# Evaluation of Mathematics Teachers' Factors on the Implementation of Mathematics Curriculum in Senior Secondary Schools: Implications to Life Sciences Curriculum

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**Abstract**
This study evaluated Mathematics teachers' factors on the implementation of Mathematics curriculum in senior secondary school in Obollo Education Zone of Enugu State, Nigeria. The study has great implications to life sciences curriculum.Three research questions were posed and three null hypotheses were formulated to guide the conduct of the study. The study employed descriptive research design. The population of this study consists of 124 mathematics teachers drawn from 54 state owned Senior Secondary Schools in Obollo Zone of Enugu State, Nigeria. The sample for the study consisted of 64 mathematics teachers constituting 50% of the total population size. The sample was selected from 19 secondary schools in the three local government area of Obollo Education Zone of Enugu State through the process of simple random sampling technique. An inventory schedule was the instrument used for data collection. 64 questionnaires were administered and returned. The reliability of the questionnaire was tested using Cronbach's Alpha coefficient. The estimates were found to be reliable based on the result of pilot study conducted by the researchers, which shows a reliability figure of 0.978, 0.971 and 0.986 for clusters 1-3 respectively. The data collected from the study were analyzed using means and standard deviations to answer the research questions and Chi-square was used to test the hypotheses at 0.05 level of significance. The findings revealed that mathematics teachers' education qualifications, teaching experiences and teaching methods significantly influenced the implementation of mathematics curriculum in senior secondary school. It was recommended among others that to foster improved academic performance of secondary school students, government should employ professional, qualified and experienced teachers.

## Introduction

The selection of Mathematics as one subject that is compulsory at both primary and secondary school levels in Nigeria, as well as its status as part of mandatory requirement for admission into Post-Secondary Institutions in the country (i.e. attainment of pass at credit level) are clear indications of the relevance of the subject in Nigeria education. In addition, job opportunities and recruitment exercises into security agencies are accessible with good performance or success in Mathematics. Aptitude tests for employment, promotion and placement are made up of questions that are based on Mathematics. These are significant

justification of the relevance of Mathematics for individual personal development and success (Magaji, 2014). Stakeholders in education and relevant established examination bodies West Africa Examination Council (WAEC), National Examination Council (NECO), National Business and Technical Examinations Board (NABTEB) have been showing great concern over the poor performance of students in Mathematics. Similarly, students' negative attitude towards the subject coupled with their poor academic achievement in the subject have also warranted discussion among scholars especially on possible precipitating factors (Aminu, 2005). Evidence abounds to justify that many students or candidates (during standardize examination) could not answer half of the questions, not because of time factors, but inability to confidently and independently attempt the questions (Aminu, 2005). Many students therefore resort to examination malpractice. Based on these seeming problems, one begins to ask, "Did teachers really teach their students all the topics provided in the Mathematics curriculum?" This question is fundamentally the basic background to this study. The study is therefore an attempt to evaluate the level of teachers' factors in mathematics curriculum implementation in classes in Senior Secondary Schools.

Curriculum is a plan that consists of learning opportunities for a specific time frame and place, a tool that aims to bring about behaviour changes in students as a result of planned activities, and involves all learning experiences received by students within the guidance of the school (Goodland & Su as cited in Yusuf, 2012). Curriculum is an educational plan that spells out which goals and objectives should be realized; which topics should be taught, and which methods are to be used for learning, teaching and evaluation (Wojtezakas cited in Yusuf, 2012). Since the society is not static but dynamic in nature, therefore the curriculum should also be dynamic in its planning and implementation to achieve the desired needs and aspiration of such society. Curriculum implementation entails putting into practice the officially prescribed courses of study, syllabuses and subjects (Manuel, 2002). Mathematics curriculum must be planned before implementing. Mathematics curriculum planning refers to the processes involved in developing the mathematics curriculum design or plan before the implementation stage. Implementation is said to take place when the teacher-constructed syllabus, the teacher personality, the teaching materials and the teaching environment interact with the learner. Implementation further takes place as the learner acquires the planned or intended experiences, skills, knowledge, ideas and attitudes that are aimed at enabling the same learner to function effectively at the society. It is important to note that mathematics curriculum implementation cannot take place without the learner. The learner is therefore seen as the central figure of mathematics curriculum implementation process. The process involves helping the learner acquire knowledge or experience. Therefore, mathematics curriculum implementation takes place as the learner acquires the intended experiences, knowledge, skills, ideas and attitudes that are aimed at enabling the same learner to function effectively in a society (Gautam, 2015).Teachers must be involved in curriculum planning and development so that they can implement and modify the curriculum for the benefit of their learners. Teachers most at times are not involved during policy formulation even though they are expected to implement this curriculum. A major setback in effective curriculum implementation is the problem of unqualified teachers especially specialist teacher in area like ICT and technical subjects. In recent times, curriculum is designed up to implementation without adequate manpower to translate these documents into reality (Ali & Ajibola, 2015). Ajibola (2008) pointed out that most of the teachers are not qualified to teach the subject introduced in the curriculum. Amugo (2007) therefore concluded that quality and quantity of teachers in Nigerian schools significantly affect the implementation of curriculum in Nigeria schools, especially at the secondary school level.

The teacher therefore plays a key role in the implementation of the mathematics curriculum and it is upon this basis that the researcher sought to look into the teacher factors that affect the implementation of the mathematics curriculum. These factors were: teacher academic qualification, teaching experience and teaching methods. Teachers are the key agents in the implementation of the mathematics curriculum and these factors related to them greatly influence the successful implementation of the curriculum and consequently good performance in mathematics. Teachers' qualification is very important for curriculum implementation in Nigeria. Teachers' qualification is a significant issue in curriculum implementation as it is discovered by many scholars and research findings (Aminu, 2005; Olokor, 2006) as impediments to effective curriculum implementation in Nigeria. Secondary school's subjects like Mathematics and English language, where competent and well qualified teachers are inadequate are taught by Teachers from other disciplines were employed to teach the subjects (Aminu, 2005). Similarly, Ivowi (2004) observed that teachers not professionally qualified to teach constituted serious problem to effective implementation of curriculum content in Senior Secondary Schools in Nigeria. The quality of education of a nation could be determined by the quality of her teachers. In Nigeria, the minimum requirement for teaching is the Nigeria certificate in Education (NCE). Presently, the minimum qualification of teachers of mathematics in senior secondary schools is bachelor's degree in mathematics. Other teaching qualifications are post diploma in Education and Masters in Education. Mathematics teachers with bachelor's degree in mathematics education and above should be intellectually grounded and professionally committed to teaching mathematics (NPE 2004). Teachers having poor academic qualification in the subjects they are assigned to teach cannot be effective, such teachers skip and refuse to teach topics they find difficult. This has significant and detrimental effect in curriculum implementation (Aminu, 2005; Ivowi, 2004). Hence, academic qualification of teachers was paramount among the needs of teachers and is very important for curriculum implementation in Nigeria. It is therefore necessary to determine the influence of educational qualification on mathematics achievement in mathematics.

Teachers' experience cannot be neglected in teaching and learning process, especially successful mathematics teaching and learning which enhance proper planning of instruction, teaching of mathematics contents, interpretation of curriculum, appropriate use of teaching materials and evaluation of the students, if such teachers combine their experiences with professional training. Experience according to Harris and Sass (2007) means professional growth that takes place in the educator as a result of continued stay, study on the job and other related processes. Experience is therefore seen as knowledge acquired in the job over a period of time which can be used to improve professional performance.

Other teachers' factors that affect the implementation of the mathematics curriculum in senior secondary school is teachers' teaching methods. The method in any teaching and learning situation is very important because the way a teacher presents subject matter to learners may make them to like or dislike the subject. Ogunniyi (2009) asserted that one of the most persistent and compelling problems besetting achievement in Nigeria is poor quality of teaching. Corroborating this assertion, Harrison (2010) reported that many school subjects especially mathematics is not being learnt as it ought to be in Nigeria because of inappropriate teaching methods.

There has been a drastic reduction in the standard of performance by students in mathematics at all levels of education in Nigeria in the past decades. The fall in the standard of education in Nigeria is traceable to many factors which are rooted in psychological, physiological or environmental factors and other factors affect the implementation of the

mathematics curriculum. Many persons seem to be perplexed as to what factors are actually responsible for the fall in standard of students' performance in mathematics in schools. This puzzled state has eventually led many to attribute the fall in performance to: poor condition of service for teachers; lack of qualified teachers; inadequate supply of facilities and equipment; lack of motivation, lack of instructional materials; and wrong method of teaching (Emaikwu & Nworgu, 2005; Onah, 2012 & Emaikwu, 2012). Others are teachers' factors that affect the implementation of the mathematics curriculum. These factors were: teacher academic qualification, teaching experience and choice and use of teaching methods. The researcher, therefore seek to evaluate these teacher's factors (teacher academic qualification, teaching experience and teaching methods) on implementation of senior secondary school mathematics curriculum.

The current poor performance and academic achievement of students in mathematics in senior secondary schools in West Africa Secondary School Certificate Examination (WASSCE) in Nigeria is becoming alarming in the minds of teachers, parents, guardians, researchers, government and educationists. Majority of candidates who sat for the May/June WASSCE recorded mass failure in mathematics. Research report indicated a consensus of opinion about the fallen standard of education in Nigeria (Adebule, 2004). Ajai, (2012) noted that as low as 15.56% of candidates that registered for the senior school certificate examinations (SSCE) in Nigeria between 2000 and 2010 passed with credit level. Despite government's effort at both state and federal level to promote achievement in mathematics, students are still not performing well in the subject (Salau, 2002). The reports from the West African Examination Council chief examiners indicate that the general performance of the candidates in mathematics for the May/June was not good enough. However, the Chief Examiners reported that out of 1,593,442 candidates who sat for May/June WASSCE 2015, 65.82% had pass and below (D7-F9), May/June WASSCE 2016, 1,544,234 candidates sat and 61.32% had pass and below (D7-F9), May/June WASSCE 2017, 289,210 candidates sat for the examination and 57.27% had pass and below (D7-F9), May/June WASSCE 2018, 1,572,396 candidates sat for the examination and 61.67% had pass and below (D7-F9), May/June WASSCE 2019, 1,309,570 candidates sat for the examination and 34,54% had pass and below (D7-F9) and chief examiner reported that the performance of candidates in May/June WASSCE 2020 declined as compared to that of last year, and it was due to the closure of schools following the outbreak of COVID-19. A basic requirement by most higher education institutions in Nigeria to be admitted is a minimum of five credit pass in subjects relevant to applied course including Mathematics and English Language in West African Secondary School Certificate Examination (WASSCE) organized by WAEC or its equivalent examination body. The above results show that most students will not be able to be admitted into higher institutions for failure to have a credit pass in mathematics.

It therefore becomes necessary to investigate the reasons for poor performance of students in mathematics in WASSCE in Nigeria. Based on these above seeming problems, one begins to ask, did teachers really teach their students all the topics provided in the Mathematics curriculum? It is on this background that the researcher deems it fit to evaluate teachers' factors on implementation of senior secondary school mathematics curriculum and its implications to Life Sciences curriculum. As Life Sciences curriculum is a comprehensive program covering Biology and life sciences topics, including cell Biology, genetics, ecology, evolution, biochemistry and more. It spans high school to graduate levels, providing a foundational understanding that prepares students for various career pathways. It offers career opportunities in research, healthcare, biotechnology, environmental conservation and so on with real-world applications in healthcare, agriculture and sustainability.

The general purpose of this study is to evaluate mathematics teachers' factors (teachers' academic qualifications, teaching experience and teaching methods) on implementation of senior secondary school mathematics curriculum and its implications to Life Sciences curriculum in Enugu State, Nigeria. This study answered the following research questions:

1. What is the extent mathematics teachers' qualifications influence the implementation of mathematics curriculum in senior secondary school?
2. What are the teaching methods used by the mathematics teachers in the implementation of mathematics curriculum in senior secondary schools?
3. To what extent does the mathematics teachers' teaching experience influence the implementation of mathematics curriculum in senior secondary school?

## Method

### Research Design

The study adopted a descriptive survey research design. A descriptive survey research is one in which is aimed at collecting data, and describing systematically the characteristics, features, or facts about a given population (Nworgu, 2015). Descriptive survey research design is appropriate in this study because the researcher is dealing with large population and so needs questionnaire to collect data or information that will be used to answer the research questions and to test the hypothesis, and was carried out at Enugu State, Nigeria.

### Participants

The participants consisted of 64 mathematics teachers constituting 50% of the total population size. The sample was randomly selected from 19 secondary schools in the three local government area of Enugu State.

### Research Instrument

A structured questionnaire used to collect data for the study was adapted from National Education Association, (1990). The instrument used for study was a 30-item questionnaire titled "Mathematics Teachers' Factors on the Implementation of Mathematics Curriculum (MTFIMC). It has 3 clusters representing each research question, and modified 4-point likert-type scale of Strongly Agreed (4), Agreed (3), Disagreed (2), and Strongly Disagreed (1). The cut-off point for the rating scale was 2.50, obtained by dividing the sum of the numerical value by the number of scaling items. Thus, items with 2.5 and above were accepted while items below 2.5 were rejected.

### Validity and Reliability

The instrument was validated. The reliability of the instrument was obtained using Cronbach's Alpha coefficient. The estimates were found to be reliable based on the result of pilot study conducted by the researchers, which shows reliability figures of 0.98, 0.97 and 0.99 for clusters 1-3 respectively and the overall reliability index of the instrument was 0.98. The results confirmed high reliability of the instrument.

### Data Analysis

The research questions were answered using frequencies, mean and standard deviation, while the null hypotheses were tested using chi-square at 0.05 level of significance.

## RESULTS

**Table 1: Distribution of Mathematics Teachers' Educational Qualification:**

| Qualification | Frequency | Percentage |
|---|---|---|
| B. Sc(Ed) | 27 | 42.19 |
| B. Ed | 23 | 35.94 |
| B.Sc | 9 | 14.06 |
| PGDE/M.Ed/MSc. | 4 | 6.25 |
| Others | 1 | 1.56 |
| **Total** | **64** | **100** |

The table above present distribution of mathematics teachers' educational qualification, the result shows that majority of the respondents are degree holders in Science Education (42.19%), while 35.94% of the respondents are degree holders in Education but not in Science Education. From the result again, its inference could be made that, 6.25% have undergone postgraduate education while1.56% are from other degree holders.

**Table 2: Distribution of Mathematics Teachers' Teaching Experience:**

| Years | Frequency | Percentage |
|---|---|---|
| **0-3** | 5 | 7.81 |
| 4-7 | 11 | 17.18 |
| 8-11 | 18 | 28.13 |
| 12-15 | 22 | 34.38 |
| 16-above | 8 | 12.5 |

The table above present distribution of mathematics teachers' teaching experience, the result shows that majority of the respondents are between 12-15 years (34.38%), while 28.13% of the respondents are between 8-11 years, 17.18% of the respondents are between 4-7 years, and 12.5% of the respondents are between 16-above years while 7.81% of the respondents are between 0-3 years.

Table 3:

**Mean and standard deviation of math teachers' qualifications on implementation of mathematics curriculum**

| S/N | Item Statement | X | SD |
|---|---|---|---|
| 1. | Qualification is the criteria for implementation of mathematics curriculum. | 3.19 | 1.04 |
| 2. | Qualified teachers arouse the interest of learners is classroom. | 2.86 | 1.01 |
| 3. | Higher qualified mathematics teachers organize and follow the instructional objectives to carryout instruction. | 2.69 | 1.11 |
| 4. | Lower qualified teachers do not consider time allotted for delivering instruction. | 2.20 | 1.06 |
| 5. | Qualifications help to display and demonstrate instructional materials | | |

| | | |
|---|---|---|
| for learners' understanding | 2.58 | 1.04 |
| 6. Higher qualified teachers monitor learners' progress during instruction | 3.08 | 1.00 |
| 7. Qualification help math teachers to identify learners strength and weakness | 2.55 | 1.15 |
| 8. Qualification does not adjust instruction based on learners' performances. | 2.16 | 0.95 |
| 9. Determination of the extent of attainment of instructional objective is dependent on qualification. | 2.66 | 1.03 |
| 10. Qualification is a barrier for detecting improvement in learners' skills | 2.24 | 1.04 |
| **Cluster mean** | **2.62** | **0.06** |

The data presented in Table 3 shows that items 1,2,3,5,6,7 and 9 had mean response values above the cut-off point of 2.50, and thus were all accepted. Their standard deviations show that their individual responses are relatively not far from one another. However, items 4, 8 and 10 had mean response values below the cut-off mark of 2.50 and thus they were rejected. Their standard deviations also show that their individual responses are relatively not far from one another. Also, the cluster mean is 2.62, which is above the cut-off mark. This implies that mathematics teachers' qualifications influence the implementation of mathematics curriculum in senior secondary school.

Table 4:
**Mean and standard deviation of math teachers' teaching experiences on implementation of mathematics curriculum**

| S/N | Item Statement | X | SD |
|---|---|---|---|
| 1. Experience of mathematics teachers help in their arousing of learners' interest. | | 2.58 | 1.07 |
| 2. Experienced teachers organize and follow their instructional objectives adequately. | | 3.42 | 0.87 |
| 3. Less experienced teachers do not manage their time well during instruction. | | 2.53 | 1.05 |
| 4.Experience teachers display and demonstrate instructional materials during teaching | | 2.69 | 1.11 |
| 5. Utilizing appropriate method of instruction is dependent on experience. | | 2.63 | 1.15 |
| 6. Experienced teachers monitor learners' progress during instruction effectively. | | 2.69 | 1.13 |
| 7. Inexperienced teachers identify learner's strength and weakness more easily. | | 2.20 | 1.07 |
| 8. Less experienced teacher motivate the learners to learn than the more experienced. | | 2.05 | 1.12 |
| 9. Experienced teachers endure in managing of the learners' behavior. | | 2.95 | 1.00 |
| 10. Inexperienced mathematics teachers always determine the extent to which instructional objectives have been achieved during instruction | | 1.92 | 1.01 |
| **Cluster mean** | | **2.57** | **0.08** |

The data presented in Table 4 shows that items 1,2,3,4,5,6, and 9 had mean response values above the cut-off point of 2.50, and thus were all accepted. Their standard deviations show that their individual responses are relatively not far from one another. However, items 7, 8 and 10 had mean response values below the cut-off mark of 2.50 and thus they were rejected. Their standard deviations also show that their individual responses are relatively not far from one another. Also, the cluster mean is 2.57, which is above the cut-off mark. This implies that mathematics teachers' teaching experience influences the implementation of mathematics curriculum in senior secondary school.

Table 5:
**Mean and standard deviation of math teachers' teaching methods used in the implementation of mathematics curriculum**

| S/N | Item Statement | X | SD |
|---|---|---|---|
| 1. | Teaching method has effect on introducing content through formal presentations. | 3.13 | 1.00 |
| 2. | Effective implementation depends on the teachers teaching methods used. | 3.38 | 0.90 |
| 3. | Demonstration method is considered as the most effective teaching method | 2.23 | 1.07 |
| 4. | Discussions method is considered as one of the best teaching method | 2.69 | 1.07 |
| 5. | Teachers ask students to explain concepts to one another while teaching. | 2.23 | 1.03 |
| 6. | Teachers frequently used pose open-ended questions while teaching | 2.63 | 1.15 |
| 7. | Use of student –centered teaching method is more effective in implementation. | 3.72 | 0.60 |
| 8. | Problem-solving method is considered as best teaching method in mathematics | 3.47 | 0.91 |
| 9. | Students should be allowed to think of solutions before teaching. | 2.28 | 1.09 |
| 10. | Effective teaching method should be clear that most students can grasp quickly | 2.58 | 1.04 |
| **Cluster mean** | | **2.83** | **0.15** |

The data presented in Table 5 shows that items 1,2,4,6,7,8 and 10 had mean response values above the cut-off point of 2.50, and thus were all accepted. Their standard deviations show that their individual responses are relatively not far from one another. However, items 3, 5 and 9 had mean response values below the cut-off mark of 2.50 and thus they were rejected. Their standard deviations also show that their individual responses are relatively not far from one another. Also, the cluster mean is 2.83, which is above the cut-off mark. This implies that teaching methods used by the mathematics teachers have influence in the implementation of mathematics curriculum in senior secondary schools.

Table 6:
**Chi-square ($X^2$) of mathematics teachers' qualifications on implementation of mathematics curriculum**

| N | $X^2$-Calculated | df | α | $X^2$-Critical | Decision |
|---|---|---|---|---|---|
| 64 | 243.674 | 27 | 0.05 | 40.113 | Rejected |

Table 6 shows that chi-square calculated is 243.674 while the chi-square tabulated is 40.113 at 0.05 level of significance and 27 as the degree of freedom (df). Since the calculated value 243.674 is greater than the tabulated value 40.113, we then reject the null hypothesis. This implies that there is significant influence of mathematics teachers' qualifications on implementation of mathematics curriculum in senior secondary school.

Table 7:
**Chi-square ($X^2$) of mathematics teachers' teaching experience on implementation of mathematics curriculum**

| N | $X^2$-Calculated | df | α | $X^2$-Critical | Decision |
|---|---|---|---|---|---|
| 64 | 115.566 | 27 | 0.05 | 40.113 | Rejected |

Table 7 shows that chi-square calculated is 115.566 while the chi-square tabulated is 40.113 at 0.05 level of significance and 27 as the degree of freedom (df). Since the calculated value 115.566 is greater than the tabulated value 40.113, we then reject the null hypothesis. This implies that there is significant influence of mathematics teachers' teaching experience on implementation of mathematics curriculum in senior secondary school.

Table 8:
**Chi-square ($X^2$) of math teachers teaching methods used in the implementation of mathematics curriculum**

| N | $X^2$-Calculated | df | α | $X^2$-Critical | Decision |
|---|---|---|---|---|---|
| 64 | 165.01 | 27 | 0.05 | 40.113 | Rejected |

Table 8 shows that chi-square calculated is 165.01 while the chi-square tabulated is 40.113 at 0.05 level of significance and 27 as the degree of freedom (df). Since the calculated value 165.01 is greater than the tabulated value 40.113, we then reject the null hypothesis. This implies that there is significant difference in teaching methods used by the mathematics teachers in the implementation of mathematics curriculum in senior secondary schools.

## Implications to Life Sciences Curriculum

The findings of this study revealed that teachers' qualifications, teaching methods, and teaching experiences significantly influence the implementation of Mathematics curriculum. This has important implications for the Life Sciences curriculum, as mathematics is a fundamental tool for understanding many Life Sciences concepts. When mathematics teachers are qualified, experienced, and use effective teaching methods, they are better equipped to help students develop a strong foundation in mathematical concepts that are essential for Life Sciences.

Teachers with strong qualifications in mathematics are more likely to provide accurate and comprehensive instruction, which can have a positive impact on students' understanding of mathematical concepts that are crucial for Life Sciences. For instance, a qualified Mathematics teacher can effectively teach students about mathematical modeling, statistical analysis, and data interpretation, all of which are essential skills for Life Sciences students. Also, the teaching methods employed by Mathematics teachers play a critical role in shaping students'

understanding of mathematical concepts. Effective teaching methods, such as problem-solving and inquiry-based learning, can help students develop a deeper understanding of mathematical concepts and their applications in Life Sciences. By using real-world examples and case studies, Mathematics teachers can illustrate the relevance of mathematical concepts to Life Sciences, making the subject more engaging and meaningful for students. Furthermore, teaching experience is also an important factor in the effective implementation of mathematics curriculum. Experienced teachers are better equipped to anticipate and address students' difficulties, provide scaffolding support, and create a supportive learning environment. This can have a positive impact on students' confidence and motivation to learn mathematics, which is essential for their success in Life Sciences.

The implications of these findings for the Life Sciences curriculum are significant. By ensuring that Mathematics teachers are qualified, experienced, and use effective teaching methods, educators can help students develop a strong foundation in mathematical concepts that are essential for Life Sciences. This can have a positive impact on students' understanding of complex Life Sciences concepts, such as population dynamics, epidemiology, and bioinformatics. Ultimately, the effective implementation of mathematics curriculum can help students develop the skills and knowledge they need to succeed in Life Sciences and make meaningful contributions to the field. For instance, understanding mathematical models of population growth can help students analyze the spread of diseases in epidemiology. This requires the application of mathematical concepts, such as exponential growth and differential equations, to real-world problems in Life Sciences. So by solving mathematical problems involving exponential growth, students can develop critical thinking and problem-solving skills and understand the rapid growth of bacterial populations and develop strategies to control their growth. By developing these skills, students can better comprehend the complex interactions between populations and their environments. Also, by critically evaluating mathematical models of disease spread, students can understand the limitations and assumptions of these models and develop strategies to improve their accuracy. Furthermore, mathematics education can help students develop computational thinking skills, which are essential for understanding and working with complex biological systems. By understanding algorithms and data structures, students can analyze and interpret large datasets in genomics and proteomics. This requires the application of mathematical concepts, such as probability and statistics, to real-world problems in Life Sciences.

Recognizing the significance of these factors, educators can take steps to ensure that Mathematics teachers are equipped to provide high-quality instruction that supports students' success in Life Sciences. By doing so, educators can help students develop a strong foundation in mathematical concepts that are essential for Life Sciences, ultimately preparing them for success in this field.

## Discussion

From the findings of the study as shown in Table 6, implies that there is significant influence of mathematics teachers' qualifications on implementation of mathematics curriculum in senior secondary school. This agrees with the work of Musau and Abere (2015);Aminu (2005); Olokor (2006); Ivowi (2004) and Abdu (2014, 2020), that teacher's qualification was discovered as one of the impediments to effective implementation of mathematics curriculum content in senior secondary schools as most of the teachers were not professionally qualified to

teach mathematics. The findings disagree with the work of Jaime (2008) which found inconclusive results that indicated teacher degree level alone had no effect on student achievement.

The findings in table 7 indicate the significant influence of mathematics teachers' teaching experience on implementation of mathematics curriculum in senior secondary school. The findings were in line with the of works Jaime (2008); Ijaiya, (2000) and Adeyemi (2008) which revealed that teachers' teaching experience was significant with students' learning outcomes as measured by their performance in the SSC examinations. Furthermore, the findings of Agbo-Egwu, Adadu, Nwokolo-Ojo & Enaboifo (2017) and Temitope and Olabanji (2015) revealed that teachers' teaching experience has significantly influenced students' academic performance in Mathematics as measured by their performance in the SSC examinations and as perceived by the respondents.

In respect to the Chi-square statistics on table 8 which revealed the obtained $X^2$ Calculated of 165.01 which is greater than $X^2$ critical of 40.113 at 0.05 alpha level of significance, implies that there is significant difference in teaching methods used by the mathematics teachers in the implementation of mathematics curriculum in senior secondary schools. However, the hull hypothesis was rejected. This finding agreed with the assertion of Abdu (2020) and Osafehinti (1997) that, lack of appropriate method of teaching mathematics is one of the major problems associated to under-achievement in the subject. The finding disagrees with the findings of Ndukwe (2000), Nnadi (2001) and Eze (2002) in mathematical sciences which indicates that the methods employed in teaching science is conflicting and could not boast the pupil's/students' retention.

## Conclusion

Based on the findings of this research, these conclusions were made:

1. Mathematics teachers' qualifications influence the implementation of mathematics ` curriculum in senior secondary school.
2. Mathematics teachers' teaching experiences influence the implementation of mathematics curriculum in senior secondary school.
3. Teaching methods used by the mathematics teachers have influence in the implementation of mathematics curriculum in senior secondary schools.

## Recommendations

1. To foster improved academic performance of secondary school students, government should employ professional, qualified and experienced teachers.
2. There is the need for government to encourage teachers to stay on the job by providing them with more incentives, fringe benefits that compare favorably with what their counterparts in other professions receives and promote them at when due.
3. The study calls for the need to improve teacher training programs and encourage teachers to further their qualifications, especially non-professional teachers should be encourage acquiring relevant diplomas and degrees in education to make them eligible for registration with the Teachers Registration Council (TCR).
4. Teachers should also increase their knowledge of various instructional strategies in order to keep students engaged and motivated throughout the learning process.

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