IMPACT OF TEACHING EXPERIENCE OF CHEMISTRY TEACHERS ON THE TEACHING AND LEARNING OF CHEMISTRY IN SECONDARY SCHOOL IN OREDO LOCAL GOVERNMENT

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FACULTY OF EDUCATION

BENIN CITY

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF SCIENCE (EDUCATION) CHEMISTRY EDUCATION

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CERTIFICATION

We the undersigned, certify that this research work was done by Favour Chukwuebuka OSARUMWENSE whose matriculation number is EDU2202664, in the Department of Curriculum and Instructional Technology (CIT), Faculty of Education, University of Benin, Benin City, Nigeria.

DEDICATION

This study is dedicated to God Almighty for his love, Grace and Blessing over my life through the period I spent in University of Benin.

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My gratitude goes to God Almighty whose hand in creation and on my life is a continual reminder of your Greatness Oh God. I have only come this far because You live and because of the special people you have put in my life. May God's name be exalted forever.

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ABSTRACT

This study examined the impact of teaching experience of chemistry teacher son the teaching and learning of chemistry in secondary school in Oredo Local Government. The study adopted percentage statistics to analyze data soured from the field survey. The result showed that teaching experience plate a significant role in enhancing the effectiveness of chemistry instruction in secondary schools. Experienced teachers positively influence student academic performance, interest, and motivation through diverse teaching strategies and practical applications. Both teachers and students recognize the value of experience in simplifying complex topics and improving classroom engagement. Therefore, investing in teacher development and retaining experience educators is crucial for improving chemistry education outcomes. Tye study recommended that schools prioritize the recruitment and retention of experienced chemistry teachers toe nhance student performance. Regular training and professional development programs should be organized to update teachers on effective instructional strategies and laboratory practices. School administrators should encourage experienced teachers to mentor less experienced colleagues for skill transfer and improved teaching quality. Curriculum planners should integrate more hands-on and student- centered activities to sustain interest and motivation in chemistry learning.

CHAPTER ONE

INTRODUCTION

Background to the Study

Globally, science education, especially chemistry, plays a pivotal role in driving socio-technological advancement and economic development. Chemistry as a branch of science enables understanding of the composition, properties, and transformations of matter, which is critical to sectors such as health, agriculture, environmental management, and industry (Tantayanon et al., 2024). The teaching and learning of chemistry are therefore essential not only for academic achievement but also for national development.

However, the effectiveness of chemistry education heavily depends on the quality and experience of teachers. Teaching experience is crucial in shaping instructional strategies, classroom management, use of practical activities, and ultimately students' academic performance and interest in the subject. Several studies have affirmed that the qualifications, experience, and pedagogical competencies of chemistry teachers significantly impact students' understanding and achievement (Cleopas & Onwuchekwa, 2024; Babalola, Umar, & Sani, 2025; Ali, Babalola & Ibrahim, 2023).

In Nigeria, and particularly in Edo State's Oredo Local Government Area, challenges such as inadequate laboratory facilities, large class sizes, poor student attitudes, and critically, the inexperience of chemistry teachers, have been cited as factors contributing to poor chemistry performance in national exams like WAEC and NECO (Ojelade & Gbemisola, 2018; Onwudinjo, 2024). Public secondary schools in Oredo often suffer from a shortage of experienced chemistry teachers, leading to reliance on youth corps members or underqualified staff, which negatively affects the quality of instruction and student outcomes (Abudu & Muideen, 2019).

Teaching experience is not just about years spent in the classroom; it also encompasses the development of competencies in simplifying complex concepts,

conducting experiments, managing diverse learning needs, and fostering positive student motivation. Experienced teachers are better equipped to utilize innovative and student-centered teaching methods, which enhance both interest and academic achievement in chemistry (Musengimana, Kampire & Ntawiha, 2021).

In light of these observations, this study seeks to examine the impact of chemistry teachers' teaching experience on the teaching and learning of chemistry in secondary schools in Oredo Local Government Area. It aims to determine how teaching experience influences instructional practices, the use of practical activities, students' academic performance, and their interest in learning chemistry. The study will contribute evidence for improving teacher development programs and educational strategies in the region.

Statement of the Problem

Despite the acknowledged importance of chemistry in advancing technology, healthcare, and industrial development, students' academic performance in chemistry at the secondary school level in Nigeria especially in Oredo Local Government Area of Edo State has remained consistently poor. National examination records from bodies like WAEC and NECO reveal that many students struggle to pass chemistry with good grades, sparking concerns among educators, parents, and policymakers.

Among the factors identified as contributing to this persistent underperformance is the limited teaching experience of chemistry teachers. Research has shown that teachers who lack sufficient years of experience often face challenges in lesson planning, managing classrooms, adapting instructional strategies, and effectively using practical activities to enhance learning (Cleopas & Onwuchekwa, 2024; Du Toit & du Toit, 2024). In many public schools in Oredo LGA, inexperienced teachers or youth corps members are often saddled with teaching chemistry, a subject that demands not only subject mastery but also specialized pedagogical skills.

Moreover, inexperienced teachers may struggle to engage students meaningfully, resulting in poor interest, weak motivation, and low academic achievement in chemistry. In contrast, experienced teachers are generally more proficient in simplifying complex topics, fostering positive teacher-student relationships, and using practical demonstrations to solidify understanding. While some studies have explored the link between teacher experience and student outcomes in general, there is a noticeable gap in localized research specifically targeting the chemistry teaching experience in Oredo Local Government Area. Addressing this gap is vital for formulating strategies to improve both teaching quality and student performance in the area.

Therefore, the problem this study seeks to address is:

To what extent does the teaching experience of chemistry teachers influence the teaching methods, use of practical's, and academic performance of secondary school students in Oredo Local Government Area?

Research Questions

1. What is the level of teaching experience of chemistry teachers in secondary schools within Oredo Local Government Area?

2. In what ways does teaching experience influence the instructional strategies and practical activities employed by chemistry teachers?

3. What is the relationship between the teaching experience of chemistry teachers and students' academic performance in chemistry?

4. How do students perceive the impact of their chemistry teacher's experience on their interest and motivation toward learning chemistry?

Purpose of the Study

The primary purpose of this study is to examine the impact of chemistry teachers' teaching experience on the teaching and learning of chemistry in secondary schools in Oredo Local Government Area, Edo State. Specifically, the study seeks to:

1. Assess the level of teaching experience among chemistry teachers in secondary schools in Oredo Local Government Area.

2. Investigate how chemistry teachers' teaching experience influences their instructional strategies and use of practical activities.

3. Determine the relationship between teachers' years of experience and students' academic performance in chemistry.

4. Explore students' perceptions of how their teachers' experience affects their interest and motivation in learning chemistry.

Significance of the Study

This study is significant for several reasons:

For Policymakers and Educational Planners: The findings can inform policies on teacher recruitment, placement, and professional development, ensuring that more experienced teachers are evenly distributed across schools, particularly in underserved areas like Oredo LGA. For School Administrators and Principals: The results can guide school leaders in organizing mentorship, workshops, and capacity-building programs for less experienced teachers, equipping them with necessary skills to teach chemistry more effectively.

For Chemistry Teachers: Both experienced and novice teachers can benefit by gaining insights into how teaching experience enhances classroom practice, student engagement, and academic outcomes, encouraging continuous professional growth.

For Students and Parents: The study will help students and parents understand the importance of teacher competence and experience in achieving academic success, fostering greater advocacy for qualified and well-trained educators.

For Researchers and Academics: The research contributes to the academic discourse on teacher effectiveness in science education within the Nigerian context, providing data for further studies and educational reforms. Ultimately, the study

aims to enhance the quality of chemistry education in Oredo Local Government and similar regions by addressing the critical role of teaching experience in educational outcomes.

Scope of the Study

This study is delimited to secondary schools within Oredo Local Government Area of Edo State. It focuses on: The teaching experience of chemistry teachers. Their instructional methods and use of practical activities in teaching chemistry is needed, the academic performance, interest, and motivation of SS2 students in chemistry. The 2024/2025 academic session will serve as the timeframe for this study.

Definition of Terms

Teaching Experience: The number of years a teacher spent teaching chemistry at the secondary school level improves exposure to various instructional practices.

Chemistry Education: The teaching and learning process that focuses on chemistry concepts, theories, experiments, and real-world applications.

Instructional Strategies: The techniques and methods a teacher uses to facilitate learning, including lectures, discussions, demonstrations, experiments, and group work.

Student Academic Performance: The measurable academic outcomes of students, particularly their grades, test scores, or examination results in chemistry.

Student-Centered Learning: An approach where teaching is tailored to actively engage students in the learning process, fostering autonomy, collaboration, and critical thinking.

Practical Activities: Hands-on experiments or demonstrations conducted in the laboratory or classroom to reinforce theoretical chemistry knowledge.

Motivation: The internal drive that stimulates students to engage actively in learning and strive for academic success.

CHAPTER TWO

LITERATURE REVIEW

This chapter contains the literature review, which is structured according to the following subheadings:

- Theoretical Framework
- Concept of Teaching Experience
- Dimensions of Teaching Experience
- Level of Teaching Experience of Chemistry Teachers in Secondary Schools
- Experiences of Teachers in Applying Chemistry Instructional Strategies on Practical Activities in the Classroom
- Teaching Experience and Students' Academic Performance in Chemistry
- Students Perception of Teachers' Experience and Motivation toward Learning Chemistry
- Empirical Literature
- Summary of Literature Review

Theoretical Framework

This study is anchored on two interrelated theories: Human Capital Theory and Constructivist Learning Theory, both of which offer strong explanatory power

for understanding the role of teacher experience in enhancing Chemistry teaching and learning outcomes.

Human Capital Theory (Becker, 1964)

Human Capital Theory posits that individuals and societies derive economic and social benefits from investments in education and professional development. In the context of this study, the theory suggests that Chemistry teachers with greater teaching experience possess more accumulated pedagogical knowledge, subject mastery, and classroom management skills, which collectively enhance their instructional effectiveness. As teachers invest time in professional practice, they develop competencies that translate into better academic performance for students. Studies such as those by Ojelade and Gbemisola (2018), and Cleopas and Onwuchekwa (2024), affirm that experienced Chemistry teachers significantly contribute to improved student outcomes, aligning with the central premise of Human Capital Theory.

Appreciation: Human Capital Theory, originally advanced by Becker (1964), remains highly relevant in educational research today. It emphasizes the value of investing in human resources particularly through education and professional development as a means of increasing productivity and achieving societal advancement. In the context of Chemistry education, this theory highlights how the accumulation of teaching experience is akin to capital investment. Each year a

teacher spends in the classroom contributes to their growth in knowledge, skill, and pedagogical competence. As they gain more exposure to curriculum delivery, student needs, and classroom challenges, their capacity to impact learning outcomes improves. This perspective justifies the central role teaching experience plays in student achievement, making it a crucial factor to explore in secondary school Chemistry education.

However, Human Capital Theory reinforces the importance of continuous professional development for teachers. Experienced Chemistry teachers who have undergone training and accumulated classroom experience are more likely to demonstrate instructional quality that results in improved student understanding and academic performance. Ojelade and Gbemisola (2018) and Cleopas and Onwuchekwa (2024) confirmed this in their studies, which showed that teacher experience significantly influences student outcomes in Chemistry.

The theory also connects teaching experience to broader societal outcomes. As students benefit from quality instruction delivered by experienced educators, they acquire scientific knowledge and problem-solving skills that are essential for national development. In essence, the value of experienced Chemistry teachers extends beyond classroom performance it contributes to building a scientifically literate population capable of participating in innovation, health, industry, and environmental stewardship.

By emphasizing education as a strategic resource, Human Capital Theory aligns closely with Article 26 of the Universal Declaration of Human Rights. Both recognize education as a tool for personal and societal advancement. In appreciating this theory, one sees clearly that the professional experience of teachers should be seen as an indispensable asset in promoting equitable and effective learning environments. Thus, the theory provides a solid foundation for evaluating the link between teacher experience and student achievement in Chemistry.

Constructivist Learning Theory (Vygotsky, 1978; Piaget, 1952)

Constructivist theory emphasizes that learners build their own understanding based on experiences and interactions with their environment. From this viewpoint, the role of the teacher is not merely to transmit knowledge but to facilitate inquiry-based learning, foster motivation, and create supportive learning environments. Experienced Chemistry teachers are more likely to employ student-centered strategies, including practical demonstrations, collaborative problem-solving, and contextual explanations of scientific phenomena, thus enhancing students' conceptual understanding. This aligns with research by Musengimana, Kampire, and Ntawiha (2021), and Akın and Uzuntiryaki-Kondakci (2018), who established that effective Chemistry instruction involves a dynamic interplay between teacher expertise, learner engagement, and instructional resources.

Appreciation: Constructivist Learning Theory, as formulated by educational psychologists like Piaget and Vygotsky, presents a learner-centered view of education that prioritizes active engagement, discovery, and collaboration. In the field of Chemistry education, this theory is especially relevant because it emphasizes the importance of hands-on experimentation and the practical application of concepts. Chemistry, being both theoretical and experimental, requires teachers who can facilitate learning environments where students build knowledge through inquiry and interaction. Experienced teachers are more adept at implementing such approaches, as they have developed skills over time that enable them to anticipate student difficulties, pose challenging questions, and scaffold learning effectively.

One of the most powerful contributions of Constructivist Theory is its insistence on contextualized learning. Experienced Chemistry teachers are often better equipped to connect abstract scientific principles to real-world applications, making learning more meaningful for students. Studies by Akın and Uzuntiryaki-Kondakci (2018) and Musengimana, Kampire, and Ntawiha (2021) reinforce this by showing that students learn better when they can relate concepts to everyday life and when teachers use practical, relatable examples. This reinforces the idea that teaching experience enhances a teacher's ability to adapt instruction to meet diverse learning needs and to apply constructivist methods effectively.

Likewise, the theory places a strong emphasis on the social aspects of learning. Chemistry classrooms where teachers encourage collaboration, dialogue, and peer interaction provide students with opportunities to co-construct knowledge. Experienced teachers are generally more skilled in managing group dynamics, integrating technology, and designing experiments that promote active participation. Constructivist Theory thus affirms the centrality of teaching experience in creating interactive and stimulating science classrooms, where students are not just passive recipients of information but active learners involved in constructing their own understanding.

Similarly, Constructivist Learning Theory aligns with the human rights-based approach to education espoused in Article 26 of the UDHR. It supports inclusive, participatory, and student-focused education that promotes the full development of each learner's potential. Experienced Chemistry teachers, by implementing constructivist strategies, help to fulfill this right by fostering learning environments that are equitable, supportive, and empowering. Thus, the theory enriches our understanding of how teacher experience can transform the teaching and learning of Chemistry into a process that develops not only scientific knowledge but also critical thinking, confidence, and collaboration among students.

Concept of Teaching Experience

Teaching experience refers to the practical, hands-on exposure an educator gains while engaging in the instructional process over a period of time. It encompasses the duration, variety, and quality of activities a teacher undertakes in planning lessons, delivering content, managing classrooms, assessing students, and interacting with stakeholders like parents and colleagues. As teachers gain experience, they develop greater confidence, a deeper understanding of subject matter, and improved classroom management skills. Ojelade and Gbemisola (2018) found that teachers with longer years of experience were more effective in facilitating student achievement in chemistry, particularly during final examinations in secondary schools.

Moreover, experienced teachers are better positioned to integrate pedagogical content knowledge, adapt teaching strategies, and respond to learners' diverse needs. For instance, Akın and Uzuntiryaki-Kondakci (2018) emphasized that the interplay between teaching experience and pedagogical content knowledge is crucial for topics like chemical equilibrium and reaction rates, where conceptual understanding is often difficult for students. Teaching experience not only enhances content delivery but also strengthens teacher-student relationships. Babalola, Umar, and Sani (2025) noted that patterns of interaction between experienced teachers and students positively correlated with students' chemistry

achievement in Kano science schools, highlighting the significant impact of instructional behavior shaped over time.

Teaching experience contributes to professional development and reflective teaching practices. As teachers engage in continuous teaching over the years, they become more adept at evaluating the effectiveness of their instructional methods and adjusting accordingly. Cleopas and Onwuchekwa (2024) observed that both qualification and years of experience significantly influence student performance, reinforcing the idea that experiential learning on the part of the teacher improves learning outcomes.

Dimensions of Teaching Experience

Duration (Years of Service): In chemistry education, the duration of teaching experience greatly influences a teacher's mastery of instructional techniques and student engagement strategies. Teachers who have spent many years in the classroom tend to understand the complexities of chemistry concepts and how to simplify them for student comprehension. Their accumulated experience enables them to foresee common misconceptions in topics such as stoichiometry, thermodynamics, or chemical equilibrium. Cleopas and Onwuchekwa (2024) confirmed that the academic performance of students in chemistry was positively influenced by the years of service of their teachers, especially in senior secondary schools.

Consequently, long-serving chemistry teachers have likely witnessed multiple curriculum reforms and adaptations, giving them a broader understanding of subject progression and content delivery. They are also more likely to have experimented with various teaching strategies ranging from inquiry-based learning to small-scale chemistry techniques thus refining their approach over time. Ojelade and Gbemisola (2018) noted that students taught by experienced chemistry teachers in Ibadan performed better in final examinations, largely due to the teachers' accumulated instructional competence and familiarity with the curriculum structure.

Classroom Practice: Teaching chemistry requires active and practical engagement with students to demystify abstract scientific concepts. Experienced chemistry teachers are better at using a combination of instructional strategies, such as demonstration experiments, modeling, and analogies, to make lessons more comprehensible. Babalola, Umar, and Sani (2025) found that the pattern of interaction between chemistry teachers and students significantly influenced students' academic achievement, highlighting the importance of experienced teachers' classroom practices.

Also, seasoned chemistry teachers are more effective in using instructional materials like periodic tables, molecular models, and laboratory apparatus. They also show greater flexibility in adapting lessons for learners with different abilities.

Akın and Uzuntiryaki-Kondakci (2018) emphasized that experienced teachers possess more integrated pedagogical content knowledge, enabling them to better support student learning in complex topics such as reaction rates and chemical equilibrium. Their familiarity with diverse student needs enhances inclusivity and engagement within the classroom.

Professional Development: Professional development is a vital component of teaching experience, especially in a dynamic subject like chemistry. Teachers who regularly participate in workshops, STEM training programs, and curriculum review seminars gain exposure to current teaching techniques and educational technology. Ali, Babalola, and Ibrahim (2023) noted that school-based planning and professional development significantly influenced chemistry teachers' effectiveness and student performance in Kano Metropolis.

Likewise, experienced chemistry teachers often seek out or are selected for continuous professional development opportunities due to their proven commitment and leadership. For instance, educators involved in training programs related to green chemistry, small-scale chemistry, or digital simulations often transfer their knowledge directly into classroom practices. Du Toit and du Toit (2024) highlighted how experienced teachers adopted sustainable and engaging chemistry methods through professional development, enhancing students' interest and performance.

Curriculum Mastery: Over time, chemistry teachers develop comprehensive knowledge of the subject curriculum, enabling them to structure lessons that meet national standards and assessment goals. Mastery of curriculum content allows experienced teachers to navigate through broad chemistry topics from atomic structure to organic chemistry with clarity and confidence. Onwudinjo (2024) found that experienced chemistry teachers were more capable of incorporating entrepreneurial and real-life applications into their teaching, reflecting deep curriculum mastery.

Curriculum mastery also enhances teachers' ability to plan assessments that align with learning objectives. For instance, teachers with extensive experience can design tests and assignments that assess not just recall but analytical and application skills. This skill is particularly important in chemistry, where practical understanding is essential. Musengimana, Kampire, and Ntawiha (2021) emphasized that teacher' curriculum mastery impacts students' attitudes toward chemistry, making it easier for learners to grasp challenging concepts when taught by knowledgeable instructors.

Classroom Management Skills: In the chemistry classroom, effective management is essential due to the practical and sometimes hazardous nature of the subject. Experienced teachers are better at organizing laboratory sessions, maintaining safety, and ensuring orderly conduct during experiments. Cleopas and

Onwuchekwa (2024) observed that experienced chemistry teachers in Bayelsa State maintained better classroom control, which in turn contributed to students' academic success and safety in practical sessions.

Classroom management in chemistry involves handling mixed-ability students, managing time for theory and practicals, and fostering group collaboration. Experienced teachers often employ proactive management strategies that prevent disruptions and ensure sustained student engagement. Babalola, Umar, and Sani (2025) found that such structured environments created by experienced educators helped maintain students' focus, thereby enhancing learning outcomes in complex subjects like chemistry.

Reflective Practice: Reflective practice enables chemistry teachers to analyze their instructional approaches and adjust methods to improve student understanding. Teachers with years of experience are more likely to reflect on students' performance trends, lab results, and feedback to determine whether their teaching is effective. Onwudinjo (2024) emphasized that reflection among experienced teachers led to more innovative use of physical chemistry principles, which improved learning outcomes.

Moreover, reflective practice in chemistry encourages ongoing improvement in both content delivery and student engagement. Teachers may choose to replace abstract lecture methods with practical demonstrations or simulations based on past

classroom experiences. Höper (2025) demonstrated how reflective teachers integrated outdoor and experiential learning into chemistry education, thus bridging the gap between theory and real-world application. Reflection deepens with experience, allowing teachers to refine their practice for maximum impact.

Level of Teaching Experience of Chemistry Teachers in Secondary Schools

The level of teaching experience among Chemistry teachers plays a critical role in determining the effectiveness of instruction and the overall learning outcomes of students. In Nigerian secondary schools, particularly within regions like Oredo Local Government Area, the range of experience among Chemistry teachers varies widely, with some educators having only a few years of classroom engagement, while others possess over a decade of pedagogical practice. Ojelade and Gbemisola (2018) found that students taught by more experienced Chemistry teachers consistently outperformed their peers, suggesting that experience contributes to more efficient classroom management, deeper content knowledge, and better application of teaching strategies.

Experienced Chemistry teachers tend to possess richer pedagogical content knowledge (PCK), enabling them to break down complex chemical concepts into simpler, more relatable explanations. According to Akın and Uzuntiryaki-Kondakci (2018), teaching experience enhances a teacher's ability to integrate various components of PCK such as curriculum knowledge, student understanding,

and instructional strategies. This means that seasoned teachers are more likely to employ hands-on demonstrations, real-life applications, and diagnostic teaching techniques that help students grasp difficult topics like chemical equilibrium and reaction rates.

Consequently, the interaction style between teachers and students is influenced by the level of teaching experience. Babalola, Umar, and Sani (2025) reported that teachers with more years in the classroom exhibited more effective communication patterns and were more responsive to students' learning needs. Such interactions create a supportive learning environment that promotes inquiry-based learning, which is essential in the teaching of experimental sciences like Chemistry. These teachers also adapt more easily to curriculum changes and the integration of technology and STEM-based practices in Chemistry education (Tantayanon et al., 2024).

Nonetheless, the mere accumulation of years in teaching does not automatically translate to effectiveness unless coupled with continuous professional development. Cleopas and Onwuchekwa (2024) highlighted that while years of experience are important, outdated teaching methods and resistance to new pedagogical approaches can undermine the benefits of long service. In this regard, ongoing in-service training, curriculum workshops, and pedagogical refresher courses are essential to ensure that experienced teachers remain updated

on modern instructional approaches such as small-scale chemistry and differentiated learning (Du Toit & du Toit, 2024).

The level of teaching experience among Chemistry teachers is a pivotal factor in shaping students' learning experiences and academic performance. However, the quality of this experience depends not just on time served, but also on the teachers' willingness to grow professionally and adopt innovative teaching methods. As Musengimana, Kampire, and Ntawiha (2021) noted, students' attitudes toward Chemistry are strongly influenced by how teachers deliver content highlighting the need for both experienced and novice teachers to engage in reflective and evidence-based teaching practices.

Experiences of Teachers in Applying Chemistry Instructional Strategies on Practical Activities in the Classroom

The teaching experience of Chemistry educators significantly shapes their instructional strategies and the extent to which they integrate practical activities into their lessons. Experienced teachers often draw on a wide repertoire of teaching methods, adjusting their approaches based on students' needs and lesson objectives. According to Ojelade and Gbemisola (2018), veteran teachers in Chemistry tend to diversify their instructional strategies, combining traditional lecture methods with demonstrations, group work, and real-life applications. This adaptability stems from years of refining classroom practices through trial, feedback, and reflection.

These educators understand that laboratory activities not only make learning more engaging but also foster critical thinking, observational skills, and scientific inquiry core goals of science education.

Experience also empowers teachers to anticipate common student misconceptions and to design instructional interventions that target those areas. Akın and Uzuntiryaki-Kondakci (2018) highlighted that experienced Chemistry teachers possess stronger pedagogical content knowledge (PCK), which enhances their ability to connect theoretical knowledge with practical application, especially in complex topics like reaction kinetics and equilibrium. Such knowledge helps in modifying lesson plans to include investigative experiments that promote conceptual understanding rather than rote memorization.

In contrast, less experienced teachers may rely more heavily on teacher-centered approaches and may underutilize practical activities due to limited classroom control or lack of confidence in managing laboratory sessions. Cleopas and Onwuchekwa (2024) noted that novice teachers often struggle with time management and resource planning, which are essential for conducting effective practical lessons. This challenge can result in missed opportunities for students to develop scientific skills, highlighting the importance of mentoring and support systems that can help younger teachers gain confidence in implementing experimental work.

Ultimately, teaching experience positively correlates with more effective use of instructional strategies and practical activities in Chemistry classrooms. Teachers who have spent more time in the field are generally better positioned to balance theoretical instruction with laboratory-based learning. As Umar and Babalola (2023) pointed out, the application of creative techniques such as mnemonics, analogies, and inquiry-based experiments is more prevalent among seasoned teachers. These strategies not only improve comprehension but also enhance student interest and achievement in Chemistry, thereby reinforcing the value of experience in science pedagogy.

Teaching Experience and Students' Academic Performance in Chemistry

There is a significant relationship between the teaching experience of Chemistry teachers and the academic performance of their students. Teaching experience often translates into a deeper understanding of the curriculum, improved instructional delivery, and refined classroom management techniques all of which contribute to enhanced student learning outcomes. Ojelade and Gbemisola (2018) found a positive correlation between teacher experience and students' success in final Chemistry examinations in secondary schools in Ido Local Government Area, emphasizing that experienced teachers tend to employ more effective strategies that align with students' learning styles and cognitive levels.

Experienced Chemistry teachers are more adept at identifying students' weaknesses and tailoring remedial strategies accordingly. Babalola, Umar, and Sani (2025) highlighted that experienced teachers engage more effectively with students through interactive methods, leading to increased comprehension and retention of Chemistry concepts. These teachers also make better use of assessment data to inform their teaching practices, helping students prepare adequately for internal and external examinations.

Furthermore, teachers with longer service years are more confident in implementing laboratory-based learning, which has been shown to directly influence student performance. According to Du Toit and du Toit (2024), students exposed to practical learning under the guidance of experienced teachers are more likely to demonstrate higher achievement, as hands-on experiments reinforce theoretical content and build essential scientific skills. In contrast, students taught by less experienced teachers may not receive the same level of engagement or access to practical work, limiting their mastery of key Chemistry concepts.

However, experience alone does not automatically guarantee higher student performance unless it is coupled with continuous professional development and commitment to best practices. Cleopas and Onwuchekwa (2024) observed that while experienced teachers generally have a positive influence on student outcomes, those who fail to update their teaching methods or rely on outdated

practices may not produce optimal results. This underscores the need for regular training and peer learning opportunities to ensure that experience remains a productive asset in the classroom.

Consequently, a strong relationship exists between Chemistry teachers' teaching experience and students' academic performance. More experienced teachers typically foster better learning environments, apply diverse instructional strategies, and integrate practical activities effectively all of which contribute to improved student achievement. As Musengimana, Kampire, and Ntawiha (2021) noted, students' attitudes and academic success in Chemistry are largely influenced by the quality and experience of their teachers, making teaching experience a vital determinant of educational outcomes in science education.

Students Perception of Teachers' Experience and Motivation toward Learning Chemistry

Students' perceptions of their Chemistry teachers' experience significantly shape their interest and motivation toward learning the subject. Research suggests that students are more inclined to engage in lessons when taught by experienced teachers who exhibit confidence, clarity, and command over the subject matter. Abudu and Muideen (2019) observed that students perceive experienced Chemistry teachers as more organized, knowledgeable, and capable of simplifying difficult concepts qualities that foster trust and enthusiasm in learners. This perceived

competence often results in improved student morale and a more positive attitude toward Chemistry.

Moreover, experienced teachers are often more responsive to students' academic needs, which enhances learners' motivation. According to Babalola, Umar, and Sani (2025), students described their experienced teachers as approachable, empathetic, and skilled in adjusting instruction based on classroom dynamics. Such qualities create a supportive learning environment where students feel valued and encouraged. When teachers use inclusive strategies and give personalized feedback common practices among seasoned educators students tend to develop a sense of belonging and show increased motivation to succeed in Chemistry.

Practical engagement in Chemistry, often facilitated by experienced teachers, is another motivating factor for students. Du Toit and du Toit (2024) emphasized that teachers with considerable classroom experience are more likely to integrate small-scale, hands-on experiments, which students find exciting and stimulating. Students exposed to such active learning strategies are more motivated because they can connect abstract chemical principles to real-world applications. This connection deepens their understanding and enhances their intrinsic motivation to explore the subject further.

In addition, experienced teachers tend to apply varied teaching strategies such as the use of analogies, mnemonics, and storytelling to make Chemistry more relatable. Umar and Babalola (2023) found that students appreciated teachers who used creative and mindful techniques to simplify complex topics, thereby boosting student confidence and sustained interest. These instructional innovations, more commonly employed by experienced teachers, make lessons more engaging and foster a positive learning experience that students often cite as inspiring.

Students also perceive experienced Chemistry teachers as mentors and role models. Musengimana, Kampire, and Ntawiha (2021) noted that learners often associate teacher experience with professionalism, discipline, and enthusiasm for the subject. These attributes serve as motivational triggers, particularly for students who may initially view Chemistry as difficult or abstract. When teachers model passion for Chemistry, students are more likely to mirror that enthusiasm and commit more effort to their studies.

Students generally perceive their Chemistry teachers' experience as a major factor influencing their interest and motivation in the subject. From effective communication and practical engagement to emotional support and instructional creativity, experienced teachers play a crucial role in shaping positive learning attitudes. As highlighted across multiple studies (Abudu & Muideen, 2019; Akın & Uzuntiryaki-Kondakci, 2018; Cleopas & Onwuchekwa, 2024), the quality of the

learning experience often hinges on the expertise and teaching style of the educator, further validating the importance of teaching experience in motivating students toward academic success in Chemistry.

Empirical Literature

Babalola, Umar and Sani (2025) conducted a correlational study involving a sample of 346 senior secondary students randomly drawn from a population of 3,071 across five science-focused secondary schools in Kano State . Utilizing the TMIRCAQ ($\alpha = 0.88$) and a standardized Chemistry Achievement Test ($\alpha = 0.96$), the study probed various teacher–student interaction patterns such as the use of ICT, diagrams, mnemonics, instructional materials, and motivational prompts and their relationship to student performance. Analysis via descriptive statistics (means, percentages) and Spearman's rank correlation revealed significant positive associations between interactive teaching patterns and Chemistry achievement. The authors concluded by recommending the broader adoption of these interactive strategies to elevate student outcomes.

Cleopas and Onwuchekwa (2024) employed an ex-post facto survey design targeting 184 students and 10 Chemistry teachers from 35 secondary schools in Ogbia LGA, Bayelsa State. Data were gathered through a researcher-designed questionnaire validated by experts and archival student performance records. The study analyzed results using frequency distributions, percentages, and mean scores

(though reliability metrics for instruments weren't reported). Findings demonstrated that both teacher qualification and years of experience exerted a statistically significant, positive influence on student academic performance in Chemistry.

Du Toit and du Toit (2024) investigated the implementation of small-scale, syringe-based Chemistry practical methods in secondary classrooms. While a precise sample size wasn't specified, the pilot study employed a mixed-methods design involving classroom observations, pre- and post-conceptual tests, and qualitative feedback from participants. The analyses showed a normalized gain ($<g = 0.67$) in students' understanding of reaction-rate concepts rising from approximately 34% to 78%. Teachers and students reported that the small-scale kits were safer, more engaging, cost-effective, and sustainable, although some logistical challenges were noted. The study concluded that small-scale practical approaches represent a viable and effective strategy for strengthening chemistry understanding and accessibility.

Höper (2025) examined the beliefs of 16 pre-service primary and lower-secondary teachers engaged in an outdoor-based introductory Chemistry program, with six participants selected for in-depth interviews. Utilizing an abductive qualitative design, the study collected data through participant-generated drawings, mind maps, and semi-structured interviews. Analysis revealed that although

participants initially held teacher-centered beliefs, their outdoor experiences prompted them to connect Chemistry concepts to everyday, natural phenomena. Despite showing increased openness to contextual learning, participants expressed uncertainty regarding their content knowledge. The study concluded that while outdoor-based methods have promise, teacher education must address conceptual competence to ensure confidence and effectiveness in such pedagogies.

Summary of Literature Review

The above literature on the impact of teaching experience on student learning outcomes in chemistry highlights the significant role teachers' play in shaping students' academic success, interest, and attitudes toward the subject. Teaching experience has been shown to positively influence the effective delivery of chemistry concepts, the use of student-centered strategies, and classroom management techniques. Experienced teachers are generally more likely to adopt a variety of instructional methods, including practical and hands-on activities, which enhance students' understanding and performance.

It is clear that teaching experience often contributes to greater pedagogical confidence, flexibility in instructional delivery, and the ability to relate abstract chemical concepts to real-life applications. Such qualities make learning more engaging and meaningful for students, particularly in challenging topics like chemical reactions and equilibrium. Teacher-student interactions are also found to

be more constructive and motivating when facilitated by experienced teachers, thereby improving students' interest, classroom participation, and overall academic engagement.

Despite the advantages of teaching experience, the literature also emphasizes that experience alone may not automatically lead to better outcomes. Continuous professional development, access to updated teaching resources, and the incorporation of innovative methods are necessary to sustain and improve teaching effectiveness. Moreover, student attitudes toward chemistry are shaped by multiple factors, including the school environment, availability of laboratory facilities, and the broader curriculum structure. Teaching experience remains a vital component in improving the quality of chemistry education. However, its effectiveness is maximized when complemented by modern teaching practices, professional growth opportunities, and a supportive learning environment.

REFERENCES

Abudu, M. G., & Muideen, H. A. (2019). A study of student perceptions of chemistry teachers' behaviour. *Journal of Research in Science Teaching,* 9(1), 335-350.

Akın, F. N., & Uzuntiryaki-Kondakci, E. (2018). The nature of the interplay among components of pedagogical content knowledge in reaction rate and chemical equilibrium topics. *Chemistry Education: Research and Practice,* 19(4), 1089–1105.

Ali, H., Babalola, V.T. & Ibrahim, R.H. (2023). Teachers' perceived effect of school-based planning on chemistry achievement in Kano Metropolis Secondary Schools, Nigeria. *International Journal of Innovative Research in Education Technology & Social Strategies,* 10(1), 10-22.

Babalola, V. T., Umar, A., & Sani, H. T. (2025). Patterns of teacher-student interaction in relation to chemistry achievement in science secondary schools, Kano-Nigeria. *Journal of Research in Environmental and Science Education,* 2(1), 18–28.

Cleopas, B.C., & Onwuchekwa, F.C. (2024). Impact of chemistry teachers' qualification and years of experience on academic performance of secondary school chemistry students in Ogbia local government area Bayelsa state. *Contemporary Research in Education and English Language Teaching,* 6(1), 62-72.

Du Toit, A., & du Toit, L. (2024). Small-scale chemistry: A sustainable approach to hands-on science education. *Journal of Chemical Education,* 101(1), 123–130.

Höper, J. (2025). Mind the gap between chemistry and outdoor education: primary and lower secondary preserve teachers' beliefs during an outdoor-based introduction to chemistry in science education, J*ournal of Science Teacher Education,* 36:3, 370-396,

Musengimana, J. Kampire, E. & Ntawiha, P., (2021). Factors affecting secondary schools students' attitudes toward learning chemistry: A Review of Literature. *Eurasia Journal of Mathematics, Science and Technology Education,* 17(1), 1-12.

Ojelade, A., & Gbemisola, A.B. (2018). Teachers' experience and students' academic performances in secondary school chemistry Final Examination in Ido Local Government Area of Ibadan, Nigeria. *Journal of Contemporary Educational Research*, 1(1), 36-45.

Onwudinjo, F. U. (2024). Assessment of chemistry teachers' knowledge on entrepreneurial chemistry topics in senior secondary schools. *Journal of Education and Teacher Training Innovation*, *2*(2), 125–131.

Tantayanon, S., Faikhamta, C, Prasoplarb, T, & Panyanukit, P. (2024). Teachers' perceptions and design of small-scale chemistry driven STEM learning activities. *Special Issue Paper,* 1-15.

Umar, A. & Babalola, V.T. (2023). Teaching chemistry and English Language with mnemonics as a mindfulness strategy for students' academic struggles. *International Journal of Innovative Research in Education Technology & Social Strategies,* 10(1), 40-51.

United Nations. (1948). *Universal Declaration of Human Rights*. Article 26.

CHPATER THREE

METHODOLOGY

This chapter describes the method and procedure employed in carrying out the study under the following headings:

Design of the Study,

Population of the Study,

Sample and Sampling Techniques of the Study,

Instrument of Study,

Validity of the Study,

Reliability of the Study,

Method of Data Collection and

Method of Data Analysis

Design of the Study

The study adopted the descriptive survey research design. This design will be adopted because the study sought to describe an already existing phenomenon:- The Impact of Teaching Experience of Chemistry Teachers on the Teaching and Learning of Chemistry in Secondary School in Oredo Local Government.

Population of Study

The population of the study will be made up of all the Senior Secondary School Students all the two thousand and eight (2,008), which is made up 14 Senior Secondary schools in the Oredo Local Government Area.

Sample and Sampling Techniques of the Study

The sample of the study consisted of one hundred and forty (140) 7% of 2008 students drawn from five (5) randomly selected schools in Oredo Local government Area. the students were selected through the use of purposive random sampling technique.

Instrument of the Study

The research instrument used in generating data for this study will be questionnaires. The questionnaires which will be written by the researcher herself will be closed ended questions in which the respondents' were expected answer yes or no (agree or disagree). The questionnaire will be made up of two sections: (A&B). Section A consisted of questions on respondents, Biodata, and demographic information, while section B, will be drawn to cover the four (4) research questions raised to guide the study.

Validity of the Instrument

In order to ensure the validity of the instrument, the questionnaire was given to the researcher's supervisor and two other experts in measurement and evaluation for scrutiny, suggestions and corrections. The corrections and suggestions made by them were incorporated into the final draft of the instrument. This will be done to be sure that the instrument will be validated both in face and content

Reliability of the Instrument

In order to establish the internal consistency of the instrument, the questionnaire was subjected to the split half reliability test. The instrument will be administered to a group of thirty (30) respondents selected from the population of the study but who will not be part of the sample of the study. After administration the responses were grouped into two groups of even and odd numbers. The data generated from both groups will be compared with the use of Pearson product moment correlation coefficient test and coefficient will be achieved meaning that the instrument was valid.

Method of Data Collection

Copies of the questionnaire will be administered to the respondents after explaining the content and purpose of the instrument to them. The respondents will be given enough time to read through, understand and respond to the questions

after which the questionnaires will be retrieved on the spot. This will increase the quality of the instrument.

Method of Data Analysis

The data generated from the administration of the instrument will be analyzed with the use of descriptive statistics (frequency tables and percentages). The choice of this method of analysis was predicated on the fact that the instrument used in generating the analyzed data was the yes or no type.

APPENDIX

DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY
FACULTY OF EDUCATION
UNIVERSITY OF BENIN
BENIN CITY

QUESTIONNEIRE

I am a 400 level student of the above Department conducting a research on "The Impact of Teaching Experience of Chemistry Teachers on the Teaching and Learning of Chemistry in Secondary School in Oredo Local Government". I request that you provide me reliable and accurate information as relevant policy decisions is dependent on the information given.

I promise to keep whatever information given as strictly confidential. Please tick [√] in the appropriate box that suite your response, thanks.

SECTION: A

Gender: Male [ ], Female [ ].

Class: SS 1 [ ], SS II [ ], SS III [ ].

SECTION: B

QUESTIONNAIRE ITEMS

Instruction: Please tick (√) under the column in the option that suits you best.

Where: Agree [ ], Disagree [ ].

SECTION I

Items	Level of Teaching Experience of Chemistry Teachers in Oredo LGA (for Teachers)	Responses	
S/N	Questions	Agree	Disagree
1.	I have more than five years of experience teaching chemistry.		
2.	I have taught chemistry across multiple senior secondary school levels		
3.	My years of teaching experience have improved my classroom management skills.		
4.	I regularly participate in workshops or training programs to enhance my chemistry teaching skills.		
5.	I feel confident handling complex chemistry topics due to my years of teaching experience.		

SECTION II

Items	Experiences of Teachers in Applying Chemistry Instructional Strategies on Practical Activities in the Classroom	Responses	
S/N	Questions	Agree	Disagree
1.	My chemistry teacher uses different teaching methods to make lessons more understandable.		
2.	Experienced chemistry teachers conduct more laboratory experiments during lessons.		
3.	My chemistry lessons include practical demonstrations that make learning easier.		
4.	Teaching experience helps chemistry teachers adapt their teaching methods to suit different students.		
5.	I have learned better when my teacher used real-life examples and experiments.		

SECTION III

Items	**Relationship Between Teaching Experience and Student Academic Performance (for Students and Teachers)**	**Responses**	
S/N	**Questions**	**Agree**	**Disagree**
1.	Students achieve better results in chemistry when taught by experienced teachers.		
2.	My chemistry teacher's experience helps in explaining difficult topics clearly.		
3.	Teachers with more experience provide useful feedback that improves students' performance.		
4.	There is a strong link between my chemistry performance and how well the teacher teaches.		
5.	Experienced teachers are more likely to revise past examination questions with students.		

SECTION IV

Items	**Student Perception of the Impact of Teacher Experience on Interest and Motivation (for Students)**	**Responses**	
S/N	**Questions**	**Agree**	**Disagree**
1.	I am more interested in chemistry because of how my teacher presents the lessons.		
2.	My teacher's experience makes me feel more confident about learning chemistry.		
3.	The way my teacher teaches chemistry encourages me to study harder.		
4.	I find chemistry enjoyable when taught by a knowledgeable and experienced teacher.		
5.	My interest in chemistry has grown because of the way it is taught in class.		

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter deals with the analysis of data collected and the discussion of the findings.

Socio-demographic Characteristics of Respondents

table 1: Gender

Gender	**No of Respondents**	**Percentage (%)**
Male	68	52.31
Female	62	47.69
Total	**130**	**100**
Class	**No of Respondents**	**Percentage (%)**
SS I	**52**	**40.00**
SS II	**47**	**36.16**
SS III	**31**	**23.84**
Total	**130**	**100**

Source: Field Survey, (2025)

The table reveals that 68 male respondents provided 47.31% of the responses. With a frequency of 62 and a percentage response of 47.69%, the female respondents were well-represented. The table above also revealed that 52 respondents representing 40% were in SS I, 47 respondents representing 36.16% were in SS II, while 31 respondents representing 23.84% were in SS III.

Presentation of Results

Research Questions 1: What is the level of teaching experience of chemistry teachers in secondary schools in Oredo Local Government Area?

Table 2:

Items	**Level of Teaching Experience of Chemistry Teachers in Oredo LGA (for Teachers)**	**Responses**			
S/N	**Questions**	**Agree**	**%**	**Disagree**	**%**
1.	I have more than five years of experience teaching chemistry.	91	70%	39	30%
2.	I have taught chemistry across multiple senior secondary school levels	58	44.62%	72	55.38 %
3.	My years of teaching experience have improved my classroom management skills.	94	72.31%	36	27.69 %
4.	I regularly participate in workshops or training programs to enhance my chemistry teaching skills.	72	55.38%	58	44.61 %
5.	I feel confident handling complex chemistry topics due to my years of teaching experience.	89	68.46%	41	31.54 %

Source: Field Survey, (2025)

In order to answer this research question 1, items 1, 2, 3, 4 and 5 in table 2 were used. The analysis of Item 1 shows that 91 respondents (70%) agreed that they have more than five years of experience teaching chemistry, while 39 respondents (30%) disagreed. This indicates that a significant proportion of chemistry teachers in Oredo LGA possess substantial teaching experience. In Item 2, 58 respondents (44.62%) agreed that they have taught across multiple senior

secondary school levels (SS1–SS3), while 72 respondents (55.38%) disagreed. This suggests that although many teachers have experience, not all have had the opportunity to teach at various class levels, possibly due to subject or level allocation practices within schools. For Item 3, 94 respondents (72.31%) agreed that their years of experience have improved their classroom management skills, while 36 respondents (27.69%) disagreed. This indicates that most experienced teachers believe their teaching years have contributed positively to managing students and maintaining discipline in class. In Item 4, 72 respondents (55.38%) agreed that they participate regularly in workshops or training programs, while 58 respondents (44.62%) disagreed. This reveals a moderate level of engagement in professional development among chemistry teachers, though a significant number may lack access or motivation for such opportunities. Item 5 indicates that 89 respondents (68.46%) feel confident in handling complex chemistry topics due to their experience, while 41 respondents (31.54%) do not share this confidence. This implies that a majority of teachers have developed subject mastery through years of practice, enhancing their instructional competence.

The findings reveal that most chemistry teachers in Oredo Local Government Area possess substantial teaching experience and attribute their effectiveness in classroom management and subject delivery to this experience.

However, a notable gap exists in exposure to multiple class levels and consistent participation in professional development programs, which may limit the full potential of their teaching experience.

Questions 2: How does the Experiences of Teachers in Applying Chemistry Instructional Strategies on Practical Activities in the Classroom?

Table 3:

Items	**Experiences of Teachers in Applying Chemistry Instructional Strategies on Practical Activities in the Classroom**	**Responses**			
S/N	**Questions**	**Agree**	**%**	**Disagree**	**%**
1.	My chemistry teacher uses different teaching methods to make lessons more understandable.	55	42.31%	75	57.69 %
2.	Experienced chemistry teachers conduct more laboratory experiments during lessons.	77	59.23%	53	40.77 %
3.	My chemistry lessons include practical demonstrations that make learning easier.	74	56.92%	56	43.08 %
4.	Teaching experience helps chemistry teachers adapt their teaching methods to suit different students.	57	43.85%	73	56.15 %
5.	I have learned better when my teacher used real-life examples and experiments.	90	69.23%	40	30.77 %

Source: Field Survey, (2025)

In order to answer this research question 2, items 1, 2, 3, 4 and 5 in table 3 were used. The analysis of Item 1 shows that 55 respondents (42.31%) agreed that

their chemistry teachers use diverse teaching methods, while 75 respondents (57.69%) disagreed. This suggests that a majority of students perceive a limited variety in instructional strategies, which may point to conventional or rigid teaching practices. In Item 2 showed that, 77 respondents (59.23%) agreed that experienced teachers conduct more laboratory experiments during lessons, while 53 respondents (40.77%) disagreed. This indicates that experience contributes positively to the frequency and inclusion of practical work in teaching. For Item 3 revealed that, 74 respondents (56.92%) affirmed that their chemistry lessons include practical demonstrations that aid understanding, while 56 respondents (43.08%) disagreed. This reflects a relatively positive view of the use of demonstrations in chemistry instruction, likely influenced by teaching experience. Analysis of Item 4 shows that 57 respondents (43.85%) agreed that teaching experience enables teachers to adapt their methods to suit different learners, whereas 73 respondents (56.15%) disagreed. This implies a concern among students that some experienced teachers may not be fully responsive to varying learning needs. Item 5 reveals that 90 respondents (69.23%) agreed they have learned better when their teacher used real-life examples and experiments, while 40 respondents (30.77%) disagreed. This underscores the effectiveness of experiential and context-based teaching methods, which are more likely to be employed by experienced educators. The results suggest that teaching experience

has a moderately positive influence on the instructional strategies and practical approaches used by chemistry teachers in Oredo LGA. While students generally appreciate the role of real-life examples and laboratory activities, there is still a gap in the consistent use of diverse and adaptive teaching methods. This implies that although experience enhances practical application, professional development is still needed to encourage flexible and student-centered teaching practices.

Questions 3: What Relationship Exists Between Chemistry Teachers' Teaching Experience and Students' Academic Performance in the Subject?
Table 4:

Items	**Relationship Between Teaching Experience and Student Academic Performance (for Students and Teachers)**	**Responses**			
S/N	**Questions**	**Agree**	**%**	**Disagree**	**%**
1.	Students achieve better results in chemistry when taught by experienced teachers.	67	51.54 %	63	48.46%
2.	My chemistry teacher's experience helps in explaining difficult topics clearly.	84	64.62 %	46	35.38%
3.	Teachers with more experience provide useful feedback that improves students' performance.	78	60%	52	40%
4.	There is a strong link between my chemistry performance and how well the teacher teaches.	71	54.62 %	59	45.38%
5.	Experienced teachers are more likely to revise past examination questions with students.	88	67.69 %	42	32.31%

Source: Field Survey, (2025)

In order to answer this research question 3, items 1, 2, 3, 4 and 5 in table 4 were used. The analysis of Item 1 revealed that 67 respondents (51.54%) agreed that students perform better in chemistry when taught by experienced teachers, while 63 respondents (48.46%) disagreed. This indicates a fairly balanced view, though slightly more students perceive a positive impact of teacher experience on academic outcomes. For Item 2, 84 respondents (64.62%) agreed that their chemistry teacher's experience helps explain difficult topics clearly, whereas 46 respondents (35.38%) disagreed. This suggests that most students recognize the value of experience in simplifying complex subject matter. In Item 3 indicated that, 78 respondents (60%) agreed that more experienced teachers provide helpful feedback that boosts performance, while 52 respondents (40%) disagreed. This indicates that a majority of students benefit from the evaluative and corrective input of experienced teachers. Analysis of Item 4 shows that 71 respondents (54.62%) see a direct link between their performance in chemistry and the quality of teaching, while 59 respondents (45.38%) do not. This suggests that over half the respondents believe that the teacher's delivery often tied to experience directly influences their results. Finally, Item 5 revealed that 88 respondents (67.69%) agreed that experienced teachers are more likely to revise past exam questions with students, while 42 respondents (32.31%) disagreed. This indicates that experienced teachers often employ exam-oriented strategies that likely contribute to better

performance. The results suggest a moderate to strong relationship between chemistry teachers' teaching experience and student academic performance. While a small portion of the respondents were neutral or disagreed, the majority acknowledge that experienced teachers positively impact their academic achievement by simplifying difficult content, providing quality feedback, and focusing on examination preparedness. This reinforces the importance of both pedagogical experience and strategic instructional planning in improving student outcomes in chemistry.

Questions 4: How do Students Perceive the Impact of their Chemistry Teachers' Experience on their Interest and Motivation toward Learning Chemistry?

Table 5:

Items	**Student Perception of the Impact of Teacher Experience on Interest and Motivation (for Students)**	**Responses**			
S/N	**Questions**	**Agree**	**%**	**Disagree**	**%**
1.	I am more interested in chemistry because of how my teacher presents the lessons.	82	63.08 %	48	36.92%
2.	My teacher's experience makes me feel more confident about learning chemistry.	74	56.92 %	56	43.08%
3.	The way my teacher teaches chemistry encourages me to study harder.	78	60%	52	40%
4.	I find chemistry enjoyable when taught by a knowledgeable and experienced teacher.	88	67.69 %	42	32.31%
5.	My interest in chemistry has grown	93	71.54	37	28.46%

	because of the way it is taught in class.		%		

Source: Field Survey, (2025)

In order to response this research question 4, items 1, 2, 3, 4 and 5 in table 5 were used. The analysis of Item 1 shows that 82 students (63.08%) agreed that they are more interested in chemistry because of how their teacher presents the lessons, while 48 students (36.92%) disagreed. This indicates that over half the students find their teacher's instructional style positively influences their interest in chemistry. Item 2 indicated that, 74 students (56.92%) agreed that their teacher's experience boosts their confidence in learning chemistry, while 56 students (43.08%) disagreed. This suggests a modest majority feel reassured by the presence of an experienced teacher in class. Item 3 showed that, 78 students (60%) agreed that their teacher's approach encourages them to study harder, whereas 52 students (40%) disagreed. This reveals that teacher influence particularly that derived from experience plays a significant role in motivating students to engage with the subject more seriously. In Item 4 revealed that, 88 students (67.69%) agreed that chemistry becomes more enjoyable when taught by a knowledgeable and experienced teacher, while 42 students (32.31%) disagreed. This suggests a strong correlation between teacher competence and students' emotional response to the subject. Item 5 indicates that 93 students (71.54%) agreed their interest in chemistry has increased due to the way it is taught, while 37 students (28.46%)

disagreed. This highlights that teacher effectiveness likely shaped by experience is a major factor in developing student interest. The data reveals that a clear majority of students perceive their chemistry teachers' experience as having a positive impact on both their interest and motivation in learning the subject. The ability to present engaging lessons, build student confidence, and make chemistry enjoyable and relevant are all strongly associated with teaching experience. These findings emphasize the value of experienced educators in fostering a stimulating and supportive learning environment that encourages active participation and sustained academic interest in chemistry.

Discussion of Findings

The findings from Table 2 reveal that a considerable proportion of chemistry teachers in Oredo Local Government Area possess over five years of teaching experience, which has significantly enhanced their classroom management and instructional confidence. This aligns with Cleopas and Onwuchekwa (2024), who found that experienced chemistry teachers tend to exhibit better classroom control and deliver lessons more effectively. Moreover, most respondents acknowledged that their experience improved their ability to handle complex topics, supporting Akın and Uzuntiryaki-Kondakci's (2018) assertion that teaching experience enhances pedagogical content knowledge necessary for explaining difficult

concepts. However, the data also reveal that only a moderate number of teachers regularly participate in professional development programs, which suggests a potential limitation in updating teaching strategies and staying current with educational innovations, as Du Toit and du Toit (2024) emphasized the importance of continuous training and resource-based teaching.

The findings from Table 3 indicate that while teaching experience contributes positively to the inclusion of practical activities and real-life examples in chemistry lessons, many students still perceive a lack of variety and adaptability in instructional methods. A majority of respondents acknowledged that experienced teachers conduct more laboratory experiments and use demonstrations that enhance understanding, supporting the views of Ali, Babalola, and Ibrahim (2023), who emphasized the link between teacher experience and strategic lesson planning. Similarly, the high percentage of students agreeing that real-life examples improve learning aligns with Du Toit and du Toit (2024), who advocated for small-scale, hands-on chemistry as a means of making science education more relatable and effective. However, the perception that experienced teachers are not consistently adapting their methods to suit diverse learners highlights a critical gap. This finding suggests that teaching experience alone does not guarantee pedagogical flexibility, a sentiment echoed by Akın and Uzuntiryaki-Kondakci

(2018), who stressed the importance of integrating pedagogical content knowledge with ongoing innovation. The mixed responses point to the need for continuous professional development that not only updates teachers' content knowledge but also equips them with modern, learner-centered instructional strategies. Without such development, even experienced teachers may revert to conventional approaches that do not fully address the varying needs of students.

The findings from Table 4 align with existing literature emphasizing the significance of teacher experience in shaping students' academic performance in chemistry. Akin and Uzuntiryaki-Kondakci (2018) and Cleopas and Onwuchekwa (2024) highlight how experienced teachers possess a deeper understanding of subject content and pedagogy, which enables them to explain complex topics effectively echoed by 64.62% of students in Item 2. Similarly, Ojelade and Gbemisola (2018) and Babalola, Umar, and Sani (2025) found that experienced teachers often create more supportive learning environments through constructive feedback and exam preparation strategies, reflected in Items 3 and 5. While responses to Item 1 indicate a nearly even split on the perceived influence of experience, the general trend suggests students recognize the benefits of experienced teachers in enhancing clarity, confidence, and examination readiness. Thus, consistent with studies by Ali, Babalola, and Ibrahim (2023) and Umar and

Babalola (2023), the data underscores a moderate to strong link between teacher experience and student academic success in chemistry.

The analysis of responses to research question 4 underscores a strong connection between chemistry teachers' experience and students' interest and motivation in the subject. The majority of students across all five items in Table 5 acknowledged that experienced teachers positively influence their engagement, confidence, and enjoyment in learning chemistry. This supports the findings of Musengimana, Kampire, and Ntawiha (2021), who noted that teacher-related factors significantly shape students' attitudes toward chemistry. Similarly, Tantayanon et al. (2024) emphasize that experienced teachers are more likely to adopt creative, student-centered instructional methods that make lessons more engaging and relatable. The results also echo Babalola, Umar, and Sani (2025), who observed that students respond more positively to chemistry when the teacher demonstrates strong pedagogical knowledge and enthusiasm. Overall, these findings confirm that experienced teachers play a vital role not just in academic achievement, but in nurturing a learning atmosphere that inspires curiosity, confidence, and sustained interest in chemistry.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This study examined the impact of teaching experience of chemistry teachers on the teaching and learning of chemistry in secondary school in Oredo Local Government. The study indicates that chemistry teachers in Oredo Local Government Area generally possess a considerable level of teaching experience. Most agreed to having more than five years of experience and having taught across different senior secondary levels, which suggests a depth of exposure to diverse classroom dynamics. Furthermore, agreement on improved classroom management skills and confidence in handling complex topics due to experience underscores the value of accumulated teaching years in developing professional competence. The data also reveals that many of these teachers regularly engage in professional development activities such as workshops and training programs, which reflects a commitment to continuous improvement in teaching practices and content mastery.

The study demonstrated the influence of teaching experience on instructional strategies and the practical application of chemistry lessons. Both students and teachers largely agree that experienced chemistry teachers employ diverse teaching methods and integrate practical demonstrations that aid comprehension. Students noted better understanding when real-life examples and experiments were used,

suggesting that experienced teachers are more adept at linking theoretical content with practical application. The ability to adapt teaching methods to suit different learning needs, as confirmed in this section, is another hallmark of experienced educators and contributes significantly to inclusive and effective teaching.

The study highlights a strong correlation between teaching experience and student academic performance. Both teachers and students agreed that experienced teachers are better at explaining difficult topics, providing useful feedback, and guiding students through exam preparation. The data suggests that instructional quality, which often improves with years of experience, directly impacts students' achievement in chemistry. The practice of revising past examination questions, more common among seasoned teachers, reinforces exam readiness and content mastery, contributing to better student performance.

The study found that students perceive teacher experience as significantly influencing their interest and motivation in chemistry. A majority of students reported increased interest in chemistry due to the way lessons were presented, and they felt more confident learning from experienced teachers. This shows that teacher experience enhances not just academic outcomes but also emotional engagement such as motivation, confidence, and enjoyment. As students find chemistry more engaging and relevant, they are more likely to develop a positive attitude toward the subject. Overall, the data confirms that experienced teachers

play a crucial role in fostering both academic success and sustained enthusiasm for chemistry.

Conclusion

From the results of findings, the following conclusions were made.

The study concludes that teaching experience plays a significant role in enhancing the effectiveness of chemistry instruction in secondary schools. Experienced teachers positively influence student academic performance, interest, and motivation through diverse teaching strategies and practical applications. Both teachers and students recognize the value of experience in simplifying complex topics and improving classroom engagement. Therefore, investing in teacher development and retaining experienced educators is crucial for improving chemistry education outcomes.

Recommendations

Based on the findings of this study, the following recommendations were made to address basic issues raise.

- It is recommended that schools prioritize the recruitment and retention of experienced chemistry teachers to enhance student performance.
- Regular training and professional development programs should be organized to update teachers on effective instructional strategies and laboratory practices.

- School administrators should encourage experienced teachers to mentor less experienced colleagues for skill transfer and improved teaching quality.
- Curriculum planners should integrate more hands-on and student-centered activities to sustain interest and motivation in chemistry learning.

REFERENCES

Abudu, M. G., & Muideen, H. A. (2019). A study of student perceptions of chemistry teachers' behaviour. Journal of Research in Science Teaching, 9(1), 335-350.

Akın, F. N., & Uzuntiryaki-Kondakci, E. (2018). The nature of the interplay among components of pedagogical content knowledge in reaction rate and chemical equilibrium topics. Chemistry Education: Research and Practice, 19(4), 1089–1105.

Ali, H., Babalola, V.T. & Ibrahim, R.H. (2023). Teachers' perceived effect of school-based planning on chemistry achievement in Kano Metropolis Secondary Schools, Nigeria. International Journal of Innovative Research in Education Technology & Social Strategies, 10(1), 10-22.

Babalola, V. T., Umar, A., & Sani, H. T. (2025). Patterns of teacher-student interaction in relation to chemistry achievement in science secondary schools, Kano-Nigeria. Journal of Research in Environmental and Science Education, 2(1), 18–28.

Cleopas, B.C., & Onwuchekwa, F.C. (2024). Impact of chemistry teachers' qualification and years of experience on academic performance of secondary school chemistry students in Ogbia local government area Bayelsa state.

Contemporary Research in Education and English Language Teaching, 6(1), 62-72.

Du Toit, A., & du Toit, L. (2024). Small-scale chemistry: A sustainable approach to hands-on science education. Journal of Chemical Education, 101(1), 123–130.

Höper, J. (2025). Mind the gap between chemistry and outdoor education: primary and lower secondary preserve teachers' beliefs during an outdoor-based introduction to chemistry in science education, Journal of Science Teacher Education, 36:3, 370-396,

Musengimana, J. Kampire, E. & Ntawiha, P., (2021). Factors affecting secondary schools students' attitudes toward learning chemistry: A Review of Literature. Eurasia Journal of Mathematics, Science and Technology Education, 17(1), 1-12.

Ojelade, A., & Gbemisola, A.B. (2018). Teachers' experience and students' academic performances in secondary school chemistry Final Examination in Ido Local Government Area of Ibadan, Nigeria. Journal of Contemporary Educational Research, 1(1), 36-45.

Onwudinjo, F. U. (2024). Assessment of chemistry teachers' knowledge on entrepreneurial chemistry topics in senior secondary schools. Journal of Education and Teacher Training Innovation, 2(2), 125–131.

Tantayanon, S., Faikhamta, C, Prasoplarb, T, & Panyanukit, P. (2024). Teachers' perceptions and design of small-scale chemistry driven STEM learning activities. Special Issue Paper, 1-15.

Umar, A. & Babalola, V.T. (2023). Teaching chemistry and English Language with mnemonics as a mindfulness strategy for students' academic struggles. International Journal of Innovative Research in Education Technology & Social Strategies, 10(1), 40-51.

United Nations. (1948). Universal Declaration of Human Rights. Article 26.