

**A SURVEY ON COMMON DIFFICULTIES ENCOUNTERED IN THE
TEACHING OF CHEMISTRY IN SECONDARY SCHOOLS IN EGOR LOCAL
GOVERNMENT AREA OF EDO STATE.**

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CERTIFICATION

We, the undersigned hereby certify that this research Project was carried out by Favour Odemakpore with Matriculation Number: **EDU1803057** of the Department of Curriculum Institutional Technology (CIT) Faculty of Education University Of Benin, Benin City

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DEDICATION

This work is dedicated to God Almighty.

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I would like to convey my most sincere and heartfelt gratitude to God Almighty for His amazing grace, infinite mercy and unconditional love that He has been showering upon me from birth till date. I really appreciate Him for always coming through for me and always guiding me through His perfect plans and will for my life. My appreciation also goes out to Pastor, my coach, my mentor, Very Highly Esteemed Pastostor Joseph Igwemoh for always giving me the right counsel, building me with Gods Word and filling me with wisdom for living. Thank you so much sir for helping me with the right mindset to go through school. To the staffs both teaching and non-teaching that supported and helped me from 100–400 level I say a very big thank you. To my Project Supervisor Dr. (Mrs) E.O. Eromosele thank you so much ma for your patience, Motherly love, guidance, advice, encouragement and contributions which helped me greatly in this work, making it a success. Thank you very much Ma for your caring relationship.

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ABSTRACT

Having more individuals study and graduate in the field of chemistry well knowledgeable and competent enough to discover and manage the natural assets of the nation is dependent on how effective they were taught at the secondary school level. This study investigated the common difficulties encountered in the teaching of chemistry in senior secondary schools, using senior schools in Egor Local Government Area, Benin City, Edo State as a case study.

To achieve the purpose of the study, three research questions were raised and examined and data was collected from twenty-four (24) respondents drawn from 19 schools in Egor Local Government Area OF Edo State using questionnaire as the instrument for data collection. The descriptive survey research design was adopted for the study. An analysis of data was done using mean, standard deviation and independent t-test.

The findings from the study reveal that the top 3 common difficulties encountered in the teaching of chemistry in secondary schools in Egor Local Government Area of Edo State includes: scarcity of chemistry teachers; insufficient number of technology equipment; and unavailability of standard and functional laboratory. It also revealed that the difficulties are not significantly different by the sex of the teacher. Some recommendations were made which include: each school should have well-equipped laboratories with the basic conveniences like an electrical supply, a fire extinguisher, and a water system, to name a few; Chemistry teachers should employ the student-centred

approach in the teaching of chemistry as it increases the engagement and motivation of the student; Chemistry teachers should be sponsored to in-service training programs that encompass conferences, seminars, and workshops to enhance their professional growth.

CHAPTER ONE

INTRODUCTION

Background of the Study

Chemistry is the branch of natural science that deals principally with the properties of substances, the changes they undergo, and the natural laws that describes these changes. It can also be defined as the study of matter and its interaction with other matter and energy. Simply put chemistry is the science that deals with the properties, composition and structure of substances, the transformations they undergo, and the energy that is released or absorbed during these processes. Chemistry is one of the most significant subjects in Nigeria's secondary and college education systems. A credit pass in chemistry is required at the secondary school level for learners to pursue careers in medical care, pharmacy, food production, technology, home economics, biology, and other science-related disciplines.

Chemistry as a science subject is being taught and learnt in schools in Nigeria at the senior secondary level of education. The act or process of passing the knowledge of chemistry is called teaching and its being carried out by people of higher knowledge of the subject referred to as chemistry teachers to people of a lesser knowledge of the subject known as learners. The process of being imparted with the knowledge, skills and experience in chemistry is referred to as learning. Teaching is all about using various

approaches and activities to help learners gain the skills and understanding they need for a particular reason e.g to gain a qualification or perform a particular role. Learning on the other hand is about gaining and using new knowledge to demonstrate a change. This change might relate to the performance of a skill, the demonstration of understanding and/or a change in behavior and attitude. The teachers teach while the learners learn.

However, despite the fact that students have so much to benefit from learning chemistry and how easy it is to understand chemistry because the subject goes beyond just being taught in a class room as often perceived but the phenomenon in chemistry are practiced in our day to day life in and outside school e.g. burning of paper, the process of boiling and filtering of impure water to make it clean for drinking, etc. it has been observed that a lot students pick other subjects like physics rather than chemistry and a reasonable percentage of students often fail chemistry during exams. This makes me question are there some issues in the process of learning chemistry? Is the knowledge of chemistry being passed effectively by the teachers to the students? Are there issues with instructional materials? Are these difficulties common amongst secondary schools? It's against this background that the I saw the subject matter of this research "a survey of common difficulties encountered in the teaching and learning of chemistry in secondary schools" as a worthy research topic, using secondary schools in Egor local government area, Edo state, Nigeria as a case study.

Statement of the Problem

A look through science education literatures in the past two decades and summaries of chief examiners' reports of results by external examination bodies for example the West African Examination Council indicates that all is not well in the teaching and learning process of chemistry. WAEC reported in 2021 amongst many other years that the performance of the candidate was below average. They suggested that the causes were as follows: Candidates lack understanding of the demand of the questions; lack of adequate knowledge of the chemical concepts, such as inductive effect and electrophiles; exhibit poor communication skills in the delivery of answers; candidates could not use bond dissociation energy to compare the acidity of HCl and HF. The inability for students to understand the simple and basic concepts of chemistry despite the fact that these principles are applied in our day to day human activity is alarming. Could these poor performance be as a result of the difficulties faced by teachers in the teaching of Chemistry? As a result, this research seeks to investigate the common difficulties encountered in the teaching of chemistry in senior secondary schools in Egor L.G.A

Research Questions

1. What are the problems affecting the teaching of Chemistry in Secondary schools in Egor L.G.A.
2. Are these problems significantly different by the sex of the teacher?

3. What are the strategies to minimize these problems affecting the teaching & learning of Chemistry in Egor LGA?

Purpose of the Research

The main purpose of this study is to find out the common difficulties encountered in the teaching and learning of Chemistry in Secondary schools in Egor Local Government Area of Edo state. Specifically, the study sought to:

1. Find out the problems affecting the teaching of Chemistry in Secondary schools in Egor L.G.A.
2. Determine if the problems are significantly different by the sex of the teacher.
3. Discover the strategies in minimizing these problems.

Significance of the study

The findings of this study will be significant in the following ways;

To the chemistry teacher, this will help improve the teaching style of the teacher. They will learn more efficient ways to pass knowledge to various learner types and how to use multiple kinds of techniques to evaluate their comprehension. Teachers will get the necessity of increasing their own professional development in order to further develop their knowledge of their field. The primary objective of the training can be to improve the communication between educators and learners. By doing this, educators could improve

as mentors, content experts. and counselors and strengthen their value in teaching. (Eyibe, 2017)

To chemistry students, the study's finding will help increase their interest in the chemistry which will also help them comprehend the worth of technology and what knowledge must be acquired in order to succeed in a sophisticated, highly technological culture. Students can more readily acquire and improve their analytical and problem-solving skills if they are aware of the difficulties that come with teaching chemistry. Also, do experiments, watch phenomena, and visualize the outcomes in ways that make sense to you. Additionally, using digital tools and a project-learning approach will benefit students from the findings. By using these, teachers can lessen behavioral issues in the classroom as their kids are more likely to stay focused and interested.

Curriculum Planners like the Nigerian Educational Research and Development Council (NERDC) will benefit from this study Given that it will make it more essential than ever to outline effective teaching techniques for raising students' fascination and positioning them at the center of the subject. Consequently, this will foster a student's or teacher's interest in chemistry.

Scope of the Study

This study is to cover the difficulties encountered in the teaching of chemistry. It is delimited to all senior secondary school students in Egor L.G.A of Edo state, Nigeria.

The delimitation of this study consists of chemistry teachers in senior secondary schools in Egor L.G.A of Edo state, Nigeria.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents an objective, critical summary of published research literature relevant to the difficulties encountered in the teaching and learning of Chemistry in secondary schools. It aims to create familiarity, limit thinking and research on the research topic. The following subheadings served as the basis for the literature review: Theoretical Framework

- The concept of Chemistry
- The concept of effective teaching
- Common Difficulties encountered by teachers in the teaching of Chemistry
- The Availability of instructional materials on effective teaching
- Workload on effective teaching
- Practical training on effective teaching
- Sex as a factor in the teaching of chemistry

Theoretical Framework

The Social System theory developed by Hoy and Miskel (2013) constitutes a framework for this research. Schools are open systems that incorporate inputs, transformation processes, outputs, and feedback, according to Hoy and Miskel (2013). The open system

presents organization in the following manner as both dependent upon and impacted by circumstances. The inputs, creation, and outputs comprise the foundation of the open-system's cyclic cycle. Organizations get data supplied by the external world, modify it, and generate results.

In accordance with Hoy and Miskel (2013), input necessitate In accordance with Hoy and Miskel (2013), input necessitate encompass labor, students, and environmental capital, in addition to other associated elements like financial, material, human, or information resources. The term "change mechanism" refers to the effective internal processes that govern the transformation process. On the basis of Hoy and Miskel (2013), there are also multiple factors that affect teaching, which includes program structure and content, organizational environment fitness, levels of student and teacher engagement, leadership by instructors and administrators, teaching quality and quantity, planning and vision, instructional time, school and classroom, mutual success, and intellectual optimism. Similarly, the open-system theory transition method, as laid out by Scheerens (2015) school effectiveness model, comprises nine dimensions: first, learners tasks, enhancing staff skills, taking into account high expectations for all, tracking progress across levels, considering learning, effective teaching effective leadership, creating a positive school culture, and school home school association. In addition, the instructional connections phase is included in the school outputs as the third component of the system. Academic achievement, imagination, self-confidence, ambitions, expectations, graduation and

dropout rates are all important outcomes for students from a social-system standpoint. Work satisfaction, absence, and attrition are important measures for teachers. To improve school efficiency, teachers should concentrate on primary metrics, which are variables that influence trailing efficiency or output measures (effectiveness).

The Concept of Chemistry

The concept of chemistry is based on the idea that everything in the universe is composed of tiny particles called atoms. These atoms are further classified into different chemical elements each with its own unique properties and behavior. Chemistry explores how these atoms combine and interact with each other to form molecules and compounds.

It is a subject that is essential in understanding the world around us. Every day we come in contact with chemicals that have different properties and can be used for different purposes, be it cooking, cleaning, medicine, etc. it is an important subject that provides the underlying for the functioning of the world and its numerous practical applications.

The fundamental concept of chemistry is to understand the composition and behavior of matter at the atomic and molecular level. The principle governing chemistry is the law of conservation of mass which states that ‘matter can neither be created nor destroyed, but can only be transferred from one form to another.’ Chemistry is concerned with understanding how these particles interact with one another. This can be observed in chemical reactions where atoms combine or break to form new compounds or physical

changes in the state of matter such as water turning to vapor in the process of boiling, ice block turning to liquid in the process of melting.

Chemistry is an essential subject with numerous practical applications. It is important in the development of drugs, materials and improving the properties of different substances. It also plays a very crucial role in protecting the environment by examining the impact of chemicals on our lives and the environment we live in.

The Concept of Effective Teaching

Teaching is a process in which one individual teaches or instructs another individual. It is considered as the act of imparting knowledge to or instructs someone (the learner) as to how to do something. While learning is the acquisition of knowledge or skills through study, experience or being taught. John Dewey considers teaching as a manipulation of the situation, where the learner will acquire skills and insights with his own initiation. Teaching has the following characteristics; it is a complete social process, it is information giving, it is an interactive process, it is a process of development and learning, it causes change in behavior, it is art as well as science, it is observable, measurable and modifiable and worthy of note, teaching facilitates learning.

According to Vogt (1984), effective teaching is the ability to provide instructions to different students of different abilities while incorporating instructional objectives and assessing the effective learning mode of the learner. Here, we define effective teaching as

the ability to improve student achievement. It involves aligning three major components of instruction: learning objectives, assessments and instructional activities. Taking time to do this upfront saves time in the end and leads to a better course.

It is commonly acknowledged that the teacher is the most important individual in an educational system; the entire educational system revolves around the teacher. Educational research and practice are constantly focusing on "improving learning." The concept of effective teaching has evolved as one of the components that contribute significantly to the improvement of learning. The teacher frequently dominates classroom interaction. Teachers have the authority to affect educational procedures. The effectiveness of their instruction is a critical aspect in encouraging effective learning in schools.

Talking and listening to students about their educational experiences are essential components of effective teaching. St. Augustine stated in one of his quotes "I learned not from those who taught me but from those who talked with me". Teachers are vital members of the teaching and learning process, and if they want their pupils to succeed academically, they must be very skilled at both managing the classroom atmosphere and organizing and arranging lessons (Dilworth, 1991). It is not by accident that effective education occurs. Because they evaluate themselves and their work, effective teachers have gotten better at what they do.

It is especially important to keep in mind that teaching chemistry should be outcome-driven and student-centered. This is only possible if both the teachers and the students are driven to learn and are willing to employ the right materials and methods (Adesoji & Olatunbosun, 2008).

Teachers and instructors must carefully prepare their lectures in advance while setting clear objectives for learning with the aim to stimulate students and facilitate their ability to understand chemistry on a deeper level. Teachers might use the significance of chemistry in everyday life to get their students interest. Teachers need to keep providing opportunities for students to actively investigate and engage with new concepts in order for students begin to get familiar to learning in three dimensions. (an approach to science teaching that shifts the focus of the science classroom to environments where students use disciplinary core ideas, crosscutting concepts with scientific practices to explore, examine and explain how and why phenomena occur and design solutions to the problems).

Common Difficulties Encountered By Teachers in the Teaching of Chemistry.

When we say Difficulty, it means the quality or state of being hard to do, deal with or understand. It can also be referred to as a problem; a situation that is unsatisfactory. Common on the other hand is defined as something being found in large numbers or happens often. So to say common difficulties means problems or unsatisfactory situations

encountered by a large number of persons in this case, we are talking of teachers in the aspect of teaching chemistry.

A huge amount of work has been done to identify difficulties that are common in the teaching of chemistry in secondary schools. These difficulties influence the effective teaching of chemistry which in turn plays a vital role in the lives of the students, affecting their academic performance in Chemistry. These consist of the actual learning environment and laboratories, as well as school administration and educational planning (Johnson 2011). There was ample seating and table space, proper air circulation, a clean atmosphere, a good boards, a prep area, and charting in the actual learning environment and lab. The availability of equipment and chemicals for use as teaching tools in the laboratory is one of the additional variables (Owoeye and Yara 2011). When material is arranged and made easily available to pupils, such as through charts, posters, and bulletin boards, assimilation and academic achievement are improved. Prior to expecting a positive outcome, it is also important to take into account the management or structure of the institution. Today, the administration of the school is in charge of placing the lab and library as well as supplying basic amenities like accessibility to water, electricity, food, merchants, medical services, and counseling services. (Owoeye and Yara 2011).

Ejidike, P.I. & Oyelana, A. A (2015) carried out a study that sought to investigate Factors influencing the effective teaching of chemistry using secondary schools in Buffalo City Metropolitan, A critical analysis was conducted on the correlation between

the responses of learners and educators to these criteria. A structured questionnaire created from the literature research is the tool utilized to collect data. There were thirty items total, fifteen of which were designated for the professors and fifteen for the students. The survey was given to 120 people, including instructors and students, and followed the 4-point Likert scale of strongly agree, agree, strongly disagree, and disagree. A chi-square statistical tool was utilized for the collection and analysis of the data. The outcome demonstrated that there is no discernible correlation between lecturers' and the students' responses to some of the parameters taken into consideration. Still, the study showed that factors such as inadequacy of periods, inadequacy of laboratory facility, inadequacy of relevant chemistry textbook, high workload on teachers, lack of professional teachers on the job even though they are graduates and Few trained or knowledgeable instructors had the chance to participate in conferences, training sessions, or professional development. According to an evaluation of only a handful of the high schools we visited, teachers are more able to effectively teach their topics in those that have sufficient resources, such as fully furnished laboratories, essential educational materials, small class sizes, and ample opportunities for hands-on learning.

Dr. Lawrence Achimugu (2016) also did a study sought to identify the variables influencing how well the chemistry curriculum was implemented in Kogi State, Nigeria's senior secondary schools. The research's sampling comprised seventy-six (76) chemistry instructors from Senior Secondary Schools in Kogi State, Nigeria, as educators are the

primary administrators of curricula. Information was gathered using a 19-item questionnaires about the variables influencing the successful implementation of chemistry curricula. The findings indicated that a number of variables were thought to possess a detrimental influence on the successful execution of the chemistry curriculum, including insufficient financing, low enthusiasm among educators, a lack of time to cover the curriculum, inadequate laboratories, and the program's volume. The research also showed that the mean answer of the chemistry teachers to the variables influencing the implementation of the chemistry curriculum is not significantly influenced by the location of the school.

Evidence in literature shows that the The challenges regarding educating chemistry include a lack of professional development for science educators, a shortage of chemistry teachers, the frequency of chemistry class periods, low teacher proficiency, a lack of chemistry teachers, low student interest because chemistry is perceived as a challenging topic to understand, a lack of a labs, large class sizes, large curriculum content, poorly prepared science textbooks, not enough teaching resources, low enthusiasm among educators, the use of unsuitable teaching strategies, and a lack of practical experience (Ayodele 2009). In light of this, it would be beneficial to do an empirical study to confirm the findings of the literature mentioned above regarding the typical challenges faced when instructing chemistry, in particular the impact of the teacher's gender identification. The reason for the interest in the research of teachers' sex is that, in Nigeria,

there is a strong gender divide regarding the perception that men are more intelligent and make better teachers than women.

The availability of instructional materials

Learning is more effective and efficient when more of the human senses such as sight, smell, taste, hearing and touching are involved, rather than just relying on verbal communication/hearing alone. All of the tools a teacher needs to help encourage and facilitate learners in their educational pursuits are included in instructional materials (Ema and Ajayi, 2004). As per Onyejemezi's assertion in Eya and Ureme (2011), instructional materials refer to the tools or resources that a teacher employs throughout a class to help the pupils understand the subject matter. These are tools that educators employ to streamline the way they provide lessons. They can use both visual and audio-visual assistance, and they can be concrete or non-concrete in nature.

If we are to attain successful instruction and study of chemistry, then the utilization of instructional materials is vital. In order to support teachers in sharing knowledge and information with students in a way that will enable them to learn in a meaningful way, instructional resources can range from simple home appliances to highly advanced machinery (Ololobou, 2008). Since students' senses are their portals to knowledge, educational resources give students the chance to actively participate in the learning process on an intellectual, perceptual, and bodily level (Jekayinfa, 2005).

By encouraging pupils to learn, these teaching resources give lessons life. By using educational resources in the classroom, teachers can more effectively convey new ideas to their students, improving their comprehension of the topic being taught.

Still, they are means to an aim rather than ends in and of themselves (Kadzera, 2006).

According to Garba (2004), educational resources facilitate the transition from the concrete to the conceptual. The instructor is required and encouraged to use pertinent instructional materials in an efficient manner to give teaching. With the help of these resources, students find the teaching and learning process more engaging, successful, lively, and intriguing. It streamlines and facilitates the delivery of teaching.

It is widely accepted that competent teaching resources can never replace the teacher, but they can help the teacher achieve their instructional and educational goals. Chemistry education entails the effective use of an appropriate utilization of print, audio, visual, audio-visual, and other materials to guarantee quality instructional delivery for the benefit of both instructor and learner. Chalk or marker board, text books, practical manual, wall charts, flip chart sets, periodic tables, chemical samples, laboratory, laboratory equipment, chemistry bonding kits, illustrations of some chemical processes, laboratory assistants, and so on are examples of these materials. These items' significance cannot be overstated.

The availability of instructional materials in classrooms improves school effectiveness. The scarcity of human and material resources at educational institutions continues to be a

major factor in student education results. As a result, schools with inadequate facilities such as libraries, labs, classrooms, and instructional materials will provide poor results.

Achimugu (2016) conducted research to investigate issues influencing the successful delivery of the high school chemistry program in the Nigerian state of Kogi. Insufficient resources, low teacher engagement, insufficient time to prepare the program, insufficient workshop, and the voluminous complexity of the chemistry curriculum were identified as problems affecting the successful execution of the chemistry curriculum.

Textbooks and curriculum resources are essential tools for effective teaching; their absence or insufficiency permits teachers to treat topics abstractly, portraying them as dull and uninteresting.

In South Africa, the application of the chemistry curriculum is hindered by insufficient practical teaching, a lack of laboratory equipment, and a scarcity of relevant texts. Others include: incompetence by teachers on the job, inadequate training participation by tutors, workshops, a lack of laboratory attendants or the presence of untrained ones in schools, and a lack of laboratory safety equipment for first aid interventions in the event of an accident (Ijidike & Oyelana, 2015).

According to Read and Kable (2007), practical experience is often an important part of chemistry research; the curriculum consists of several areas that can be evaluated through experimentation with the intention of providing a fun and engaging environment that

motivates students to learn about chemistry, which is generally thought to be intangible, quantitative, and uninteresting. According to Nyanda (2011), the lack of a well-equipped research lab for instructors and students makes it challenging to teach and study science courses. Furthermore, the study found that the majority of science students believed that they could not acquire the concept, knowledge, and essence of science without conducting practical investigation.

Using the lab as a means of instruction allows students to enhance their persuasive skills. Furthermore, it helps to increase knowledge processing and even fosters positive attitudes about chemistry. The learners are said to be active participants in the laboratory. This technique acquaints students with brain operations such as examining, reasoning, categorizing, measuring, and interpreting data. Okodugha and Uhumuavbi (2014).

According to Ndiokubwayo (2017), tutors face challenges such as material scarcity, time limits, and a lack of improvising skills in their daily scientific courses. According to Cossa and Uamusse (2015), due to a lack of money, instructional materials and laboratory amenities are insufficient. However, Sandifer and Haines (2009) believe that experiential learning is the greatest way to effectively convey and understand science. This suggests that when laboratory equipment is scarce, effective instruction will be difficult.

Kochhar (1991) adds that a teacher who has adequate and relevant facilities is more effective, confident and productive. Instructional materials are really essential since they

allow the learners to have practical experiences which help them develop skills and understand fully the concept of chemistry.

Workload on Effective Teaching of chemistry

Workload as defined by Cambridge dictionary is the amount of work to be done by someone or something within a period of time.

Nigerian teachers are being pushed to take on duties for which they are ill-prepared, their workloads are growing, and their non-teaching roles are becoming increasingly significant (Adu, Titilola, and Ifeoma, 2013). This is because secondary school enrollment has increased as a result of the increased need for education.

According to Akinsolu (2011), classrooms with too many students are thought to be unproductive for both teachers and students. This is because teachers are burdened with marking scripts and other ongoing assessments, which can make it difficult for them to provide individualized attention to students who need it more than others. This is a significant challenge that arises throughout the teaching and learning process.

While teaching according to Adu, Oshati, and Ifeoma (2013), workload is defined as the entirety of academic teaching work and committee burden allotted to a teacher for the achievement of the school's overall educational objectives. Teachers may find the demands of teaching to be too much to handle. Teachers frequently go above and beyond

what is necessary to meet the needs of their students, often going above and beyond what their bodies can sustain.

Research has shown that in Nigeria, the demand to educate the population has brought a lot of work on the teacher's part in meeting educational needs. This is very well understood from the relatively low supply of teachers to education demands. Teacher scarcity are frequently seen as having a negative impact on teaching expertise, and understanding the causes of these shortages is crucial for instructional planning and decision makers. In Kenya, teacher recruitment was marginal due to an upsurge in the quantity of teachers emerging from universities and other teaching colleges, as well as a growing demand for secondary school educators due to higher enrolment rates (Wamukuru, 2016).

According to Nyawara (2011), there is a shortage of teachers in the Kombewa Division's public primary schools. The investigation found that overloading jobs has a negative impact on instructor efficiency. Several division teachers agree that work overload leads to poor performance. Because it is clear that workload influences individuals achievement, this study advises individuals be given adequate workloads to increase their effectiveness.

Workload burden is widely accepted to cause decreased productivity, decreased performance, increased absence, and decreased engagement with work (Klassen et al. 2012). According to Peters (2012), the workload of teachers has increased over the

past decade and is now considered to be greater than that of other vocations. Teachers' happiness at work has suffered as their workload has increased (Timms, Graham, & Cottrell, 2007).

Teachers' workloads must to be taken into account both qualitatively and quantitatively. Only volume is expected when a teacher's duties and duties are listed, as many job descriptions do (Farrant, 2005). Nonetheless, the mass and impact of a teacher's labor are attempted to be measured when taking into account the amount of time they spend completing their tasks. Denga and Ekpo (1994) claim that overloading can result in anxiety and subpar performance.

In community secondary schools, a teacher's workload and students' academic achievement are influenced by various factors such as the number of periods they teach in a week, tests they administer, exercises they do, the amount of work they mark, and the administrative tasks they take on. Teachers at schools carry out administrative responsibilities as sport masters, deans of students, head of departments, head master/mistress, etc. Storekeepers, cashiers, patrons, lab technicians, librarians, councilors, school drivers, class teachers, and supervisors of student projects are examples of non-academic staff positions (Mbunda, 2006). Each of these elements affects students' academic achievement as well as the workload of teachers. A high workload can tire teachers out, harry them down, and discourage them, which hinders their ability to be creative and effective in the classroom and affects the teaching and learning process.

It is vital to mention that Iwu, Gwija, Benedict, and Tengeh (2013) conducted a research investigation in South Africa to determine teacher job satisfaction and student performance. The results they found show that highly driven instructors are content with their professions and so outperform their less motivated colleagues. In terms of enthusiasm, the data show that a combination of both intrinsic and extrinsic factors appear to influence educators' motivation. Work settings, stability at work, and prospective opportunities for advancement, for example, were listed as contributing problems in descending order of importance.

It has been stated that teachers frequently bring their tasks home while also facing excessive demands from institutions (Butt & Lance, 2005). As a result, it follows that instructors' workload could be defined as actions that require the most time to finish (Ekanem, 2012). This indicates that an increase in workload creates significant challenges for teachers (Ballet & Kelchtermans, 2008). Despite this increase has no effect on teachers' behaviors while educating, it is expected to have an impact on the quality of instruction and student achievement, as well as the value of instruction provided (Shahet al,2011).

Tonder and Fourie (2015) argue that in South Africa, teachers are subjected to demand from all participants, especially parents and school administrators, to be very exact in things relevant to learning procedures. Keeping track of learner achievement is a never-

ending activity, meaning that teachers should spend a lot of time on regular chores, resulting in less teaching time and increased workload.

According to Adiele (2017), the problem regarding the way schools are operated is that school administrators have no idea the amount of work teachers should accomplish in a given period. Adiele (2017) adds that poor working circumstances adjust for uneven distribution of teacher workload. Other educational settings have a greater number of social science subject tutors, while other disciplines are in limited supply. This is due to unequal workload coordination, which causes those who are more likely to have less burden.

Okono et al (2015) affirm that the amount of lessons faced by an instructor influences their preparation for each class and between classes daily. This is because teachers have other duties apart from teaching which also require time in order to be accomplished.

Okono et al. (2015) confirm that an instructor's workload impacts how well they prepare for every lesson as well as between classes on a daily basis. This is because teachers have other responsibilities aside from teaching that require time to complete.

According to Ayeni and Amanekwe (2018), public local legislative bodies and private secondary school owners should hire an adequate amount of trained teachers to meet the workload demand for successful instruction, while educational resources should be

improved to facilitate the application of the workload and increase the academic success of high school students.

In-Service training on effective teaching

In-service training means the formal and/or informal work related learning activities undertaken by an employee through opportunities provided by the employing agency with the aim of increasing employee knowledge, experience, and skills so that they can better perform their duties and responsibilities. In-service training acts as a catalyst for teacher's effectiveness. It is also a way of updating teacher's skill and knowledge for improving teaching and learning performance. The training is of importance for teachers to face new challenges and changes in the education world. It is also a fundamental aspect to improve teacher professionalism. The effectiveness of this training is of utmost importance so teachers can applied the knowledge acquired in teaching and learning processes.

Lots of organizations are facing so many challenges and changes which are related to economic needs, social needs and technological needs.

In-service training helps prepare employees to face these problems and meet the needs of their employers. The necessity for education training, particularly for teachers, is critical to improving the quality of education in Nigeria. Teachers are critical in delivering educational reforms in conformity with the National Policy of Education's aspirations. A

school curriculum's performance is intimately tied to its effective execution. Teachers must be aware of the school curriculum, improve and enhance the essential abilities to accurately evaluate concept changes, and apply the modified curriculum in accordance with its needs, purposes, and objectives.

In-service training efforts aim to increase teacher efficiency in the classroom and, ultimately, student performance (Hewson, 2007).

It is well known the learner performance increases with the number of teachers who enroll in in-service training courses (Damar, 1996).

According to Ojukwu (2016), inadequate teacher credentials, ineffective teaching methods, unskilled tutors, and an incapacity to use instructional technology are still potential causes of students' subpar performance. Based on the findings, it was suggested that the ministry of education and the proprietors of private schools work to ensure that tutors who are both qualified and skillful are engaged.

According to Omorogbe and Ewansiha (2013), there are a number of issues that science education must deal with, including low student achievement brought on by inadequate teaching approaches, inadequate subject matter expertise, qualifications, inadequate teacher preparation, a lack of in-service training, and a shortage of instructional resources.

Successful instruction in chemistry appears to be lacking even in other nations. For example, Broman, Ekborg, and Johnels (2011) observed that a lot of learners in Sweden

believe chemistry is a pointless and insignificant subject because they perceive it to be tutor-centered.

Childs (2014) found that transfer across academic levels, backgrounds of students study, population of students composition, study language question, and student cognitive ability are among the issues that impede the successful implementation of chemistry curricula in Ireland. Additionally, the way that chemistry curriculum is implemented is impacted by student preconceptions about science, the way that Information Technology (IT) affects instruction, and the fact that most lecturers are ignorant of the research on chemistry education.

One major area of concern is the issue of teacher qualification in relation to student achievement. The most successful learning-enhancing interventions, such as pedagogical tactics, classroom preparation, and enhanced participation, are those that are directly related to students or offered by staff, according to research studies that have consistently shown this (Kremer, Branne, et al. 2013).

It is expected that effective science instruction will result from a strong scientific education. According to Omoifo (2012), effective teaching occurs when students comprehend and meet a variety of science objectives and are able to do more than just copy scientific information. Through effective instruction, learners develop their reading comprehension, logical reasoning, and cognitive abilities. This helps them modify their automatic, everyday ways of understanding things to incorporate empirical notions. As a

result, pupils' ability to solve problems raises their learning level. As a result, educators with in-service training can demonstrate that they can teach chemistry effectively.

According to Ibrahim (2008), there are indications that certain educators frequently cling to tried-and-true methods, techniques, or solutions while instructing students, failing to consider other options that might be more in line with the recommendations or guidelines of the current curriculum. Furthermore, in order to enhance their abilities, Copriady, Zulnaldi, and Alimin (2018) advise chemistry teachers with less educational experience to receive further in-service training and collaboration, and experienced chemistry teachers to receive in-service coaching. The study's implications showed that organizations were supposed to arrange collaborative activities with educators from different backgrounds. In order to improve tutor performance in subject area, cooperation is necessary.

The Chemistry Curriculum goals cannot be met without a teacher's qualification. It is the key component that improves students' achievement in Chemistry the most. The professional and academic requirements necessary for someone to be registered as a teacher at any level of education is known as teacher qualification. According to Ufonabasi (2014), this also entails acquiring the necessary knowledge, aptitude, and creative faculties for a successful and high-caliber career in teaching.

According to Ufonabasi (2014), it was concluded from these findings that instructor competency and expertise significantly affect the caliber of chemistry instruction. In

order to improve and motivate chemistry education, these attributes support research with adequate access and useful human capital.

The amount of planning and instruction that instructors do determines how valuable they are. According to Odia and Omonfonmwan (2007), tutoring facilities have not stopped producing teachers who lack both the necessary teaching abilities and a thorough comprehension of the subject matter. It should be mentioned that during their careers, teachers undergo ongoing development in their in-service training and instruction. Training of this kind might be provided before quitting the workplace at any time.

According to Okhiku (2005), in-service preparation refers to activities planned and carried out by practitioners while they are at work. The goal of the program is to give the instructor the opportunity to acquire the practical skills necessary to carry out his or her responsibilities with effectiveness.

Ibrahim (2015) highlights that one of the best ways to enhance educational experiences is through the professional development of employees through lectures, in-service training, or courses. This is an opportunity to support educators and readers in their classroom as they develop new ideas and methods, manage new teaching resources, or acquire the knowledge and abilities necessary to deliver courses successfully.

In order to support more teachers, Manduku, Edward, and Cheruiyot (2017) suggest that the State, Colleges, and School Administrators make concerted efforts to guarantee that the in-service teacher preparation system is appropriately designed and maintained.

Sex as a factor in the teaching of chemistry

The gender of secondary school chemistry teachers is often believe to affect student's interest and self-efficacy. However, the effect is seen as insignificant once the teacher's behaviour and attitudes are being put into consideration. What a teacher believe about male and female student's ability in chemistry as well as how the teacher treats the male and female students in the classroom is more important than the teacher's gender.

In both primary and secondary schools (Antecol and colleagues, 2015, Dee, 2007, Holmlund and Sund, 2008, Muralidharan and Sheth, 2016, Paredes, 2014, Winters et al., 2013) and universities (Bettinger and Long, 2005, Bottia et al., 2015, Carrell et al., 2010, Griffith, 2010, Hoffmann and Oreopoulos, 2009, Price, 2010), numerous researchers have established a connection between the achievement of students and career decisions and teacher gender.

According to Paredes' (2014) framework of theory, the gender of teachers can have a variety of effects on pupils, including serving as role models, reiterating stereotype threats, and introducing biases into the classroom that are associated with a particular gender.

First, if students identify with a same-sex role model, they might perform better when allocated to one. Put another way, when given female teachers, female students are exposed to accomplished women in STEM, which could inspire them to pursue careers in these areas. Secondly, children could potentially internalize an expectedly negative stereotype about their gender in response to the gender of their teachers. Their performance at school may suffer as a result of the anxiousness.

Third, an educator's sexuality may have an impact on their conduct. Because female teachers may have greater levels of arithmetic anxiety, particularly in primary schools, this could have an adverse effect on pupils' performance (Antecol et al., 2015). Additionally, female educators could choose different themes, organize their classes differently, and use different examples than their male colleagues.

In this situation, educators might also be biased toward one gender over the other. This could have an effect on how they interact with and assess pupils (Lavy, 2008), which could have an effect on academic achievement. The majority of the previously listed research show that female teachers have a favorable impact on the academic performance of female students; yet, the overall inconsistent results point to a complex problem. Since female instructors are a very diverse group, it is not unexpected that the empirical findings are not entirely conclusive.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter is focus on the outline of how the research was being carried out. It is discussed under the following subheading:

- Research Design
- Population of study
- Sample and sample techniques
- Research instruments
- Validation of instruments
- Reliability of the instruments
- Method of data collection
- Method of data analysis

Research Design

The research employs the descriptive survey research design. This enables the researcher to investigate knowledge, attitudes and practices among secondary school teachers in Egor Local Government Area of Edo state. the primary method of collection of data is by survey to gain a greater understanding about individual and/or group perspective about the study. Information is gathered by administering a questionnaire to a Sample of individuals.

Population of Study

The population of this study is made up of twenty four (24) Chemistry teachers from nineteen (19) senior secondary schools in Egor L.G.A. They were chosen because they are more better to understand the problem that is being investigated. The population is about twenty four (24) teachers

Sample and Sample technique

This sample consist of 24 respondent which was selected using the random sampling technique. These respondent consist of 14 male and 10 female chemistry teachers selected randomly from 19 different senior secondary schools in Egor L.G.A. of Edo State.

Research Instruments

The instrument used for the collection of data in the study is a structured questionnaire. The questionnaire was titled: Common difficulties encountered during the teaching of Chemistry (case study: secondary schools in Egor L.G.A). The questionnaire was divided into 3 sections with a total of 20-items which was administered to the respondents with the aim of collecting data from them based on the set objectives of this study. The instrument was designed using five-point likert type scale of strongly agree, agree, undecided, disagree and strongly disagree. The questionnaire had 3 sections. The first dealt with the gender of the respondents. The second dealt with items on the problems

affecting the teaching of Chemistry. The third focused on likely solutions to these problems affecting the teaching of chemistry.

Validation of Instrument

The constructed questionnaire for the study was presented to the project supervisor and another expert in the field to confirm for content validity. Necessary corrections were made and incorporated into the final draft of the instrument before it was administered by the researcher.

Reliability of the Instruments

To ascertain the consistency of the instrument, the Cronbach Alpha was used. A pilot study was carried out on 20 respondents who were not part of the sample of the study. Applying the Cronbach's Alpha reliability method, a reliability coefficient of 0.76 was obtained. The instrument was therefore reliable for this research work.

Method of Data Collection

The method used for the data collection was self-administered surveys. The questionnaire was administered by the researcher to the respondents after getting appropriate permission from the relevant authorities in the schools. The researcher provided the respondents with information on how the questionnaire should be filled and they completed it independently while the researcher waited to retrieve the filled questionnaire from the respondent.

Method of Data Analysis

Data collected through survey questionnaires were analyzed using descriptive analysis method. Descriptive statistics, such as frequencies, means, and standard deviations, were used to summarize and describe the data. The cut-off mean was 2.50 this implies that any item with a mean score of 2.50 and above was considered agreed/accepted while any item with a mean score below 2.50 was considered disagreed/rejected. The Pearson Product Moment Correlation Formula was used to test the hypothesis.

CHAPTER FOUR

PRESENTATION OF RESULT AND DISCUSSION OF FINDINGS

Research question1: what are the problems affecting teaching Chemistry secondary schools in Edo state?

Table 1: Frequency, means, standard deviation and Ranking of the problems affecting teaching Chemistry in Secondary schools in Edo state

SN	ITEMS	SA	A	U	D	SD	Total N	Mean X	SD	Rank	Remark
1	Insufficient number of technology equipment's	18	6	0	0	0	24	4.75	4.24	2nd	Agreed
2	Ambiguity of textbook is a great problem to the teaching and learning of Chemistry.	4	14	0	2	4	24	3.5	3.24	11th	Agreed
3	Unavailability of standard and functional laboratory greatly affect the teaching and	12	10	2	0	0	24	4.42	3.94	3rd	Agreed

	learning of Chemistry											
4	Lack of practical work in the laboratory affects the teaching and learning of chemistry	14	5	0	5	0	24	4.17	3.8 2	6th	Agreed	
5	The frequency of periods allotted to Chemistry classes in the classroom helps greatly in its teaching and learning	8	7	3	4	2	24	3.63	3.3 5	10th	Agreed	
6	Inadequate time for demonstration and modeling of the topics affects the teaching and learning of Chemistry	15	3	0	4	2	24	4.04	3.7 9	8th	Agreed	
7	Lack of Interest of students as the subject is seen as being difficult to understand.	10	9	0	4	1	24	3.96	3.6 3	9th	Agreed	
8	Teachers don't appear to be knowledgeable about the	3	1	1	9	10	24	2.13	.06	12th	Disagreed	

	subject.										
9	Poor communication skills by chemistry teachers affect the teaching of Chemistry?	15	5	0	3	1	24	4.25	3.9 1	5th	Agreed
10	Scarcity of chemistry teachers affect the teaching of chemistry	20	3	0	1	0	24	4.75	4.2 7	1st	Agreed
11	The teaching of chemistry in a teacher centred and not student centered approach affects the teaching and learning of chemistry	10	11	0	3	0	24	4.17	3.7 5	7th	Agreed
12	The excessive workload on teachers; A chemistry teacher teaching more than one subject affects the teaching of chemistry.	15	5	0	4	0	24	4.29	3.9 2	4th	Agreed

From table 1 above, the mean rating of item 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, and 12 were above the cut of mean of 2.50. This means that the respondents (chemistry teachers) agreed with the items as the problems affecting teachers in the teaching of chemistry. These are the items; (1)Insufficient number of technology equipment, (2)Ambiguity of textbook, (3)Unavailability of standard and functional laboratory, (4) Lack of practical work in the laboratory, (5)inadequate periods allocated to chemistry classes (6) Inadequate time for demonstration and modeling of the topics, (7) Lack of Interest of students as the subject, (9) poor communication skills by chemistry teachers, (10) Scarcity of chemistry teachers, (11) teaching of chemistry in a teacher centred and not student centered approach, (12)The excessive workload on teachers. However, item 8 has a mean rating of 2.04 which is below the cut-off mean 2.50. This means that the chemistry teachers disagree with the item as one of the problems affecting teachers in the teaching of chemistry. Interestingly, the study shows that the most common problem affecting the teachers in teaching Chemistry Scarcity of Chemistry Teachers, followed by the teaching of chemistry in a teacher centred and not student centered approach, while teachers not appearing to be knowledgeable about the subject was the least factor.

Research Question 2

Are the problems affecting teachers in the teaching of chemistry significant by the teacher's sex?

Table 2: overall mean and standard deviation scores for the male and female chemistry teachers on problems that affect teachers in the teaching of chemistry in secondary schools

GENDER OF RESPONDENT	No of Respondent	Mean	Standard deviation
Male	14	3.863	3.592
Female	10	4.2	3.851

From table2, the comparism of the male and female chemistry teacher’s responses on the problems affecting the teaching of chemistry in secondary schools, it is revealed that the female teachers have a higher mean response (4.2) than the male teachers which have a mean of 3.863. This implies that to some extent, the factors affecting the teaching of chemistry are significantly different by the gender of the teachers. From the findings there exist a difference in their means. To check if this difference is significant, a t-test was conducted. Result is shown in table 3.

Table 3. T-test analysis on the mean responses of male and females teacher's responses on the problems affecting the teaching of chemistry in secondary schools.

GENDER OF RESPONDENT	No of Respondent	Mean	Standard deviation	df	T-cal	T-table	Remark at 0.05 level significance
Male	14	3.7885	3.592	18	1.004202	2.100922	Not significant
Female	10	4.1204	3.851				

$P \leq 0.328591$

The total male and female respondents were 14 and 10 chemistry teachers respectively.

The responses of each group were recorded with their mean and standard deviation were calculated as seen in the table above. From the table, the t value calculated at 0.05 level of significance with 18 degrees of freedom is 1.004202 which is less than the table value of 2.100922. Thus, the null hypothesis is accepted and therefore the problems affecting teachers in the teaching of chemistry are not significantly different by sex. The observed difference in their perception as seen in table 2 is not significant and therefore, it is just by chance.

Research Question 3

What are the strategies to minimize these problems affecting the teaching of Chemistry in Secondary schools in Edo state?

Table 4: Mean responses on the strategies that can be used to curb the problems affecting the teaching of Chemistry

S/N	ITEM STATEMENT	SA	A	U	D	SD	Total	Mean	SD	Rank	Remark
1	Employment of more chemistry teachers into the ministry will help reduce the stress and facilitate effective teaching of chemistry.	15	7	2	0	0	24	4.54	4.06	4th	Agreed
2	In-service training for Chemistry teachers will improve the quality of teaching of chemistry	14	10	0	0	0	24	4.58	4.083	3rd	Agreed
3	Adequate time for demonstration and modeling will improve teaching and learning of Chemistry	14	3	1	4	2	24	3.96	3.651	7th	Agreed
4	Proper funding and equipping of laboratories in schools will improve teaching and learning of chemistry	15	9	0	0	0	24	4.63	4.122	2nd	Agreed

5	Adequate provision of facilities and other instructional materials will aid the effective teaching and learning of Chemistry	17	7	0	0	0	24	4.71	4.203	1st	Agreed
6	Regular use of laboratories will help students develop interest in learning chemistry.	10	9	5	0	0	24	4.21	3.753	6th	Agreed
7	Reduced workload on teachers will help teachers make, focus and achieve goals in teaching chemistry	12	7	3	2	0	24	4.21	3.797	5th	Agreed
8	Reduced workload on students will help students make, focus and achieve goals in learning chemistry	10	5	5	4	0	24	3.88	3.523	8th	Agreed

This table shows the mean response of the respondents to the possible solutions suggested to curb the problems affecting the teaching of chemistry in secondary schools. Every item were agreed on which implies that each of the item statement are possible

solutions to the problem in teaching and learning. It is also interesting to know that item no 5 which states that Adequate provision of facilities and other instructional materials will aid the effective teaching and learning of Chemistry, has the highest mean followed by Proper funding and equipping of laboratories in schools will improve teaching and learning of chemistry, and Employment of more chemistry teachers into the ministry will help reduce the stress and facilitate effective teaching of chemistry being the item with the least mean.

Discussion of findings

The respondents' decisions on the first research question: what are the problems affecting teaching Chemistry secondary schools in Edo state? as seen in table above showed some problems that are encountered in the teaching of Chemistry in Secondary schools. The responses on items 1, 2, 4, 5, 6, 7, 9, 10, 11 and 12 are in agreement that;

Insufficient number of technology equipment, Ambiguity of textbook, Unavailability of standard and functional laboratory, Lack of practical work in the laboratory, Inadequate periods allocated to chemistry classes, Inadequate time for demonstration and modeling of the topics, Lack of Interest of students as the subject, poor communication skills by chemistry teachers, Scarcity of chemistry teachers, Teaching of chemistry in a teacher centred and not student centered approach and The excessive workload on teachers. The respondents' disagreements with item no. 8 which is: Teachers don't appear to be knowledgeable about the subject. Implies that secondary school chemistry teacher

are knowledgeable about the subject of chemistry. Also from the tabulated responses Items 10, 1 and 3 were ranked the most influential problems with the mean responses of 4.75, 4.75 and 4.42 respectively. Obviously these schools do not have sufficient chemistry teachers, they have insufficient number of laboratory equipment and they lack standard and functional laboratories. Arisi (2008) looked into the root causes of the low chemistry performance of learners in secondary schools in Edo State. She discovered that a lack of suitable instructional materials and poor library facilities are two main causes of students' poor academic achievement.

The results of Ajeyalemi (1983), who observed that inadequate teaching methods, a lack of resources, and a shortage of qualified chemistry instructors all affected students' capacity to learn chemistry, were corroborated by this study. The study concurs with Ekpo (2006), who pointed out that learning chemistry almost becomes memory due to a lack of resources for experimentation, which is necessary to validate chemical principles and apply the proper technique. When he pointed out that a lack of textbooks, a lack of scientific lab space, a lack of chemistry teachers, and huge class sizes all impede the effective teaching of chemistry, Ezeliora (2003) agreed with the study's findings.

The final research question in table 4 above examined strategies for reducing the challenges associated with teaching chemistry, and the findings show that all eight recommendations were accepted by the participants. The high mean rating of 4.34 and

above indicates that the respondents strongly agreed that the concerns outlined can help minimize the obstacles experienced in teaching Chemistry.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter deals with the summary of the study, the conclusions drawn, results obtained and recommendations proffered.

Summary

The study was aimed at carrying out a survey on the common difficulties encountered in the teaching of chemistry in secondary schools in Egor Local Government Area. To achieve the purpose of the study, Three research questions were raised and examined; what are the difficulties teachers encounter in the teaching of chemistry in senior secondary schools in Egor L.G.A? Are these problems significantly different by the sex of the teacher? And, what are the strategies to minimize these problems affecting the teaching of chemistry in senior secondary schools in Egor L.G.A. The collection of data carried out through the administration of questionnaires to twenty-four (24) chemistry teachers from nineteen (19) randomly selected public and private senior secondary schools in Egor Local Government Area of Edo State. A Descriptive survey design was adopted and data collected were analyzed using descriptive statistics; mean and standard deviation. They confirm if the difficulties encountered by the teachers are significantly different by the sex of the teacher, a t-test was conducted. The results showed that the top 3 common difficulties encountered in the teaching of chemistry in secondary schools in Egor Local Government Area of Edo State includes: scarcity of chemistry teachers;

insufficient number of technology equipment; and unavailability of standard and functional laboratory. Based on these findings, some conclusions and recommendations were made.

Conclusion

From the introduction of this study, it is clear that chemistry plays a central role in the sciences because the goal of chemical study is to understand natural processes on an atomic and molecular level. Additionally, chemistry is vital to the expansion and development of our country in a number of areas, including Glass, cement, paper, leather, textiles, paints, pigments, petroleum, sugar, plastics, and pharmaceuticals. It is used in all facets of modern life, including food preparation, medical care, housekeeping, environmental procedures, and product manufacture. All these important aspects of chemistry cannot be realized if all the difficulties encountered while teaching chemistry are not reduced to a minimum or eliminated entirely. These difficulties result in a lack of comprehension or insufficient knowledge of the subject, thereby causing students to lose interest in chemistry and go for other science-related subjects like math, physics, biology, etc., and as a result, there will be fewer graduates in the field of chemistry as well as graduates who are not competent or knowledgeable enough to discover and manage the natural assets of the nation.

Recommendation

Based on the findings of the study, the following recommendations are hereby offered:

1. Since practice is a crucial component of the subject. Then, there ought to be well-equipped laboratories with the basic conveniences like an electrical supply, a fire extinguisher, and a water system, to name a few.
2. Chemistry teachers should employ the student-centred approach in the teaching of chemistry. It increases the engagement and motivation of the student, improve critical thinking and problem-solving skills.
3. Chemistry teachers should be sponsored to in-service training programs that encompass conferences, seminars, and workshops to enhance their professional growth.
4. Adequate laboratory equipment and other associated teaching aids should be quickly provided to Chemistry teachers to enable them to do their work efficiently and effectively. I also recommend that chemistry teachers be involved actively involved in the teaching processes instead on relegating it to the laboratory attendants alone.

Suggestions for further studies

A small sample size was used in this study, and it did not encompass a big sample size. Additionally, just a few chosen high schools in the area were included; not all high schools in the local government area were covered. This study used 24 respondents to examine the typical challenges faced when teaching chemistry, with a focus on senior

secondary schools in Egor L.G.A. Such a study has to be conducted throughout Nigeria and in other local governments within Edo state.

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APPENDIX I

DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY,

FACULTY OF EDUCATION,

UNIVERSITY OF BENIN

Dear Respondent,

REQUEST FOR THE COMPLETION OF QUESTIONNAIRE

As an undergraduate student at the University of Benin, I'm currently conducting research on Common difficulties encountered during the teaching and learning of chemistry in Secondary schools in Egor L.G.A. The research is one of the major requirements for the Bachelor of Education (B.Ed.) degree in education. I'm making an appeal to you to help this study by responding to the questionnaire, which was created primarily to produce accurate and valid data for academic research. Your responses will be handled in complete confidence, I can guarantee you. We appreciate your assistance and answer.

Yours faithfully,

Favour ODEMAKPORE

Researcher

Instruction: Please tick () appropriately in the section that follow

SECTION A. DEMOGRAPHIC DATA

Sex: Male () Female ()

SECTION B

Key: Strongly Agreed (SA) = 5, Agreed (A) = 4, Undecided (U)= 3, Disagreed (D) = 2, and Strongly Disagreed (SD) = 1.

SN	ITEMS	SA	A	U	D	SD
	What are the problems affecting teaching Chemistry in Secondary schools in Edo state?					
1	Insufficient number of technology equipment's					
2	Ambiguity of textbooks is a great problem to the teaching and learning of Chemistry					
3	Unavailability of standard and functional laboratory greatly affect the teaching and learning of Chemistry					
4	Lack of practical work in the laboratory affects the teaching and learning of chemistry					

5	The frequency of periods allotted to Chemistry classes in the classroom helps greatly in its teaching and learning					
6	Inadequate time for demonstration and modeling of the topics affects the teaching and learning of Chemistry					
7	Lack of Interest of students as the subject is seen as being difficult to understand.					
8	Teachers don't appear to be knowledgeable about the subject.					
9	Poor communication skills by chemistry teachers affect the teaching of Chemistry?					
10	Scarcity of chemistry teachers affect the teaching of chemistry					
11	The teaching of chemistry in a teacher centred and not student centered approach affects the teaching and learning of chemistry					
12	The excessive workload on teachers; A chemistry					

	teacher teaching more than one subject affects the teaching of chemistry.					
	What are the likely solution to these problems affecting the teaching & learning of Chemistry in Egor LGA?					
13	Employment of more chemistry teachers into the ministry will help reduce the stress and facilitate effective teaching of chemistry.					
14	In-service training for Chemistry teachers will improve the quality of teaching of chemistry					
15	Adequate time for demonstration and modeling will improve teaching and learning of Chemistry					
16	Proper funding and equipping of laboratories in schools will improve teaching and learning of chemistry					
17	Adequate provision of facilities and other instructional materials will aid the effective teaching and learning of Chemistry					

18	Regular use of laboratories will help students develop interest in learning chemistry.					
19	Reduced workload on teachers will help teachers make, focus and achieve goals in teaching chemistry					
20	Reduced workload on students will help students make, focus and achieve goals in learning chemistry					