity of instructions, teacher personality, medium of communication, empathy, respect

and safe environment among others. Many of these factors can only be influenced by the teacher as it greatly influences student academic engagement and overall performance in school. Shan et al. (2014) posited that when teachers create a sense of community, respond to students and foster positive relationships, students are more engaged and enthusiastic about learning and tend to perform

better academically. This study therefore confirms the influence of the constructs understudied on effective classroom communication in Ilorin metropolis secondary schools. For this purpose, the following hypotheses were generated and tested through the responses of secondary school students who participated in this survey.

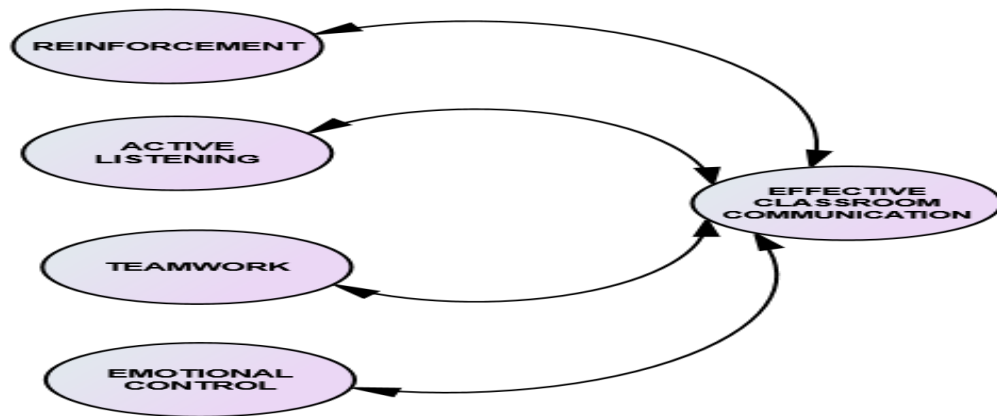


Figure 1: Conceptual Framework

Hypotheses

Ho₁: There is no significant combine influence of teachers’ reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.

Ho₂: There is no significant relative influence of teachers’ reinforcement, active

listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.

METHODOLOGY

Research Design

For the purpose of this study, descriptive survey research method was used to study the combine and

relative influence of reinforcement, active listening, teamwork and emotional control on classroom communication. The major construct of the study was reinforcement, active listening, teamwork and emotional control towards effective classroom communication.

Participants

The population for this study comprised of all secondary school students in Ilorin metropolis, Kwara state. Therefore, the study involves five hundred (500) students at secondary levels selected for the study. Letters and consent forms were sent out to approximately 20 secondary school heads notifying them of the need to conduct the research. 30 secondary school students from each school constitute participants for this study. Participants were selected using convenient sampling techniques to be able the researcher to obtain basic data and trends regarding this study and further reduce cost. Data collection was conducted with the help of three research assistance by visiting the sampled schools, observing teachers while teaching and distributing and collecting the survey instruments to students for administration. Upon completion of this, 500 questionnaires were found suitable for the analysis out of the six hundred questionnaires distributed

after removing the uncompleted and biased ones putting the return rate at 83%. As well, student responses in classes where the participants did not fill out a survey correctly were eliminated from the analysis.

Instrumentation

The “Effective Classroom Communication Questionnaire (ECCQ)” was designed to examine the perception of students on the influence of reinforcement, active listening, teamwork and emotional control on classroom communication. Relevant studies identifying factors related to effective classroom communication helped in creating an initial pool of items. The final survey instrument consisted of 26 question items for the survey. Though survey was modified to suit the context by eliminating demographic variables and adding questions that concerns the students with focus on classroom communication. The survey instrument was divided in to two sections. Section 1 captured the dependent variable while section 2 captured the factors of reinforcement, active listening, teamwork and emotional control of teachers in the midst of students’ disruptive behavior in the classroom. The instrument was validated by 2 experts after which it was subjected to a reliability test with coefficient alpha value of .77

obtained to adjudge the instrument reliable.

Data Analysis

Multiple regression analysis was used to analyze the hypotheses of the study. Prior to computation and the analysis, there was need to evaluate assumption of multiple regression analysis for accuracy of test

interpretations. In doing this, skewness and Shapiro-Wilks was used to check for population normality while Levene’s test was used to test for homogeneity of variance. Results shows that data assumptions have not been violated as the check for VIF-value were greater than 0.10 which is above the cut-off point.

RESULTS

Table 1: Descriptive Statistics on Classroom Communication

	Mean	SD	N
Effective Communication	11.4580	2.21406	500
Reinforcement	15.0020	2.50170	500
Active Learning	13.8140	3.25339	500
Team Work	13.7780	3.09255	500
Emotional Control	11.7020	2.11806	500

Table 1 presents the descriptive statistics of data utilized in the study. The result indicated that the mean score for effective communication is 11.458 ± 2.2 while the mean score for reinforcement is 15.002 ± 2.5 . The mean score for active learning is 13.814 ± 3.3 while Team work account for 13.778 ± 3.09 and 11.702 ± 2.1 for emotional control.

Hypotheses Testing

Ho₁: There is no significant combined influence of Teachers’ reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.

Table 2: Influence of Effective Classroom Communication

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	348.172	4	87.043	20.537	.000	Significant

Residual	2097.946	495	4.238
Total	2446.118	499	

R= .377^a

R Square = .142

Adjusted R Square = .135

Std Error of the Estimate = 2.05871

The results presented in Table 2 above is a model summary of analyzed data. The result shows that the combined correlation coefficient (r) = 0.377, coefficient of determination R² = 0.142 and adjusted coefficient of determination = 0.135. The combined correlation coefficient (r) of 0.377 indicates that, the relationship between reinforcement, emotional control, active listening, team work and effective communication is moderate and positive. The coefficient of determination R² of 0.142 reveals that the four factors have contributed only 14% to effective communication in the classroom while the remaining 84% are the contributions of other factors not included in this study. By implication, there are variables that are not captured in this study which are responsible for effective communication in the classroom

aside emotional control, active listening, reinforcement and team work. The analysis of variance results of effective communication and the four factors of Reinforcement, Active Listening, Team Work, Emotional Control. The p-value result of 0.00 is less than the level of significance of 0.05. The result implies that the alternate hypothesis is accepted in favour of the null hypothesis. It can be concluded that the four factors of Reinforcement, Active Listening, Team Work and emotional Control have a significant influence on effective communication in the classroom.

Ho₂: There is a significant relative influence of teachers’ reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools.

Table 3: Factors Influencing Effective Classroom Communication

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
1 (Constant)	6.922	.640		10.813	.000

Reinfor	.097	.047	.084	1.578	.016
Active	.190	.047	.279	4.076	.000
Team	-.005	.051	-.007	-.100	.920
Emotion	.075	.059	.072	1.262	.208

Y = Effective Communication, X₁ = Reinforcement, X₂ = Active Listening, X₃ = Team Work, X₄ = Emotional Control

Discussion

The summary of the findings on table 2 showed that the linear combination of the predictor variables was found to have significant influence on classroom communication ($F_{(4, 495)} = 20.537$); $P < 0.05$. This implies that the alternative hypothesis which stated that there is a significant combine influence of Students' reinforcement, active listening, teamwork and emotional Control on classroom communication in Ilorin metropolis secondary schools is accepted at 0.05 level of significance. This finding conforms with submission of Rumfola (2017) where it was proven that students will benefit from positive reinforcement in the classroom if used effectively by disciplined staff and reduce absent rates. Hence, students who get positive praise for their behavior increase their compliance to instructions which in turn have strong influence on appropriate classroom behavior. Hence teacher should pay attention to positive behavior that

encourage students' participation in class and remind themselves of behavior that affects students' learning or compliance to instructions.

The second hypothesis proved that while reinforcement and active listening are significant with effect size of ($\beta = 0.279$), $p < 0.05$ and ($\beta = 0.084$), $p < 0.05$ respectively, teamwork showed the effect size of ($\beta = -0.07$, $p > 0.05$), while emotional control showed the effect size of ($\beta = 0.72$, $p > 0.05$). This implies that reinforcement and active listening has a significant influence on classroom communication while teamwork and emotional control has no significant influence on classroom communication. The findings of this study conform with Davis et al. (2012) report who affirmed that positive reinforcement positively affects a student's self-esteem because it shows the student what their strengths are and allow them to capitalize on these strong suits. While negative actions should not be

overlooked, neither should positive actions be ignored. Encouragement of these positive actions can have long-standing effects for students, which is the main goal of positive reinforcement.

Although there are limited research study on active listening, study of McNaughton et al. (2008) in a pretest-posttest control group designed to examine the effect of instruction on the active listening skills of preservice education professionals found a statistically significant improvement for targeted active listening skills and adjudged the post-instruction performances of the preservice education professionals to be better examples of effective communication than the pre-instruction performances of the preservice education professionals. However, teamwork and emotional control has no significant influence on effective communication, there is need to take into account other factors like background, experience, attitudes, knowledge, perception and cultural influence of the students and teachers as this may be uncaptured factors that could hinder effective communication

CONCLUSION

Since talking is an integral part of living, effective communication in the classroom is vital to students'

intellectual capacity, academic engagement and overall performance as students interact everyday with their teachers, colleagues and other members of the school. Therefore, to keep everyone in school connected and informed, effective communication is necessary. In order to help students get information or knowledge and make learning easier to foster academic success, teacher should ensure that message and instructions given to students are clearly stated and well understood. Active listening on the part of teacher and students should not be ignored as this study has confirmed it significantly influence effective communication in the class. In order to achieve success in communication, a teacher has to play different roles of being a facilitator, mentor, motivator, guide, good speaker as well as an active listener. Similarly, other factors like mental state of the students, students' cultural background, teacher personality, class size, timing and environment though not part of this study should also be given consideration as they may influence effective communication in the classroom.

RECOMMENDATIONS

This study makes the following recommendations:

1. Communication skills should be incorporated into academic curriculum of secondary schools to expose students to how to effectively share their thoughts.

2. Teacher should pay attention to students and encourage them to listen carefully during lesson delivery. Also, there is need for teachers to value and respect students' opinion by actively listening to them during and after lessons.

3. Although positive reinforcement can be a bit challenging for teachers to use, it is necessary for teachers to accurately determine which reward will motivate their students to encourage them more.

4. More research should examine other factors like mental state of the students, students' cultural background, teacher personality, class size, timing and environment in relation to classroom communication

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**DIGITIZATION OF PRIMARY SCHOOLS THROUGH COMPUTER
MANAGED INSTRUCTION PROGRAMME IN THE TEACHING OF
SCIENCE IN ILORIN METROPOLIS**

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ABSTRACT

This study investigated the influence of digitization, on Computer Managed Instruction Programme in the teaching of science in primary education within Kwara State. Employing a descriptive survey research design, 448 primary school teachers participated in the study. Data were analysed using frequency counts and percentages. The findings revealed a predominant adoption of a teacher-centered digitization approach, with readily available digital materials considered adequate for science instruction. Notably, approximately 90.2% of teachers exhibited proficiency in tablet usage, indicating a positive influence of the Kwara LEARN programme on science teaching. The study discovered the prevalent teacher-centered approach to digitization in Kwara State, the sufficiency of available digital materials for teaching science, and the positive influence of digitization on primary school science teaching. It was recommended that ensuring widespread availability of digital materials in all primary school in Kwara State is imperative for effective science teaching in primary schools.

Keywords: Digitization, Science teaching, Primary school, Kwara LEARN

INTRODUCTION

Education is the process of acquiring information and the growth resulting from it enables individuals to reach better states of existence. Abdulazeez (2017) notes that a person's perspective changes due to behavioral changes during the educational process, emphasizing that learning how to lead a better life is the essence of education. According to the Collins English Dictionary (2022), education strengthens one's capacity for thinking and judgment, and prepares individuals for mature life. Abdulrahman (2013) asserts that education is the cornerstone for a nation's development across economic, political, social, and human dimensions.

In the modern world, the teaching and study of science encapsulate the essence of education. Khan (2019) advocates for the use of technology in education, particularly to accommodate diverse learning paces among pupils. The integration of technology into education should reflect its pervasive influence, especially in science education. However, this integration should align with the broader context of digitization in primary education, exemplified by the Computer Managed Instruction program, Kwara LEARN. In streamlining the discussion to create a more coherent narrative will enhance the overall flow of the presentation, ensuring that insights on the influence of technology in education align

seamlessly with the broader context of digitization in primary education, as discussed earlier.

According to Wang and Reeves (2003), instructors' adoption of technology requires accessibility, support for instructor control, and pedagogical flexibility. Rutto (2014) and LeCun (2022) identify factors influencing the use of Computer Assisted Instructions, including ICT availability, teacher preparedness, and teaching experience. The rapid evolution of computer-related technology necessitates educators' awareness of current and future technical requirements (Kibagendi, 2014). Efficiently bridging diverse technologies to support learning is crucial. Computers, equipped with integrated visuals, print materials, and computer-managed instruction, play a pivotal role in this regard. Computer-managed instruction (CMI), as defined by Abdallah (2019), guides students, maintains records, and supports instructional decision-making. Teachers' dedication is crucial in fostering positive outcomes, and initiatives like KwaraLEARN aim to equip them with digital tools and establish transparency in classrooms and schools (Adaramaja, 2022).

In aligning the discussion to emphasize the symbiotic relationship

between technology and education, particularly in the context of primary education digitization, enhances understanding and facilitates effective implementation of educational technologies. The educational landscape in Kwara is undergoing a transformative shift, with traditional teaching approaches making way for modern strategies and resources such as computers in classrooms. In today's increasingly digitalized world, the significance and value of incorporating technology, specifically computer-managed instruction (CMI), into the teaching process cannot be overstated.

According to Onyio (2021), the Federal Government recognizes the pivotal role of Information and Communication Technology (ICT) in education and emphasizes its importance in achieving various national educational objectives, including the Sustainable Development Goals (SDGs), the National Policy on Education, the Ministerial Strategic Plan: Education for Change, and the National Vision of the Federal Republic of Nigeria. The urgency for computer-managed instruction and the digitization of education in Nigeria, as highlighted by researchers like Asogwa (2011) and Yaya and Adeeko (2016), is a response to ongoing sector reforms

aimed at enhancing effectiveness. Notably, Professor Shehu Raheem Adaramaja, the Chairman of the Kwara State Universal Basic Education Board (KWSUBEB), articulates the government's vision for KwaraLEARN. The initiative seeks to elevate primary school outcomes by transforming learning in all classrooms and ensuring that every child has access to excellent and well-supported teachers.

Given this context, the study aims to investigate the impact of the digitization of primary education, particularly the introduction of computer-managed instruction, on scientific instruction in Kwara's primary schools. The focus is on understanding the local implications and practical outcomes of incorporating CMI into the teaching methodologies within the state.

Objectives of the Study

The objective of this study is to investigate the impact of digitization in primary education, specifically through computer-managed instruction in Kwara State, Nigeria. The study seeks to:

1. identify and assess the presence of digital materials available for instructional delivery in primary education within Kwara state.
2. assess whether the digital materials available in Kwara State are sufficient

and appropriate for teaching science in primary schools.

3. determine the of digitization, particularly through KwaraLearn, on the teaching of science in primary schools across Kwara State.

Research Questions

The study answered the following research questions:

- 1) What digital materials are available for instructional delivery in Kwara State?
- 2) To what extent do the available digital materials support the teaching of science in Kwara State?
- 3) What is the influence of digitization on the teaching of science in primary schools in Kwara State?

METHODOLOGY

Research Design

This survey-based descriptive research examined the implementation of computer-managed instruction through KwaraLearn, on scientific instruction in public primary schools in Kwara State, Nigeria.

Participants

The study focused on all public primary school teachers in Kwara State, Nigeria, with a population estimated at 4,300 teachers across

sixteen primary schools in the city of Ilorin according Kwara state ministry of education statistic (2023). A random sample of 448 respondents was selected to ensure the generalizability of the results.

Instrumentation

The questionnaire titled "Influence of Digitization on Science Teaching in Primary School Questionnaire (IDSTLPSQ)" was utilized for data collection. Adapted from Rutto (2014), the questionnaire comprised 30 items categorized into three sections: Section A covered teachers' biographical information, Section B focused on digital device availability, adequacy, and usage, while Section C addressed the influence of digitization on the teaching of science.

Validity of the Instrument

The questionnaire's validity was ensured through adaptation from a previously validated instrument and consultation with experts to verify its content relevance.

Reliability of the Instrument

The reliability of the questionnaire was established through pilot testing with a subset of the target population to assess consistency and coherence

of responses. The reliability index of 0.79 obtained indicated higher reliability

Procedure for Data Collection

The instrument was distributed to the randomly selected respondents, focusing on gathering information regarding teachers' school affiliation, gender, highest qualification, years of experience, availability and adequacy of digital devices, and the perceived impact of digitization on science instruction. Informed consent was obtained from each participating teacher prior to their inclusion in the study.

Ethical approval was obtained from relevant educational authorities, ensuring the protection of participants' rights and confidentiality throughout the research process.

Data Analysis

Descriptive statistical methods such as frequencies and percentages were employed to analyze the gathered data. These methods aimed to provide insights into prevailing trends and patterns regarding the influence of digitalization on science teaching in primary education.

RESULTS

Table 1: Characteristics of Primary School Teachers

Variables	Options	Number of respondents	Percentage %
Gender	Male	186	41.52
	Female	262	58.48
Academic qualification	Qualified	408	91.01
	Unqualified	40	8.92
Teaching Experience	Experienced	398	88.84
	Less Experienced	50	11.16

Table 1 showed that the sample included 448 respondents, 408 respondents (41.52%) were male while 262 (58.48%) respondents were females, 124 were qualified (91.01%) and 40 were unqualified (8.92%),

398 respondents (88.84%) were experienced while only 50 were less experienced.

Research Question One: What digital materials are available for instructional delivery in Kwara State?

Table 2: Digital Materials Available for Instructional Delivery in Kwara State

S/N	Item Statements	Yes	No	Remark
1.	Kwara LEARN tablets	96.00%	4.00%	Available
2.	Print materials	92.90%	7.10%	Available
3.	Appropriate Textbooks	88.84%	11.16%	Available
4.	CDs/DVDS relevant forteaching science	13.17%	86.83%	Unavailable
5.	Digital literacy Centre	21.42%	78.58%	Unavailable
6.	Networked computers	9.60%	90.40%	Unavailable
7.	Internet connected computers	21.42%	78.58%	Unavailable

Table 2 showed that 96% of the respondents (430 teachers) indicated that Kwara LEARN tablets were given to them and are readily available, 92.90% of the respondents (416 teachers) indicated that print materials such as charts are available for the teaching of science, 88.84% of respondents (398 teachers) indicated that Appropriate Textbooks available and allocated to students for learning science. Meanwhile, only 13.17% of respondents (59 teachers) agreed that CDs/DVDS relevant for teaching science were available in their

schools, 21.42% of the teachers (96 teachers) pointed out that Digital literacy Centers are available in their schools while 9.60% of respondents (43 teachers) indicated that Networked computers are available, 21.42% of respondents (96 teachers) indicated that Internet connected computers are available for teaching science in public primary schools in Kwara state.

- 4) **Research Question Two:** To what extent do the available digital materials support the teaching of science in Kwara State?

Table 3: Digitization of Teaching of Science in Primary Schools in Kwara State

S/N	Items	X	SD	Remark
1.	Kwara LEARN tablets	3.52	0.80	Adequate
2.	Print materials	3.11	0.87	Adequate
3.	Appropriate Textbooks	3.05	0.99	Adequate
4.	CDs/DVDS relevant for teaching science	2.29	0.35	Inadequate
5.	Digital literacy Centre	2.32	0.51	Inadequate
6.	Networked computers	3.31	0.91	Adequate
7.	Internet connected computers	2.03	0.48	Inadequate
Weighted average		2.80	0.70	Adequate

Table 3 showed that the respondents indicated that Kwara LEARN tablets (mean=3.52), print materials such as charts (mean=3.11), Appropriate Textbooks (mean=3.05), and

Networked computers (mean=3.31) are adequate for teaching science in public primary schools in Kwara state. While CDs/DVDS relevant for teaching science, Digital literacy

Centre and Internet connected computers are inadequate with means between 2.03 and 2.32 which is lower than the 2.5 benchmark for adequacy on the four-point scale.

Research Question Three:
What is the influence of digitization on the teaching of science in primary schools in Kwara state?

Table 4: Influence of Digitization of Teaching of Science in Primary Schools in Kwara State

S/N	Item Statements	X	SD	Remark
1.	My content knowledge of science has improved since I started teaching with the Kwara LEARN tablet	3.41	0.71	Agreed
2.	I am more comfortable teaching science with the Kwara LEARN tablet	3.33	0.80	Agreed
3.	I find it difficult to teach science content from the Kwara LEARN tablet	1.54	0.68	Disagreed
4.	I find it uncomfortable to teach science with the Kwara LEARN tablet	2.23	0.62	Disagreed
5.	My students learning outcomes have greatly improved since I started teaching with the Kwara LEARN tablet	3.28	0.85	Agreed
Weighted average		2.76	0.73	Agreed

From Table 4, respondents indicated that Kwara LEARN tablets increased their content knowledge (mean=3.41), made them comfortable teaching science (mean=3.33), and

improved students learning outcomes (mean=3.23). While they disagreed with the items about difficulty to use the Kwara LEARN tablets for teaching science with means between

1.54 and 2.23 which is lower than the 2.5 benchmark for agreement on the four-point scale. This means that the influence of digitization on the teaching of science in primary schools is positive.

Discussion

The Kwara LEARN initiative has received praise from the teachers in the state's primary schools. They feel that by eliminating the need for lesson notes, an easier attendance record, and a stress-free lesson plan, the job stress has been decreased. Since using the Kwara LEARN tablet in their classes, teachers have reported that their content understanding of science has increased and that they feel more at ease using it. Printed items, such as charts and pertinent textbooks, were available as digital resources. The Kwara LEARN tablets for teachers, the head teacher's rating and access control tablet, assistant head teachers' teacher evaluation tablet, and a digital literacy center in certain schools within different local government. They indicated that students learning outcomes have greatly improved since the program started. The Kwara LEARN tablet was found out to be Teacher-centered instead of being Student-centered, Teachers indicated that they received training in batches and some of them are yet to receive the training. In the same vain, Teachers lamented that the timing

pre-set for the tasks are too short to achieve those tasks. Some Teachers indicated that they found it difficult to relate to some of the science content because they are not science teachers by training. All the teachers indicated that sometimes, there are connectivity issues.

CONCLUSION

Based on the findings of this study, it was concluded that; A Teacher-centered form of digitization was adopted in Kwara state, digital materials are available for instructional delivery. The available digital materials were adequate for teaching science in primary schools. The digitization of primary education in Kwara state has a positive influence on the teaching of science in primary schools.

RECOMMENDATIONS

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

1. The government should review the program to accommodate a Student-centered approach.
2. The digital materials should be made available to all the primary school teachers in the 16 local government areas in Kwara state.
3. Adequate timing should be assigned to the tasks given for

effective teaching of science in primary schools in Kwara state.

4. There should be prompt response to connectivity issue. Above all, based on existing realities, the programme should be modified as soon as possible.

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INVESTIGATING PUPILS' SCHOOL RETENTION AND ACADEMIC PERFORMANCE IN BASIC SCHOOLS WITH AND WITHOUT FEEDING PROGRAMME IN ILORIN SOUTH LOCAL GOVERNMENT AREA OF KWARA STATE

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ABSTRACT

This study examined pupils' retention and academic performance in schools with and without the feeding programme in Ilorin South Local Government Area of Kwara State. A descriptive survey research design was employed, with 20 basic schools purposively selected, and 333 respondents randomly sampled. Data were collected using proforma, and research questions were answered using frequency counts, percentages, and means, while independent t-test was used to test the null hypotheses in the study. The findings revealed that schools with the feeding programme had higher pupil retention rates compared to those without it. There was a significant difference in both retention and academic performance rates between schools with and without the programme. The study concluded that the school feeding programme positively impacted pupil retention and academic performance in Ilorin South Local Government Area, Kwara State. It was recommended extending the programme to all basic schools in the area and across the state.

Keywords: School retention, Academic performance, Feeding programme

INTRODUCTION

The School Feeding Programme (SFP) in Nigeria has been a significant initiative to enhance children's retention and academic performance in basic schools. However, its effectiveness has been a subject of debate, with some stakeholders questioning its impact

on educational outcomes. The school feeding, simply refers to giving pupils access to meals while they are in the school premises. School Feeding is provision of food to school children. The School Feeding Programme (SFP) is an intervention programme established for the provision of food to school children for especially at

lower basic education by the federal government. The School Feeding Programme (SFP) has been a significant intervention in the Nigerian education sector, aimed at improving the enrolment and retention rates of children in basic schools. School Feeding Programme (SFP) are aimed at reducing temporary hunger, better children's diets, cognitive development, and to give families more financial support (Jomaa et al., 2011). However, school feeding can be categorized in to two based on their modalities namely: In-School Feeding Programme where children eat in school and Take-Home Rations where children take food home for the family (Bundy et al., 2017).

In-School Feeding Programme is School Feeding (SF) approach where children receive meals or snacks during the school day. These meals are typically provided by the school or a government-funded programme. The aim is to ensure that pupils have access to nutritious food while they are in school. The meals can vary in type and quality but often include staples like rice, beans, vegetables, and sometimes protein sources. This approach helps to improve attendance, concentration, and overall nutrition among school children. It also serves as an incentive for parents to send their children to school. A

similar form of school feeding programme is take home rations

. A study by Duflo et al. (2018) conducted in Kenya revealed that school feeding programme reduced dropout rates and improved overall attendance. These initiatives encourage pupils to stay in school by making sure they have access to healthy food while in class, which in turn has a beneficial impact on school retention. On the other hand, academic performance gauges pupils' success in their studies and is frequently determined by test results, grades, or other academic evaluations. The nutritional benefits provided by school feeding programme have been linked to improved cognitive abilities, which may lead to enhanced academic performance (Kristjansson et al., 2016). Academic performance is a fundamental aspect of pupils' educational journey, and it is influenced by several factors, including nutrition. Numerous studies have explored the relationship between school feeding programme and pupils' academic performance.

A systematic review by Cohen et al. (2015) examined multiple studies and found that school feeding programme positively impacted pupils' cognitive abilities and academic achievements. Improvements in test scores and

general academic performance were linked to the provision of nourishing meals. This association can be explained by the fact that a well-fed pupil is more likely to be focused, attentive, and able to pay attention in class, which improves academic results. Academic performance is a key outcome in educational settings and is measured through test results, grades, and academic evaluations. Numerous researches that looked into the connection between school food programme and pupils' academic achievement came up with contradictory findings.

Gelli et al. (2017) conducted a meta-analysis of school feeding programme and found positive associations with improved academic outcomes. The influence on standardized test scores, however, may be little, according to some research, even though school feeding programme may have a good impact on some elements of academic achievement. To develop efficient solutions to improve learning outcomes, it is essential to comprehend the intricate interactions between school food programme and academic performance.

Other handful empirical studies have investigated the impact of school feeding programme on educational indicators. For instance, a study by

Gelli et al. (2015) in Ghana found that schools with feeding programme had higher enrolment rates compared to those without. Similarly, Lambie and Marcelletti (2014) conducted research in the United States and reported that pupils who participated in a school-based breakfast programme showed improvements in academic performance. These findings highlight the potential benefits of school feeding programme on educational outcomes, while earlier studies have offered insightful information, a thorough investigate study is necessary to comprehend the connection between school food programme and pupils' enrolment, attendance, retention, and academic performance.

Objectives of the Study

This study investigated pupils' school retention and academic performance in basic schools with and without feeding programme in Ilorin south local government area of Kwara state, specifically, this study investigated:

1. The retention rate of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State?
2. The academic performance of pupils in schools with and without school feeding programme in Ilorin South

Local Government Area, Kwara State?

3. The significant difference in retention rates of pupils in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State.
4. The significant difference in pupils' academic performance in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State.

Research Questions

The following research questions were raised and answered in the study.

1. What is the retention rate of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State?
2. What is academic performance of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State?

Research Hypotheses

The following null hypotheses were tested in the study.

- H₀₁. There is no significant difference in retention rates of pupils in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State.
- H₀₂. There is no significant difference in pupils' academic performance in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State.

METHODOLOGY

Research Design

The research design for this study was descriptive survey design. The survey method was a means of collecting large and standardized data from the field using well-structured proformas. The study focused on sampled population relatively because; the research sampled the opinions of all schools within Ilorin South Local Government Area.

Participants

The population for this study comprised 65 public basic schools and 11,400 pupils in basic schools in Ilorin South Local Government Area of Kwara State. Specifically, it includes pupils attending schools both with and without feeding programme in Ilorin South Local Government Area of Kwara State, out of the 65 schools, on 10 schools are

benefiting from free school feeding program in the local government. All the schools enjoying the program were sampled along size 10 schools that are not enjoying the program. The targeted sample for this study comprised 2,105 basic three pupils from both schools with feeding programme and schools without feeding programme within Ilorin South Local Government Area of Kwara State, while the sample size was 333 from the 20 schools. Purposeful sampling technique was employed to select schools that participated in the study which comprised 10 schools with feeding programme and schools without feeding programme each.

Instrumentation

This study made use of two proforma as instrument to collect data. The proformas were tailored in line with the research purposes. Proforma for Retention Data: This proforma was focused on tracking the progression of pupils through the grade levels over three years. It includes fields for pupil ID, school name, grade level at the beginning and end of the period, and any reasons for grade level changes. Proforma for Academic Performance Data: This proforma was used to collect data related to the academic performance of pupils. It includes fields for pupil ID, school name, literacy and numeracy subject

scores, and assessment/exam dates. Demographic information to help in analysing performance variations is included.

Validity of the Instrument

The validity of the instruments was ascertained by submitting the research instruments to the experts for face and content validity. The experts in Early Childhood and Primary Education critically examined the contents to ensure its clarity, relevant, and suitability for the study. Their criticism and corrections were incorporated, into the final draft, thus ensuring the instruments met both face and content validity.

Procedures for Data Collection

The researcher and two researcher assistants visited all selected schools in Ilorin South Local Government Area as determined by the sampling method where the objective of the research was. Thereafter, the proformas were submitted to the selected schools and collected back after four weeks. After collection and when the proformas have been adequately filled, the researcher appreciated the class teachers and other individuals assigned by the schools' heads to assist in collecting necessary data for this research. The proformas were returned, and the data collected were analysed.

Data Analysis

Mean and standard deviation was used to answer the research questions. Inferential statistics of t-test was used to test the formulated hypotheses at 0.05 level of significance. To reject any of the four hypotheses formulated for the study, the p-value was calculated and compared with the alpha to determine whether the observed data was statistically and significantly different from the null hypothesis. Where the calculated t-value is less than or equal to the alpha ($p < .05$), the null hypotheses were

rejected implying that the result was statistically significant. If the calculated t-values are greater than alpha ($p > 05$), the null hypotheses were not rejected thus implying that the result was not statically significant.

RESULTS

Research Question One: What is the retention rate of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State?

Figure 1: Mean and Standard Deviation of Retention Rate of Pupils in Schools with and without School Feeding Programme

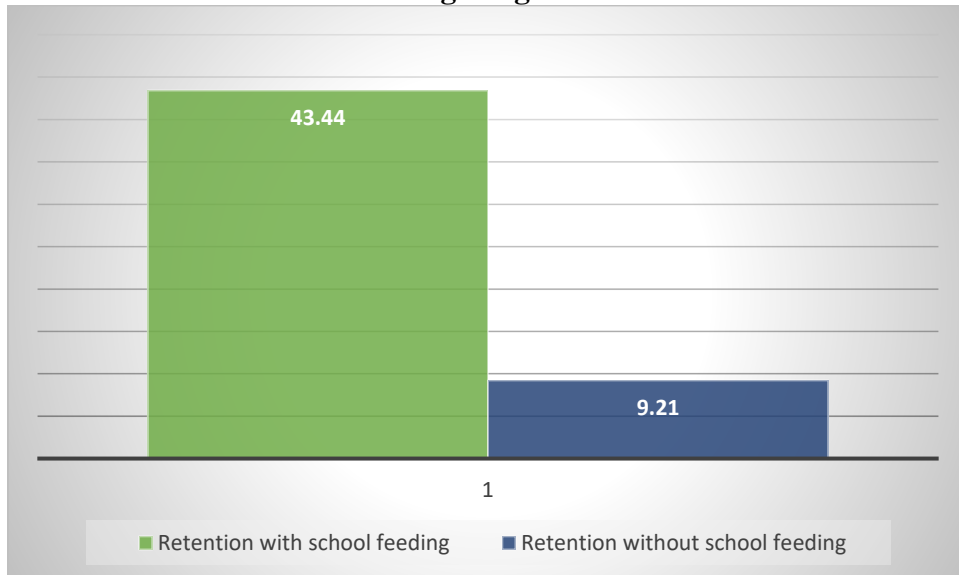


Figure 1 showed the retention rate of pupils in schools with and without school feeding programme in Ilorin

South Local Government Area, Kwara State. The green bar displayed the retention rate of pupils in schools

with school feeding programme (43.44) while the blue bar indicated the retention rate of pupils in schools without school feeding programme (9.21). This implies that the retention rate of pupils in schools with school feeding programme is more than the retention rate of pupils in schools without school feeding programme in

Ilorin South Local Government Area of Kwara State.

Research Question Two: What is the level of academic performance of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State?

Figure 2: Mean and Standard Deviation of Level of Academic Performance of Pupils in Schools with and without School Feeding Programme

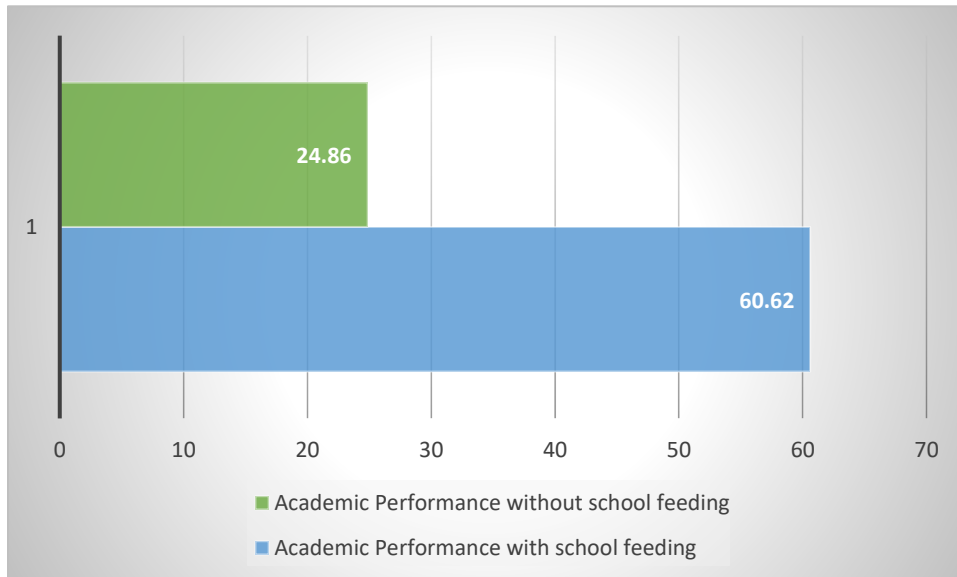


Figure 2 showed the level of academic performance of pupils in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State. The blue bar shoed the level of academic performance of pupils in schools with school feeding programme (60.62)

while the green bar explained the level of academic performance of pupils in schools without school feeding programme (24.86) This implies that the level of academic performance of pupils in schools with school feeding programme is greater than the academic performance of

pupils in schools without school feeding programme in Ilorin South Local Government Area of Kwara State

Hypotheses

H0₁: There is no significant difference in retention rates of pupils in schools with and without school feeding programmes in Ilorin South Local Government Area, Kwara State.

Table 1: Difference in Retention Rates of Pupils in Schools with and without School Feeding Programme

Retention	N	Mean	Std. Deviation	T	df	Sig.	Remark
Schools Without Feeding Programme	129	39.85	12.933	-2.902	331	.004	Significant
Schools with Feeding Programme	204	45.71	20.464				

Table 1 showed the significant difference in retention rates of pupils in schools with and without school feeding programme. The retention rates of pupils in schools with school feeding programme (Mean=45.71) while the retention rates of pupils in schools without school feeding programme (Mean=39.85). This signifies that there was difference between the retention rates of pupils in schools with school feeding programme and without school feeding programme. Therefore, there was significant difference in retention rates of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State (t = -2.902; df = 331;

P<0.05). Therefore, in the light of the result, the hypothesis is rejected, hence the retention rates of pupils in schools with school feeding programme was statistically significant different from the retention rate of pupils in school without school feeding programme in Ilorin South Local Government Area, Kwara State since the significant level (.004) is less than 0.05.

H0₂: There is no significant difference in pupils’ academic performance of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State.

Table 2: Difference in Academic Performance of Pupils in Schools with and without School Feeding Programme

Academic Performance	N	Mean	Std. Deviation	T	df	Sig.	Remark
Schools without Feeding	129	56.00	32.879	-2.263	331	.024	Significant
Schools with Feeding programme	204	63.54	27.385				

Table 2 showed the significant difference in academic performances of pupils in schools with and without school feeding programme. The academic performance of pupils in schools with school feeding programme (Mean=63.54) while the academic performance of pupils in schools without school feeding programme (Mean=56.00). This signifies that there was difference between the academic performance of pupils in schools with school feeding programme and without school feeding programme. Therefore, there was significant difference in academic performance of pupils in schools with and without school feeding programme in Ilorin South Local Government Area, Kwara State ($t = -2.263$; $df = 331$; $P < 0.05$). Therefore, in the light of the result, the hypothesis is rejected, hence the academic performance of pupils in schools with school feeding programme was statistically significant different from the

academic performance of pupils in school without school feeding programme in Ilorin South Local Government Area, Kwara State since the significant level (.024) is less than 0.05.

Discussion

One of the key findings underscored by the study is the substantial positive influence of the school feeding programme on pupil enrolment. The data revealed a consistent and remarkable increase in enrolment rates in schools within Ilorin South Local Government Area since the initiation of the programme in the 2022/2023 academic session. Notably, the surge from 9,220 pupils in 2022/2023 to 11,400 pupils in 2023/2024 reflected a significant 29.2% increase. This surge stands in stark contrast to the modest 2.4% increase observed in the 2021/2022 academic session, emphasizing the programme's role as a motivating factor in attracting pupils to schools.

It becomes evident that the provision of meals acts as a powerful incentive, addressing a crucial gap and fostering heightened interest and enrolment among students.

Beyond the quantitative metrics of enrolment, the study delved into the qualitative aspects of pupil engagement, attendance, and retention. The findings indicated a consistent pattern where schools with the school feeding programme demonstrated higher rates of attendance and retention compared to their counterparts without the programme. This aligns with the broader literature, including Akanbi (2013) as well as Solomon and Yusuf (2022), which supports the notion that school feeding programme, contribute not only to increased enrolment but also to enhanced regular attendance among pupils.

The positive correlation between regular school attendance and academic achievement, as emphasized by Oyafade (2014), further strengthens the argument for the holistic benefits of the school feeding programme. Consistent attendance emerges as a key factor in shaping academic outcomes, providing pupils with the opportunity to build a solid foundation of knowledge. This, in turn, opens avenues for greater educational and

career opportunities in the future, underlining the programme role in fostering long-term academic success. While the study highlighted the short-term academic improvements for retained pupils, it also acknowledged the potential for negative effects on social and emotional well-being over time, as indicated by Coley (2016). This acknowledgment adds a layer of complexity to the discussion, underscoring the need for a nuanced understanding of the long-term implications of school retention policies.

Yunusa's (2012) perspective on the potential for pupils in School Feeding Programmes to enhance their academic performance through regular attendance and more effective study habits provides a valuable insight into the behavioural aspects influenced by the feeding programme. This aligns with the broader narrative that school feeding programmes go beyond the provision of meals; they create an environment conducive to effective learning by addressing fundamental needs.

The programme impact on reducing dropout rates and absenteeism among pupils in basic schools serves as a significant highlight. This finding aligns seamlessly with Bundy et al. (2009) comprehensive study,

"Rethinking School Feeding," which emphasized the multifaceted benefits of school feeding programmes in enhancing school attendance, cognition, and overall educational achievement. Machebe et al. (2017) study in Japan further supports the positive influence of school feeding programmes on pupils' academic performance, illustrating the global relevance of such initiatives. Therefore, the study in Kwara State provides a rich tapestry of evidence supporting the multifaceted positive impact of the school feeding programme on pupils' educational experiences. The findings extend beyond numerical comparisons, delving into the qualitative dimensions of pupil engagement, attendance, retention, and academic achievement. Policymakers and educators can draw upon these insights to not only understand the immediate benefits of school feeding programmes but also to appreciate their role in creating a conducive learning environment that fosters holistic development. As the evidence continues to mount in favour of these programmes, their sustained implementation and potential expansion emerge as imperative considerations for enhancing educational outcomes and addressing broader societal challenges related to education.

CONCLUSION

This study examined pupils' school retention and academic performance in schools with and without feeding programme in Ilorin South Local Government Area, Kwara State. The results obtained from collected and analyze data showed that school feeding programme had positive influence on the retention and academic performance. The following basic conclusion was deduced from the study School feeding programme has a significant effect on pupils' retention rate in Ilorin South Local Government Area, Kwara State. The study further concluded that school feeding programme has difference impact on pupils' academic performance in Ilorin South Local Government Area, Kwara State.

RECOMMENDATIONS

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

1. The school feeding programme should be extended to other basic schools in every local government area of the state.
2. Government should prioritize the implementation of school feeding programme in all basic schools to promote access to education, improve enrolment, attendance,

retention and academic performance rates.

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EQUALITY IN DIVERSITY AS TOOL OF SOCIAL INTEGRATION IN NIGERIA

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ABSTRACT

The Nigerian Education System embraced the principle of egalitarianism as one of her objectives of education, despite the inequalities in human nature but values education as an instrument of social integration, which serves as the instrument of social changes. This paper addressed the concept of equality in diversity to determine its bearing on social integration. It is therefore believed that education be deliberately primed to promote social integration despite the diversities in human nature. The methodology of approach was conceptual analysis and this was the structural framework and the format into which philosophical arguments are fitted for proper clarification. The paper concluded that education can be used to promote social integration through its universal provision in all aspects such as universal provision of infrastructures despite the controversial issues of equality and diversities. It was recommended that the mind of individual learners should be trained toward the spirit of fairness to remove errors, so that individual should be treated as brotherhood.

Keywords: Equality, Diversity, Social, Integration, Education

INTRODUCTION

Education could be regarded as an essential and indispensable part of human life that can be specifically designed because it serves as the instrument of social change which breeds sustainable social integration. Education aims at values, appreciation and upgrading of personal and interpersonal human relationship. In this wise, to build social integration, the prerequisite of good morals must be inscribed as a reservoir of knowledge that can help

in restoration of social order, despite the diversities of human nature. There is a strong and powerful links between education equality and diversities when viewed from the social perspective. Education is no doubt a veritable source to prepare people equally through training of man to live well in the midst of disparity that can be derived from converse of equality.

It is very much to attain/receive education towards equality in order to arouse their awareness towards subjective judgment of the controversial issues of equality and inequality. Towoju (2016) states that all knowledge of experience are unequal and seem to begin in some ways from senses which suggest that man's body is existing as primary source of information for educational development and programming... this shows that a fundamental fact about the knowledge of man is the ability to know, to be aware of educational values a existing facts of knowledge and reasons.

It needs to be stressed at this point that man has a lot of personalities which are unequal in some aspects. That is, man has qualities which enable them to relate well and, in most cases, differently in their activities because of differentiation or their diversities in nature. This is the basic origin of inequality and diversities in the course of education either by nature or through the formal education system. As generally known, man has qualities of distinctiveness which make him stand out as a unique individual. This is self-evident as the power of understanding and choice behaviors seeks to characterize individuals differently.

Men differ from one another in various dimensions and such

variables of differences are age, complexion, weight, height, posture, level of intelligence and beauty among many others but with the aids of knowledge enquired through education. Man lives to solve and creates problems. Hence, education can be provided to breed change and make man to adjust to their changing environment through the analysis of equality and diversities. There is a wide spread knowledge that education appears difficult to be shared in equal measures, unlike many others amenities. This is obvious and resounding because, equality possesses a problem as it could only be imagined in mind of people, hence, people judgment whether an issue is equal or unequal bring misunderstanding. Nevertheless, the diversities of human nature such as variation of human intelligence, height, colour race, shape of the body, experience which breed inequality. Education can be used to provide or bridge inequalities through the provision of knowledge that can facilitate logical integration.

The social integration here calls for interaction amongst the people living in the society. In line with Towoju (2016) the philosophical terms "I am because you are" and "you are because I am" is a reciprocal statement that we are living to

integrate, interact as well as sharing of benefits from one another. The paper aims at drawing implication on how best our knowledge through universal provisions of education can be used to promote unity and harmony in the society for the improvement of social integration. The paper equally examines and justifies education of the mind at how it can be used to remove all errors resulting from inequalities or diversities of human nature and replace them with good values towards equality of provisions, and gradual adjustment of individuals in their living society and to see how education can be used for correcting all aspects of social inequalities to breed social integration.

Methodology

This study makes use of analytical method and this involves the examinations of the relationship that exists between the concept of equality and diversities of human nature in education and its bearing on social integration. Ayeni (2016) stated that *analytical method is characterized by logical consistent and systematic thinking so as to reach conclusion that are sound, coherent, and consistent in all ramifications*. For example, the concept of equality can be analysed as having the concept of sameness, as in numerical figures when one says two in Kwara State is

equal to two in Ondo State. Analytical method involves the explanation of words, definitions and clarifications of their meaning and implications.

The Concept of Equality

Education is what people can do or provide almost equally provided that there is a unified arrangement of universal provisions of social amenities for all people. When we say two things are equal, what we really mean is that they have the same features or elements or that they are identical in all aspects or they are universal in provisions to the people. Therefore, the concept of equality may be contrived to mean different things in different situations as a result of diversity or disparity. This lends credence to the view that the concept of equality is a loaded and contested concept. Ayeni (2004) opines that when two persons or things exhibit the characteristics of sameness, such characteristics could be temporal, material, permanent or even spiritual. One may coin from above that the term sameness may only be applicable perfectly in term of figures such as equal provisions of laboratory equipment or classrooms (infrastructures) to the schools. These can be termed as benefits opportunities. Since they are temporal and don't last long. Though the opportunities or benefits given to individuals by man, nature or God can

equalized such individuals as sameness. Rea (2011) believes that; “Equality and Equal are in complete predicates that necessarily generates one question: equal in what respects? Equality essentially consists of a tripartite relation between two or several objects or persons and one or several qualities... Two objects “a” and “b” are equal in a certain respect if in those respects, they fall under the same general terminus”. Hence, equality from the social point of view presupposes that everybody should be treated fairly and be given adequate and fair shares in their society to enhance social integration and feelings of belonging to the society. This is why in any society, the term equality may be deemed to have a close connection with morality, and virtue and relatively has a relationship with culture of each community.

The Concept of Egalitarianism

The national philosophy of education stresses out in one of the clauses of its natural goals of education as “a joint and egalitarian society” which entails “justice and fairness”. The principle of fairness to everybody is the principle of equality. This may be probable reasons why all forms of egalitarianism have been use synonymously with equality. Egalitarianism is built on the concepts social equality as it is a doctrine of deal equality which states that all

human beings are equal. Egalitarianism is equally called equalitarianism. As Grove (2014) puts it in two ways: Firstly, egalitarianism is a belief that all men are equal in intrinsic worth’s and are entitles to equal access to the right and privileges in their society..... This belief in human equality can also mean a belief that men are born with attitudes and capabilities. Secondly, the suppression of all destinations between individuals and groups are inherently unjust.

The term “intrinsic worth” here may means the self-organizing and self-regulating aspects of man which posit to the unity of a living thing or the self-connectivity features of men which gives out the characteristics of human worth in man. In line with this, the first definition refers to the biological equality which can be termed as common humanity form of egalitarianism. This lends credence to the view that man has a set of gifts or talents which breed his uniqueness amongst the nature. To this, he is an explorer of nature. The attitude of man as learned predisposition to feel, think and act towards some goods or evils may lead to some form of overt behaviors. Whatever the nature of the intrinsic characteristic or talents every human being has similar opportunities to develop what he has. In the second analysis, as it is, if any

difference between individuals being is considered unjust there wouldn't be a leader and the subordinate and this is perfectly unachievable.

Egalitarianism can equally be said to mean that all men have equal rights. On this Raphael (2016) is of the view that "when men are said to have equal right, they are certainly not entitled to equal treatment in all respects and all circumstances that equal rights of all men can be considered as the right to equality is a right to equal opportunity, that it is the right to the equal satisfaction of basic needs".

One can infer from above that equal right can be in turn as right of man being free to choose the types of life he would like to live while he is in control of his destiny. This strength in man is called "self-awareness". Every man is presumably capable of self conscious as a right which enables him to make choice, plans and to be self-actualized excepts the morons. To crown it all, all men are equal at birth and death. Our intellects and our condition for equality of right to develop differ. In this case, each should have equal rights to develops at his own pace. This accounts for the reason why man seems to be actually one but reason by person of his fragmented parts. Concisely, there seems to be an understanding as derived above that men have equal right in certain respects – that every

person born into this world must be endowed with contain inalienable rights in certain social life needs and functions. For example, we have rights to put food into our mouth, to see and observe the nature, to talk to one another and to move around and so on.

Egalitarianism may be considered along the line of sharing national cake. On this, right to equal education may means that in the course education the right to education should be equally distributed amongst the children so that no child receives more of it than any other child. Peter (2006) believes that apart from abstraction of mathematical and logical science, no two objects should ever be said to be equal in all respects or aspects that they can be equal only in all relevant respects. In the case of "egalitarianism" which is not similar to the context in which it is used, attempts should be made to give it operational definition so that it can be understood in the context it is being used. Since the society is made up of different individuals or groups, egalitarianism means different things to different individuals or group. The achievement of an egalitarian society in all its ramifications is unrealizable.

Diversities in Education

Education as an instrument of social integration and it involves, all

stakeholders in the society, the environment, the social fabric, as well as prevailing tradition. All these need the gradual adjustment of the individual to his physical and social environment. In every realm of life, different individuals live in different environments varying with intellectual capacities and talents as well as belonging to different clans and class, even in the same society or different societies. Ayeni (2017) states that individuals in the society have different potentialities that need education to be developed some potentialities are physical, others are intellectuals.

One can see that various powers in man are distinct from one another and this explains how man is capable of different and even conflicting activities. Man's powers are exceedingly complex and diverse in all their interaction and combined multiple activities to enable man education progressively. All these allows man's progressive adjustment to their social environment, hence, social; integration. In the course of educating, the ultimate unity in man accounts or shows that no two human abilities are perfectly correlated and perfectly uncorrelated during the programs of education. Both unity of man, complexity and diversities of his operations, are rooted in his several powers of operations in a single man.

Hassan (2014) states that what does the fact of individual difference call for? It calls for educational diversification and the society must cultivate such a diversity of educational offering that would make it possible for all individuals within it to improve whatever aptitudes they possess and to strike for excellence in diverse directions according to their interests and natural capacities.

The connection here is that various curricular combine as single unit is needed in a unified organization. Courses are split such as in technologies and we have various units such as computers, mechanical, civil engineering, technologies others may be versed in language such as Yoruba, English Language, and French languages because of individual beings has intrinsic worth. To be worthy or valued means to be esteemed because of the abilities in you. These are factors that lead to the solidification of individual development and they help in the improvement of social integration. One can therefore opines that the following can improve social integration.

Emphasis on Specialization: Educational facilities and resources should be specifically provided for specific areas of specializations in equal proportion. For examples, chemicals, equipment, for Chemistry,

Biology, Physics, and literature books for the literature students and should be equally or evenly distributed in line with the population to give room for the principle of egalitarianism.

Emphasis on Recognition/Impartiality: This is the acknowledgment of existence of human and materials values in the course of education. The validity or legality of individual differences through the power of consciousness should be considered.

Emphasis on Consideration: There must be thoughtful and kind regard for the diversities or deformities in individuals during the course of education. That is the programme of education must be taken into considerations and the individual differences in man is to bring unified social integration.

Emphasis on Reliability: There must be consistency in the provisions, controlling etc of the material, knowledge to be passed across to the students during the course of egalitarian education for solidification of social integration in all society.

Emphasis on Creativity: Creativity may be defined as the power to create, to invest new form or bring into existence through imaginative skills from something already in existence. The Stakeholders in education must introduce the use of imagination or original idea to create something new

or invention that can lead to the promotion of egalitarianism. This is to bridge the gaps of inequalities and improve social integration.

Emphasis of Compatibility: In the process of impacting knowledge through education, the process should be channeled towards creating a state in which two or more people are able to exist together without problems or conflict. That is, there should be an alignment of one level and materials with one another in a way that would allow harmonious functions of social integration.

Emphasis in Interaction: This calls for material or reciprocal actions or influence, and this is a situation whereby the issue of free communication and association should be taken as priority to breed good egalitarian society with perfect social integration.

Emphasis on Universalization: This calls for the recognition of brotherhood without any discrimination. All the activities should be based on universal provision retention, enrolment, participation and achievement etc. All these should be the architects of egalitarian education for the propagation of social integration in the society of human beings. Education for social integration is achievable through proper understanding of the concepts of

equality in diversities of human nature.

Education for Social Integration

Education as social integration serves as preservation of cultural heritage and this involves moral interactions as well as cultural or logical integration. Towoju (2016) stated that social integration calls for interaction amongst the people living in a society... the philosophical terms “I am because you are and you are because I am” is a philosophical statement that we are living to cooperate integrate, interact as well as sharing of benefits from one another. Here, a conscious attempt has been made to project education as a process of providing individual with the tools of renewing or even changing the cultural heritage. In this regard, education kick-starts from home and then the society. This is because man is a product of culture as he is a social being in social parlance. Man stands in a hierarchy of relations with all the rest of beings and to his fellow man, he is related as a brother and a fellow that engages in the cooperative pursuits of mutual good. To himself, he is an identical subject, the another of his own activities with the sense of his own history, responsibilities and destiny. More relations to the rest of beings demand both integrity and integrations. Here, he must be himself and must be organized harmoniously in all his

diverse aspects. Education enables him to be constantly adjusting to the changing world. As Sighs (2014) puts it “education as the gradual adjustment of the individuals to the spiritual process of the race..... the organization of the acquired habit to such action as will fit the individual to his physical and social environment”.

One can easily deduce from the above that man is constantly adjusting to a changing universe so that his integration is not a static mosaic but an orderly series of progressive or dynamic processes, that allow man to adapt with the ceaseless changes of cosmic situation or formation. Human beings integrate to several groups in all given societies for social relations, and hence integration for peaceful and comfortable living.

CONCLUSION

An individual being wants to enjoy the social needs provided by the community or the government. Education as we know is the transferring and empowering the individual to effect vital social integration in any society for the meaningful co-existence of human beings in the march toward social integration as the final goal. The issue of social integration can be realized if there is effective and efficient understanding of the nature of man and the society.

RECOMMENDATIONS

Consequent upon the above conclusion, the following recommendations will breed social integration if properly taken into considerations and implementations.

1. Recognition of individual differences in the process of education.
2. The stakeholders in education should make deliberate efforts to equalize education through the process of universal provision of educational materials.
3. The mind of individual learners should be trained towards the spirit of fairness of power to remove errors, so that individuals should be treated as brotherhood.
4. Schools should be opened and democratized in all aspects to produce equal learning opportunities.
5. Curriculum planners should include the teaching of morality, social culture e.t.c. into the school curriculum at all levels of education to assists in the solidification of social integration despite the diversity of human nature and cultures.
6. Mobile orientation programs should be introduced for the generality of our students. This should be to educate

them on the benefits of cooperation and integration despite the diversity. This will bridge the gaps of inequalities.

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HARMONIOUS RECONCILIATION AND SUSTAINABLE PEACE AFTER INTER-COMMUNITY ARMED CONFLICT: LESSONS FROM IFE-MODAKEKE IN SOUTH-WEST, NIGERIA

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ABSTRACT

This study examined the complexities of historical and socioeconomic factors that have caused a severe strain on community cohesion between Ife-Modakeke communities in South-West Nigeria by exploring its roots and consequences while highlighting effective strategies for promoting communal harmony through empathy building across cultures. It delved into processes and mechanisms for harmonious reconciliation such as analysis of peacebuilding efforts as well as roles of religious and traditional leaders in fostering reconciliation among others. The study underscored the importance of pursuing truthfulness and justice, fair allocation resources alongside interdependence as well as an investment in education to achieve enduring peaceful coexistence. The study recommended among others that the youth and women should be encouraged to actively participate in peace-building processes since they frequently serve as catalysts for transformation and are essential components of upholding peaceful conditions over an extended period. Also, measures must be taken to encourage the execution and reinforcement of regulations safeguarding the rights and concerns of all inhabitants, regardless of their ethnic origin.

Keywords: Harmonious reconciliation, Sustainable peace, Peace building, Inter-community armed conflict, Ife-Modakeke.

INTRODUCTION

Historical and socio-political factors underpinned the Ife-Modakeke conflict, which pitched the local Ife community versus immigrant Modakeke counterparts. As time passed, this competition grew increasingly hostile with devastating clashes that led to numerous fatalities as well as displacement, destruction of property. Despite many efforts to

resolving it over decades, resolution remains elusive perpetuating a cycle animosity between these two communities. The process of achieving long-term peace and reconciliation in societies that have faced conflict is intricate and diverse. Such violent confrontations between communities can result in profound, lasting damage to the fabrics holding

them together. Knowledge about elements contributing towards successful endeavors dedicated solely for resolving conflicts and promoting stability are essential when devising efficient policies or strategies focused on these issues. An interesting example for analyzing the mechanisms of establishing peace and reconciliation after a conflict can be found in Southwestern Nigeria's Ife-Modakeke discord. This hostile situation arose from historical, socio-political, and economic reasons that were compounded by land-related disputes and power struggles endured by both native Ife settlers along with Modakeke inhabitants who had migrated to the area. The outcome was an extended period of violent engagements marked by displacement alongside tragic casualties seen across these different communities.

Agbola and Akinbowale (2017) emphasized the importance of community-driven interventions in fostering peace and reconciliation after conflicts. In Ife-Modakeke, local leaders and seniors played a pivotal role in promoting dialogue, mediation, and healing initiatives. Their grassroots actions enabled trust-building measures, established communication channels for effective interaction amongst stakeholders while striving to resolve underlying

grievances that led to tensions between communities.

It has been acknowledged that sustainable peacebuilding requires inclusive and participatory processes. Research indicates that involving various stakeholders such as women, youth, religious leaders, and civil society organizations in decision-making and peacebuilding activities can enhance the likelihood of achieving lasting peace and reconciliation (Ajayi 2018; Amuwo 2020). It is therefore valuable to investigate how effectively inclusive processes were implemented after the Ife-Modakeke conflict for insights into their efficacy and influence.

In order to place the study on harmonious reconciliation and sustainable peace following the Ife-Modakeke conflict in Southwestern Nigeria into a broader context, it is crucial to take regional and global post-conflict peacebuilding perspectives into consideration. Within this region, Nigeria has experienced numerous intercommunal conflicts between ethnic and religious groups that have often resulted in violent consequences such as loss of life (Smith, 2019). These confrontations pose significant challenges for national unity, social cohesion, and development endeavors. Therefore,

by gaining insights from specific dynamics involved with Ife-Modakeke combined with lesson learned can contribute extensively towards an all-inclusive comprehension of adopting appropriate conflict resolution approaches at the regional level.

Globally, the examination of achieving harmonious reconciliation and long-term peace following armed conflicts between different communities is consistent with the worldwide objective on promoting sustainable development through post-conflict peacebuilding (United Nations, 2015). The United Nations has consistently encouraged inclusive strategies for fostering peaceful environments by prioritizing essential principles such as dialogue, justice and reconciliation. Understanding from the Ife-Modakeke research investigation can potentially enhance conversation at a global level regarding conflict resolution and building lasting peace.

The objective of this research on achieving harmonious reconciliation and sustainable peace following the Ife-Modakeke conflict is to produce actionable suggestions that can guide policymaking, implementation, and community-based efforts within Nigeria as well as other regions. Ultimately, the aim is to enhance

peaceful cohabitation and resilience in post-conflict societies while establishing a more cohesive future for all.

Significance of the Study

In the modern world, it is crucial to delve into finding solutions for achieving harmonious reconciliation and sustainable peace after inter-community armed conflict. Such conflicts have caused unbelievable pain and destruction throughout history in various societies. Therefore, comprehending these issues holds immense importance if we aspire towards a more promising future. The importance of studying harmonious reconciliation and sustainable peace cannot be overstated, particularly from a humanitarian standpoint. The onset of armed conflicts typically results in extensive human suffering, leading to loss of life, separation among families as well as displacement within communities. Such tragic events leave lasting marks that may endure for generations on end. Nonetheless, through exploration into strategies and approaches geared towards enhancing reconciliation and relationship building initiatives coupled with the promotion of peaceful resolutions mechanisms remain amongst various means we can employ in our quest to alleviate such based griefs thus paving way for

compassionately empathetic societies (Allen & Ingham 2013).

It is crucial to study harmonious reconciliation and sustainable peace for the social and economic development of communities impacted by armed conflict. Such conflicts damage infrastructure, impede economic activities, and hinder access to vital services like education and healthcare. Scrutinizing successful cases of reconciliation helps us understand how to reconstruct communities efficiently while fostering an atmosphere conducive to progress. Sustainable peace establishes a base for prosperity as it enables individuals in affected areas focus on rebuilding their assets, enhancing their financial status and upgrading living standards alike.

Studying harmonious reconciliation and sustainable peace is crucial in preventing conflicts from recurring. Frequently, armed conflicts have their origins rooted in long-held resentments, historical animosities or competition for resources. By delving into the underlying reasons behind clashes and applying efficacious measures of reconciliation we can resolve these issues while setting up mechanisms to prevent future occurrences. Implementing strategies that encourage dialogue,

understanding and cooperation between communities will enable us to foster a more peaceful coexistence (Lederach, 1997).

In addition, exploring harmonious reconciliation and sustainable peace has the potential to bolster proficient policies and interventions across multiple levels of governance such as local, national, and international contexts. Utilizing insights garnered from research studies and real-life scenarios can facilitate informed decision-making by governments, policymakers, and organizations in developing conflict resolution strategies as well as allocating resources towards fostering peaceful initiatives. This knowledge further enables key players to make judicious evidence-backed choices that promote long-term harmony alongside constructive reconciliatory measures.

To sum up, studying the achievement of harmonious reconciliation and sustainable peace following inter-community armed conflict holds immense significance. The humanitarian dimension, along with social and economic enhancement measures to avoid future conflicts and policy applications all emphasize the value of this area of research.

Historical Context of the Ife-Modakeke Conflict

The Ife-Modakeke crisis, alternatively called the Ife-Modakeke conflict, escalated due to longstanding animosity and rivalry over land and resources between neighboring societies in Southwestern Nigeria. According to Falola and Heaton (2008), this hostility dates back to pre-colonial times when conflicts arose regarding territorial borders and authority over arable farmland.

The Ife people are acknowledged as the first inhabitants of the area and hold immense cultural and historical significance, serving as Yoruba's ancestral abode. Alternatively, Modakeke was established by migrants who originated from Ife with an objective to establish their own society. As time progressed, socio-economic inequalities surfaced between both communities triggering rivalry that spiraled into armed confrontations.

According to Adelekan et al. (2009), the main actors involved in the Ife-Modakeke conflict were primarily from the communities of Ife and Modakeke themselves. Both sides had established leadership structures and organizations that contributed significantly to shaping this conflict's outcome. In particular, within the Ife community, traditional ruler and

spiritual leader - Ooni held significant power; his mediation skills played a crucial role in maintaining stability during conflicts amongst locals leaders such as chiefs, religious figures & senior members' suggestions shaped communal responses towards resolving this issue effectively.

In contrast, Modakeke possessed its own distinct governance system with a traditional ruler and hierarchy that served as a basis for decision-making and community engagement. Additionally, the presence of local chiefs, religious leaders, and elders held significant sway over Modakeke society. Beyond this internal structure lay important external entities such as governmental bodies including law enforcement agencies along with community-based organizations all working towards mediating the conflict alongside brokering peace agreements while promoting adherence to lawful behaviour (Adelekan et al., 2009).

According to Lubeck (2005), the Ife-Modakeke conflict deeply affected all communities involved. The clash caused extensive harm, including loss of countless lives and destruction of property and infrastructure. Homes, farmlands, and businesses were ruined at a large scale which led many individuals and families being

displaced from their homes. Inter-ethnic tensions resulted in severe impacts on social bonding between both communities as it gave rise to distrustful emotions causing rifts amongst them thereby obstructing peaceful coexistence among them altogether.

The agricultural activities that were crucial for the livelihoods of both communities suffered due to the conflict, causing economic disruption (Falola & Heaton, 2008). This resulted in food scarcity and financial instability as well as hindering business growth. Beyond these material losses, there was also a significant psychological toll on individuals who experienced fear and insecurity brought about by cycles of violence caused by the Ife-Modakeke conflict (Lubeck, 2005). The prolonged nature of this strife only served to deepen such scars at both individual and communal level.

Moreover, the ramifications of the Ife-Modakeke hostility extended well beyond their local communities and had significant repercussions on regional stability as well as inter-ethnic relations in Nigeria (Adelekan et al., 2009). This conflict underscored the difficulties involved in addressing long-standing tensions, territorial conflicts, and resource

distribution issues within a heterogeneous society.

Processes and Mechanisms for Harmonious Reconciliation Analysis of Peacebuilding Efforts

In societies dealing with post-conflict situations, peacebuilding efforts and initiatives play a critical role. Researchers conduct thorough analyses to assess their effectiveness and identify fundamental components of successful reconciliation. Belloni and Richmond (2013) studied Bosnia and Herzegovina after the conflict had ended, focusing on inclusive dialogue as a crucial element for involving all stakeholders in discussions about social justice while addressing root causes of the conflict. Sustainable solutions that create long-term stability are also emphasized by these researchers rather than relying solely on temporary measures.

Ramsbotham et al. (2020) conducted a perceptive investigation on peacebuilding endeavors in various nations affected by conflict. Their study elucidated that successful initiatives for peacebuilding are frequently multifaceted involving diverse methods such as political and economic reforms along with disarmament and reintegration programs. Additionally, recommended initiatives were efforts focused on justice, truth, reconciliation to support sustainable

long-term outcomes of holistic peacebuilding approaches essential for the benefit of all parties involved in post-conflict scenarios.

Moreover, there has been extensive research on the contribution of women to peacebuilding. Caprioli (2020) study highlights that involving women in peacemaking processes considerably enhances the possibility of achieving stable and inclusive agreements. The findings accentuate how including diverse perspectives from women at negotiation tables and decision-making forums addresses social concerns while improving overall effectiveness and legitimacy in efforts towards peacebuilding.

Cedric de Coning and Stamnes (2022) conducted a study that delved into the role of regional organizations in peacebuilding. They pointed out how key players such as the African Union and European Union acted as facilitators for peace talks, provided mediation aid, and implemented initiatives aimed at fostering peacefulness. The research reiterated these groups' significance in utilizing their political sway, resources, and proficiency to encourage harmony-building efforts towards stability.

Role of Religious and Traditional Leaders in Fostering Reconciliation

Within their communities, religious and traditional leaders are powerful figures who often play significant roles as facilitators and mediators in reconciliation processes after conflicts. Stoll (2010) research on post-genocide Rwanda highlighted the importance of these individuals - including pastors, priests, imams, and elders - in promoting peace and harmony. Their leadership has been key to uniting different ethnicities or religions by utilizing moral authority to bridge divides through encouraging conversation toward forgiveness while enforcing a positive atmosphere that nourishes healing.

Noyes et al. (2017) conducted research on the involvement of traditional leaders in Nepal's peacebuilding process. The study reveals that these leaders played a significant role in resolving conflicts and fostering reconciliation at the local level by leveraging their expertise as clan chiefs, village elders, and customary authority figures. Their extensive understanding of community dynamics coupled with cultural practices enabled them to act as mediators who successfully reinstated trust while rebuilding social harmony among conflicted parties. Through conventional conflict resolution mechanisms such

as negotiating settlements or organizing dialogue sessions anchored around prevalent customs within communities where tension exists; they facilitated healing processes for disputants involved.

Additionally, the importance of involving religious and traditional leaders in peace processes has been emphasized by Buhaug et al. (2014) research on post-conflict societies. By engaging these leaders in negotiation and decision-making activities related to peacebuilding efforts, legitimacy and effectiveness can be improved. With their respected positions within communities comes added trust from members which leads to increased acceptance of reconciliation endeavors.

Religious and traditional leaders possess the ability to utilize their moral influence, comprehension of community dynamics, and cultural customs to encourage communication, mercy, and recovery. As a result of these actions in conflict-affected areas, they can enhance trust levels while facilitating peaceful coexistence.

Engagement of Civil Society Organizations in Peacebuilding

According to Posner and Sun (2020), Civil Society Organizations (CSOs) are pivotal in promoting peacebuilding and reconciliation. Their participatory approach,

community engagement, and advocacy for inclusivity play a significant role in achieving sustainable peace.

The study by Posner and Sun (2020) underscored the crucial significance of grassroots-level Civil Society Organizations (CSOs) in advancing reconciliation. These CSOs function as forums for discourse, providing opportunities for affected communities to unite and redress their complaints. They support community-led projects that enable individuals to contribute actively and take responsibility for shaping the peace-building initiative while fostering a sense of ownership among them.

Advocacy for marginalized groups and tackling structural inequalities that may cause conflict are among the objectives of CSOs. By promoting social cohesiveness and addressing underlying factors of aggression, they assist in achieving lasting reconciliation outcomes (Jones & Uphoff, 2009). Moreover, CSOs frequently engage in partnerships with governments, international organizations and local communities to establish all-encompassing peacebuilding strategies (Dixon & Moon, 2017). Through this multi-participant collaboration comes a reinforced coherence of efforts emerged resources that maximize the

potential for successful implementation of initiatives oriented towards achieving sustainable peace. To sum up, civil society organizations play a paramount role in ensuring peacebuilding by addressing grievances, promoting inclusivity and fostering sustainable peace. Due to their community-centric approach and advocacy efforts coupled with participatory involvement, they pave the way for reconciliation and long-term societal transformation (Jones & Uphoff; 2009).

Importance of Truth-Telling, Forgiveness and Healing in Reconciliation

The act of truth-telling is integral to the reconciliation process, enabling both individuals and communities to come face-to-face with past atrocities. According to Lederach (2003) research, truth commissions offer a vital opportunity for victims to recount their histories and seek redress. By uncovering these hidden truths through such processes, there can be greater comprehension among all parties about the realities of historical events.

Reconciliation necessitates forgiveness, which requires relinquishing bitterness, wrath and retribution that can perpetrate violent conflicts and impede peaceful advancements. Forgiveness empowers individuals and societies to

shed their historical afflictions to restore relationships. Uphoff and Jones (2009) revealed the restorative qualities of forgiveness in mending rifts whilst supporting sustainable peace initiatives.

Reconciliation relies heavily on healing, both at the personal and societal levels. The process of healing enables an exploration into the psychological, emotional, and physical injuries stemming from conflicts by offering necessary resources such as support systems can facilitate trauma recovery processes while promoting trust reconstruction efforts that help to revive dignity amongst individuals who have been affected emotionally or physically in some way. Healing also opens up possibilities for a brighter future devoid of scars wrought upon through past events. Dixon and Moon (2017) explored how local NGOs play crucial roles within post-conflict settings by propelling active community engagement towards attaining enhanced psycho-wellness alongside sustainable wellbeing outcomes via proper facilitation approaches conducive to rebuilding. Societies can create a foundation for long-lasting peace by adopting the principles of honesty, forgiveness and recovery. These values encourage people to collectively own up to their actions, demonstrate understanding

towards one another and work together in repairing broken relationships. They serve as a platform for conversation, harmony-building and developing mutual trust built on fairness, parity and admiration.

Best Practices and Lessons Learned

In Nigeria, the Ife-Modakeke conflict has been managed and addressed through diverse strategies, as reported by Okuda (2019). Among the effective methods adopted are:

a. Mediation and Dialogue:

The effective resolution of the Ife-Modakeke conflict in Nigeria has relied on mediation and dialogue as successful strategies. With impartial mediators guiding opposing groups, reconciliation and peacebuilding have been possible through bringing opponents together. A study by Okene and Omuojine (2014) emphasizes the crucial function played by mediation during this process, revealing that neutral involvement created an atmosphere conducive to trust-building while encouraging transparent communication among parties engaged in dispute resolution efforts. Dialogue was at the forefront of the mediation process, affording an opportunity for opposing factions to express their worries, complaints, and

viewpoints. This approach facilitated a more profound comprehension of each other's stances and driving forces; ultimately leading to cooperative solutions that were mutually acceptable. Agbiboa (2013) advanced dialogue as crucial in addressing multifarious conflicts since it enabled uncovering latent concerns and ambitions.

Furthermore, dialogue served as a medium for acknowledging and grappling with the emotional dimensions of the dispute by enabling people to articulate their feelings, anguish, and ambitions. This method facilitated empathy development, encouraged recovery efforts and cultivated mutual recognition between conflicting factions. The Ife-Modakeke conflict witnessed such transformative potential through dialogue that Omeje (2008) study underscores its efficacy in rekindling trust among opposing entities whilst promoting harmonious coexistence.

b. Engagement with the Community

In the Ife-Modakeke conflict, sustainable peace has been established with significant contributions from community engagement. The affected communities were actively involved in the process by acknowledging their role and encouraging active

participation towards achieving peace. Through various initiatives such as town hall meetings, community forums and engaging key leaders within these areas played a pivotal role inspiring ownership, empowerment while fostering an inclusive environment for all to have a voice during this process.

In 2016, the International Crisis Group (ICG) reported that Ife-Modakeke's community engagement programs sought to establish opportunities for communication and teamwork among residents, civic groups, and other involved parties. Through these venues of expression, individuals were able to express their apprehensions while proposing resolutions in support of peacebuilding efforts. These locally-derived solutions have contributed significantly towards advancing long-term peaceful coexistence within the region.

The credibility and legitimacy of the peace process was enhanced by engaging community leaders, who hold significant influence and are highly esteemed within their communities. According to the ICG report, these respected figures played a pivotal role in galvanizing members of their respective communities through fostering comprehension and promoting harmonious

interdependence. Moreover, bridging divisive differences between conflicting parties facilitated negotiation opportunities while enabling amicable reconciliation initiatives with valuable contributions from involved leadership representatives.

Moreover, initiatives aimed at engaging the community cultivate a feeling of shared accountability and investment in achieving peace. Through their participation in these efforts, individuals are encouraged to seize control over their own destiny and play an active role in resolving conflicts. The value of such participative strategies has been stressed by Senehi and Byrne (2011) who emphasized how vital involving local communities is when establishing lasting peace. Community involvement has played a crucial role in establishing enduring peace amidst the Ife-Modakeke conflict. Through multiple avenues and effective community leadership participation, individuals have felt an enhanced sense of incorporation, empowerment, and shared responsibility - thus facilitating successful progress within the realm of peaceful resolution tactics.

c. Conflict Resolution Mechanism

The implementation and fortification of native conflict resolution tools, like traditional tribunals or reconciliation committees, have significantly contributed to providing opportunities for settling disputes and handling clashes at the grassroots level. Since these mechanisms are deeply ingrained in local customs and social values, they successfully encourage community harmony and steadiness.

The United Nations Development Programme (UNDP) (2014) reported that traditional courts and reconciliation committees have been extensively applied in several conflict-ridden regions globally such as Africa and Asia. They function on the principles of customary norms, values, and practices to provide community members with a culturally suitable avenue for resolving disputes conveniently. The local familiarity and acceptance of traditional courts and reconciliation committees are among the main benefits, according to research by UNDP. These institutions carry a sense of legitimacy in the community's eyes, instilling confidence and trust which ultimately fosters greater sustainability within conflict resolution outcomes. Additionally, traditional conflict resolution methods promote community engagement and ownership. The involvement of

community members in the decision-making process as either disputing parties, mediators or witnesses fosters a sense of responsibility and commitment towards achieving sustainable resolutions while reducing the risk of recurring conflicts.

The Gacaca courts in Rwanda after the 1994 genocide serve as a remarkable instance of effective utilization of local conflict resolution mechanisms. These community-based tribunals aimed to foster justice, reconciliation and healing, resulting in restoration of relationships and social harmony within communities. Perpetrators were allowed to confess their crimes, seek forgiveness and make amends for contributing towards this positive outcome (Mamdani, 2002).

Conclusively, local conflict resolution mechanisms like conventional courts or reconciliation committees are successful in resolving disputes and managing conflicts at the grassroots. These avenues provide culturally suitable methods for conflict resolution, which are easy to access by community members. They have gained legitimacy among people within communities while enhancing active participation of locals leading

towards a peaceful society that is sustainable over time.

d. Security Measure:

To decrease violence and stop conflicts from escalating, it is essential to execute efficient security measures and law enforcement approaches. Such tactics involve enhancing the number of police personnel on patrol, conducting interventions aimed at specific groups or areas, as well as creating combined security units that work together in harmony. These techniques are instrumental in sustaining peaceful coexistence within communities and societies.

Research has confirmed that the presence of law enforcement personnel can effectively discourage criminal and violent behavior. According to United Nations Office on Drugs and Crime (UNODC) (2015), it is crucial to enhance police visibility in regions with a high incidence of crime as this could dissuade potential wrongdoers from committing offenses, while also granting peace of mind to local residents. This preemptive strategy establishes a sense of protection within the community, which boosts its confidence level and discourages misconduct among individuals. Moreover, focused strategies have shown to be successful in addressing

particular types of aggression and strife. To illustrate, community policing efforts have achieved their goals by creating rapport and cooperation among law enforcement agencies and localities that deal with specific problems. Through communication with members of the society, comprehending their grievances, implementing tailor-made measures as appropriate; authorities can root out fundamental triggers for conflict occurrence or escalation while averting violent actions from happening – reinforcing favorable bonds between them (Skogan, 2006).

Collaboration between various security agencies in the formation of joint security forces has been instrumental in upholding peace and order. In areas where there is intense conflict or high levels of violence, unified efforts enable a well-coordinated and holistic response to threats through shared resources, expertise, and intelligence (Berman & Wolff, 2019). Such an approach ensures that the impact of interventions is optimized while concurrently improving overall safety measures. In addition, security measures that are assessed and adjusted appropriately take into account the human rights and integrity of every person. It is imperative for law enforcement to

honor and safeguard human rights by carrying out their duties openly, transparently, and responsibly. Adhering to global standards regarding human rights principles plays a key role in cultivating mutual trust between society as well as security forces (Office of the High Commissioner for Human Rights (OHCHR), 2021).

Conclusively, the reduction of violence and prevention of conflicts escalation heavily relies on well-planned security measures and law enforcement strategies. The maintenance of peace in a region can be achieved by increasing police presence; carrying out targeted interventions, which could involve combining forces with other security agencies for joint operations; these methods help tackle localized issues while promoting cooperation between communities and the authorities. Effective implementation deters offenders from violating laws that ensure human rights are upheld – this creates an enabling environment necessary for sustainable development within such societies prioritizing establishing adequate protection mechanisms against varying threats to communal safety.

e. Development and Economic Initiatives

To attain sustainable peace and stability, it is crucial to tackle the underlying grievances and socioeconomic disparities. The key drivers for addressing these root causes of conflicts are development programs that aim at promoting inclusivity as well as creating economic opportunities equally accessible by all society members. Creating employment opportunities is a crucial element of these efforts. A lack of economic prospects and unemployment can lead to frustration and dissatisfaction among communities, which increases the likelihood of conflict and violence. By implementing specific programs geared towards job creation such as training for skills development, support for entrepreneurship initiatives or investing in sectors with high potential for jobs, both organizations and governments can equip individuals with the necessary means to provide financial resources not only themselves but also their families. The International Labor Organization (ILO) highlights that decent work alongside empowering economically-affected areas are fundamental factors in reducing poverty while promoting social stability as well as resilience (ILO, 2017).

Additionally, the development of infrastructure is crucial in advancing economic growth and enhancing general well-being. Allocating investments towards improving transportation systems, energy sources, healthcare facilities, educational institutions and communication networks can bolster connectivity, incentivize trade as well as investment while ensuring access to vital services. Better infrastructures facilitate seamless movement of individuals and goods creating a favorable climate for business activities; thus attracting things that contribute positively towards developing commercially enabled environments (World Bank, 2020). For instance, erecting sound bridges or roads linking remote areas with bustling urban centers offer prospects for employment opportunities coupled with opening up marketplaces conducive to trading engagements.

One crucial element of development efforts is providing access to essential services. Unequal availability of healthcare, education, sanitation and clean water can lead to social marginalization and worsen pre-existing conflicts. By guaranteeing equitable accessibility to these fundamental necessities, governments can combat disparities and foster societal unity. The United

Nations Sustainable Development Goals (SDGs) recognize the critical role universal access to high-quality education, healthcare facilities as well as safe drinking water & proper sewage management play in sustainable development. (UN, 2015).

Emphasizing the importance of inclusivity in development initiatives, particularly for marginalized groups like women, youth and minority communities is crucial. According to UN Women (2018), gender-responsive economic programs that empower women can greatly aid peacebuilding efforts while investing in education and economic empowerment of young people not only helps prevent their recruitment into armed groups but also creates better opportunities for their future as stated by *United Nations Educational, Scientific and Cultural Organization* (UNESCO) (2018).

The key to achieving lasting stability and peace lies in addressing underlying grievances and socioeconomic disparities through development and economic initiatives. Creating jobs, improving infrastructure, and providing access to essential services are effective ways of tackling the root causes of conflicts, promoting inclusivity, as well as creating equal opportunities for all members of society. By

investing in these endeavors while ensuring their inclusive nature, governments alongside organizations can foster sustainable growth leading towards a more peaceful prosperous future.

CONCLUSION

From the Southwestern region of Nigeria, the case of Ife-Modakeke presents crucial insights on how to establish enduring peace and harmonious reconciliation following an armed conflict between communities. Through a careful analysis of the key factors that enabled successful resolution in Ife-Modakeke, we can formulate practical suggestions for other regions grappling with comparable conflicts.

Achieving enduring peace requires the implementation of crucial measures such as creating channels for dialogue and reconciliation, increasing community involvement, boosting economic growth, enhancing governance structures, and promoting intercultural harmony. To maintain this tranquil state demands consistent endeavors that address root causes of conflict while establishing unwavering communities.

Inclusivity, participation and cooperation among all concerned parties are the primary takeaways from Ife-Modakeke. To attain

sustained peace while keeping violence at bay, it is essential to engage community members in decision-making processes and peacebuilding initiatives with a particular focus on youth as well as women. It's equally important to address socioeconomic differences by offering economic opportunities for everyone within the society. Policymakers, community leaders, and international actors can work towards achieving sustainable peace in conflict-affected areas by adopting the suggested measures and gaining insights from successful precedents like Ife-Modakeke. Though it may be a formidable road to tread, building robust alliances and emulating past triumphs can make lasting peace achievable.

RECOMMENDATIONS

1. The youth and women should be encouraged to actively participate in peace-building processes since they frequently serve as catalysts for transformation and are essential components of upholding peaceful conditions over an extended period.
2. Investing in programs that create job opportunities, provide skills training and aid to local businesses can help alleviate poverty and address economic disparities.

Enabling all members of a community with diverse economic prospects reduces the likelihood of future conflicts while contributing towards building sustainable peace and reconciliation.

3. It is essential to take measures that encourage the execution and reinforcement of regulations safeguarding the rights and concerns of all inhabitants, regardless of their ethnic origin.

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EFFECT OF DRIVING TASKS ON ROAD TRAFFIC ACCIDENTS INVOLVING HEAVY-DUTY AUTOMOBILES IN NORTH-EAST, NIGERIA

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ABSTRACT

This study determined the effect driving tasks on road traffic accidents involving heavy-duty automobiles in north-east Nigeria. Survey research was adopted for the study through structured questionnaire. The total population of 2,645 comprising of Federal Road Safety Corps (FRSC), Traffic Police, Vehicle Inspection Officers (VIOs) and Drivers. 235 respondents were proportionately sampled for the study. Multiple regression was used to analyse the data. The results indicated that driving safety violation, driver's experience and driver's interaction with other road users significantly affect road traffic accidents involving heavy-duty automobiles in north-east Nigeria. It was recommended that regular checking of driver's license and other vehicle documents should be prioritized by FRSC personnel, VIOs and Traffic Police. This gesture could reduce congestions on highways as those heavy-duty automobiles without intact documents would be kept off the road.

Keywords: Driving tasks, Road traffic accidents, Heavy-duty automobiles

INTRODUCTION

Road Traffic Accidents (RTAs) caused by automobiles have become daily scenes on Nigerian highways. The rate at which RTAs are occurring is alarming. More so, in north-east

Nigeria the trend at which the menace is happening is becoming complicated despite presence of law enforcement agents on the highways (Federal Republic of Nigeria F.R.N, n.d). The human wrecks that are

found in the hospitals as well as horrifying road crash data from the Nigeria Police and the Federal Road Safety Corps are clear evidences (Iweze, 2020). More so, it was reported that every year over 39,000 Nigerians die from road traffic accidents (Onyemaechi & Ofoma 2016). This is in line with 2018 Global Status Report on Road Safety by World Health Organization (WHO) which indicated that road traffic fatalities in Nigeria was around 39,802, while the estimated rate per 100,000 deaths stood at 21.4 (Faajir & Hassan, 2016; WHO., 2019). The report further revealed that significant percentage of RTAs involving heavy duty automobiles were in Bauchi, Borno and Yobe states of north-east Nigeria (WHO, 2019).

North-east Nigeria is a vast and extensive region which extends from Lake Chad in the north-east corner to beyond Toro near Jos in the south-west corner, and from Jama`re-Itas/Gadau bordering Jigawa in the north-west corner to Wukari in the south-east (Iweze, 2020). Iweze further explained that the region is blessed with fertile land and inhabited by people of different ethnic groups and shares common international boundaries with Niger to the west and north, Republic of Chad to the north-east and Cameroon to the south-east. Due to mutual cooperation that exists

among the border communities, people travel across all parts of the region for business and other things. Commodities movement to north-east Nigeria from the sea-ports in southern Nigeria are mostly handled by road transport (Abbas & Bala, 2019). Abbas and Bala further maintained that up to 90% of all other inter-states movements of goods (predominantly farm produce) take place by roads with the help of heavy-duty automobiles (loosely called 'Trailers'). Also, there is abundant use of construction vehicles (tippers and related vehicles) for construction purposes, these make the roads in the region congested with traffic and consequently cause Road Traffic Accidents (RTAs) involving Heavy-duty automobiles.

Onokala (2015) viewed road traffic accident as an unexpected and unpleasant event that causes loss or injuries to passengers, vehicles and other mobile or immobile facilities along a road. RTAs have serious implications for the lives of those involved as well as financial costs and also involve the risks of death. Onokala further classified RTAs as minor when the injuries are minor, serious when the injuries caused involve hospitalization, and fatal when death is involved. United Nations (UN, 2018) and W.H.O (2019) labelled RTA as a major cause

of death and disability in both developed and developing countries of the world. In another development, Afolayan et al. (2017) stated that human and vehicle related factors are known to be major causes of road traffic accidents in Nigeria. The vehicle driver's habit was found to be the primary cause, and it could be due to traffic safety violation, driver's experience, driving under substance influence and yielding for pedestrians and other road users (Aborajadeh et al., 2012; Afolayan et al., 2017; Peter et al., 2017).

Hu et al. (2020) and Akande (2020) further stressed that nearly 90% of RTAs are caused by human factors, and human becomes one of the most unstable factor in causing traffic safety problems. Furthermore, it was found that the major perceived human factors responsible for road traffic accidents are; working states of drivers, risk recognition and submission to the unavoidable, driver preparation and road utilize behaviour, inexperience with the driving task, distracted driving, sensation seeking, inattentive to road environment, nature and state of the vehicles, and unwilling to abide by traffic laws (Saxena, 2017; Topolšek et al., 2019; Riaz & Shahid, 2018; Hu et al., 2020; Ullah et al., 2021). Based on the above, it is obvious that the major causes of road traffic accidents

globally are vehicle driver's behaviour (driver's driving tasks, non-driving tasks) and the general nature of the road.

The driving tasks are the variables displayed by the automobile driver on the roadway that are constantly changing and make hazard perception so imperative. Hoekstra-Atwood (2015) mentioned that these tasks are sometimes difficult for new drivers; they may come together at any time in a different set of combinations that could change driving pattern. This could be completely harmless in one given day, and on another given day completely dangerous. Kawanaka et al. (2013) stated that driving tasks consist of steering, lane positioning, braking, driving speed, following distance, and so forth. Sterkenburg (2015); Maguire et al. (2018) and Naing et al. (2018) added that obeying speed limit, attentive to weather conditions, understanding traffic rules, observing all necessary driving safety, driver experience and driver behaviour towards other road users are also termed as driving related tasks. Hence, driving tasks involve observing driving safety, driver's experience and driver's interaction with other road users.

Based on the above, the researchers intend to focus on how driving tasks influence road traffic accidents involving heavy duty automobiles in

north-east Nigeria. This is because, according to Xie et al. (2020) understanding the factors that have influence on traffic crashes and the impacts made by the crashes due to these factors can help provide a fundamental basis to plan and develop appropriate countermeasures for road safety issues. By and large, it is necessary to comprehensively understand the influence of various risk factors contributing to the road accidents involving heavy duty automobiles in north-east Nigeria so that appropriate safety interventions can be identified and implemented to reduce the frequency and severity of these accidents.

Objective of the Study

This study aimed to determine the effect of driving safety violation, driver's experience and interaction with other road users on road traffic accidents involving heavy-duty automobile in north-east Nigeria.

Hypothesis

Driving safety violation, drivers' experience and interaction with other road users will not significantly cause road traffic accidents involving heavy-duty automobile in north-east Nigeria.

Literature Review

Driving Safety Violation (DSV)

Akaateba and Amoh-Gyima (2013) reported that driving safety is affected by various factors, which together determine the level of traffic safety or risk. Such factors include driver characteristics, road layout, the design of the car and weather condition. However, most road accidents are ascribed to 'human factor' most especially to road safety or driving safety violations. This is because, Marzooq (2021) found that human factors are the primary sources of road traffic accidents and it involves careless driving, breaches of road laws, gross neglect of reasonable lengths, and improper overtaking. In the same vein, it was informed that speeding and running red lights play significant role in traffic accidents also; high speed and reckless driving have been reported as one of the major triggers of RTAs (Al Turki, 2014).

Talal (2021) indicated that a driving attitude that encourages over speeding on roads contributes to the occurrence of a traffic accidents. In his study conducted in Saudi Arabia's Jeddah region he found a positive correlation between over speeding attitude and high rates of road traffic accidents. Statistics from research by Al-Zahrani (2014) showed that 80% of fatal accidents occur on major highways were due to the over speeding and unwillingness of drivers

to obey traffic regulations. Similarly, non-compliance to seat belt usage was found to be primary factor associated with high incidence and severity of RTAs (Naing, et al., 2018). Jamal et al. (2019) indicated that by devising and enforcing suitable preventive measures, Germany has succeeded in reducing its traffic mortality rate by 69% and severity by more than 50%. Also, authorities in New York and several other U.S. cities have been able to reduce the number of fatalities by strict enforcement of traffic violations such as non-usage of seat belt. Also, Jawadi, et al. (2017) reported that wearing seat belts has been proven to be very effective in reducing the number of RTAs-related injuries and deaths.

Furthermore, Mekonnen et al. (2019) indicated that literature showed that about 95% of all the traffic crashes are due to driver-related dangerous behaviors that involve driving safety violations and other related vices. Mekonnen et al. further expatiated that investigators have identified several factors that underpin the involvements in risky driving safety violation. For instance, drivers' gender importantly influences risky driving behavior. The risky driving safety violation was found to be significantly higher for males than females (Mansuri et al., 2015;

Mekonnen et al, 2019; and Mazyad et al 2021). This is not surprising, because even here in Nigeria almost all commercial vehicle drivers are males and are the ones that mostly involved in RTAs.

Driver's Experience (DE)

In global perspective, road crash injury is a leading cause of death for young automotive drivers. It was found that driver's age, safety violation and inexperience were among the leading contributing factors to the prevalence of RTAs (WHO, 2004 and WHO, 2014). Several studies have indicated significant influence of driver's experience on RTAs. For instance, Talal (2021) in his study stressed that failure to train prospective drivers adequately and sufficiently before granting them a driver's license has contributed significantly to an increase in the number of road accidents. He further maintained that the adequate training of drivers increases drivers' competence and makes them more cautious of traffic regulations. In a similar tone, Mansuri et al. (2015) and Jin et al. (2021) reported that competent drivers can easily identify a potential cause of an accident and could put the necessary corrective measures to avoid those situations.

Also, Nithya and Revathi (2019) reported that in the field of driving experience and driving matters, on-road experience plays an important role to strengthen hazard alleviation skills and also helps to alleviate the tendency of distracted driving behaviour. In another development, it was found that experienced drivers show little crash risks in comparison to beginner drivers, which means driving experience helps driver to allocate attention resources effectively to identify potential hazards; lack of maturity and driving experience increases the risk of traffic accidents for novice drivers (Hu et al., 2020).

Li et al. (2021) reported that although there are a lot of driving practices during the learning period, the probability of making mistakes in early license holding period is still high. They further elaborated that lack of driving experience is related to the driver's insufficient ability to monitor potential road hazards, which can lead to rear end collision, fatigue driving, drunk driving, or other negative driving behaviours. In their study, Jin et al. (2021) found that driving experience has a strong correlation with driver's psychology (self-confidence, attitude, and awareness), emergency response ability and peripheral monitoring ability. Lastly, Mekonnen, et al.

(2019) stated that, a report from Australia revealed that young and inexperienced drivers are at a high risk of involving in risky driving behaviour and consequently lead to RTAs.

Driver's Interaction with Other Road Users (DIORU)

The World Bank (2012) and W.H.O (2014) reported that a sizeable portion of the burden of injury due to RTAs will continue to be borne by passengers, vulnerable road users; pedestrians, cyclists, motorcyclists and other non-motorized road users. This is very common in low-income and middle-income countries (Nigeria inclusive) due to many reasons such as: lack of separation pedestrian from the other road user, traffic mix and fast-moving motorized vehicle are some of the factors raised problem (WHO, 2018); of particular concern, is the mix between the slow-moving and vulnerable non-motorized road users, as well as motorcycles, and fast-moving, motorized vehicles. This may be the reason why Mohammed et al. (2020) in their study reported that 74% of their respondents agreed that slow and fast-moving vehicles should have separate tracks.

In their study Mohammed et al. (2020) have revealed that there have been a marked differences in fatality

rates between various groups of road users, as well as between road users in high-income countries and those in low-income and middle-income countries. In a review of 38 studies by Elnibras et al., (2017) found that pedestrian fatalities were highest in 75% of the studies, accounting for between 41% and 75% of all fatalities. Passengers were the second largest group of road users killed, accounting for between 38% and 51% of fatalities. Also, Peter et al. (2017) reported that in Kenya, between 1971 and 1990, pedestrians represented 42% of all crash fatalities; pedestrians and passengers combined accounted for approximately 80% of all fatalities in that country each year. In the city of Nairobi, between 1977 and 1994, 64% of road users killed in traffic crashes were pedestrian.

Recent studies have shown that pedestrians and motorcyclists have the highest rates of injury in Asia (Abdul Manan et al. 2018). Injured pedestrians, passengers in mass transportation and other non-motorized road users are due to driver's negative relation factors in African countries (Gbadamosi & Adenigbo, 2017; Akande, 2020 and Adepoju, 2021). Also, Wanyama et al. (2016) claimed that in Latin America, Caribbean and Africa injuries to pedestrians and other non-motorized road users are of the

extreme problems. By contrast, in most developed countries, such as France, Germany and Sweden, car occupants represent more than 60% of all fatalities, a reflection of the greater number of motor vehicles in use. While there are fewer motorcyclist, cyclist and pedestrian casualties, these groups of road users bear higher fatality rates (Schepersa et al., 2014). This in line with the report of International Road Federation (IRF) (2021) which reported that in several low-income and middle-income countries, passengers in buses and other informal public transport systems also constitute a significant group at high risk of road traffic casualties.

There are different factors raised as a causes of injury severity of the pedestrians and other road users in either urban, rural or highways. The principal factor as highlighted by Leta (2020) is driver-related factor which could be: relating badly with other road users, education level, and road rage. Based on the Leta (2020)'s opinion a driver may relate badly or negatively with other road users when having one or more of the mentioned factors. This contradicts the opinion of Akande (2020) who sampled 417 bus drivers in Abuja and Lagos Nigeria; he found that out of his sample, 47% of bus drivers in Abuja make an obscene gesture, intimidate

other road users through unnecessary use of horn and abusive words while only 38% displayed this attitude in Lagos. But Akande found that only 26% of bus drivers in Lagos stop for pedestrians when they are in a hurry and 40% of drivers in Abuja.

METHODOLOGY

Research Design

This study used a survey research design to determine the effect of driving tasks on road traffic accidents involving heavy-duty automobiles in north-east Nigeria. A survey method is used when a researcher collects information about target respondents to describe and explain their attitude, knowledge and behaviour about a particular phenomenon (Sekaran & Bougie, 2016). The authors further argued, in this method, a researcher collects and analyses a quantitative data to establish the relationship between the variables of interest. This study collected and analysed quantitative data from FRSC personnel, VIOs, Traffic Police and Drivers. Hence, a survey method was considered appropriate for this study.

Participants

The population of this study comprised of 639 Federal Road Safety Corps (FRSC) personnels, 82 Traffic Police, 262 Vehicle Inspection Officers (VIOs) and 1662 drivers (those registered with

National Union of Road Transport Workers, NURTW and Petroleum Tanker Drivers, PTD only) in north-east Nigeria. This made the total population of two thousand six hundred and forty five (2,645). This population was chosen because FRSC, Traffic Police and VIOs were found to be stakeholders in road network administration (Oroleye, 2019). The researchers adopted stratified and proportionate sampling for this study. The sample size for this study was 235. This sample size was drawn from the population based on the table established by Adam (2020). According to the table, population of 2,645 should have sample size of 235 at 95% level of confidence. Then, using proportionate allocation, the sample sizes for different strata were: FRSC (57), Traffic Police (7), VIOs (23) and Drivers (148) which is in proportion to the sizes of the strata viz., 639: 82: 262: 1,662 respectively.

Instrumentation

The study adapted measurements from the existing studies related to this study, this was done because Sekaran and Bougie (2016) recommended that a researcher can adopt or adapt measurement from the existing studies relevant to the current research. The instrument, comprising three constructs adapted from prior studies, was used in this study. The three constructs from driving tasks

variable were measured with 10 items while road traffic accident was measured with 5 items as adapted from previous studies. In this study, the Likert scale was adopted for all the items, and respondents were asked to indicate their responses to each item on a five-point scale. This is because Dawes (2008) states that a five or seven-point scale is likely to produce better results.

Validity and Reliability of the Instrument

The content validity of the instrument was carried out in this study. To ascertain this, the researchers gave the copies of the questionnaire to four experts in the field of research from four tertiary institutions in north-east Nigeria that are offering automobile technology education. This is in line with the suggestion of Kothari (2004) that content validity of the instrument is established by experts' judgment. The suggestions of the experts which include: adjustments in the introductory aspect, amendments of some items of measurements were taken into account and improved the measurement instrument for final use.

In order to ascertain the reliability of the instrument of this study, a pilot study was conducted in the area that is not part of the study area. The data generated from the pilot survey was subjected to statistics analysis using

Cronbach Alpha. Hair et al. (2017) argued that if the items are scored as continuous variables the Cronbach Alpha provide a coefficient to estimate consistency of scores in the instrument. The Cronbach alpha coefficients of 0.77 was obtained, the results suggested that the instrument is reliable based on the recommendation given by Hair et al. (2017). According to Hair et al. Cronbach alpha coefficient of at least .70 is considered satisfactory and acceptable.

Data Analysis

The inferential statistical tool of multiple regression was used to test the hypothesis of the study. A multiple regression is a statistical tool for ascertaining the influence of multiple independent variables on a single continuous dependent variable (Tabachnick & Fidell, 2013). Hence, multiple regression was appropriate in testing the hypothesis of this study. In this study, the analysis was done with the aid of statistical package for the social sciences (SPSS) version 25. Additionally, alternate hypothesis with a p -value of less than 0.05 was rejected while hypothesis with a p -value of 0.05 and above 0.05 was accepted.

RESULTS

Table 1: Effect of Driving Tasks on Road Traffic Accidents Involving Heavy-duty Automobile

Variables	Standardised Coefficients Beta	T value	P value
DSV	.302	2.003	.000
DE	.202	3.101	.002
DIORU	.289	.840	.000
R Square			.37
Adjusted R Square			.30
F value			29.80
p value			.000

Table 2: Summary of Multiple Regression Results

Hypotheses	Decision
H1 DSV significantly influence RTAs	Supported
H2 DE significantly influence RTAs	Supported
H3 DIORU significantly influence RTAs	Supported

In the current study, the analysis of multiple regression was performed to test the hypotheses as presented in Table 1. The statistical evidence revealed that the model was statistically significant based on the F ratio 29.80, $p = .000$. The result shows a significant power of this model in predicting the RTAs. The result also revealed the R^2 value of .37, which indicated that the model fit is large. For individual contribution of independent variables, the variable DSV has a standardized coefficients beta value of .302, $p = .000$, that is the DSV variable has a positive and significant effect on RTAs. Therefore, this result support the

prediction of hypothesis H1; DSV has significant effect on RTAs. On the other hand, the variable DE has a standardized coefficients beta value of .202, $p = .002$. This indicated that DE has significant effect on RTAs. Hypothesis 2 is, therefore, supported. Similarly, the DIORU variable has a standardized coefficients beta value of .289, $p = .000$. This suggested that DIORU has significant effect on RTAs. Hypothesis 3 is, therefore, supported.

Discussion

The finding in hypothesis 1 is in consonance with that of Talal (2021) who reported that driving safety

violation like; over speeding influence road traffic accidents. In the same tone, the finding is in tandem with that of Al Zahrani (2014); Jawadi et al. (2017); Naing et al. (2018) and Jamal et al. (2018) in their separate studies found that driving safety violations like: non-compliance to seat belt, over speeding and other traffic rules violation have significant effect on RTAs. Also, the finding in hypothesis 2 is in line with that of Mansuri et al. (2015); Talal (2021) and Jin et al. (2021) who in their separate studies reported that inadequate training of drivers and incompetency in the part of the driver are significant factors affecting RTAs.

In the same vein, the finding is in line with that of Nithya and Revathi (2019); Hu et al. (2020) and Li et al. (2021) who separately reported that on-road experience, inexperience among novice drivers and mistakes among early license holders significantly affect RTAs. Lastly, the finding in hypothesis 3 coincides with that of Gbadamosi and Adenigbo (2017); Akande (2020) and Adepoju (2021) who reported that in RTAs, injured pedestrians, passengers in mass transportation and other non-motorized road users are due to driver's negative relation factors in African countries significantly influence RTAs. However, the

finding contradicts that of Schepers et al., (2014) and I.R.F (2020) who reported that vehicle occupants were the ones most affected compared to other road users in case of RTAs caused by driver's factors.

CONCLUSION

This study investigated into effect of driving tasks on road traffic accidents involving heavy-duty automobiles in north-east Nigeria. The study proved that driving tasks: driving safety violation, driver's experience and driver's interaction with other road users have significant effect on RTAs. By understanding these factors that influence traffic crashes, it can help provide a fundamental basis to plan and develop appropriate countermeasures for road safety issues. Therefore, with these empirical findings it will help to comprehensively understand the impact of various risk factors associated with driving tasks in contributing to road accidents involving heavy duty automobiles in north-east Nigeria.

RECOMMENDATIONS

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

1. FRSC personnel, VIOs and Traffic Police should put more emphasis on checkmating those heavy-

duty automobile drivers driving safety practices. Trailer Offence and Penalty Code should be developed for use by Federal Government

2. Regular checking of driver's license and other vehicle documents should be prioritized by FRSC personnel, VIOs and Traffic Police. This gesture could reduce congestions on highways as those heavy-duty automobiles without intact documents would be kept off the road.
3. FRSC should collaborate with other non-governmental organizations in order to expand their sensitizations on Road Safety Education (RSE), so that there would be positive interaction among different road users. Also, Federal and state governments should enforce the use of "Trailer Park" for parking of trailers. This could also serve as a source of income.

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