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Teachers' Competency As Correlates To Students' Academic Performance In Mathematics

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Abstract: The study examined the Impact of Teachers' Competency on the Academic performance of Senior Secondary School Students in mathematics in Oyo State, Nigeria using Oyo metropolis as a case study. This study adopted a survey design. The population of this study involved all senior secondary school II students (SS2) in Oyo metropolis where a total of 200 students were drawn as sample. Three research questions guided the study and were answered using Pearson Product Moment Correlation Coefficient (PPMC). Self-structured and constructed validated questionnaire was used to collect data from the respondents. The findings revealed that there is a positive relationship between academic competence and students' academic performance in mathematics among senior secondary school students in Oyo metropolis; there is a very strong relationship between professional competence and students' academic performance in mathematics among senior secondary school students in Oyo metropolis and there is a weak significant relationship between personal competence and students' academic performance in mathematics among senior secondary school students in Oyo metropolis. Based on the findings, it was recommended among others that teachers with good professional background as well as specialist in the field of mathematics education should be employed for teaching of the subject in schools.

Keywords: Teacher' Competency, Correlates, Students' Academic Performance, Mathematics

Introduction

Mathematics is a subject in the school curriculum that most learners dislike and fear. The fear of mathematics is what an individual would call Mathemaphobia or mathematics syndrome negative attitude towards mathematics student are in attentive during mathematics lesson .they do not have time for personal study and assignment at home (Olaniyan, 2018). Olaniyan added that, factors affecting the teaching and learning of mathematics includes but not limited to; i. quality teacher ii. quality of instruction iii. attitude of teacher iv. Mathemaphobia The importance of mathematics in most fields of human endeavor cannot be underestimated. Its

useful in science, mathematical and technological activities as well as commerce, economics, education and even humanities is almost as important as education. Mathematics is a key subject in both the primary and secondary education system in Nigeria (Obadara, 2021). Competency refers to the skills and personality of a teacher in handling the instructional process with the help of instructional methods, teaching aids and resources. According to Selvi (2019), competency is "a set of knowledge, skills and proficiency in creating a meaningful experience when organizing an activity". As a professional, a teacher needs to plan and implement the learning process, evaluate the learning outcomes, provide guidance and training, conduct a research, develop and managing school programs and professional competency. Competence is the ability of an individual to do job properly. A competency is a set of defined behaviours that provide a structured guide enabling the identification, evaluation and development of the behaviors in individual employees. The terms "Competence" first appeared in an article authored by white in1959 as a concept for performance motivation. Some scholars see "competence" as a combination of practical and theoretical knowledge, cognitive skills, behaviours and values used to improve performance; or as the state or quality of adequately or well qualified, having the ability to perform a specific role (Ilanlou & Zand, 2021).

Academic competence includes; generalizations skills and knowledge in the teacher's field of specialization and being aware of the research methods applied in that field.Academic competenceis necessary for teachers. It includes the teacher's content mastery of the subject that they teach and their cognitive and teaching comprehension competencies (Medley, 2020). The concepts of research competence and lifelong learning are also considered as vital aspects of teacher's academic competence (Benedick & Molnar,
2022; Selvi 2019).

Professional Competence includes the strategies of planning, methods of teaching and their implementation mechanism. It is the application of teaching and learning theories in different learning situation and raising the learner's motivation to learn, encouraging them to work and using varied learning resources based on the social and psychological needs of the learner Professional Competence refers to the actual teaching practices inside the classroom. It includes classroom management, knowledge on incorporating technology in teaching curriculum planning, its implementation and facilitating the student learning process based on the learning outcomes of the course. It is the teacher's responsibility to engage students in professional learning create opportunities for the achievement of professional knowledge and to make sure students have an adequate environment for learning (Akinsolu,2020)

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Personal Competence refers to the personal qualities of a teacher. The concept has evolved from the Humanistic Based Teacher Education (HBTE). In HBTE, more attention is directed towards the

student than the teacher. HBTE falls under the banner of Humanistic Psychology which was introduced by Maslow in 1968. The core element of Humanistic Psychology is based on dignity with its central purpose aimed at personal growth Korthagen (2020) concluded that "the fact that this movement focused attention on the teacher was of importance to the further development of teacher education". Personal competence includes the personal qualities of a teacher i.e physical health, general intelligence, good morals, linguistic ability to innovate, ability to manage and take decisions and ability to communicate in the required manner.

One of the ways to improve teachers' competency especially in Mathematics is that teachers need to be well versed with the content of the Mathematics curriculum, skillful in using a varieties of teaching methods and teaching aids, efficient in coordinating all the necessary equipment

and ensure safety of students while conducting laboratory experiments. As suggested by Orstein (2019). Effective mathematics teachers are those with high competency in mathematical knowledge and skills, he stated further that mathematics teachers' profound knowledge in curriculum content and pedagogy enhance students' performance. Teachers' competency in teaching and learning is an important factor in determining the success of a teaching session. Their ability and wisdom in handling learning activities will have a direct impact on students' active involvement in learning activities. Therefore, the development of teachers' competency involving the efforts of fostering positive attitudes.

Statement of the Problem

Due to the increasing nature of poor academic performance of secondary school students in mathematics especially in external examinations like West African Examination Council (WAEC) or Joint Admission Matriculation Board (JAMB), many educationists tend to shift the blame on lack of fund from the government to provide quality textbooks. However, these might not be main reasons why students perform poorly in examinations. It is clear from all indications that some secondary school mathematics teachers are not competent or qualified to teach mathematics which might lead to poor academic performance of

the students in mathematics.

Competence (academic competence, professional Competence and personal competence) are the most crucial variables in improving students' performance and closing achievement gap especially in mathematics. The most important influence on students' learning is the quality of teaching, yet most schools do not define what good teaching and learning of mathematics is. This is a problem because if it is not defined, mathematics teachers may not be given the opportunity to improve practices in the mathematics classroom either academic professional or personal while it is the student's achievement that may be harmed as a result. Based on this, this study sought to investigate teacher' competency as correlates to students' academic performance in mathematics among senior secondary school students taking Oyo Metropolis, Oyo State, Nigeria.

Purpose of the Study

The main purpose of the study is to investigate the teacher' competency as correlates to students' academic performance in mathematics among senior secondary school students in Oyo Metropolis, Oyo State, Nigeria. Specifically, the study sought to;

1. Is there relationship between academic competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?
2. Is there relationship between professional competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?
3. Is there relationship between personal competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

Research Questions

The following research questions guided the study;

1. Is there relationship between academic competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?
2. Is there relationship between professional

competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

3. Is there relationship between personal competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

Methodology

This study adopted a survey design. The population of this study involved all senior secondary school II students (SS2) in Oyo metropolis. The schools were stratified based on the locations, that is, Local Government Areas that made up of Oyo metropolis and five (5) secondary schools were randomly selected from each Local Government Area to make twenty (20) secondary schools. The Local Government Areas that made up of Oyo metropolis are as follows;

Local Government Area	No of Schools	Students' Population
Afijio Local Government Area	16	619
Atiba Local Government Area	14	512
Oyo East Local Government Area	11	539
Oyo West Local Government Area	11	317
Total	**52**	**1987**

Source: Oyo State Ministry of Education(2019)

Ten (10) SS2 students were selected from each of the schools using simple random sampling technique to sum up to two hundred (200) students to serve as sample for the study.

The instrument that was used for this study is a self-structured and constructed questionnaire which was used to collect data from the respondents. The questionnaire is divided into two sections. Section A deals with personal data of the respondents while Section B contains the question items that will with the research questions.

The instrument was given both face and content validity by two seasoned lecturers who are specialist in the field of test and measurement in the Department of Educational Psychology, Federal College of Education (Special), Oyo, Oyo State.

A trial test was carried out to ascertain the reliability of the instrument. The instrument was administered to twenty students of a particular selected secondary school from Ibadan outside the study area. The overall reliability estimate obtained

for instrument was 0.93. This confirmed that the instrument was reliable for the study.

The survey questionnaire was personally administered on the students in the selected secondary schools after due consultation with the school authority. The analyzed was done using Pearson ProdruscitoMn.oment Correlation (PPMC) with

The results were arranged according to the stated research questions as follows;

Research question 1: Is there relationship between academic competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

SPSS 23.0 ve **Table 1: Correlations**

Results

		Academic Competence	Students' Academic Performance
Academic Competence	Pearson Correlation	1	0.51*
	Sig. (2-tailed)		.076
	N	200	200
Students' Academic Performance	Pearson Correlation	0.51*	1
	Sig. (2-tailed)	.076	
	N	200	200

*. Correlation is significant at the 0.05 level (2-tailed).

Since the significant level of 0.076 is more than the p-value of 0.05,it reveals that there is significant relationship between academic competence and students' academic performance in mathematics among senior secondary school students. Also, the relationship is a positive relationship.

Research question 2: Is there relationship between professional competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

Table 2: Correlations

		Professional Competence	Students' Academic Performance
Professional Competence	Pearson Correlation	1	0.87*
	Sig. (2-tailed)		.067
	N	200	200
Students' Academic Performance	Pearson Correlation	0.87*	1
	Sig. (2-tailed)	.067	
	N	200	200

*. Correlation is significant at the 0.05 level (2-tailed).

Since the significant level of 0.067 is more than the p-value of 0.05, it means that there is significant relationship between professional competence and students' academic performance

in mathematics among senior secondary school students. The relationship is very strong

Research question 3: Is there relationship between personal competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis?

Table 3: Correlations

		Personal Competence	Students' Academic
Personal Competence	Pearson Correlation	1	0.16*
	Sig. (2-		.055
		200	200
Students' Academic	Pearson Correlation	0.16*	1
	Sig. (2-	.055	
		200	200

*. Correlation is significant at the 0.05 level (2-tailed).

Since the significant level of 0.055 is more than the p-value of 0.05, there is a weak significant relationship between personal competence and students' academic performance in mathematics among senior secondary school students.

Discussion of Results

Table 1 reveals that there is positive relationship between academic competence of teachers and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis. Academic competency includes but not limited to teachers academic qualification and mastery of subject matter. This study clearly revealed a positive relationship between academic competence and students' academic performance especially in mathematics in senior secondary schools. The implication is that an academically competent teacher will deliver well in the class and the students under his/her tutelage tend to gain more. This is in consonance with the opinions of Benedick & Molnar (2022) and (Selvi2019) who reported that teachers' academic competency promotes students academic performance. Table 2 showed that there is a very strong relationship between professional competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis. Professional competency include the ability of teachers to be able to plan his lessons, recognizes the characteristicsof thelearners and use of appropriate instructional materials in the classroom. The more a mathematics teacher can display his/her professional competency in mathematics class,the morethe students understand lessons taught and perform better. The knowledge gain from such mathematical class can be transferred to other classes. This result is tandem with the outcome of the study of Akinsolu (2020) which stated that a professional teacher cannot be compared to their non professional or half baked counterparts. The performance of their students speaks volumes. Furthermore, table 3 revealed that there is a weak significant relationship between personal competence and students' academic performance in mathematics among senior secondary school students in Oyo Metropolis. Personal competency include but not limited to teachers' physical health, teachers' general intelligence, teachers' good morals, teachers' ability to innovate and teachers' ability to manage and take decisions. All the aforementioned joined together definitely makes a competent teacher. If mathematics teacher posses the competency, he tends to deliver a good and effective mathematics

class and students will definitely achieve a lot in his/her classroom and perform better in mathematics. This result is in consonance with the work of Korthagen (2020) that competent teacher is a predictor to academic performance of students.

Conclusion

The study investigated the teacher' competency as correlates to students' academic performance in mathematics among senior secondary school students Oyo State, Nigeria using Oyo Metropolis as a case study. It was found out that there is a positive relationship between academic competence and students' academic performance in mathematics among senior secondary school students in Oyo metropolis; there is a very strong relationship between professional competence and students' academic performance in mathematics among senior secondary school students in Oyo metropolis and there is a weak significant relationship between personal competence and students' academic performance 5. Medley D.M. (2020) Teacher Effectiveness in Mitzal H.E Encyclopedia of Educational Research. New York. The Free mathematics among senior secondary school students in Oyo metropolis. 6. Obadara N.O (2021). A Prospective

Recommendation s

Based on the findings, the following recommendations were made:

1. Teachers with good professional background as well as specialist in the field of mathematics education should be employed for teaching of the subject in schools.
2. Government should provide in-service

training for mathematics teachers where they can improve on their competencies.

3. Private school owners should give their staff especially, mathematics teachers the opportunity to join professional associations like Mathematical Association of Nigeria for Mathematics teachers where new ideas and innovations are discussed to enhance their competences.
4. There should be good remuneration and

prompt payment of salaries to serve as motivation and incentive to boost the morale of mathematics teachers.

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