ASSESSMENT OF PUPILS' VIEWS ON THE ROLE OF THE SOCIETY AS THE CAUSE OF POOR PERFORMANCE IN CHEMISTRY IN THE WEST AFRICAN SENIOR SCHOOL CERTIFICATE EXAMINATION (WASSCE) IN SELECTED SENIOR SECONDARY SCHOOLS IN KENEMA CITY

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ABSTRACT

Since 2019, there had been increasing number of enrolment into the science streams in senior secondary schools in Kenema City, as compared with academic years 2010 to 2018. This increasing number of enrolment in the science faculties were due mainly to three actions taken by the government, under the leadership of His Excellency, Retired Brigadier Julius Maada Bio, viz: introduction of the free (quality) education, the radical inclusion policy by Ministry of Technical and Tertiary Education, and thirdly the government's priority on Science and *Technology (http://www.wearepurposeful.org)*. These students are been prepared for the West African Senior School Certificate Examination, or WASSCE. Despite the enormous effort by government and her flagship being the sciences and technology, schools have been recording discouraging results in chemistry at WASSCE. This had prevented many from obtaining requirements to pursuing their studies at tertiary levels. Some may not have a second chance of re-sitting the examination if they fail to obtain at least five WASSCE or Credits in their first attempt, thus making it more difficult to continue to the next stage. The overall system had led to many questioning as to the impacts of the government's free (quality) education, the radical inclusion and more importantly her priority on science and technology. Thus the research aims to investigating the views of the teachers and of the pupils on the role of the society as the cause of poor performance in chemistry at selected senior secondary schools at WASSCE level in Kenema City. We define the society here as any group of people, technology, organization, social media platforms, or institution that may either directly or indirectly affect the pupils' academic performance in chemistry at WASSCE level.

Keywords: Free Quality Education, Radical Inclusion, WASSCE, Society, Chemistry

INTRODUCTION

The significance of chemistry to man, his domesticated animals, plants, and the general sciences as a whole, cannot be over-emphasized. Chemistry as a branch of science is in itself a pivot point to all other basic and related sciences (Physics, Biology, Agriculture, Astronomy, Geology, food and nutrition, Aerodynamics, Medicine, Forensic Science etc.) to mention but few. As such, a nation's strength in chemistry contributes immensely to its development so as to cope with both current and future technological and developmental trends around the world. A knowledge of chemistry, as in education as a whole, can therefore be considered a key factor to success. As a consequence therefore, the subject is given tremendous attention in all spheres of education and in all works of life notably-farming, engineering, industry, in forensic science, in politics and in

the society as a whole-in their attempt to promoting societal norms, traditions, culture, national philosophy and vision. Meanwhile, a survey shows that all government schools, government-assisted secondary schools, and the private schools offer chemistry, and considered the subject as the cornerstone in the sciences. Unfortunately, very little attention has been given to these valid questions in Kenema City: What are the factors that affect the overall poor performance of students in chemistry at WASSCE level in Kenema City"? Or "what are the factors influencing massive failures in chemistry at WASSCE level in Kenema City"? Or what mechanism should be put in place to ensure an increased pass rate in chemistry at WASSCE level in Kenema City? For example, the Chief examiner's comments on the weaknesses of students in chemistry paper-2, 2018 were as follows"…the other questions not mentioned on the strengths in the report were not satisfactorily answered and weaknesses in the teaching and learning process were evident. Inadequate coverage of the syllabus in these areas were obvious. The raw mean score of 29.0 and a standard deviation of 17.00 showed that the performance of the candidates was worse than NOV/DEC WASSCE (PRIVATE), 2017 with a raw mean score of 30.0 and standard deviation of 17.72. A total of 54,277 candidates sat the paper. (*Chief examiners' comment-West African Senior School Certificate Examination-May/June-2018*).

Clearly, we see that the examiner addresses key areas that needed total concentration in the class room and even beyond. Thus we may ask "what was the cause of not completing the syllabus? Or what can we do to improve on the performance and smartness of the pupils in external examinations? Questions such as these and many others have not been research on in Kenema City for chemistry to be specific. Thus the year 2018 was one of the most miserable in terms of pupils' performance at WASSCE level countrywide, as compared with the performances of pupils in other West Africans member countries, notably: Ghana, The Gambia, Nigeria and Liberia. While the overall average performances of the former three countries where above 60.00%, that of candidates in Sierra Leone were just 4.5% average! Thus the horror was evident in that year.

Hence it is justifiable that some, or if not, all of these anomalies are subjects to be thoroughly investigated or checked and subsequently identify were the problems really lie.
The main aim of this research was therefore the assessment of pupils' and the teachers' views on the role of the society as the cause of poor performance in chemistry in the West African Senior School Certificate Examination (WASSCE) in selected senior secondary schools in Kenema City.

Statement of the Problem

Despite the massive streaming/enrollement of pupils in the nursing, engineering, agricultural, and more so science fields of study, very little attention has been given to thorough research on the performances of pupils in chemistry-which serves as the backbone to these disciplines. Experiments showed that many of our students when asked about their future area of discipline always replied that they wanted to pursue doctorate in medicine or nurses, engineers etc. hardly to here from student who wish to choose teaching of chemistry as the future carrer. With these many facts in mind it is imperative that we make a deductive research on their performances for the betterment of their well beings and the development of nation as a whole. Amoke M. K.,et al, (2020) noted that the level, and hence the extent at which pupils failed in chemistry presents a lot

of threat and raises questions about chemistry teaching and learning, and thus the overall academic performance of pupils in the subject.Although lot of issues may be responsible for the massive failure of pupils in chemistry at WASSCE level in Kenema City, these factors could be for example, in the areas of man power needs, quality and quantity, nature of chemistry laboratories in terms of chemicals, apparatus and spaces for effective teaching and learning processes; and the extent to which practicals are conducted. Thus there is a need for urgent attention and solutions by government, parents, teacchers, the society/community and the stakeholders in chemistry education.

The only examination body for senior secondary schools in Kenema City (and in Sierra Leone as a whole) is the inescapable West African Senior Schools Certificate Examonation, (aka WASSCE). No pupils can enrol to college and or university, without fulfilling the requirements set up by this examination body. Each and every year there is massive failures in chemistry and thus pupils fail to obtain requirement for entrance in colleges and or universities. At this point, we may ask "should the under-performance of the students in chemistry a contribution made by teachers, or government, or parents, or stakeholders or the WASSCE? Or is it the pupils themselves whoe are responsible"? It was as a result of these questions and other unforeseeing contigencies that we were urged to conduct this research.

Research Questions

The following questions were asked in order to track the goal of the researh, focusing mainly on seleted senior secondary schools in KenemaCity:

- What are the demographic characteristics of the pupils offering chemistry at WASSCE in the schools?
- What are the perceptions of the pupils about the factors influencing pupils performance in chemsitry at WASSCE level in the City?
- What are the challenges encountered by pupils in preparation for chemistry examinations in the City?
- How is the society as a whole contributing to pupils' academic performance in chemistry at WASSCE level in Kenema City?

RESEARCH AIMS AND OBJECTIVES

Research Aim

The main aim of this research it to assess those factors that influence the performances of pupils in chemistry at WASSCE level in Kenema Dustrict.

Research Objectives

- To examine the demographic characteristics of the pupils and the teachers in the schools and how these affect students performances in chemistry at WASSCE level in the schools in nthe district.
- To examine the perception of the pupils and the teachers on the role of the society and its impact on pupils performance in chemsitry at WASSCE level in the schoools in the city.
- To examine the challenges encountered by pupils and the teachers involved in chemistry examinations at WASSCE level in the schools in the city.

- To advance strategies for improvement on the performance of the pupils in chemistry at WASSCE level in the schools in the district

Significance/Rationale of the Research

The study will benefit in many areas of disciplines, and more so the lives of pupils in their future careers as follows: It may provide information to be used by the Ministry of Basic and Senior Secondary Education or MBSSE to identify the attitude that can be attributed to high level of poor performance in chemistry at WASSCE level among students in Kenema City. It may help policy makers to provide room for the improvement of teachers' quality and quantity with increased efficiency and knowledge in relation to the attitude and achievement in chemistry of pupils in City. Furthermore it may increase the awareness of principals, head teachers, board of governors, and Parents-Teachers Association (PTA), and the teachers on the attitude associated with level of performance in chemistry. Additionally it will alert chemistry teachers about their strengths, weaknesses and, therefore, their performance and the attitude of pupils towards chemistry. This will necessitate the need for a review of needs and priority areas for improvements in teaching and performances of teachers. Finally it will also serves as a guide for parents, pupils, teachers, principals and the district in general in improvement on the teaching' learning and performance of teachers and in chemistry examinations at WASSCE level.

REVIEW OF RELATED LITERATURE

Introduction

Many researches and investigations have been conducted in order to pin-point the real course(s) leading to the poor performances of pupils in chemistry at WASSCE level throughout West African countries and even beyond. This implies that the Chemistry Specialists are troubled with the overall outputs of their pupils and therefore have not achieved their goals to at least, their satisfactions. To put this in a more explicit way, questions such as "why there are poor performances of pupils in chemistry at external examinations"?; "why do so many pupils afraid of the term chemistry"?; why are the terminologies and vocabularies of chemical concept in still fair in pupils"?; "why are so many pupils finds it very difficult to familiarize themselves with the basic theories and concepts of chemistry"? etc., and many more have been asked. The fact is that as the progress and performance of pupils in chemistry increases, the ability of a population to align parallel with global order, realistic, practical science and technology, competing nation etc. subsequently increases, because the field of chemistry encompasses all sciences: food and nutrition, astronomy, engineering, medicine, agriculture, biology, computing, geography, oceanology, electronics, etc.

According to researchers, in recent examinations, most examination centres encourage examination malpractices, and have adopted mechanisms against any external threat *(Ibrahim, P. S., 2019; Awoko Publication, FBC US Prexy, 2021).* Frankly speaking examination malpractices would not have been so alarming without the dowers themselves creating mechanized shield systems, especially when great efforts have been made, or are on-going, in order to improve the quality of education in Sierra Leone. These mechanized shield systems are either well sophisticated physical barriers (like gates, fences, sitting rooms or offices) or highly professional humans (intelligence). These systems with their intelligence must have been so skilfully

developed that it has become endemic, so that any attempt to trying to curtail them would be defeated if not properly organized. It is therefore almost impossible to put a complete stop to examination malpractices (under this operating system) if advanced Counter-Intelligence Systems or Internal Crackdowns are not put in place. This chapter presents a thorough scratch on the review of related literature, and concentrates on prominent factors presenting poor performance of pupils in chemistry at WASSCE level in selected senior secondary schools in Kenema City. The research was then conducted with the main focus on the following as possible contributing factors:

1. Pupils' related factors;
2. Teachers' related factors;
3. Role of the society
4. Administration related factors
5. Roles of West African Examination council

Each of these factors has been, in turn, examined based on the following curiosities:

- To identify the total number of teachers per school teaching chemistry and their respective qualifications;
- To identify schools with well equiped chemisatry laboratory facilities for conducting chemistry practicals prescribed by west african examination councel or waec;
- To know how frequiently teachers conbduct practical exercises together with pupils in schools;
- To investigate if pupils have access to prescribed text books of chemistry for WASSCE;
- To know the quality of interaction between pupils and their teachers during teaching and learning sessions.
- To investigate how parents contribute to the acievement of their children in chemistry;
- To investigate the impact of the society on pupils' academic performance in chemistry;
- To investigate the conduct of external examination body on pupils performance;
- To investigate to role of government in pupils' success in chemistry at WASSCE level;
- To know the attitudes of the pupils towards chemistry.
- To know the challenges/constraints that the teachers and the pupils face with in learning chemistry.

PUPILS RELATEDFACTORS

We have assumed that one of the most important factors affecting pupils' performance in chemistry is the pupils' attitudes, or perception or personal behaviour towards the subject. That is there can be no effective and fruitful learning outcome without the learners/pupils' total involvement. Their attitudes (perceptions, mind-set, behaviour, readiness, vision and insights) toward chemistry are crucial and instrumental factors to achieving success in the subject.

APUH G. A., et al (2011) defined attitude as a complex mental state involving beliefs. We have also observed that pupils themselves are like a completely brand new functional, up-to-date, but non- self-automated computer system ready for work. That is they have infinite mental faculty and intelligence but may be prone to attack from external agencies, interference and influences. Thus whatever their mental faculty is given and familiar with is what they truly grasp. Pupils' attitude towards chemistry can be curtailed, moulded and shaped into sparkling jewel in the

society by various role models like the parents, teachers, community leaders, the administration, good friends and good governance. These same "role models" can in turn serve as an inhibitor to their progress, leading them astray. There should therefore be a third party whose duty is to dis-orient them from the latter case, and subsequently intrigue/motivate their feeling and eagerness towards chemistry. That is a good councillor and adviser.

Mohamed S., and Mustapha F., (2019), mentioned that despite some students being successfully passing the WASSCE, the very poor performance of pupils have led to massive failure in Sierra Leone as per WAEC Statement, 2017 via the *Standard Times Newspapers.* Despite the gradual improvement in senior secondary schools, Sierra Leone still is lagging behind in WASSCE relative to other West African States, viz: Ghana, Nigeria, and The Gambia. Some of the factors associated with the pupils themselves that are responsible for their underperformance in senior secondary schools at WASSCE level have been simplified to be:

Procrastination and Laziness

According to Benjamin Franklin, et al, "procrastination is the thieving of time". Researchers have shown that procrastination, delaying, and laziness to studying, reading and frequent practical works are amoung the weaknesses of pupils and hence serve as causes to poor performance. Instead of concentrating on reading, studying and practicing past questions, they rather prefer watching games, playing with mobile phones, engage in unnecessary football arguments, and have funs. Obviously, pupils need effective time-on-task and hard work attitude to be able to pass chemistry at WASSCE in at least one sitting. Without these attributes of the pupils, there will be massive failures in chemistry each and every year.

Unprepared Attitude Towards Chemistry Classes and Examinations

Pupils' unpreparedness and late preparation for chemistry classes and hence for WASSCE is a serious cause of massive failure. To obtain a credit or better in chemistry at WASSCE, pupils need to be prepared and to start studying from the inception-in senior secondary school level one (SSS-1), though the syllabus actually starts from junior secondary school level three(JSS-III). However, majority of the pupils start studying few days or weeks prior to examinations. The horror is that they are not able to read and comprehend concepts printed on one page for the whole day. Some may start reading in a hurry with no tactics and techniques of mastering the concepts and as a result, they do not remember key areas during examination-hence you cannot fatten your pigs on the market day.

Dependence on Miracle Extra Classes

Many pupils have been overcome by weakness due to their reliance on examination malpractices, miracle (or extra) classes and for assistance from other sources. They may be prepared to please their aiders morally and financially for helps. Unfortunately, their dependence on examination malpractices is one of the major causes of the massive failures. Normally when pupils are caught in massive examination malpractices, their results are withheld by WAEC.

Attending Mushroom Schools

Most pupils who attend schools with less trained and qualified teachers, especially in the exterior of Kenema City end up re-siting again and again and again because of poor methods of teaching and inability to complete and master the syllabus.

According *Javar Longcop (et al 2022),* chemistry is a difficult and complex subject. Hence it needs thorough explanation of facts, concepts, laws, and rules. Its difficulties arise via the consistent use of symbols, mathematical and chemical formulae and equations to represent reality in nature. Interpretation and memorization of these present a hell of problem for pupils- the inability of pupils to familiarize themselves with these notations can be seen in continuous assessment tests and promotional examinations. Indeed chemistry is a difficult subject that requires functional cognitive skills, memory and problem-solving skills (*Liu, et al- 2015*).
These characteristics of the subject chemistry thus compel many pupils to seek negative means of acquiring better grades via examination malpractices.

Hiring of Agent or "Seasoned Teacher" To Write the WASSCE

Some pupils and hence parents do hire **"seasoned teachers"** to write the WASSCE which simply have a direct shares on their failure (*ACC/SL scorpion squad, 2019).* Hiring of agents in senior secondary schools is now a common practice as it is endemic in the society. Some of the reasons we have gathered are that:

- Some poor standard schools (with less number of trained and qualified teachers) have been moderately successful in producing better requirements for university, while standard and popular schools accumulate massive failures. Thus, these so called grade-A schools (with adequate number of trained and qualified teachers), have to find alternative to future occurrence/failure.
- Some schools have been suspected of bribing of some supervisors that allow them to produce better grades in WASSCE than other schools. Thus the onlookers may take advantage of the situation and get involve in similar circumstances (*ACC/SL scorpion squad, 2019)*

Inability to Make Improvement on Difficult Subjects

According to researchers, there had been time when science pupils used to spend more time on the most difficult science subjects with chemistry been on top of their study time table. Each and every day there is time table for Chemistry, Physics, Further Mathematics and Biology. They used to study each of these subjects every day (Since from SSS-1) for at least 1 hour before dealing with the actual subject on the study time table. Even with such ingenious acts, WASSCE results still placed difficulty especially in the subjects for the sciences.
Nowadays, many pupils failed every year as a result of failing to improve and work on their weak subjects. Instead they will spend most of their times with other non-academic tasks.

Results From Continuous Assessment From SSS-1 to SSS-3
One important consequence of failure in WASSCE is the fact that most pupils got well below-average grades in promotional examinations. A pupils with cumulative average of 83.5% is likely to obtain a credit or better than one with 22.5%. Research haves shown that most schools do not want to lose their pupils to another schools, especially those schools under the age of 15.

As a result, promotion of pupils is based on decision-making as the popular saying "let my people go". Hence pupils with 22.5% annual average will all be promoted to the next class, preparing them to be engulfed by WAEC.

Studying The Wrong Syllabus/Topics

Most pupils study areas that are not relevant to the syllabus and therefore make them ineffective and inefficient. There are many fake syllabuses circulating around in the social media that deceive pupils. Some pupils prefer uploading them from internets instead of acquiring them from WAEC offices or from the schools administration. The result is "a lot a little".

Presenting Obscure Handwritings

WAEC examinations are international, and the competition is intense every year. Each and every year thousands of students sit the exams and examiners may not necessarily have time to decode or scan bad handwritings. A pupil may be brilliant but his/her bad handwriting can make them lose serious marks.

Irregularity To Attendance Lack Of Punctuality

The habit of missing classes in chemistry is key contributing factor to failure. No matter how brilliant a pupil may be, there are certain concepts in which he/she needs thorough explanation and illustration. The reason is that topics such as Redox Reactions, Periodic Chemistry, Chemical Bonding and the Mole Concept are highly volatile topics, even for grade-A pupils. Perseverance, commitment and consistency are therefore keys to understanding and passing chemistry at WASSCE level. Otherwise they may end up stranded in the subject and the result is poor performance.

Uninterested In Reading Past Questions and Answers

The topics in chemistry syllabus have been thoroughly exhausted and questions are repeated most frequently. Neglecting past questions and answers may contribute to systematic failure. Moreover a good habit of frequently visiting past question and answer will enable the pupils to familiarize themselves with the structure and composition of WAEC questions, and how to answer them, what the questions require and what is not require of them.

Poor Manner of Presentation and Lack of Clarity of Expressions During The Exam

The instructions on chemistry theory questions always read "*orderly presentation of materials and clarity of expression will earn more marks".* Some pupils are fun of the habit of answering the "(a)" part of one question on one page number and the "(b)" part on the other. Some will answer the questions more than required to show off they are very brilliant. Disobeying these instructions and rubrics will earn them nothing but miserable grades.

Not Adhering to Simple Instructions From Question Papers

Chemistry theory questions have restricted certain questions that are only peculiar to specific member countries. For example, a pupil in Sierra Leone may end up failing theory questions if he/she answers questions peculiar to candidates in Ghana only. The instructions are a guide to pupils and ignoring them mean pending your signature for failure in the examination. Others may even answer question on areas that are not peculiar to their own country, as there are specific questions that are meant only for certain countries.

Poor Time Management

Chemistry questions are time bound, and the syllabuses were prepared based on this fact. Some pupils may spend more than half of the whole time allocated for the exam on one question. Each pupil is expected to finish and go through his/her work before the final submission of the answer booklets. Effective time management in WASSCE exam is something every student is expected to improve on before facing the examination. Procrastination is therefore the thieving of time and must be avoided if improvement in chemistry is the priority.

TEACHERS' RELATED FACTORS

Teachers generally have the way to acquiring chemical skills and concepts, and their decisive roles are most paramount in any educational system. However their ingenuities, competences, willingness and humanitarian efforts do not instantly trigger off a positive change in pupils' behaviour and in the teaching processes as a whole. To be more explicit, the action(s) of a teacher is a direct replica of the pupils' academic output and hence their performances in chemistry. For example, the teacher's attitude plays crucial roles in controlling the class room environment, guiding the pupils on how to attack and answer questions, how to be effective in studying, and how they improve on their chemical knowledge; which have direct impact on the pupils' efficacy, which in turn affects the pupils' behaviour and hence their performance in chemistry at WASSCE.

Wolfolk (at al 2007) stated that the roles of teachers, parents, society, administration, government (which they referred to as environment) play off each other in a cyclical way. Thus one cannot be isolated from the other. Also, the manner of introducing a particular topic in chemistry and the clarity of explanation, competence and skills of the teachers are also fundament instruments in moulding the pupils into what kind of product is to be achieved. For instance a teacher who has mastered his area of discipline may present confidence and has total control of critical chemistry concepts. He does make it easier for pupils to absorb the concept and subsequently "fall-in-love" for the subject. In contrast, a teacher who is not okay with his area of discipline may display a countenance that exhibits a sign of weakness, and automatically gives the class an opportunity of being uncontrolled-able. The pupils will them begin loosing appetite in the teacher and his subject. The result is total failure in WASSCE.

Nzioka M. B. (et al 2008) outlined some factors influencing accurate service delivery of the chemistry teachers. He stated that the teachers are blamed to take responsibility for poor pupils' performance at WASSCE level. The chemistry teachers may not free their neck from the guillotine since they are the central part of the pupils' success. This may not be fair because, the pupils' assessment of the teachers may be far from any rationality. For example, the pupils may hate or like a teacher based on certain factors, some of which are not academic such as manner of handling/presenting/introducing the topics, dress code, physical posture, physical build-up (ugliness, handsomeness or beautiful), language/communication skills or fluency, height, personality etc. are criticized and are evaluated by pupils, from which their confidence in the subject may start to develop or fall gradually.

Teachers' Professional Qualification

`Patricia E., et al (2022)stated that the pupil-to-qualified teachers' ratio in rural areas was 76:1, which was gradually culminating to 83:1 for schools situated more than 15miles away from urban centres. *Mackintosh et al (2020*) inferred that the targeted and hence the ideal pupil-to-qualified teachers ratio should be 40:1, that is, a decent teachers' development is crucial to attaining high-quality education. Therefore the Teaching Service Commission (TSC) in Sierra Leone is aiming at developing and improving the qualified teachers to be deployed to remote areas of Sierra Leone.

In 2022, a survey was completed by 447 schools leaders located right across the 16 districts in Sierra Leone, which makes up a respond rate of about 4.1% in text messages survey *(Patricia E., Ana R., Paul A. & Alasadair M., 2022*). They observed that the survey impedes concerns over sample selection bias and they therefore compared their findings with *Annual School Census (ASC) 2019 presented by MBSSE.*

METHODOLOGY

Introduction

This research presents the detailed description of the methodology that has been employed to conduct this research. Elements under focus are the description of the study area and the research design.

Description of the Study Area

The research was conducted in Kenema District, Kenema city. Kenema District is located in the Eastern region of Sierra Leone and it capital is Kenema City located on the old railway line and is the third largest city in the country (*housing and population census, 2015).*The main tertiary institution is the Eastern Technical University of Sierra Leone, formally called the Eastern Polytechnic. It is the centre for nurturing students of agriculture, Medicine, Basic science, Business and entrepreneurship. The city has diverse ethnic groups, including Mende (the largest ethnic group); Temne, Fula, Mandingo, and Kono. The city forms the centre of alluvial diamond mining and located there is the government main diamond site. The city is well known for agricultural production of coffee, cocoa, cola nut, coconut, palm oil, palm kernel, furniture, wood carvings and timber.

The population of the district has been estimated to be 440, 883 (2011) with 223, 572 males and 217, 311 females; a death rate of 224 deaths under-five mortality deaths per 1000 live births. The live expectancy rate stands at 45.0.
(**Sourced:**https://www.humanitarianresponse.info/en/operation/sierra-leone)

Sample Procedure

The research was conducted by selecting ten (10) most popular secondary schools in the district as shown below.

1. The Ahmadiya Muslim Secondary School,
2. Kenema Government Secondary school,
3. Holy Trinity Secondary School,
4. Christ The Redeemer Secondary School,

5. Islamic Secondary School,
6. Al Aziz Islamic Secondary School,
7. The Door secondary School,
8. Kamboi Lebanese Secondary School,
9. College Secondary School, and
10. YaPoi Secondary School.

Research Design

The research was designed in order to track the views of pupils on the society as the cause of poor performance in chemistry at WASSCE level in Kenema City. Thus to achieve this we have taken into consideration certain parameters that enable us to arrive at reliable results and conclusion. We have considered even the most neglected factor such as the internet or social media users, space and time spent on studies by the students themselves etc. The areas of main focus being:
Preparation and administering of structured questionnaires and research instruments like the SPSS to assess the attitude, behaviour and level of focus/concentration of the pupils require appropriate research strategy. This was in order to deduce how concrete, flexible, or fair is the relationship between pupils and teachers; level of understanding, methodology and the availability of teaching and learning materials and environment that affect the teachers also require the correct choice of appropriate research strategy. The roles of parents in relation to the developments and successes of their children in WASSCE were considered as well. Assessing how far has the ministry gone to improve the performance of the pupils in chemistry, and what is/are the pupils needed to achieve the success in the WASSCE.

Research Instrumentation

1. Structured Questionnaires,
2. Statistics Package For Social Sciences (SPSS),
3. Focus Group Discussion Guides,
4. Survey, Were Appropriate For This Purpose, and
5. Tables, Bars, Charts and Graphs

From the five main factors hypothesized to be influencing the performance of pupils in chemistry at WASSCE level, analysis were made and the results were presented in bar graphs and bar charts. Further analysis from the graphs and charts were also made and the “most frequently occurring”, “most severe” and “less severe” factors were determined.

Pilot Study

This stage of the research was carried out by using structured questionnaires or semi-structured questionnaires for the pupils and for the teachers separately. Thereafter, focus group discussions were conducted with teachers and with the administration independently, from each school based on the results obtained from pupils in that schools. The responses of the teachers and of the administration as it relates to pupils’ responses were compared and analyzed. The co-relations and differences were noted carefully. In contrast, the teachers’ responds were again used to carry out focus group discussions with pupils and parents. The responses of the parents/guardians as it

relate to teachers' responses were again analyzed, processed and recorded for any co-relation or difference and general conclusion made with assessment SPSS word.

Data Collection Procedure

- Structured questionnaires, survey and focus group discussions/interviews and observations.
- The respondents (pupils, teachers, administration etc.) were allowed to fill the questionnaires independently from any other assistance.
- To ensure this happens successfully, simple grammar/English language were used to prepare the questionnaires.
- The procedures or rules that governed the filling in of the questionnaires were carefully explained to the pupils in particular-the teachers were assumed to know the purpose and procedures in filling the questionnaires.
- For physically challenged pupils or pupils who find it difficult to understand the questions, we the researchers took their time to fill the form based on their responses.

Mugenda O.M. and Mugenda A.G. (2003) depicted a precise way of collecting and calculating of a sample size from a population. We have used this technique to collect our data as shown below:

Table 1: Date collection procedure

Description	Population	Sample size	Comment
Pupils	750	150	Boys and girl total
Teachers	125	25	One female teacher
HODs	100	20	All HODs
Principals	25	5	All principals
Total	1000	200	Sample size
$\boldsymbol{Sample\ size} = \frac{\mathbf{20}}{\mathbf{100}} \times \mathbf{1000} = \mathbf{200}$			

Data Analysis

The data were analyzed using Statistics Package for Social Sciences (SPSS) and Microsoft excel to draw or plot graphs, and charts, using the imputed data from the research.

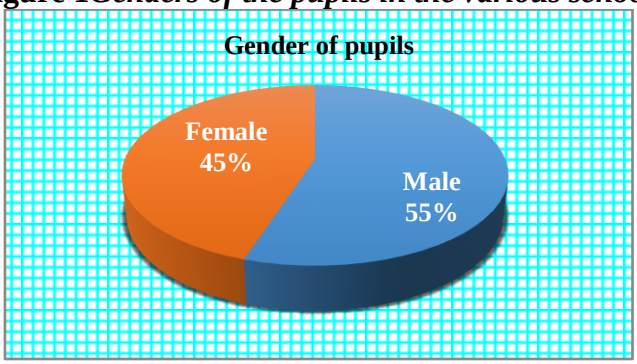
RESULTS

This chapter presents a comprehensive analysis of the results or findings. A total of 200 structured questionnaires were prepared, 150 for the pupils and 50 for the teachers. The structured questionnaires were distributed in twenty (10) different schools, ten (20) questionnaires per each school.

REPRESENTATION OF RESULTS

1. Demographic Characteristics Of Pupils

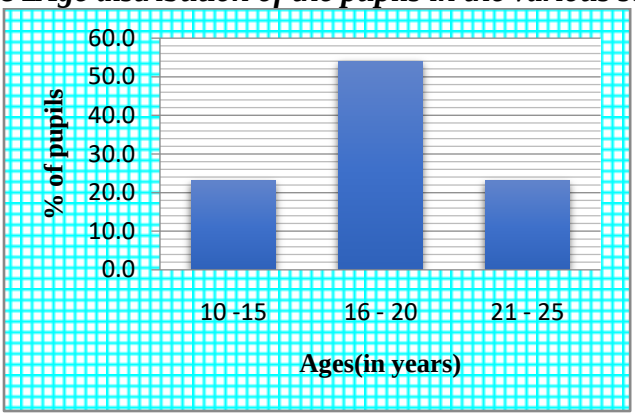
Figure 1*Genders of the pupils in the various schools*



Field data 2023

From figure 1 we observed that both boys and girls had almost equal access to learning since the ratio of boys to girls was 11: 9.

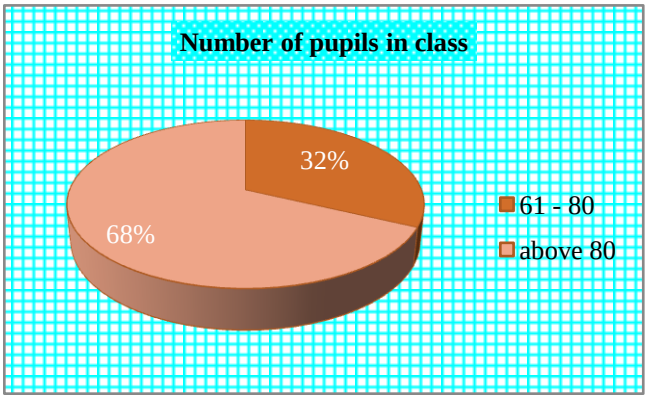
Figure 2*Age distribution of the pupils in the various schools*



Field Data 2023

As the figure 2 shows, the average number of pupils in the senior secondary schools (SSS) level were mostly teenagers with a few been adults. Some fraction of the pupils who exhibited smartness were below 16years at the SSS level.

Figure 3*Distribution of the number of pupils per class*

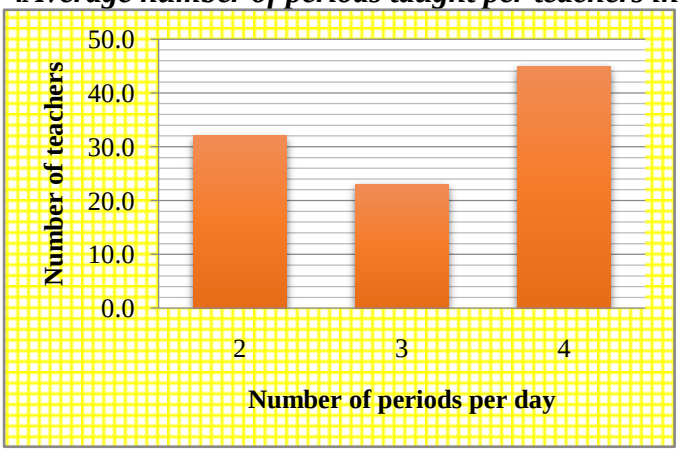


Field data 2023

As the pie chart shows 68% of the pupils were more than 80 in a single class, depicting congestion or overcrowding. The recommended number of pupils per class according to the Ministry of Technical and Tertiary Education should not exceed 50.

2. Demographic Characteristics of Teachers

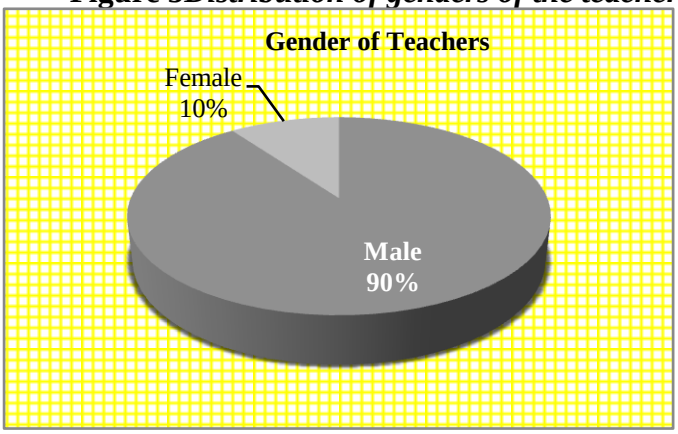
Figure 4*Average number of periods taught per teachers in each school*



Field Data 2023

The result also revealed that majority of the teachers had four or more periods per day, but overall, the distribution was fairly satisfactory.

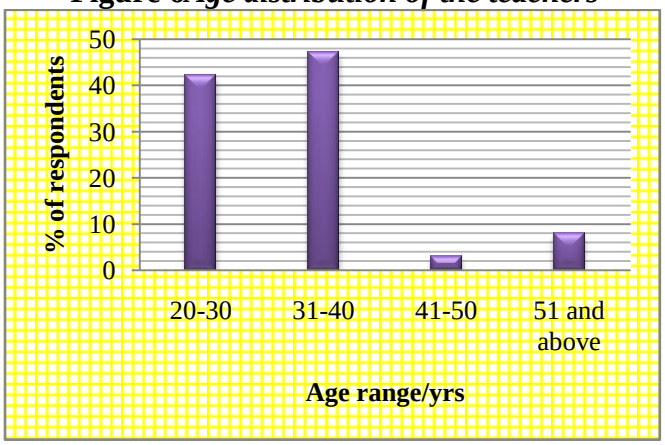
Figure 5*Distribution of genders of the teachers*



Field Data

The results explain a very large margin between the number of male and female teachers in the schools. This implies that there was no gender balance among the teachers.

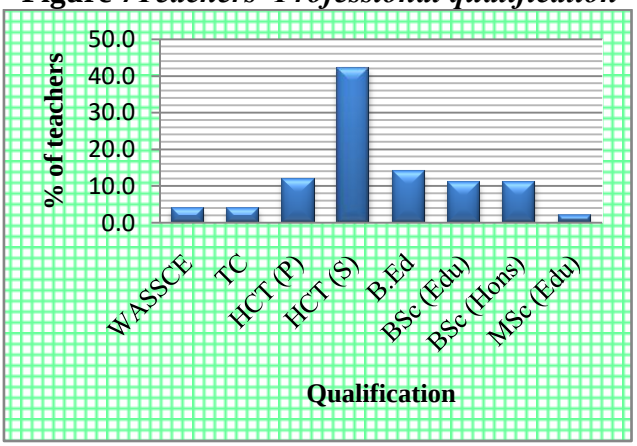
Figure 6*Age distribution of the teachers*



Field Data 2023

By contrast, the majority of the teachers were amoung the active work force with age range 20 to 30 and 31 to 40. This is in accordance with the massive recruitment of teachers from the years 2021 by the Free (Quality) Education flagship of the government.

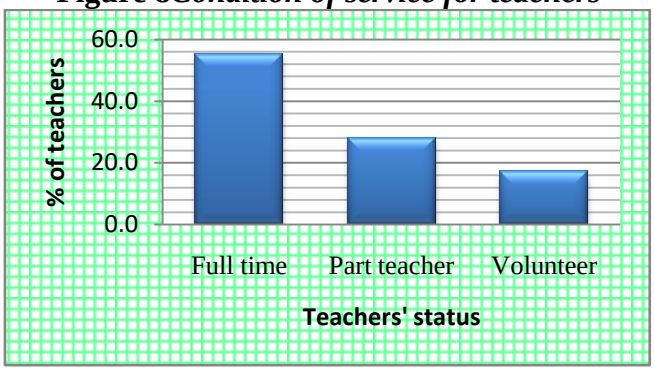
Figure 7*Teachers' Professional qualification*



Field Data 2023

Here again, we observed that most senior secondary school teachers are holders of teachers certificates (TC, HTC primary and HTC secondary). This statistics explains why the pupils are not fed with the proper ingredients of chemistry at senior secondary school level because, according the Ministry of Technical and Higher Education MTHE), these certificate holders are meant to teach in the primary and junior secondary schools, not at the senior school levels.

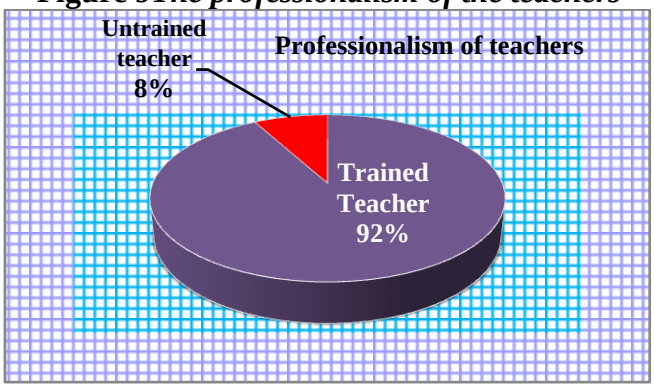
Figure 8*Condition of service for teachers*



Field Data 2023

Majority were however full time teachers, and the research showed that 32% of the teachers were pin-coded whereas 68% were non pin-coded, (Figure 6) this factor could be another that can greatly contribute to the performance in teaching chemistry. Overall, the ratio of full-time teachers to non- full-time teachers,were almost the same. That is 54.5:58.5 or 1:1.1.

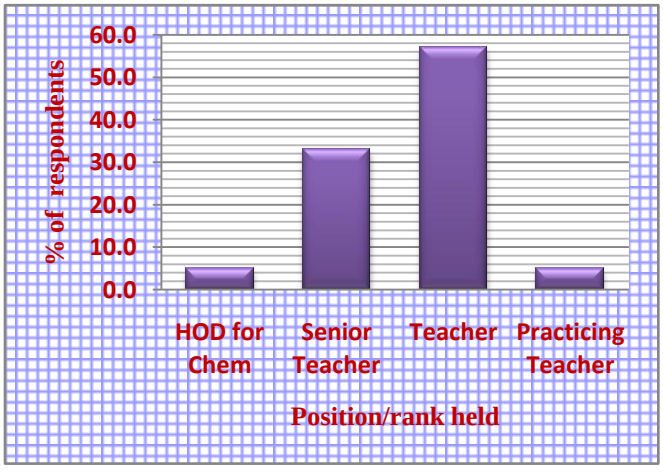
Figure 9*The professionalism of the teachers*



Field Data 2023

Contrary to the teachers' professional qualification, this result displays that 92% of the teachers were trained and qualified, whereas only 8% were untrained and unqualified. We noted that a teacher may have a degree in a particular discipline such as in chemistry but he/she may not be trained and qualified for teaching, since teaching on its own is a unique discipline that need thorough training in order to deliver well.

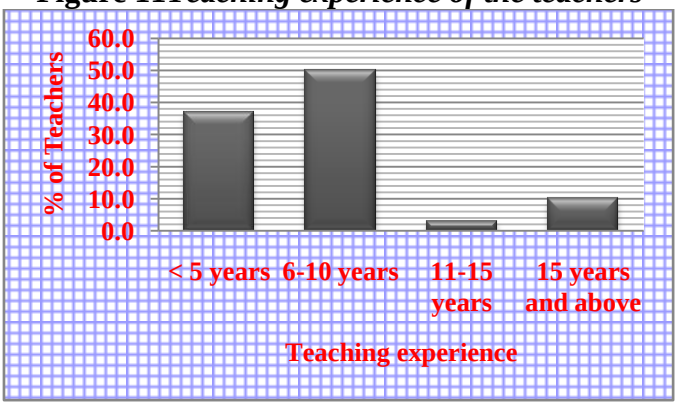
Figure10*Positions or Ranks of teachers in the schools*



Field Data 2023

As one may expect, the ordinary teachers (OTs) dominated the scores, followed by the senior teachers (STs), showing concordance with reality.

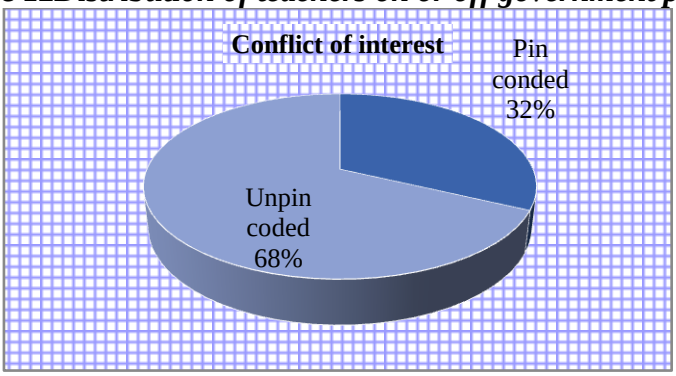
Figure 11*Teaching experience of the teachers*



Field Data 2023

The results explained that the teachers with pin-codes were in the minority, even though we were not sure as to whether those pin-coded teachers were of government payroll or not. According to the research, majority of the teachers fall within the active work group. This agrees with the fact that the same majority had teaching experience of 10 years and below. Overall the statistics is encouraging since one may expect a positive outcome from pupils performance at WASSCE, had it been that the teachers were the only contributing factors to pupils performance in chemistry in senior secondary schools at WASSCE level.

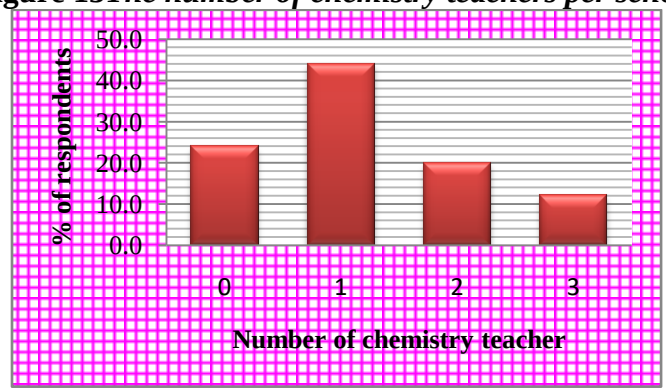
Figure 12*Distribution of teachers on or off government payroll*



Field Data 2023

According to the findings, the number of teachers with pin-codes are far more less than those without pin-code, even though it is not known as to whether these pin-coded teachers are on government payroll or not.

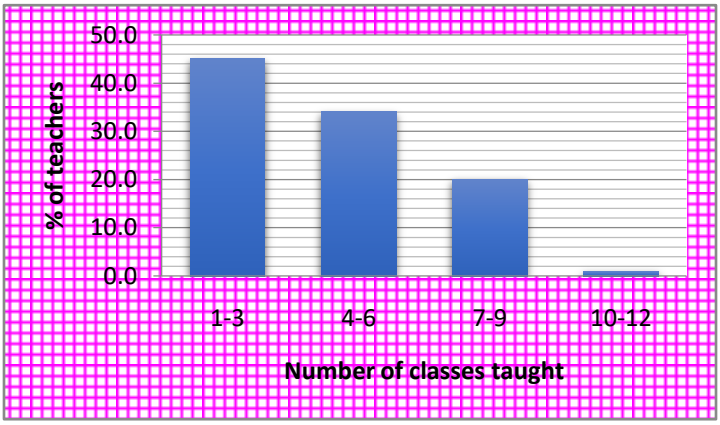
Figure 13*The number of chemistry teachers per school*



Field Data 2023

The results display that the number of chemistry teachers per each school were under-average. According to international standards, each senior secondary school should have at least three chemistry teachers for the three main areas of the subject, namely organic chemistry, physical chemistry and inorganic chemistry.

Figure 14*Distribution of the number of classes taught per teachers*



Field Data 2023

Contrary to this about 20% t0 29% of the schools had more than one chemistry teachers. By contrast, the number of classes taught by each chemistry teacher range from 1 to 6 classes, which is fairly reasonable and convenient. Only about 21-22% of the teachers teach in more than seven classes.

1. THE ROLE OF THE SOCIETY AS THE CAUSE OF POOR PERFORMANCE IN CHEMISTRY

Table 2The Pupils' And Teachers' View On The Role Of Society As A Cause Of Poor Performance In Chemistry

Suggested Causes/Reasons	SD		D		A		SA	
	f	%	f	%	f	%	f	%
Society does not encourage hard working pupils	78	39.0 %	34	17.0 %	78	39.0 %	10	5.0%
Society belief that whosoever that pass chemistry examination is the brilliant one	0	0.0%	108	54.0 %	34	17.0 %	58	29.0 %
Society celebrates wealth instead of academic excellence	0	0.0%	23	11.5 %	81	40.5 %	96	48.0 %
The belief by members of the society that chemistry is difficult.	0	0.0%	33	16.5 %	54	27.0 %	113	56.5 %
Employments are based on whom you know, not what you know which discourages the seriousness and value for hard work.	22	11.0 %	33	16.5 %	12	6.0%	133	66.5 %
Lack of value for education in the society	77	38.5 %	34	17.0 %	0	0.0%	89	44.5 %
Encourage distractions in the society	23	11.5 %	55	27.5 %	33	16.5 %	89	44.5 %
Society belief that whosoever that fail chemistry examination is a stupid or fool person	22	11.0 %	1	0.5%	31	15.5 %	146	73.0 %
Lack of interest in pupils success in chemistry at WASSCE level	32	16.0 %	1	0.5%	49	24.5 %	118	59.0 %
Society relies strictly on bribing examiners to pass their children in chemistry	0	0.0%	23	11.5 %	55	27.5 %	122	61.0 %
Society does not engage teachers for solutions to massive failure in chemistry	61	30.5 %	31	15.5 %	31	15.5 %	77	38.5 %
Society is completely isolated or not considered to take part in academic affairs by government, heads of schools and WAEC officials	11	5.5%	107	53.5 %	79	39.5 %	3	1.5%
Society belief that they cannot make meaningful any contribution to the performance of pupils in chemistry at WASSCE level	0	0.0%	23	11.5 %	102	51.0 %	75	37.5 %
Society do not have representative in exam affairs and it is the right of the society to take active part in examination processes	0	0.0%	0	0.0%	43	21.5 %	157	78.5 %
Involvement of society in academic affair	0	0.0%	89	44.5	34	17.0	77	38.5

would worsen the situation				%		%		%

KEY: A = agree; SA = Strongly Agree; D = Disagree and SD = Strongly Disagree; f = frequency
Field Data 2023

Figure 15 The Pupils' And Teachers' View On The Role Of The Society As The Cause Of Poor Performance In Chemistry

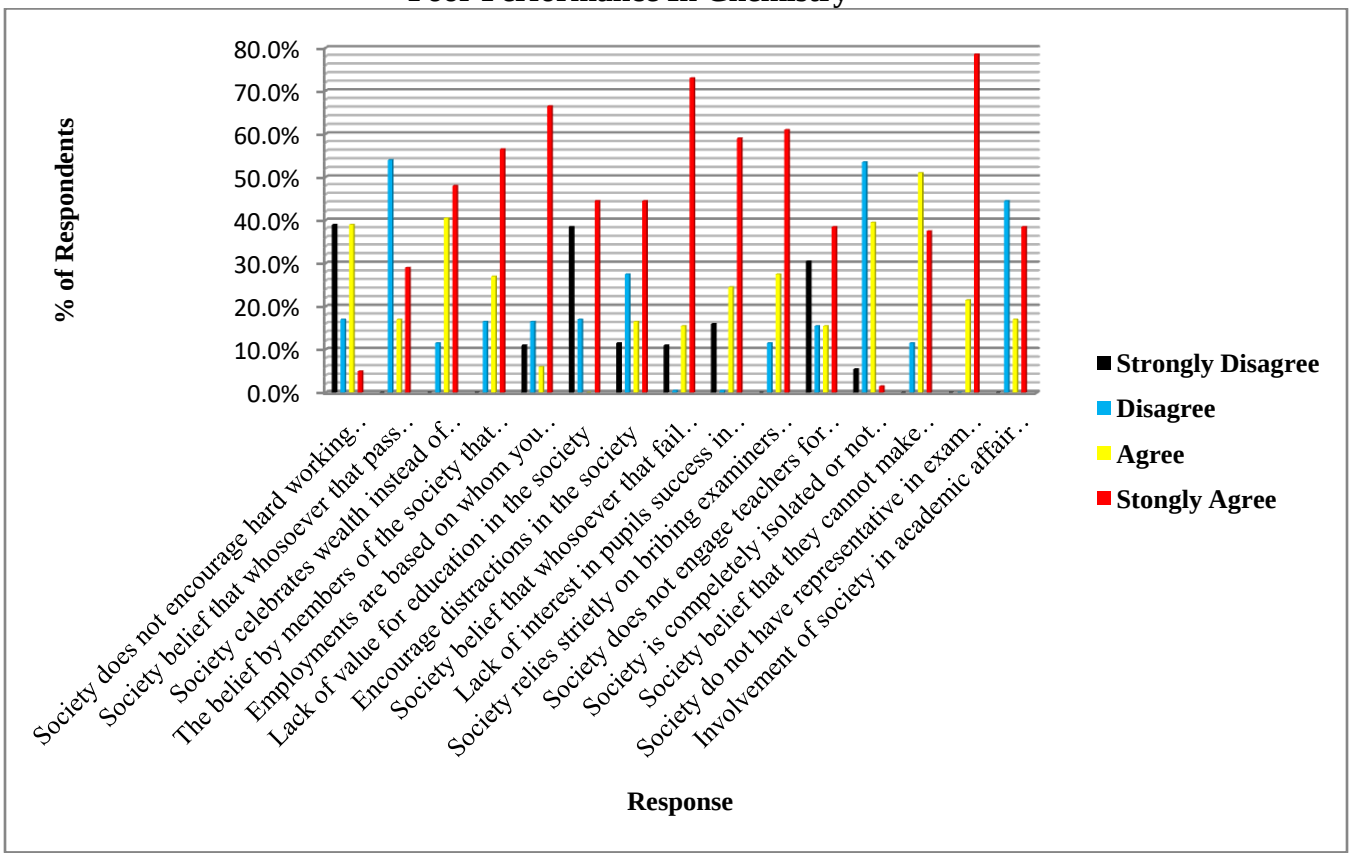


Figure 15 depicts the distribution by percentage of the pupils' and teachers' view on the role of society as a cause of poor performance. From the figure:
Society does not encourage hard working: 39.0% strongly disagreed, 17.0% disagreed, 39.0% agreed and 5.0% strongly agreed.
Society belief that whosoever that passes chemistry examination is the brilliant one: 0.0% of the respondents strongly disagreed, (there is no strong disagreement), 54.0% disagreed, 17.0% agreed whereas 29.0% strongly agreed.
Society celebrates wealth instead of academic excellence: There is no strong disagreement, 11.5% disagreed, 40.5% agreed and 48.0% strongly agreed.
The belief by members of the society that chemistry is a difficult subject: There is no strong disagreement, 16.5% disagreed, 27.0% agreed whereas 56.5% strongly agreed.
Employments are based on who you know, not what you know which challenges the seriousness and value of hard work: 11.0% strongly disagreed, 16.5% disagreed, 6.0% agreed and 66.5% strongly agreed.
Lack of value for chemistry education: 38.5% of respondents strongly disagreed, 11.0% disagreed, 0.0% agreed, and 44.5% strongly agreed.

Encourage distraction in the society: 11.5% strongly disagreed, 27.5% disagreed, 16.5% agreed while as 44.5% strongly agreed.
Society belief that whosoever that fail chemistry examination is a stupid or fool person: 10.0% of respondents strongly disagreed, 16.0% agreed and 72.0% strongly agreed.
Lack of interest in pupils' success in chemistry at WASSCE Level: 14.0% strongly disagreed, 26.0% agreed and 58.0% strongly agreed.
Society relies strictly on bribing examiners to pass their children in chemistry: 12.0% disagreed, 28.0% agreed and 60.0% strongly agreed.
Society does not engage teachers for solutions to massive failure in chemistry: 30.0% strongly disagreed, 16.0% disagreed, 16.0% agreed and 38.0% strongly agreed.
Society is completely isolated or not considered to take part in academic affairs by government, heads of schools and WAEC officials: 6.0% strongly disagreed, 54.0% disagreed, 40.0% agreed and only 2.0% strongly agreed.
Society belief that they cannot make meaningful any contribution to the performance of pupils in chemistry at WASSCE level: 12.0% disagreed, 50.0% agreed and 38.0% strongly agreed.
Society does not have representative in exam affairs and it is the right of the society to take active part in examination processes: 22.0% agreed and 78.0% strongly agreed.
Involvement of society in academic affair would worsen the situation: 44.0% disagreed, 18.0% agreed while as 38.0% strongly agreed.

DISCUSSION
1. DEMOGRAPHIC CHARACTERISTICS OF PUPILS

The Genders Of The Pupils (In Mixed Schools)
From the research, the boys- to-girls ratio is 11:9. The research shows that for every 100 pupils in the mixed schools, there were 55 boys and 45 girls. That is, both males and females have almost equal access to education and hence to the study of chemistry in senior secondary schools. Hence there is no significant difference between the gender of the pupils in the selected senior secondary school in Kenema City.

The Ages (In Years) Of Pupils
As the research showed, a large proportion of the pupils entered senior secondary school as teenagers-the most challenging and vulnerable age group. Perhaps this will be one of the most significant factors affecting pupils' performance in chemistry at WASSCE level in Kenema City because they are more vulnerable to distractions and worldly affairs at these ages. A small percentage of the pupils however enrolled to senior secondary school at the time beyond the teenage, enabling them to better withstand distractions from external sources.

The Total Number Of Pupils In Each Class
The research have illustrated that a very large number of the chemistry classes were either crowded or overcrowded, for the ideal number of pupils per class is 40 to 50. These numbers are far more than inconvenience for chemistry classes since they present problems in terms of class control, practical works, frequency of evaluation of practices in class and therefore lead to inefficiency in the part of the teachers at the expense of the pupils.

The Number Of Chemistry Periods Per Week

From the research, we saw that the average number of chemistry periods per week is encouraging and therefore ideal. Provided that other factors remain constant, most teachers will be able to at least exhaust the syllabus within the stipulated time frame, and such class will be efficient in terms of understanding chemical concepts. Unfortunately, there were just a small fraction schools with special time table for chemistry practical, another dilemma to performance in chemistry at WASSCE level.

1. DEMOGRAPHIC CHARACTERISTICS OF THE TEACHERS

The Genders Of The Teachers

As the research illustrates, there is a big gap between the male to female teachers' ratio is 9:1. Compared with the boys-to-girls ratio of 11:9, the composition of the schools in terms of gender is therefore unbalanced since male teachers predominates the system which may serve as disadvantage to the female pupils.

The Ages (In Years) Of Teachers

From the results, a huge proportion of the teachers, and hence the majority are within the active age groups, allowing them to exercise their talents and professionalism for many more years to come.

The Professional Qualification Of Teachers

Because the certificate holders were in the majority amoung the teachers, as compared with the degree holders, this presents a disadvantage to the teaching and learning process of chemistry in terms of deliverance and effectiveness of the teachers. Under normal circumstances, a holder of a degree in chemistry is more versatile and familiar with the rigorous topics in the subject as compared with a certificate holder. Even though the skilfulness and methodologies of teaching may not be directly linked to the understanding of the subject, the understanding and familiarities play crucial roles in the class room as well.

The Status Of The Teachers

As the research shows, if all other factors were to assumed constant, the teaching environment was therefore considered as not been friendly in terms of take-homes or condition of, since a majority of the teachers are either pin-coded and or received salary.

The Professionalism Of Teachers

As the research showed, colossal amount of the teachers are trained and qualified, while a small fraction is not. As we have already noted, the hung number of trained and qualified teachers are amoung the certificate holders in chemistry or integrated science. These are therefore not enough to tackle the complexity of chemistry at that level as compared with degree holders in chemistry. Hence a possible cause of poor performance in chemistry at WASSCE level in Kenema City.

The Position (Rank) Of The Teachers In The Schools

The research showed that only small fractions of the teachers held prominent positions in the teaching field, while as the majority are ordinary teachers. This is normal as one may expect

because it is part of the structure of the school system, and is probably independent of pupils' performance in chemistry at WASSCE level.

Teachers' Teaching Experiences

The research elucidated that half of the teachers have teaching experience above 5years but below 10years. Only a minute proportion of teachers' teaching experience is 15years or above. These figures are encouraging in terms of future reference and total energy out put in the class rooms as there is more time for professional development. It however, a disadvantage in term of effective teaching of the subject since more teachers are still not well equipped in experience in the class rooms.

Conflict Of Interest (Salary Status) Of The Teachers

From research,minority of the teachers obviously were in better position of receiving salary, while as majority of teachers were still not pin-coded (68%), even though it was not certain as to whether all pin-coded teachers (32%) were receiving salary or not, since there are also pin-coded teachers without salary as well.

The Number Of Chemistry Teachers In Each School

The overall results from the research illustrated that a healthy number of schools had at least a chemistry teacher. Only a few schools had no chemistry teacher. Thus irrespective of the teachers-to-pupils ratio not being ideal, we are confident that most schools had chemistry teacher(s).

The Number Of Classes Taught By Each Teacher

As the research showed, a good number of chemistry teachers teach only few classes. This is practically good news since it encourages proper preparation, readiness and effective teaching of chemistry, hence majority of chemistry teachers where not overloaded.

The Number Of Periods Taught By Each Of The Teachers

The research had shown that a large percentage of the teachers had less than 15 periods per week, while as a small percentage of the teachers had more than 20 periods per week. As in the preceding demography, teachers were able to prepare well before going to teach between a given period and the other.

The Number Of Subjects Taught By The Teachers

The research showed that, majority of the teachers teach more than two subjects. Hence it was clear that the ratio of the number of teachers to the number of subject taught was weak. This present inefficiency in the teaching of chemistry because combing the teaching of chemistry with other science subject by one teacher presents a hell of problems for the teachers.

1. THE PUPILS' AND THE TEACHERS' VIEW ON THE ROLE OF THE SOCIETY AS A CAUSE OF POOR PERFORMANCE

From the research we discuss the following observations on the society's perception on pupils' academic performance in chemistry at WASSCE level:

Society Does Not Recognize Hard Working Teachers Or Pupils

The research showed that majority of the people in the society did recognize hard work teachers and pupils. Therefore, we infer that it is a prerogative of the pupils and of the teachers to define the pupils' fate in WACE examinations through hard work, perseverance, focus and truthfulness. This factor explains clearly that the pupils' themselves-aided by their teachers and their parents or guardians-have great role to play.

Society Belief That Whosoever That Passes Chemistry Examination Is The Brilliant One

The research showed that a slightly larger number of the society did not believe that only the brilliant pupils passed chemistry examination at WASSCE. These negative thoughts and influences served as impediments to the progress or performance of the pupils in chemistry if given consideration. Thankfully, the society did not concord and hence a non-significant factor affecting the performance of pupils in chemistry at WASSCE level in Bo District.

Society Celebrates Wealth Instead Of Academic Excellence

The research had evidently proven that wealth and possessiveness were more celebrated than academic excellence in the society. This factor agrees with the preceding factor that society encourage hard work. However hard work in small businesses or in trading, and in professional sectors are completely different from academic hard work. From the aim of our research therefore this factor serves as crucial contributing factor toward poor pupils' performance in chemistry at WASSCE level in Kenema City.

The Belief By Members Of The Society That Chemistry Is A Difficult Subject

Majority of the society concord that chemistry is a difficult subject. The consequence is under-performance, negligence and laziness toward the subject. Hence a significant factor contributing to poor pupils' performance in chemistry.

Employments Are Based On Who You Know, Not What You Know Which Challenges The Seriousness And Value Of Hard Work

According to the research, a huge number of people in the society either acquire job or employ others based on their assessment of the nature of their relationship as opposed to whether they are equal to the job or the consideration of their values, abilities or qualities.

Lack Of Value For Chemistry Education

There was no significant different between the society's perception and chemistry education since almost half of the people in the society had value for it while half of them did not have. Hopefully as far as academic performance is concerned, we expect the subject (chemistry) to have value in Kenema City just as in any other district or country which is consistent to our findings.

Encourage Distraction In The Society

The research showed that there were encouraged distractions in the society that hindered pupils' academic performance in chemistry. This is a very serious problem as pupils are more sensitive to the occurrences of events in their surroundings which slowly carry them away-hence a significant factor affecting their performance in chemistry at WASSCE level in Kenema City.

Society Belief That Whosoever That Fails Chemistry Examination Is A Stupid Or Fool Person

As shown from the discussion research, there were only a tiny fraction of the members of the society who believed that only stupid pupils failed chemistry at WASSCE level in Kenema City. A huge chunk of them did not agree. Thus this was another source of massive failure because it is a negative thought and thus de-motivating, hence an important contributing factor.

Lack Of Interest In Pupils' Success In Chemistry At WASSCE Level

Unbelievably, the results have proven that majority of the respondents agreed that the society lacked interest in chemistry either because they belief that only the brilliant pupils pass the subject or otherwise, hence another possible cause of poor performance in chemistry.

Society Relies Strictly On Bribing Examiners To Pass Their Children In Chemistry

The research showed that the society relied on bribery to pass children at WASSCE, hence examination malpractice has been prevalence as the Anti-corruption Commission (ACC) has been tracing pupils and the examiners in the region-leading to clustering or massive rigging to failure.

Society Does Not Engage Teachers For Solutions To Massive Failure In Chemistry

The result showed that the society did not engage teachers on finding solutions to massive failure in chemistry at WASSCE-hence the registration of pupils in miracle classes were not problems for the society but alternative solutions to their problems.

Society Is Completely Isolated Or Not Considered To Take Part In Academic Affairs By Government, Heads Of Schools And WAEC Officials

The research showed that this was not a marked difference or significant factor affecting pupils' academic performance in chemistry, since almost equal number had dissimilar opinions on this subject.

Society Beliefs That They Cannot Make Meaningful Any Contribution To The Performance Of Pupils In Chemistry At WASSCE Level

According to the research, the society was ignorant toward making meaningful contribution(s) to the pupils' academic performance in chemistry. This consequently leaves the pupils vulnerable to distractions as they were not guided outside the school vicinity academically. It thus served as a significant contributing factor to poor performance of the pupils in chemistry.

Society Does Not Have Representative In Exam Affairs And It Is The Right Of The Society To Take Active Part In Examination Processes The research had justified that there were NO representatives at WAEC in examination affairs and that they should have been given the chance and responsibility to have representative, thus making their own contributions to pupils performance in chemistry at WASSCE level.

Involvement Of Society In Academic Affair Would Worsen The Situation

However, the research had further probed that majority of the society members will serve as impediments or obstacles to WAEC if given the opportunity to have representatives in the council. As a consequence thereof, the almighty WAEC remains the only fundamental functional

engine in the examination affairs in Kenema City at WASSCE level. This means that the greater parts of the pupils' successes and or failure lie in the most popular, all hailing-name of the WAEC.

CONCLUSION

Summary Of Findings

The research was conducted with the aim of assessing the factors influencing pupils' academic performance in chemistry in selected senior secondary schools at WASSCE level in Bo District.

DEMOGRAPHIC CHARACTERISTICS

1. Demographic Characteristics Of The Pupils

From the results of the findings, it was revealed that:
There was just a slight difference in the sexes of pupils with male-to-female ratio of 11 : 9.
Also, there exist a clearer gap in the pupils' ages with over half of the pupils having ages ranging from 21 to 25 and 23.0% of each the age range from 10 to 15 and from 16 to 20.
The classes were confirmed to be congested or crowded because more than half of the classes contained more than 80 pupils.
The number of chemistry periods per week for the school were satisfactory
However, there were no time tables for practical work in chemistry.

1. Demographic Characteristics Of The Teachers:

There was a marked difference in the genders of the teachers with male-to-female ratio of 9:1.
However, most of the teachers' age fell within the active age groups with a 46.0% ranging from ages 31 to 40; and 42.0% ranging from ages 20 to 30.

Meanwhile, the majority of teachers were Higher Teachers' Certificate Secondary (HTC-S) holders, making up of 44.0%, with Bachelors of Education (B.Ed.) occupying the second level with 14.0%, the Bachelors of Science (B.Sc.) degree holders and the Higher Teachers Certificate Primary (HTC-P) occupying the third population with each having 12.0%.
Majority of the teachers were also full-time service providers with 54.0%; part-timers making up 28.0% and volunteers being at 18%

According to our research, 92.0% of the teachers were trained, depicting a very good, and pleasing number in the teaching field, even though we arrived at the problem of too many certificate holders dominating chemnistry teachers, instead of degree holders.

More importantly, majority of the teachers had good teaching experience, and were pin-coded, and only 24.0% of the schools had no chemistry teacher(s) but the rest had at leat a chemistry teacher.

1. The Pupils' And The Teachers' View On The Role Of Society As The Cause Of Poor Performance.

From the research it was revealed that the society celebrated wealth instead of academic performance.
The research showed that, overall, the society believed that chemistry is a difficult subject.

Here again the result have proven that employments were based on who you know, and not the opposite.
It was also clear that there was no lack of value of chemistry education.
There were but encouraged distractions in the society to a greater extent that affected pupils' performance in chemistry at WASSCE.
Unbelievably and overall, 84.0% of the society lacked interest in chemistry; and 26.0% had interest in it.
The society did not engage teachers for solutions leading to massive failure at WASSCE;
The society believed that it could not make meaningful contribution to the performance of pupils in chemistry at WASSCE level;
The society did not have representative at WAEC to push forward their matters in terms of poor performance and quality output of the pupils at WASSCE level.
A discrepancy was observed that 44.0% of the respondents disagree while as 56.0% agreed that involvement of society in examination affairs will worsen the situation.

ACKNOWLEDGEMENT
All thanks and praises are due to The Almighty Allah-The All Wise, The Most Capable, The Provider-for on my own very self I can do nothing-which is clearly evidenced and manifested in the successful completion of this work and in the achievement of this Masters' Degree in Education specialized in Chemistry.
I thank my parents especially my mother (Hawa Tarawally) for her relentless effort to making me who I am today. My brothers and sister have also being dynamics in bringing me to this current state.
Most importantly, my beloved wife, Kadiatu Haja Bangura; my sons Abubakarr Swaray and Foday Musa Swaray have played immense roles in one way or the other throughout. May the Almighty Grant them success, Amen!

I am therefore, with all humility, greatly indebted to Dr. Tom G. Lahai- in whose supervision has been a blessing to the success of this research, and in whose hands was this research produced successfully and certainly without his ingenuity, this research would have not been tangible.
More significantly, I extend my sincere gratitude and aptitude to every member and staff of the Faculty of Education, Department of Environmental Science, Njala University (Bo Campus and Mokonday Campus), for their hospitality and ingenious coaching and mentoring, with special reference to Dr. John P. K. Sam; Dr. Alhaji. K. K.
I may not have come to the tangibility and readability of this material without the flexible hands of the electronically oriented typist, Mr. Osman T., who have seriously taken up his precious time and effort to making this piece of work a success.
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BIBLIOGRAPHY

Annual School Census (ASC)-2021: Ministry of Basic and Senior Secondary Education-Sierra Leone.

Annual School Census Report (ASCR)-2022: Ministry of Basic and Senior Secondary Education-Sierra Leone.

MERSD-Ministry of Education Research and Statistics Department, 2018, page 28

Ruby H. (2017): Enhancing Students' Performance in Organic Chemistry Through Context-Based Learning and Micro-Activities:

Lavalie, D. E. M., (2021): The Causes and Effects of Massive WASSCE Failure in Sierra Leone:

Paul O., S., Moses O O., Comfort O., and Peter E. O., (2014**):** The Influence of Good Governance of Chemistry Teachers' Performance in Some Selected Secondary Schools in Ado/Ado Ota Local Government Areas in Ogun State:

Enda I., E., and Vikoo, B. (2013)**:** Some Factors Affecting the Performance of Secondary School Students in Chemistry, A Kolokuma/Opokuma:

Maganga, J. H., (2016): Factors Affecting Students Academic Performance: A case Study of Public Secondary Schools in Ilala District-DAR-ES-SALAAM-TANZANIA**:**

APUH, G. A., (2017): Factors Affecting Students Academic Performance in Chemistry, A Case Study of Obudu Local Government Area:

Aimable S.; Claude K.; and John S., (2021): Factors Affecting Secondary Schools Students' Academic Achievement in Chemistry

Saliu, H. A (2010) "Africa-North America Relations: Issue and an assessment of the African framework" text of lecture delivered in foreign service academy.

Stolk, M. J., Bulte, A., De Jong, O., & Pilot, A. (2012). Evaluating a professional development framework to improve chemistry teachers ability to design context based education; International journal of science education,34(10), 1487-1508

Superson, S.: grade 12 Students' conceptual understanding and mental models of Galvanic cells before and after learning using small-scale experiments in conjunction with a model kit. Chemistry Education Research and Practice, 16, 393-407.

Tantayanon, S., (2016). Small Scale Organic Chemistry: My experience in Asia. 24th IUPAC International Conference on Chemistry Education (ICCE) 2016 (pp. 55-56). Kuching, Sarawak, Malaysia: KIMIA

Tortosa, M., (2012). The use of microcomputer based laboratories in chemistry secondary education Present state of the art and ideas for research-based practice. Chemistry Education Research and Practice, 13, 161-171.

WAEC, (2014)-Chief Examiners' Report-Chemistry. Accra: West African Examination Council.

WAEC,(2015)-Chief Examiners' Report-Chemistry. Accra: West African Examination Council.

Broman, K., & Parchman, I., (2014)-The Effect of Cooperative Learning Approach Based on Conceptual Change Condition on Students' Understanding of Chemistry Concepts. Journal of Science Education and Technology, 15(1), 31-46.

Coll, R. (2014)- Investigating First Year Chemistry Learning Difficulties in the South Pacific. Retrieved September 2017, from Chemistry web site: http:/www.wiseseek.com/What-is-organic chemistry.

Hanson, R (2014)-Using Small Scale Chemistry Equipment for the study of some topics-a case study in an undergraduate class in Ghana. Journal of Education Research and Practice, 6(1), 36-51.

Life Learners Academy, (2020, 01, 13), Research for WAEC failure in Nigeria: from Life Learners Academy: https:/ life learners.ng/reasons-for waec-failure-in-nigeria/

Chukwemeka, E. S. (2020): Why Students Fail WAEC Examination: Top 10 Reasons. from bscholarly: hppts:/bscholarly.com/why-students-fail-waec-examination-top-to-reason.

By MAUREEN, (2019) 8 Common Reason Students Fail The WASSCE (WAEC Exam) And What To Do About It; from larnEDU: hppts://www.learnedu.com/waec-failure-reasons-to-avoid/

MBSSE (2020) WASSCE-Ministry of Basic and Senior Secondary Education. from WASSCE-2019-Preliminary-Analysis.pdf:

https//mbsse.gov.sl/natinpasadvantage (2019 09 23). Sierra Leones' Data Hub Provides Comprehensive Educational Data.

Sesay A. K. (2020). 2020 WASSCE 5 Subjects Pass Rate By Country., Ghana 68.5%, Nigeria 65.8%, Gambia 64.5%Sierra Leone 4.5%-Why?, From The Calabashnewspaper: https://thecalabashnewspaper.com/2020-wassce-5-subjects-pass-rate-by-countries-ghana68.5-nigeria-65.8-gambia-64.8-sierra-leone-4.5-why?

Staff, E (2020): Top Reasons Why Students Fail WASSCE/NECO Examinations: from current School News: https://www.currentschoolnews.com/exam/top-reasons-why-students-fail-wassceneco/

World Bank. "Sierra Leone - Free Education Project (English): Project Information Document." Text/HTML. Retrieved July 18, 2023. https://documents.worldbank.org/en/publication/documents-reports/documentdetail.

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