



IJIS

Journal of the Institute of Education
Obafemi Awolowo University, Ile-Ife, Nigeria

ISSN: 3043-6400

Vol. 2, No. 1, 2025

CALL FOR PAPERS
IFE JOURNAL OF INTEGRATED SCIENCE (IJIS)

NOTE TO CONTRIBUTOR

Ife Journal of Integrated Science, (IJIS) is a Bi-annual publication of Institute of Education, Obafemi Awolowo University, Ile-Ife (Integrated Science Unit). The Journal aims at improving the quality of academic and research manuscripts submitted by scholars and researchers, through peer review process, and disseminate the publications through open access to practitioners, educators, educationists, academia, researchers, curriculum planners and policy makers. The manuscripts can have different approaches which are quantitative as well as qualitative.

IJIS is an annual and peer - reviewed Journal.

Manuscript submitted to IJIS should:

1. have a strong introduction that clearly states the organizing points of the study, acquaints the readers to what is ahead, and makes a direct link between theory, questions and research design
2. have focused literature review that clearly establishes why the topic /problem warrants discussion
3. be prepared according to the style prescribed by the 6th or 7th edition of publication manual of American Psychological Association.

Guidelines for Paper Submission

- * Articles should not be longer than 15 A4 - sized pages using Times New Roman, font size of 12. Longer articles will attract additional publication fee.
- * Reference style should conform to the American Psychological Association format (6th or 7th Edition). This should be arranged in alphabetical order according to the surname of the author.
- * Footnotes are not allowed.
- * Manuscripts' cover should include the title of the paper, author(s) name(s), institution affiliation, contact and E-mail address (es).
- * Abstract should not be more than 250 words.
- * Articles can be submitted electronically via e-mail to ijisn.2023@gmail.com
- * Assessment fee of ₦6,000 shall be paid before any paper shall be reviewed.
- * Publication fee of ₦35,000, is a condition for publication that a manuscript submitted to Ife Journal of Integrated Science (IJIS) has not been published and will not be simultaneously submitted or published elsewhere.

All fees must be paid into Ife Journal of Integrated Science Account.

Bank Name: Polaris Bank

Account Name: Ife Journal of Integrated Science (IJIS)

Account Number: 1140280175

- * Submissions are published at the editor's exclusive discretion. Submission that does not conform to these guidelines may not be considered for publication.

EDITORIAL BOARD

Prof. P. O. Jegede
Editor - in - Chief

Prof. T. O. Bello
Managing Editor

Editors

Prof. O. S. Agboola
Dr. S. O. Olajide

EDITORIAL CONSULTANTS

- Prof. A. Akinlua - Dept of Chemistry, Obafemi Awolowo University, Ile-Ife.
Prof. O. A. Ogunfowokan - Dept of Chemistry, Obafemi Awolowo University, Ile – Ife.
Prof. T. O. O. Oladipupo - Dept. of Botany, Obafemi Awolowo University, Ile – Ife
Prof. J. G. Adewale - Institute of Education, University of Ibadan, Ibadan
Prof. M. A. Eleruja - Dept. of Physics, Obafemi Awolowo University, Ile -Ife.
Prof. M. A. Adeleke - Dept. of Science and Technology Education,
Obafemi Awolowo University, Ile – Ife.
Prof. O. A. Sofowora - Dept. of Educational Technology and Library Studies,
Obafemi Awolowo University, Ile – Ife
Prof. I. A. Olaosun - Dept. of English, Obafemi Awolowo University, Ile – Ife
Prof. D. Okunoye - Dept. of English, Obafemi Awolowo University, Ile – Ife.
Prof. E. T. O. Babalola - Dept. of English, Obafemi Awolowo University, Ile – Ife.
Prof. M. A. Ajayi - Dept. of Human Kinetics and Health Education,
University of Ibadan, Ibadan.
Prof. J. B. Bilesanmi - Dept. of Curriculum Studies and Instructional Technology,
Olabisi Onabanjo University, Awoderu Ago-Iwoye
Prof. A. T. Akande - Dept. of English, Obafemi Awolowo University, Ile – Ife
Prof. E. F. Bamidele - Dept. of Science and Technology Education,
Obafemi Awolowo University, Ile-Ife.
Prof. R. O. Ogunlusi - Dept. of Chemistry, Obafemi Awolowo University, Ile-Ife
Dr. A. Tella - Dept. of Science and Technology Education,
University of Ibadan, Ibadan
Dr. A. S. Adelokun - Department of Educational Management
Dr. K. A. Aderounmu - Department of Kinesiology and Human Recreation,
Obafemi Awolowo University, Ile-Ife.
Dr. T. A. Adebisi - Dept. of Science & Technology Education, Faculty of
Education, Obafemi Awolowo University, Ile-Ife.
Dr. A. A. Adetunji - Dept. of Science and Technology Education,
Obafemi Awolowo University, Ile-Ife.
Dr. V. O. Animola - Dept. of Integrated Science, Federal College of Education,
Iwo, Osun State.
Dr. O. O. Bakare - Institute of Education, Obafemi Awolowo University, Ile-Ife
Dr. M. O. Omiyefa - Institute of Education, Obafemi Awolowo University, Ile-Ife
Dr. V. B. Olanipekun - Bamidele Olumilua University of Education, Science and
Technology, Ikere, Ekiti State.

TABLE OF CONTENTS

INFLUENCE OF TEACHERS' QUALIFICATION ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN CHEMISTRY IN IFE-EAST LOCAL GOVERNMENT AREA OF OSUN STATE, NIGERIA Timilehin Christianah ADEDEJI	1-18
ASSESSMENT OF CHEMISTRY CURRICULUM IMPLEMENTATION IN SENIOR SECONDARY SCHOOLS IN IFE CENTRAL LOCAL GOVERNMENT AREA OF OSUN STATE Elijah Oluwatobi ADEWUYI	19-41
LOCUS OF CONTROL AND SELF-EFFICACY AS PREDICTORS OF SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN CHEMISTRY IN IFE CENTRAL LOCAL GOVERNMENT AREA, OSUN STATE, NIGERIA Olamide Rofiat TIJANI	42-60
EFFICACY OF SELF-DIRECTED AND COLLABORATIVE CONSTRUCTIVISM INSTRUCTIONAL STRATEGIES ON JUNIOR SECONDARY SCHOOL STUDENTS' ENGAGEMENT IN BASIC SCIENCE AND TECHNOLOGY IN ADAMAWA STATE Samuel Akinola OGUNDARE, Ph.D, & Ahmed IBRAHIM, Ph.D	61-75
EFFECTS OF JIGSAW COOPERATIVE INSTRUCTIONAL STRATEGY ON SECONDARY SCHOOL STUDENTS' ACQUISITION AND RETENTION OF MATHEMATICS PROCESS SKILLS Lucy ERAIKHUEMEN, Peter Akpojehih Agbarogi & Festus Osadebamwen Idehen	76-93

EFFECTIVENESS OF FLIPPED AND BLENDED CLASSROOM LEARNING APPROACHES ON STUDENTS' ACHIEVEMENT IN GENETICS CONCEPTS IN BIOLOGY Blessing Izehiuwa EDOKPOLOR, C. N. OMOIFO, Ph.D & L. ERAIKHUEMEN, Ph.D	94-111
EFFECTS OF FLIPPED AND BLENDED CLASSROOM LEARNING APPROACHES ON STUDENTS' RETENTION IN GENETICS CONCEPTS IN BIOLOGY IN EGOR LOCAL GOVERNMENT AREA OF EDO STATE L. ERAIKHUEMEN, Ph.D, C. N. OMOIFO, Ph.D & Blessing Izehiuwa EDOKPOLOR	112-130
SUSTAINABLE STEM EDUCATION IN THE IOT ERA: BALANCING THE PARADOX OF APPLICATIONS, BENEFITS, AND CHALLENGES FOR BETTER PROSPECT Ezekiel Adedayo ADEOLA	131-157
TEACHERS' TEACHING METHOD PREFERENCES AND RESOURCES UTILISATION AS PREDICTORS OF SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN CHEMISTRY IN OSUN STATE, NIGERIA Damilola Monsurat ELUYERA & Omowunmi Sola AGBOOLA, Ph.D	158-188
ENVIRONMENTAL LITERACY AMONG OSUN STATE CLASSROOM TEACHERS Omowunmi Sola AGBOOLA, Ph.D, Simeon Olayinka OLAJIDE, Ph.D, Olusegun Ojo BAKARE, Ph.D & Muraina Olugbenga OMIYEFA, Ph.D	189-207
EFFECTS OF BI-MODAL SCHOOL YARD PEDAGOGY AND GENDER ON SCIENCE PROCESS SKILLS OF PRESCHOOLERS IN OYO STATE, NIGERIA Florence Taiwo. OGUNYEMI, Ph.D. & Fatimah ZAKARIYYAH	208-226

STUDY HABIT AS PREDICTOR OF JUNIOR
SECONDARY SCHOOL STUDENTS' INTEREST IN
BASIC SCIENCE IN IFE CENTRAL LOCAL
GOVERNMENT AREA, OSUN STATE

Oluwaseun Newton AJEWOLE

227-234

ROLE OF SCHOOL FARMS IN DEVELOPING
ENTREPRENEURIAL SKILLS AMONG
SECONDARY SCHOOL STUDENTS IN IFE
CENTRAL LOCAL GOVERNMENT AREA, OSUN
STATE, NIGERIA

**Oluyemisi Dolapo ADISA & Ibironke Ibiwumi
IDOWU**

235-248

TEACHERS' SELF- EFFICACY AND JUNIOR
SECONDARY SCHOOL STUDENTS' LEARNING
OUTCOMES IN BASIC SCIENCE IN
SOUTHWESTERN NIGERIA

**Abosede Adenike OYAGBILE, Ph.D. & Theodora
Olufunke BELLO, Ph.D.**

249-262

**INFLUENCE OF TEACHERS' QUALIFICATION ON
SENIOR SECONDARY SCHOOL STUDENTS'
ACADEMIC ACHIEVEMENT IN CHEMISTRY IN
IFE-EAST LOCAL GOVERNMENT AREA OF
OSUN STATE, NIGERIA**

Timilehin Christianah ADEDEJI

Department of Science and Technology Education,
Obafemi Awolowo University, Ile-Ife, 220005, Nigeria.
E- mail: christyadedeji2000@gmail.com

Abstract

The study investigated the influence of teachers' qualification on senior secondary school students' academic achievement in chemistry in Ife-East Local Government Area, Osun State. The study adopted a descriptive survey research design. The population of this study consisted of all senior secondary schools Chemistry Teachers and Students in Ife East Local Government Area, Osun State. A sample of one Chemistry Teacher to ten students from 10 schools were selected using simple random sampling technique. Two instruments which were developed by the researcher were used to collect data for the study. They are: "Questionnaire on Influence of Teachers' Qualification on Senior Secondary School Students' Academic Achievement in Chemistry" (QITQSSSAAC) and "Chemistry Achievement Test (CAT). Frequency, percentage and regression analysis used in the analysis of collected data. The results showed that the level of senior secondary school students' academic achievement in Chemistry was high in the study area (60%). Results of the study further revealed that there was significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study area ($F=3.237$; $P<0.05$). The study concluded that there was significant influence of teachers' qualifications on senior secondary school students' academic achievement in Ife East Local Government Area, Osun State.

Keywords: Academic achievement, Chemistry, Influence, Senior Secondary School, Teachers' Qualification .

Introduction

Chemistry is a fundamental subject in the senior secondary school curriculum, serving as a gateway to various fields of science and technology. Chemistry serves as a prerequisite for pursuing higher education and careers in fields such as medicine, engineering, environmental science, and more. The quality of instruction in chemistry greatly influences students' understanding and performance in this subject. Thus, ensuring effective teaching and learning in chemistry is paramount for students' future academic and professional success.

The quality of education is directly related to the quality of instruction in the classrooms. It is a fact that the academic qualifications, knowledge of the subject matter, competence, and skills of teaching and the commitment of the teacher have effective impact on the teaching learning process. The better the teaching, the better the education students get in class. It's proven that teachers who know their subjects well, can teach effectively, and are committed to their students make a big difference in how well students learn (Federal Republic of Nigeria 1998). To make education better, teachers need good training. Without proper training, teachers can't do their job well (Yadved and Singh, 1988). How well students do in exams, especially those given by outside organizations, shows how ready they are for the challenges. And this readiness is definitely affected by having qualified teachers. Teachers' qualifications encompass various aspects, including their academic background, subject matter expertise, pedagogical skills, and teaching experience. A well-qualified chemistry teacher possesses a strong foundation in chemistry concepts, methodology, and practical applications. Additionally, effective teaching skills enable them to convey complex ideas in a comprehensible manner, engage students actively in the learning process, and provide adequate support to address individual learning needs.

Teaching is an art. It can be refined by training and practice. The availability of competent teachers is central in the reconstruction of the educational system. Chemistry has acquired the status of a global language (Crystal, 1997). Keeping in view

the growing need and importance of chemistry in every walk of life, chemistry is made a compulsory subject in Nigeria from the very beginning of the academic career. This increasingly necessitates good quality initial preparation for non-native speaker teachers in the school system (Cullen, 1994). In some schools, however, the teaching of chemistry is done somewhat differently and the proficiency in the language is somewhat inadequate. The traditional grammar translation method is favorite with the teachers and there is hardly any exposure to Biology inside or outside the class. Most of the activities in the class are done in the vernacular or the mother tongue. Even chemistry is explained through Urdu or the vernaculars (Al-mutawa & Kailani, 1989). The students memorize, translate and retranslate and, finally reproduce the crammed information or knowledge in the external examinations. No creativity is witnessed on the part of the students from this kind of teaching experience (Baumgardner, 1993). The reason is that the teachers themselves are not qualified or competent enough to teach chemistry efficiently. This causes poor results in chemistry eventually leading to highest failure percentage in chemistry at external examinations. Thus chemistry becomes the biggest hurdle (particularly for the students from rural areas) in the way to getting higher education and the key administrative posts. In its annual report, Federal Public Service Commission (1998) reported that chemistry as the medium of expression in the external examination is depriving the students of some poor institutions to compete with their counterparts from highly placed institutions.

Chemistry as a language plays a number of roles in the socio-economic, political and cultural development of Nigeria society. The continued slide in the performance of students in the chemistry in external examinations is a cause for great concern not only for the teachers but also for all stake holders in the business of education. Chemistry is really important, and we can't ignore it. But some schools have more students failing than others. There are lots of reasons for this, but one big reason is the qualifications of the teachers. This is important because teachers

can only teach what they know. If they don't know enough, they can't teach well. The qualifications of teachers have a big impact on how well students do, and that's what this study is trying to figure out.

Education is universally recognized as a fundamental human right and an essential tool for individual and societal development. It plays a pivotal role in fostering critical thinking, creativity, and the acquisition of knowledge and skills necessary for personal growth and social progress. Through education, individuals are empowered to achieve their potential and contribute meaningfully to their communities. UNESCO (2020) emphasizes that education is key to achieving sustainable development, as it promotes economic growth, social equity, and environmental sustainability.

The history of education dates back to ancient civilizations, where learning was initially an informal process, passing knowledge through oral traditions. As societies evolved, formal education systems were established, with the ancient Greeks and Romans being pioneers in developing structured educational institutions. For instance, the Academy founded by Plato in Athens and the Lyceum established by Aristotle were among the earliest forms of higher education (Marrou, 1956). Over the centuries, education has undergone significant transformations, adapting to the needs of changing societies and technological advancements. The industrial revolution, for instance, necessitated mass education to equip the workforce with the skills required for new industries (Bowen, 1981).

Education serves as a cornerstone for societal advancement.

Academic achievement is a critical metric in educational systems worldwide, reflecting the extent to which students, teachers, and educational institutions meet their educational goals. It is typically measured through various means such as examinations, continuous assessments, and standardized tests. Academic achievement is not only indicative of knowledge and skills acquisition but also encompasses intellectual and personal growth. The American Psychological Association (2020) underscores that academic achievement is essential for personal

development, career opportunities, and societal progress.

The importance of academic achievement extends across multiple dimensions; high academic achievement equips students with essential knowledge and skills that contribute to personal growth. It fosters critical thinking, problem-solving abilities, and a foundation for lifelong learning. Hattie (2009) emphasizes that students who perform well academically are better prepared to face future challenges and adapt to a rapidly changing world. Educational attainment is closely linked to career prospects. Higher academic achievement often translates into better job opportunities, higher earnings, and greater job stability. Carnevale, Rose, and Cheah (2011) demonstrate that individuals with higher academic qualifications are more likely to secure well-paying jobs and experience upward mobility in their careers. On a broader scale, academic achievement contributes to societal development. Educated individuals are more likely to participate in civic activities, contribute to economic growth, and promote social cohesion. Hanushek and Woessmann (2008) argue that a well-educated population is crucial for a country's economic prosperity and democratic stability.

Academic achievement is influenced by a complex interplay of factors that can be categorized into student-related, teacher-related, and school-related factors. A student's motivation to learn significantly affects their academic success. Intrinsic motivation, driven by personal interest and enjoyment in learning, has been found to be particularly effective. Deci and Ryan (2000) explain that when students are intrinsically motivated, they are more likely to engage deeply with the material and persist in the face of challenges.

Academic achievement is typically measured using various tools and methods like standardized tests, grades and GPA. These tests across different schools and region, they assess students' knowledge and skills in specific subject areas. The National Center for Education Statistics (2012) notes that standardized tests are widely used to evaluate educational progress and inform policy decisions. Grades assigned by teachers based on student performance in coursework and exams are a

common measure of academic achievement. Grade Point Averages (GPAs) aggregate these grades to provide an overall indicator of a student's academic performance. Brookhart et al. (2016) discuss the importance of accurate and fair grading practices in reflecting true student achievement. Ongoing assessments that provide feedback during the learning process help identify areas where students need improvement and guide instructional strategies. Black and Wiliam (1998) highlight that formative assessments are crucial for enhancing student learning and achievement by informing teachers' instructional decisions.

Teachers' qualifications encompass a range of attributes, including educational background, certifications, professional training, and teaching experience. These qualifications are fundamental in shaping the quality of education delivered in schools. The significance of well-qualified teachers cannot be overstated, as they play a pivotal role in facilitating effective learning and fostering academic success among students. According to Darling-Hammond (2000), teacher quality is the most significant in-school factor affecting student achievement. This makes understanding and improving teachers' qualifications essential for educational development.

Teachers' qualifications critically influence various aspects of the educational process. These include subject mastery, pedagogical skills, classroom management, and student assessment. Each of these factors plays a vital role in ensuring that students receive high-quality education and achieve their full academic potential. Teachers with strong academic backgrounds in their subject areas are more likely to have a deep understanding of the content, enabling them to teach complex concepts effectively. In chemistry, a subject that requires specialized knowledge, having teachers who are well-versed in the discipline is crucial for student comprehension and success. Shulman (1987) emphasizes that subject mastery is a cornerstone of effective teaching, as it allows teachers to present material in a way that is both accessible and engaging for students. Beyond subject knowledge, qualified teachers possess advanced pedagogical skills that allow them to design and deliver engaging and effective

lessons. They are adept at employing diverse instructional strategies to meet the varied learning needs of students. Fenstermacher and Richardson (2005) highlight that pedagogical skills enable teachers to create dynamic learning environments that foster student participation and facilitate deeper understanding of the subject matter.

Experienced and well-trained teachers are typically better at managing classrooms, creating an environment conducive to learning. Effective classroom management is essential for maintaining discipline and ensuring that instructional time is maximized. Emmer and Stough (2001) argue that good classroom management strategies help to minimize disruptions and allow teachers to focus on delivering high-quality instruction. Qualified teachers are proficient in assessing student learning accurately. They use formative and summative assessments to gauge student understanding and provide constructive feedback that guides further learning. Black and Wiliam (1998) note that effective assessment practices are critical for identifying students' strengths and areas for improvement, thereby enhancing the overall learning experience.

Several factors influence the qualifications of teachers, including educational attainment, certification and licensing, professional development, and teaching experience. Understanding these factors can help in developing strategies to improve teacher quality and, consequently, student achievement. The level of formal education a teacher has completed is a primary determinant of their qualifications. Teachers with higher degrees, such as master's or doctoral degrees, often have a more profound understanding of their subject matter and educational practices. Monk (1994) suggests that higher educational attainment is associated with greater teacher effectiveness, as it often involves advanced coursework and research that deepen teachers' knowledge and skills. Certification and licensing ensure that teachers have met specific standards set by educational authorities. These credentials often require teachers to pass rigorous exams and complete continuing education courses to maintain their certification. Darling-Hammond et al. (2001) argue

that certified teachers are generally more effective in the classroom, as certification processes typically involve comprehensive assessments of teachers' knowledge and competencies. Ongoing professional development is crucial for teachers to stay current with educational research, new teaching methodologies, and technological advancements. Professional development programs help teachers refine their skills and adopt best practices in education. Desimone (2009) emphasizes that effective professional development is linked to improved teaching practices and student outcomes, as it allows teachers to continuously enhance their instructional strategies.

The qualifications of teachers can be assessed through various indicators, including educational degrees, certification status, professional development participation, and years of teaching experience. These indicators provide a comprehensive view of a teacher's qualifications and can help in evaluating their potential impact on student achievement. The highest level of education attained by a teacher, such as a bachelor's, master's, or doctoral degree, is a key measure of their qualifications. This information is often documented and verified through academic transcripts. Wayne and Youngs (2003) suggest that higher educational degrees are associated with better teaching practices and improved student outcomes, as they reflect advanced knowledge and training.

The number of years a teacher has been in the profession is often used as a proxy for experience and expertise. Research suggests that teachers with more years of experience tend to be more effective in the classroom. Rockoff (2004) notes that experienced teachers are better able to adapt their teaching strategies to meet the needs of their students, resulting in improved academic performance.

Research has shown that students taught by well-qualified teachers consistently perform better academically. A study by Goldhaber and Brewer (2000) found that students whose teachers held certification in their subject area achieved higher test scores in mathematics and science compared to those whose teachers were not certified.

By exploring the relationship between teachers' qualifications and students' academic achievement in chemistry, this study aims to provide insights that can lead to better educational practices and policies. Ensuring that teachers are well-qualified is a crucial step towards enhancing the quality of education and fostering academic success among students in the region.

Statement of the Problem

In senior secondary schools, students' performance in Chemistry was poor, and one important factor that may influence this is the qualifications of their teachers. There is a noticeable difference in how well students perform in Chemistry, which raises questions about what might be causing these differences. One key factor that has not been thoroughly investigated is how teachers' qualifications affect students' achievements in Chemistry. Teachers' qualifications include their academic degrees, professional training, and years of teaching experience. It is often believed that these qualifications can greatly impact how well students do in their studies; hence this study lacks detailed information which makes it difficult to develop effective strategies to improve teaching and help students perform better in Chemistry. To address this issue, this study aims to explore the relationship between teachers' qualifications and the academic achievement of senior secondary school students in Chemistry. By doing so, the study hopes to provide valuable insights that could lead to better educational practices and policies.

Purpose of the Study

The purpose of the study was to determine the influence of teachers' qualification on senior secondary school students' academic achievement in Chemistry in Ife-East local government area of Osun -State, Nigeria. Therefore the specific objectives are to:

- i. examine the level of senior secondary school students' academic achievement in Chemistry in Ife-East Local Government Area, Osun State; and

- ii. determine the influence of teachers' qualification on senior secondary school students' academic achievement in Chemistry, in the study area.

Research Question

What is the level of senior secondary school students' academic achievement in Chemistry in Ife-East Local Government Area, Osun State?

Hypothesis

There is no significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study area.

Methodology

The study adopted a descriptive survey research design. The population for this study consisted of all senior secondary schools Chemistry Teachers and Students in Ife East Local Government Area, Osun State. A sample of one Chemistry Teacher to ten students from 10 schools were selected using simple random sampling technique in Ife East Local Government Area.

Two self-developed research questionnaires were developed by the researcher titled: “Questionnaire on Influence of Teachers' Qualification on Senior Secondary School Students' Academic Achievement in Chemistry” (QITQSSSSAAC) and “Chemistry Achievement Test” (CAT), which were used to collect information from teachers and students. The QITQSSSSAAC consisted of two (2) sections. Section A focuses on the personal information of the teacher which includes the gender, age range, education qualification and years of experience. Section B; Teachers' disposition to the teaching of chemistry based on projective rating scale of 'Always' (A), 'Sometimes' (S), and 'Never' (N). While the CAT consisted of two (2) sections. Section A involves name of school and student's initials and Section B consists 20 multiple chemistry questions for senior secondary schools.

The validity of the research question was established by

given the instrument to experts in the Department of Science and Technology Education in the Faculty of Education, Obafemi Awolowo University, Ile-Ife, Nigeria. Some necessary corrections and adjustments were made to the instrument in order to ascertain the content validity of the instrument.

Descriptive and inferential statistics were used in the analysis of data. Frequency distributions of various responses were developed and the items mean and standard deviation were computed. The obtained means and standard deviation were used in answering research question.

Results

TABLE 1

Descriptive analysis of socio-demographic information of the sampled Chemistry teachers in secondary schools in Ife East Local Government Area, Osun State

S/N	Variables	Frequency (f)	Percentage (%)
1.	Sex		
	Male	8	80.0
	Female	2	20.0
2.	Age		
	Less than 30 years	2	20.0
	30-40 years	7	70.0
	Above 40 years	1	10.0
3.	Educational Qualifications		
	OND/NCE	1	10.0
	BSc./BSc.Ed./HND	9	90.0
	Others	0	0.0
4.	Years of Teaching Experience		
	Less than 10 years	3	30.0
	10-20 years	7	70.0
	Above 20 years	0	0.0

N = 10

Results in Table 1 showed the descriptive analysis of socio-demographic information of the sampled Chemistry teachers in senior secondary schools in Ife East Local Government Area, Osun State. It can be gathered from the Table that 80.0% are males

while 20.0% are females even as 20.0%, 70.0% and 10.0% of the respondents are in the age brackets of less than 30 years, 30-40 years and above 40 years respectively. In addition, 10.0% are qualified with OND/NCE, 90.0% are qualified with BSc./BSc.Ed./HND and 0.0% represents others even as 30.0%, 70.0% and 0.0% had taught Chemistry for less than 10 years, 10-20 years and 0.0% respectively in the study area.

Research Question: What is the level of senior secondary school students' academic achievement in Chemistry in Ife East Local Government Area, Osun State?

In order to answer this research question, data collected on students' academic achievement through twenty multiple choice questions with four options in Chemistry Achievement Test (CAT) were subjected to descriptive analysis having categorized the scores of the students in the subject such that scores 0-9 = Low Level; scores 10-13 = Moderate Level; and scores 14-20 = High Level. The summary of the result is presented in Table 2.

TABLE 2

Descriptive analysis of the level of senior secondary school students' academic achievement in Chemistry in Ife East Local Government Area, Osun State

S/N	Level	Range	Frequency (f)	Percentage (%)
1.	Low	0-9	13	13.0
2.	Moderate	10-13	27	27.0
3.	High	14-20	60	60.0
Total			100	100.0

N = 100

Results in Table 2 showed the descriptive analysis of the level of senior secondary school students' academic achievement in Chemistry in Ife East Local Government Area, Osun State. It can be observed from the Table that the level of senior secondary school students' academic achievement in Chemistry was high at 60.0% in Ife East Local Government Area, Osun State.

There is no significant influence of teachers' qualifications on senior secondary school students' academic achievement in

Chemistry in the study area.

In order to test this hypothesis, data collected on the teachers' qualifications (independent variable) and students' academic achievement in Chemistry (dependent variable) were subjected to regression analysis statistical tool. The result is presented in Table 3.

TABLE 3

Regression analysis of the influence of the influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study area

R = 0.742 ^a	Unstandardized		Standardized		
R ² = 0.551	Coefficients		Coefficients		
Adj. R ² = 0.014					
F = 3.237	B	Std. Error	Beta	t	Sig.
(Constant)	23.562	7.648		3.551	.000
Teachers' qualities	0.583	0.655	0.498	1.317	.006

a. Dependent Variable: Students' Academic Achievement

b. Predictor: (Constant), Teachers' Qualifications

Results in Table 3 showed that there was significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study area ($F = 3.237$; $p < 0.05$). Therefore, the null hypothesis that states that there is no significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study areas is hereby rejected. The R^2 value of 0.551 accounted for 55.1% influence size of teachers' qualifications on secondary school students' academic achievement in Chemistry in the study area.

Discussion of Findings

Findings of the study showed that the level of senior secondary school students' academic achievement in Chemistry was high in Ife East Local Government Area, Osun State. The result was not in consonant with the findings of Ohie and Eza (2019) when they conducted a study on the level of students'

performance in Mathematics. Using descriptive survey research design, population of all senior secondary school student in Enugu and the sample 200 senior secondary school students as well as an instrument tagged "Mathematics Achievement Test" (MAT). A descriptive analysis such as frequency and percentage statistical tools. The results showed that the level of senior secondary school students' academic achievement in Chemistry was high in the study area.

Results of the study further revealed that there was significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in the study area. The result supports the findings of Casian, Mugo and Claire (2021) when they investigated impact of teachers' qualifications on senior secondary school students' academic achievement. Educational qualification of teacher leads to the effectiveness of teacher' content mastery as all in all helps in promotion of students' grades. The working experience of teachers is also viewed as the key indicator in the promotion of schooling system where schools experience to have a high level of students' completion. Nevertheless, the content mastery of teachers also promotes the active learning which also leads to the improved students' scores in class assignment. The result showed that there is a statistical significant relationship between teacher qualification and students' academic performance thus $P = .000$ less than 0.01 as the correlation significance level and Pearson coefficient correlation $r = .564$. It was revealed that teacher qualification can have an impact of 36.5% on students' academic performance and the remaining 63.5% could be affected by other variables. This paper recommended that the Ministry of Education should keep reviewing the ways of improving the level of teacher qualification to standardize the quality of education through improved academic performance. Educational planners should make effective set up that could improve the level of teacher qualification that leads to having effective teaching methodology. The school head teachers should actively participate in improvement of teacher qualification especially teacher content mastery and experience. The study also recommended that

teachers should themselves be encouraged in their professionalism in order to improve the school performance.

Conclusion

The study concluded that there was significant influence of teachers' qualifications on senior secondary school students' academic achievement in Chemistry in Ife East Local Government Area, Osun State.

Recommendations

Based on the findings of the study, it is hereby recommended that:

- i. Government should ensure that qualifications are considered in employing Chemistry teachers in secondary schools so as to enhance students' outcomes in the subject.
- ii. Workshops, seminars and conferences should be organized for Chemistry teachers on the importance of discharging their duties effectively and meaningfully to learners.
- iii. Governments should embark on a realistic programme to train, employ and retain qualified and seasoned Chemistry teachers. .

References

- American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). American Psychological Association.
- Baumgardner, R. J. (Ed.). (1993). The English language in Pakistan. Oxford University Press.
- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, 5(1), 7-74.
- Bowen, J. D. (1981). Theoretical perspectives on teaching English as a second language. In C. K. Candlin & N. Mercer (Eds.), *English language teaching in its social context* (pp. 88-102). Routledge

- Brookhart, S. M., Dykstra, K., & Morrow, L. (2016). Classroom assessment and the role of feedback in learning. In *Handbook of classroom assessment* (pp. 143-174). Routledge.
- Casian, D., Mugo, J., & Clarie, S. (2021). The impact of teacher professional development on student learning outcomes: A meta-analysis. *International Journal of Educational Research*, 112, 101878.
- Crystal, D. (1997). *English as a global language*. Cambridge University Press.
- Cullen, R. (1994). Incorporating a language improvement component in Al-Mutawa, N., & Kailani, T. (1989). *Methods of teaching English to Arab students*. Longman.
- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives*, 8(1), 1-44.
- Darling-Hammond, L., Wise, A. E., & Pease, S. (2001). Revisiting the relationships between teacher quality and student achievement: Findings from the new teacher project. *The New Teacher Project*.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. In *Advances in experimental social psychology* (Vol. 32, pp. 227-268). Academic Press.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Policy*, 23(1), 1-30.
- Emmer, E. T., & Stough, L. M. (2001). Classroom management and students' academic self-regulation. *Educational Psychologist*, 36(2), 101-109.
- Federal Public Service Commission. (1998). *Annual report 1998*. Government of Pakistan, Islamabad.
- Fenstermacher, G. D., & Richardson, V. (2005). On making determinations of quality in teaching. *Educational Researcher*, 34(3), 28-37.

- Goldhaber, D., & Brewer, D. J. (2000). Does teacher certification matter High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis*, 22(2), 129-145.
- Government of Pakistan. (1998). National Education Policy 1998-2010. Ministry of Education, Islamabad.
- Hanushek, E. A., & Woessmann, L. (2008). The role of school improvement in raising student achievement. In H. F. Ladd & E. B. F. L. (Eds.), *Handbook of research in education finance and policy* (pp. 105-134). Routledge.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Marrou, H. I. (1956). *A history of education in antiquity*. Translated by G. K. N. Smith. University of California Press.
- Monk, D. H. (1994). Subject matter knowledge and student achievement: A multi-level analysis. *Education Evaluation and Policy Analysis*, 16(4), 415-426.
- National Center for Education Statistics. (2012). *Digest of education statistics 2011*. U.S. Department of Education, Institute of Education Sciences.
- Ohie-Eza, U. (2019). The role of teachers' motivation in improving students' academic performance in secondary schools in Nigeria. *Journal of Education and Practice*, 10(12), 25-33.
- Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review*, 94(2), 247-252.
- Rose, J., & Cheah, P. (2011). The influence of parental involvement on children's academic achievement in school. *Journal of Educational Psychology*, 103(3), 653-667.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.
- UNESCO. (2020). *Global education monitoring report 2020: Inclusion and education – All means all*. UNESCO Publishing.

- Wayne, A. J., & Youngs, P. (2003). Teacher characteristics and student achievement: A review of the literature. *Review of Educational Research*, 73(1), 89-122.
- William, D. (1998). Assessment: Feedback on performance is the key to learning. *The Times Educational Supplement*, 4317, 16-17.