THE INFLUENCE OF QUALIFICATION AND EXPERIENCE OF MATHEMATICS TEACHERS ON THE ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN OREDO LOCAL GOVERNMENT AREA OF EDO STATE

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BENIN CITY

AUGUST, 2021

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A RESEARCH PROJECT SUMMITED TO THE DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF B.SC. (ED)DEGREE IN MATHEMATICS EDUCATION

AUGUST, 2021

CERTIFICATION

We the undersigned certify that this project work was carried out by **ARUMUKA BELIEVE** of the Department of Curriculum Instructional Technology, Faculty of Education, University of Benin, Benin City, Edo State, Nigeria in partial fulfillment for the award of B.Sc. (Ed) Degree in Mathematics Education.

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DEDICATION

This research work is dedicated to the Almighty God for his Grace and enabling strength bestowed on me in completing this programme despite all odds.

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ABSTRACT

The study was carried out to assess the influence of qualification and experience of Mathematics teachers on the academic performance of Senior Secondary School students in Oredo Local Government Area of Edo State. Three (3) research questions and three (3) hypotheses were raised for the study and the descriptive survey research design was adopted. A review of some related literature was carried out.

A total of fourteen (14) secondary school Mathematics teachers in Oredo Local Government Area constituted the population study sample. The instrument used for gathering data from the selected sample was a proforma; the data collected were analyzed using statistics in form of Pearson correlation coefficient.

The study revealed that; There is significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State. There is significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State. There is significant interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State. Based on the findings, recommendations were made; for the professional growth of teachers, conferences, seminars, workshops, pre and in-service training programmes should be given adequate attention by the Ministry of Education, State and Federal Government. All non-professional and unqualified teachers should be encouraged to pursue their post graduate studies such as Post Graduate Diploma in Education, Master's and Doctoral degrees in Mathematics. This will help to improve teachers' quality of teaching and consequently improve the performance of students and ultimately, the quality of teacher education in Nigeria.

CHAPTER ONE
INTRODUCTION

Background to the Study

High-quality teachers are one of the key components in successful classrooms. However, there is widespread disagreement among many in the educational community about exactly what constitutes a high-quality teacher. Is it experience? Is it level of qualification? Can it even be measured by a test, survey, or questionnaire?

According to Keller (2015), there is little disagreement that high-quality teachers make a major impact on student achievement. The world's top performing school systems and those coming up fast have a lesson to teach the others. Put high-quality teaching for every child at the heart of school improvement. The conclusion was based on a 2008 report sponsored by the 30-nation Organization for Economic Cooperation and Development Keller (2015). Because high-quality teaching is so crucial to school system success, how do boards of education, and school administrators ensure they are getting high-quality teachers in their schools?

The impact of the teachers in the performance of the students is germane. The teachers are the facilitators who are to impact into the students the concepts expected to be learnt. However, Olarewaju (2016) and Nwagbo (2015) were of the opinion that ignorant of the teachers or neglect of activity- oriented methods by the teachers grossly contribute to students' low performance in Mathematics.

When considering growth in technology, the development of human capital is paramount Fajonyomi (2017). This was in line with the view of Ogbazi (2017) who noted that problem of industrial development in Nigeria is that of inadequacy of sufficiently trained human resources and this has been a major constraint on the rate of technological and economic development of the country. The teacher is the major manpower saddled with the responsibility of impacting the concepts considered fundamental to technology through the teaching of these basic concepts from the secondary school. This was why Adeniyi (2015, 1a) noted that a country's manpower development depends on the quantity of her well-qualified and experience teachers. As stipulated in the Nigeria National Policy on Education (2014), Mathematics teaching at the secondary school is meant to develop essential scientific skills in the learners so as to prepare them

for technological application in order to stimulate and enhance creativity in them.

This laudable objective would not be realized when the students are taught by incompetent and unexperienced teachers. Such teachers would not be able to properly and adequately disseminate the concepts to the students. Mathematics, being one of the pivotal subjects in technology, its effective teaching must be handled with all seriousness. The competence of the Mathematics teachers in this regards would be of immeasurable value. One thing is to be well grounded in the conceptual understanding of a subject; another thing is to be well acquitted with the best method to pass the concepts across to the learners for proper comprehension. A professional teacher would be desirable in this regard.

The issue of professionalism in teaching, has been on course for quite some decades ago. Scholars argued the necessity of skilled teachers for effective learning. Fajonyomi (2017), emphasized that the success or failure of any educational programme rests majorly on the adequate availability of qualified, competent, experienced and dedicated teachers. Seweje and Jegede (2015) noted that the ability of a teacher to teach is not derived only from one's academic

background but it is based upon outstanding pedagogical skill acquired. The realization of the national growth in technology as highlighted in the Nigeria National Policy on education hinges (among others) largely on the quality of the Mathematics teachers. This view is supported by Nkwodimah's (2016) submission that the teacher's quality will inevitably be seen in the citizens tomorrow. Okebukola (2018), while remarking on teachers' quality, observed that over 80% of respondents in a survey research were of the view that teachers are carriers of weaknesses. These weaknesses include, among others, inadequate exposure to teaching practice, poor classroom management and control, shallow subject-matter and lack of professionalism. From Ajayi's (2015) point of view, the professional qualities of a teacher have to do with the following: mastery of the subject matter, sense of organization, ability to clarify ideas. Ability to motivate students, good imagination, ability to involve the students in meaningful activities throughout the period of teaching. Management of the details of learning and frequent monitoring of students' progress through tests, formal and informal, written and oral quizzes.

The availability of professional teachers in Nigeria schools is low, Ngada (2018). The reasons may not be farfetched, as teaching is seen as a dumping ground for any unemployed school leavers, irrespective of their area of specialization. This group of able bodied young men and women thus handle the job as a bye-pass venture to their desired ends. Consequently, their input on the job would be very low since it lacks the dedication demanded by the job. The few ones that seem to show little dedication lack the technical know-how of teaching since they were never trained on the job. The resultant effect on the students' achievement is catastrophic. The major evil done by this is half-backed and shallow-knowledge students who often perform poorly in their examinations. This eventually culminates to a decline in the national technological growth. This study attempted to provide definitive answers as to the relationship of teacher experience and qualification with student performance. It is therefore necessary to investigate the influence of qualification and experience of Mathematics teachers on the academic performance of senior secondary school students in external examination.

Statement of the Problem

Over the years, students' performance in Mathematics have prompted educational researchers to continuously make relentless efforts at identifying mitigating factors that might account for the observed poor performance. Some research studies suggest that factors inside and outside the classroom affect students' academic performance and interest. Among other variables identified are: Students' poor study habit, low self-esteem, teacher factors (teacher quality), shortage of qualified teachers, inadequate teaching facilities in Schools, home factors and school environmental factors. Despite teachers' efforts, students continue to exhibit poor performance in the subject. In this vein, teacher factor has been linked to be one of the causes of students' poor performance, in this sense there are needs to look into the quality of teachers in our secondary schools because effective teaching elicit effective learning. Teachers' is the principal initiator of learning. Therefore, this study is designed to survey the Influence of teachers' academic qualification and experience on students' performance in Mathematics.

Research Questions

This study addressed the following questions:

1. What is the relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

2. What is the relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

3. Is there an interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics?

Hypotheses

1. There is no significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

2. There is no significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

3. There is no significant interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

Purpose of the Study

This study was designed to determine the Influence of Qualification and Experience of Mathematics Teachers on the academic performance of Senior Secondary School Students in Oredo Local government of Edo state. Specifically the purpose of this study seek to investigate;

1. the relationship between teachers' academic qualifications and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State.

2. the relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State.
3. the interaction influence of teachers qualification and years of teaching experience on students' academic performance in Mathematics.

Significance of Study

Findings from this study would be very useful to the teachers and other stake holders in Education sector on which of the quality indicators that contribute positively to students' performance in Mathematics, thereby charging them to work towards developing and applying it in classroom practices. It will also be significant to the Education agencies to always monitor the quality of teachers they post to schools. This will benefit the teachers and students through organization of conferences seminars and workshop.

Again, findings from this study would of uttermost importance to educational and curriculum planners because it would act as a feedback or evaluation to the curriculum implemented, to ascertain if the required experience, expertise, qualification stated for entry into secondary teaching, meets the educational

needs of the learners, to make further prescription or better analyze the effects of teachers qualification and experience on students' academic performance.

Lastly, it will be of great importance to future researchers who would seek reference on recent literature and to give an up to date analysis of the Mathematics teachers' qualification and experience for teaching and of Mathematics in Senior Secondary Schools .

Scope and Delimitation of the Study

The study will cover the following; teachers' experience and teachers' academic qualification. This study will be carried out on Senior Secondary Mathematics teachers in all government owned Secondary Schools in Oredo Local Government Area of Edo state, Nigeria.

Definition of Terms

The terms and concept commonly used in this study are hereby defined operationally;

Effect: The result or outcome of a cause.

Teachers' qualification: This is the certification, experience, formal education, professional development, and years of training and licensing of a teacher before they can teach.

Students: According to this study, a student is any individual attending public senior secondary school.

Academic performance: The level of attainment of a student in his subject of study. The grade or score in their respective subject of study.

Mathematics: This is one of the core science subjects in the junior and senior secondary school curriculum in Nigeria.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

The review of relevant literature to the present study was carried out under the following sub-headings.

- Concept of mathematics
- Importance of mathematics
- Teacher's qualification and achievement
- Teacher's experience and achievement
- Teacher education in the subject matter of teaching
- Participation in professional development activities
- Summary of reviewed literature

Concept of Mathematics

Mathematics is widely used throughout the world, in human life and many fields including Social Sciences, Natural Sciences, Engineering, Medicine and Education. It is a vital tool in science, commerce and technology. According to Iji (2007), Mathematics provides an important key to understanding of the world. In the areas of buying and selling, communication, timing, measurement, molding, recording among others, the importance is highly acknowledged.

Mathematics is one of the core subjects in both junior and senior secondary school curricula in Nigeria, which justifies its recognition as being essential in the development of technological advancement in Nigeria. The Federal Government of Nigeria made Mathematics compulsory and one of the core subjects in both primary and secondary schools because of its usefulness FGN (2004). Some of the roles of Mathematics according to Nurudeen (2007), includes: its ability to enhance the thinking capabilities of individuals by making them to be more creative, reasonable, rational as well as imaginative. There is no school curriculum or a national development planning which does not take cognizance of the usefulness and development in school mathematics.

Mathematics has all through the years been an important subject both in the role it plays in everyday activities and in its usefulness to other sciences. Mathematics is a body of knowledge centered on concepts such as quantity, structure, space, change and also the academic discipline that studies them Pierce (2007). Mathematics is further defined by Pierce as the science that draws necessary conclusions. Other practitioners of Mathematics such as Sowmya (2005), maintains that Mathematics is a science of pattern and highly

needed in everyday life. According to Agwagah (2008), Mathematics is the study of numbers, shapes, quantity, structure, and change or describe things Macmillan Dictionary (2007). Carl Friedrich Gauss (1777-1855) known as the "Prince of Mathematicians" also refers Mathematics to as "the Queen of the Sciences" and the bedrock of other sciences. These definitions, emphasizes the importance of Mathematics.

Importance of Mathematics

Mathematics is of central importance to modern society. It provides the vital underpinning of the knowledge economy. It is essential in the mathematical sciences, technology, business, financial services and many areas of ICT. It is also of growing importance in Biology, Medicine and Social Sciences. Mathematics forms the basics of most scientific and industrial research and development Ngware, Oketch, Mutisya and Abuya (2010). Then acquisition of the basic Mathematical skills commonly referred to as "numeracy" in vital to the life opportunities and achievement of individual citizens. Research shows that problems with basic skills have a continuing adverse effect on people's lives and that problem with numeracy lead to the greatest disadvantages for the

individual in the labour market and terms of general social exclusion individuals with limited basic mathematical skills are less likely to be employed and, if they are employed, are less likely to have been promoted or to have received further training Ballah and Okoronka (2015).

Mathematics provides a powerful universal language and intellectual toolkit for abstraction, generalization and synthesis. It is the language of science and technology. Mathematical training disciplines the mind, develops logical and critical reasoning and develops analytical and problem-solving skills to a high degree.

Teacher's Qualification and Achievement

A number of researches have argued that teacher quality is a powerful predictor of students' performance. The research carried out by Abu and Fabunmi (2005) identifies teachers' quality as the most important school-related factor influencing student achievement. Rodniquez and Mckay (2010) opined that measures of teacher preparation and qualification are by far the strongest correlates of student achievement in reading and Mathematics. Adeyemi (2008) found a strong and statistically significant different between teachers'

qualification and achievement. Studies show little impact of emergency or alternative- route certification on students' performance in either mathematics or science as compared to teachers who acquire standard certification. Oluwole (2017) found that a teachers' advanced degree is not generally associated with increased students learning from eight to tenth grade, but having an advanced degree in Mathematics and science for Mathematics and science teachers appears to influence students' achievement. The same were not found to be true for English and history teachers. Omolayo (2009) found that even in subjects where subject-specific training may take difference; its impact depends on the context of the classes taught.

Teacher's Experience and Achievement

Akinsolu (2010) asserted that the quality of an educational system depends on the quality of the teachers. Ewetan and Ewetan (2015) in different studies found that the single factor affecting academic growth of students is differences in effectiveness of individual classroom teachers. Certain studies on performance suggest that three consecutive years of quality teachers can help overcome the average achievement gap between children from low income and children from

higher income families. Clearly, the context of teaching is important and may affect the impact of teacher attributes. It is argued that prospective and experienced teachers' knowledge and beliefs serve as a filter through which their teaching takes place Ngware, Oketch, Mutisya and Abuya (2010).

However, a study conducted by Boyd, Grossman, Lankford, Loab and Wyckoff (2008), showed that in a situation where experienced teachers are not promoted out of the classroom into management positions, level of experience has a significant influence on teaching effectiveness of the teachers and their students' achievement. Darling-Hammond (2000), in his study found that teaching experience of teachers is significantly related to their teaching effectiveness and their students' achievement. The findings showed a strong positive relationship between teacher experience and students' outcomes. Akpo (2012) opined that the typical teaching- learning curve peaks in a teacher's first few years, and have shown that new teachers have incomplete or superficial pedagogical content knowledge. A novice teacher tends to rely on unmodified subject matter knowledge, most often directly extracted from the curriculum and may not have a coherent framework or perspective from which to present the information.

Novice also tends to make broad-pedagogical decisions without accessing students' prior knowledge ability levels or learning strategies. If beginning teachers are to be successful, they must wrestle simultaneously with issues of pedagogical content knowledge as well as general pedagogy or generic teaching principles. Similarly, pre-service teachers have shown to find it difficult to articulate the relationship between pedagogical ideas and subject matter concepts Bello, Ibi and Bukar (2016). Omolayo (2009) documents that more experienced teachers have a better "overarching" view of the content field and on which to base teaching decisions.

Teacher Education in the Subject Matter of Teaching

This characteristic is related to the subject-matter knowledge teachers acquire during their formal studies and pre-service teacher education courses. The evidence gained from different studies is contradictory. Several studies show a positive relationship between teachers' preparation in the subject matter they later teach and student achievement Darling Hammond (2011), while others have less unequivocal results. Motoko, Le Tendre and Scribner (2007), find both positive and negative effects of teachers' in-field preparation on student

achievement. Also, Gershenson (2016), report a positive relationship between student achievement and teachers' majoring in Mathematics. Hadley and Dorward (2011), however, finds that having a major in Mathematics has no effect, and a significant negative effect of teachers with more coursework in physical science.

Akpo (2012) examined the impact of teacher-related variables on students‟ junior secondary certificate Mathematics results in Namibia using questionnaire, multi-correlation and regression analysis and found that teacher educational qualifications, teaching experience, subject specialization, standards-based professional development, standard-based classroom activities, and classroom management beliefs are related to students‟ academic achievement in Junior school Mathematics. Similar study by Daso (2013), on teacher variables and senior secondary students' achievement in Mathematics in Rivers State, Nigeria, reported that there is a significant relationship between teachers‟ method of teaching, teachers‟ attitude, teacher quality and students‟ achievement in Mathematics.

Chhinh and Tabata (2013) investigated teachers and students "academic performance in Nigerian secondary schools and its implications for planning using questionnaire, Anova and Spearman Rank Correlation coefficient and found that teachers' qualifications, years of experience, and teacher-student ratio were significantly related to students' academic performance. In their study on "Student, Teacher and School Environment Factors as Determinant of Achievement in Senior Secondary School Mathematics in Oyo State, Nigeria, Adesoji and Olatunbosun (2008), adopted an ex-post facto research type and used four sets of instruments. They found that 7.2% of the total effect on achievement in chemistry was accounted for by all the seven predictor variables when taken together. It was also revealed that only four variables, school location, laboratory adequacy, teachers' attitude to Mathematics teaching, and teachers' attendance at Mathematics workshop had direct causal influence and significantly contributed to the prediction of achievement in Mathematics. In a similar study of the relationship among teacher variables and adult learners' academic performance in the part-time sub-degree programme of the University of Ibadan in Nigeria, Abu and Fabunmi (2005) discovered that there is a

significant and positive relationship between teacher's qualification, age, years of experience, teacher-learners ratio, and adult learners' academic performance.

Participation in Professional Development Activities

Professional development is learning to earn or maintain professional credentials such as academic degrees to formal coursework, attending conferences, and informal learning opportunities situated in practice. It has been described as intensive and collaborative, ideally incorporating an evaluative stage. There are a variety of approaches to professional development, including consultation, coaching, communities of practice, lesson study, mentoring, reflective supervision and technical assistance. From the perspective of learning outcomes. Guskey (2012) defined Teacher Professional Development (TDP) as systematic approach of bring about change in the classroom practices of teachers, in terms of attitude, skills, knowledge and beliefs, and in the learning outcomes of students. Creemers, Kyriakides and Antoniou (2012) took a functionalist perspective and described TDP as technical processes that help teachers to provide better service to clients/students. Borko (2014) regarded TDP as an essential aspect of quality that relates the individual teacher needs

with the challenges of the job. The motivation of teachers to remain learner throughout their career underpins professional accountability and ensures responsibility.

Professional development activities can be conducted by many different organizations, in schools and out of school, on the job or on sabbatical leave. On these occasions, practicing teachers update their content knowledge and teaching skills to adjust to the introduction of new curricula, new research findings on teaching and learning, changes in the needs of the student population, etc. Critique has been leveled against the episodic nature of these activities and the fact that very little is known about what they really consist of.

There is mixed evidence on the effect of teachers' participation in professional development activities on student outcomes. On the other hand, there are some studies on in-service professional development, which found no effect Hemmings, Grootenboer and Kay (2011), while other studies found that higher levels of student achievement were linked to Mathematics teachers' participation in content-specific pedagogy activities related to the curriculum Harris and Sass (2008). Goe and Stickler (2008), found a positive effect of

professional development activities that focused on the needs of special education students, on higher-order skills, and on laboratory skills in science. More recently Igberadja (2016), identified what they call the lagged effect of professional development, i.e., the larger effect of professional development three years after taking place. The correlation between student achievement and teacher professional development activities does not allow us to draw conclusions about a causal link, as this variable is confounded with other attributes of teachers, i.e., participating teachers are likely to also be more motivated and, usually, more specialized in the subjects they teach. Teachers' Formal Education Findings related to teachers' academic degrees e.g. (bachelors or masters, etc.) are in-conclusive. Some studies showed positive effects of advanced degrees Ellerhorst (2014), while others showed negative effects Clotfelter, Ladd, and Vigdor (2007). Some argue that the requirement of a second degree raises the cost in terms of teacher education and the time it involves and may prevent quality candidates from choosing this profession Diaz (2013).Teacher Education in the Subject Matter of Teaching (in-field preparation). This characteristic is related to the subject matter knowledge teachers acquire during their formal studies and pre-service teacher education

courses. The evidence gained from different studies is contradictory. Several studies show a positive relationship between teachers' preparation in the subject matter they later teach and student –Clotfelter, Ladd and Vigdor(2007), while others have less unequivocal results. Ekperi (2018) find both positive and negative effects of teachers' in-field preparation on student achievement. Gold Haber and Brewer (2000) find a positive relationship in Mathematics, but none in science.

The National Policy on Education Federal Republic of Nigeria (FRN) (2004); section 8, stated that "in-service training shall be developed as an integral part of continuing teacher education and shall also take care of inadequacies… p 65". The policy laid emphasis on the significance of in-service training and further stated that "efforts towards the improvement of quality education at the primary and secondary levels shall include regular in-service training programmes for teachers and head teachers…p. 70". These two policy statements draw attention to the necessity of consistent development of teachers for improving the Nigerian educational system that will enhance the quality of education offered to learners at all levels.

Therefore, it should be denoted at this point that the education of teachers is not delimited to the training at the college, but a continuous and life-long process. Therefore, it is hoped that effective management of teachers through provision of funds, redistribution of teachers among schools, and re-training will not only improve the quality of education and consolidate the educational system; but that the curriculum for the Nigerian educational system will be effectively and efficiently implemented towards the fulfillment of educational goals and objectives.

Quality education is significantly related to the quality of its teachers which has a direct link to the quality of development programmes given to them. In other words, the quality of graduates of any school or educational system is predicated on the total quality of its teacher Ijaiya, Alabi and Fasasi (2011), Ijaiya (2012), Awodiji and Ijaiya (2019). It was stated that all forms of development begin with capacity building quality education can only be attained if there is investment in human capital development Awodiji (2018). The acquisition of skills, knowledge, right attitude and its productive utilisation are germane to actualisation of quality education.

Also, Ballah and Okoronka (2015) report a positive relationship between student achievement and teachers' majoring in Mathematics. Fatai (2005), however, finds that having a major in Mathematics has no effect, and a significant negative effect of teachers with more coursework in physical science. The Committee NRC (2010) considered the wider issues of quality control in teacher education, there are procedures for ensuring quality at individual and at institutional level. They point out that there are many difficulties in teacher tests', not least being confident that the items measured are significant in teacher performance.

Academy (TLA) Demirel (2008) provides some evidence to support a link between enquiry based learning and positive outcomes for teachers, pupils and schools. The evaluation found evidence of impact on teachers' capacity to reflect on practice and self-evaluation, school policies (e.g. behavior management, Centre for Practical Development (CPD) approaches and pupil involvement), pupils' progress (before and after tests, and using Assessment for Learning approaches). However, the evaluators noted that 'schools did not appear to have a systematic approach to evaluating CPD and its impact and

recommended greater use of pre- and post-intervention methodologies by teachers and CPD leaders to support robust assessment of impact on classroom practice and pupil learning.

A systematic review of induction studies Emmanuel (2009) indicated that the lack of large scale and longitudinal research in this area prevents the type of investigation that might lead to a sound understanding of the connection between enhanced professionalism and the quality of pupil outcomes. A systematic review of subject specialist input into CPD in England did find some evidence of impacts on pupils in the following areas: learning and achievement (e.g. improved knowledge of scientific concepts, problem solving, mathematical skills, literacy skills, reasoning, and use of ICT) as well as affective development (e.g. attitudes to learning, motivation and self-esteem) Evans (2006). In Scotland, a study of CPD for science teachers by Agwagah (2004) suggests that it was possible to measure impact in terms of increased pupil attainment by relating this to the changes in classroom practice attributed to CPD. They conclude that CPD can facilitate changes in the professional practice of teachers; however, it must be supported by well structured opportunities

allowing teachers to draw support and advice from each other. Some writers have positively associated action research partnerships between schools and universities with improving pupil outcomes. Similarly, mentor training and development has been found to lead to improvements in teaching and learning. A small-scale survey (95% response rate) by Wentzel (2003) of 20 teachers following a one-year course in Expert Teaching in Northern Ireland concluded that changes to practice are most likely to occur where teachers: have time to reflect and review their practice; participate in collegial discussions and observations to share practice and encourage professional development; learn in their school context; and undertake longer term professional development. As Usak (2005) have shown teacher commitment is very important in these matters. They argue that professional development should not be divorced from the need for wider contextual understanding of what enhances teacher commitment to the profession; taking a standards-based approached to professional development may serve to decrease commitment. They suggest that policymakers and school leaders should consider the contexts for professional development which can change practice positively - that is, contexts in which teachers professional

values are acknowledged and built on. If commitment can be sustained across the career phases then problems of teacher retention are less likely to occur.

Summary of Reviewed Literature

The discussion in this chapter has been focused on the Concept of mathematics, importance of mathematics, teacher's qualification and achievement , teacher's experience and achievement, teacher education in the subject matter of teaching (in-field preparation) and participation in professional development activities.

CHAPTER THREE
METHODOLOGY

This chapter describes the method and procedure used by the researcher in conducting the study. It is presented under the following Sub headings;

- Design of the study
- Population of the study
- Sample and sampling techniques
- Research instrument
- Validity of the Instrument
- Method of Data Collection
- Method of Data Analysis

Design of the Study

The research design that was used for this study is the survey design. The essence of adopting this research design is to elicit data from a census through pro-forma.

Population of the Study

The population of study comprises of twenty five (25) number of Mathematics teachers in the fourteen (14) public Senior Secondary Schools in Oredo Local Government Area of Edo- State.

Sample and Sampling Technique

The total number of fourteen (14) Mathematics teachers were sampled purposively, only the Mathematics teacher that are teaching Senior Secondary School II students in public schools in Oredo Local Government area and were sampled. The researcher carried out the study in the following public schools in Oredo Local Government Area. The secondary schools that was selected for this study and the number of students sampled from each school are set out in Table 1.

The sample schools is represented in the Table below

No	Names of Schools.	No of teachers
1.	Edo college	1
2.	Idia senior secondary school	1
3.	New Era girls senior secondary school	1
4.	Ihogbe senior secondary school	1
5.	Akenzuwa senior secondary school	1
6	Anglican girls grammar school	1
7	Edokpolor grammar school	1
8	Imaguero girls secondary school	1
9	Emotan secondary school	1

10	Iyekogba senior secondary school	1
11	Oba Ewuare grammar school	1
12	Oba palace secondary school	1
13	Ogbe secondary school	1
14	Oredo girls secondary school	1
	TOTAL	**14**

Research Instrument

The research instrument used for this study is the proforma. The instrument for the study is a pro-forma of 5 items used to elicit information from respondents. The proforma covers the demographic background of the respondents such as, sex, of teachers, course of study, academic qualification of teacher, years of teaching experience and the grade in Mathematics students in the last examination. Which was graded in examination raw scores and percentage.

Validity of the Instrument

The content validity of the instrument was established after an intensive screening by the supervisor and two experts from the Department of Curriculum and Instructional Technology, University of Benin. Their inputs and correcting

in terms of clarity and appropriateness of language was used to develop the final draft.

Method of data Collection

The proforma were administered by the researcher who visited the schools in person and met with the principals and thereafter introduced herself. The researcher personally administered the proforma to the respective Mathematics school teacher teaching Senior Secondary School II. The immediate collection after the respondents filled the proforma enabled the researcher to obtain 100% return of the filled proforma, it also helped the researcher to offer assistance to the respondents when the need arose.

Method of data Analysis

The method used for the analysis was Pearson correlation coefficient. To convey information at a glance for easy understanding, the analysis was done in a tabular form.

CHAPTER FOUR
PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

PRESENTATION OF RESULTS

Table 2: significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State.

Variable	N	Pearson's r	Sig (2 tail)
Qualification			
Performance	14	0.132	0.654

(α0.05)

Table 2 shows a Pearson's r value of 0.132 and a p value of 0.654. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that "there is no significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State. " is

rejected. Consequently there is relationship between teachers qualification and students' academic performance.

Table 3: significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State?

Variable	**N**	**Pearson's r**	**Sig (2 tail)**
Years of experience			
Performance	14	0.107	0.717

(α0.05)

Table 3 shows a Pearson's r value of 0.107 and a p value of 0.717. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that "there is no significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State" is rejected. Consequently, there is significant relationship between

teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary school.

Table 4: significant interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State

Variable	**N**	**Pearson's r**	**Sig (2 tail)**
Qualification and years			
Performance	14	- 0.180	0.539

(α0.05)

Table 4 shows a Pearson's r value of -0.180 and a p value of 0.539. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that "there is no significant interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State" is rejected. Consequently there is interaction

influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics.

Discussion of Findings

The first finding reveal that the Pearson's r value of 0.132 and a p value of 0.654. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that "there is no significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State." is rejected. Consequently there is relationship between teachers qualification and students' academic achievement.

Abu and Fabunmi (2005) identifies teachers' quality as the most important school-related factor influencing student achievement. Rodniquez and Mckay (2010) opined that measures of teacher preparation and qualification are by far the strongest correlates of student achievement in reading and Mathematics. Adeyemi (2008) found a strong and statistically significant different between teachers' qualification and achievement. Studies show little impact of

emergency or alternative- route certification on students' performance in either mathematics or science as compared to teachers who acquire standard certification.

This finding is against Oluwole (2017) found that a teachers' advanced degree is not generally associated with increased students learning from eight to tenth grade, but having an advanced degree in Mathematics and science for Mathematics and science teachers appears to influence students' achievement. The same were not found to be true for English and history teachers. Omolayo (2009) found that even in subjects where subject-specific training may take difference; its impact depends on the context of the classes taught.

The second finding reveal that the Pearson's r value of 0.107 and a p value of 0.717. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that "there is no significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State" is rejected. Consequently, there is

significant relationship between teachers' years of teaching experience and students' academic performance in Senior Secondary school.

This finding is in line with Darling-Hammond (2000), in his study found that teaching experience of teachers is significantly related to their teaching effectiveness and their students' performance. The findings showed a strong positive relationship between teacher experience and students' outcomes. Akpo (2012) opined that the typical teaching- learning curve peaks in a teacher's first few years, and have shown that new teachers have incomplete or superficial pedagogical content knowledge. A novice teacher tends to rely on unmodified subject matter knowledge, most often directly extracted from the curriculum and may not have a coherent framework or perspective from which to present the information. Novice also tends to make broad-pedagogical decisions without accessing students' prior knowledge, ability levels or learning strategies. If beginning teachers are to be successful, they must wrestle simultaneously with issues of pedagogical content knowledge as well as general pedagogy or generic teaching principles. Similarly, pre-service teachers have shown to find it difficult to articulate the relationship between pedagogical ideas and subject matter concepts Bello, Ibi and Bukar (2016).Omolayo (2009) documents that

more experienced teachers have a better “overarching” view of the content field and on which to base teaching decisions.

The third finding reveal that Pearson’s r value of -0.180 and a p value of 0.539. Testing at an alpha value of 0.05, the p value is higher than the alpha value, so the null hypothesis which states that “there is no significant interaction influence of teachers’ qualification and years of teaching experience on students’ academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State” is rejected. Consequently there is interaction influence of teachers’ qualification and years of teaching experience on students’ academic performance in Mathematics.

This finding is in line with Akpo (2012) examined the impact of teacher-related variables on students‟ junior secondary certificate Mathematics results in Namibia using questionnaire, multi-correlation and regression analysis and found that teacher educational qualifications, teaching experience, subject specialization, standards-based professional development, standard-based classroom activities, and classroom management beliefs are related to students‟ academic achievement in Junior school Mathematics. Similar study by Daso

(2013), on teacher variables and senior secondary students' achievement in Mathematics in Rivers State, Nigeria, reported that there is a significant relationship between teachers' method of teaching, teachers' attitude, teachers' quality and students' achievement in Mathematics.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The study was carried out to assess the influence of qualification and experience of Mathematics teachers on the academic performance of Senior Secondary School Students in Oredo Local Government Area of Edo State. Three (3) research questions and three (3) hypotheses were raised for the study. The design of the study is descriptive survey design while the population comprised of public Senior Secondary Mathematics teachers in Oredo Local Government Area of Edo state.

The sample size for the study was 14 respondents from public Senior Secondary Schools in Oredo Local Government Area, while the researchers' self-developed proforma formed the instrument for data collection. Three experts validated the instrument. The data collected for the demographic variables was analyzed using pearson's correlation coefficient.

Based on the data collected and analyzed, the findings revealed that:

- There is significant relationship between teachers' qualification and students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State.
- There is significant relationship between teachers' years of teaching experience and students' academic performance in Mathematics in Senior Secondary schools in Oredo Local Government Area of Edo State.
- There is significant interaction influence of teachers' qualification and years of teaching experience on students' academic performance in Mathematics in Senior Secondary Schools in Oredo Local Government Area of Edo State.

Conclusion

Teachers' qualification and experience are major variables that can affect students' academic performance in Mathematics. It has also shown that teacher quality is a panacea for attainment of educational goals and objectives. It is therefore not out of place for the National Policy on Education (2009) to have equivocally stated that no educational system can rise above the quality of its teachers. Teachers, therefore, need to constantly seek for ways of improving

their knowledge, techniques, and pedagogical skills by undergoing one form of in-service training or the other on the job.

Recommendations

- The Federal Government's efforts in the professionalization of teaching through the establishment of the Teachers' Registration Council of Nigeria (TRCN) is in the right direction and should be enforced.
- For the professional growth of teachers, conferences, seminars, workshops, pre and in-service training programmes should be given adequate attention by the Ministry of Education, State and Federal Government.
- All non-professional and unqualified teachers should be encouraged to pursue their post graduate studies such as Post Graduate Diploma in Education, Master's and Doctoral degrees in Mathematics. This will help to improve teachers' quality of teaching and consequently improve the performance of students and ultimately, the quality of teacher education in Nigeria.

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APPENDIX
DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY.

Dear respondent,

This questionnaire is designed to gather information on qualification and experience of Mathematics teachers and academic performance of senior secondary school students in Oredo Local Government Area. You are requested to please complete the questionnaire as honestly as possible. All information provided shall be treated in utmost confidentiality.

Yours sincerely,

Thanks

ARUMUKA Believe

Researcher

INSTRUCTION: Tick [√] as appropriate for each of the question below.

1 Sex: male [ ] female [ ]

2 Highest academic qualification SSCE/O-LEVEL [ ], NCE [ ], OND/ND [ ], HND[ ], B.Sc [ ], B.Ed [ ] M.Sc [ ] PGD [ ], PHD [ ]

3 Course of study? Please indicate? _____

4 Years of teaching Mathematics less than 5 years [ ], 5 and above [ ]

5 Your students' performance in the last Mathematics examination

Grade	Number	Key
A		A = 70 % and above
B		B = 60 to 69%
C		50 – 59%
D		40 to 49%
F		0 to 39%

S