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Review of primary school mathematics teachers' qualifications and experiences for achievement of national development goals in rivers state

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Abstract
This study carried out a review of qualifications and experiences of primary school Mathematics teachers in Rivers state for the achievement of national development goals. A descriptive survey design was adopted for the study. A total of 399 primary school teachers consisting of 168 males and 231 females were drawn from the target population of 8,560. Three research questions were formulated to guide the study. Research questions were answered using percentages, mean and standard deviation. A researcher-made questionnaire tagged: Primary school head teachers and classroom teachers questionnaire (PSHCTQ) was used for data collection. The instrument was face and content validated by three experts from Curriculum studies and educational technology department, University of Port Harcourt. Pearson product moment was used to determine the reliability of the instrument. The reliability coefficient index of the instrument was 0.72. The findings among others revealed that: 91.98% of Mathematics teachers in rivers state are non-specialist. Based on the findings, it was recommended among others that the government should employ more specialist mathematics teachers in the primary schools. It was also recommended that the current policy of every teacher in the primary school must teach all the subjects including Mathematics should be abolished.

Keywords: qualifications, experiences, primary school mathematics teachers, national development goals

Introduction

It is not disputable that Mathematics is beneficial to every individual every day because no matter what you do in life you will need to use Mathematics on purpose or unintentionally for day to day activities. As a hub around which the development of any nation revolves Mathematics determines the possibility of a nation to stay on the top of the scientific and technological progress. According to Haruna (2014) [12], Science and Technology are conjoint twines sharing common heart called mathematics; he further posited that the harmonious relationship of Mathematics, science and technology and society is the launch pad for sustainable development. Such bond, in the same way, expedites and boosts industrial and technological headway amid the people and in a nation. It is the foundation for the training of every informed citizen which serves as an entryway into numerous career choices in life (Eze, 2016) [10]. Furthermore, Mathematics is the language of Science and Technology (Abubakar, Wokoma and Afebuam, 2012) [1], therefore, there is the need for the prioritization of Mathematics teaching and learning at the primary schools level in the bid for the achievement of national development goals.

Disappointingly, this all important subject is the most boring, dreaded, poorly taught, widely hated and abysmal to understand in our school system. The worst of all is that most students still see Mathematics as not important to their future and field of study. Besides, there are problems of poor performance in Mathematics as well as Mathematics phobia at all levels of our educational system. Students' performance in Mathematics in both internal and external examinations has remained low and failure rates distressingly high thereby supporting the conclusion that school achievement in Mathematics is still far below the societal standard. One of the reasons for this may not be unconnected to the qualifications and teaching experiences of Mathematics teachers at the primary school level. European Commission, (2013) [9] posited that, for the moment, Mathematics education is still all too often boring because it is designed as formal teaching, centred on learning techniques and memorizing rules whose rationale is not evident to the pupils. According to Kurumeh and Imoko (2008) [13], Common Entrance Examination and primary school Mathematics Olympia reveal so much about the pupils' lack of foundation in Mathematics. In addition, in almost all schools in Nigeria in spite of the much talked-about modern approach, the traditional classroom approach prevails. The teacher is still the controller of the instructional process, the content is delivered to the entire class and the teacher tends to emphasize factual knowledge (Charles-Ogan & Amadi, 2017) [5].

According to the Federal Republic of Nigeria (FRN, 2014), the national goals for teaching and learning Mathematics at the primary level (ages 6 to 12 years) are to provide:

1. To provide the child with the necessary basic skills in numeracy;
2. To expose the child to ways of applying these skills to his problems;
3. To provide the child with basic manipulative skills in ordinary life;
4. To provide the child with basic skills in logical thinking;
5. To introduce the child to the basic concepts of spatial relationships;

6. To introduce the child to the basis of record keeping and aspects of accounting.

To achieve these goals, the National Policy on Education (FRN, 2014) stipulated that teaching shall be participatory, exploratory, experimental and child-centred and there shall be specialist teachers of particular subjects such as mathematics, Science etc., in both public and private primary schools.

Furthermore, the revised new 9-year Universal Basic Education (UBE) Mathematics curriculum stated that doing Mathematics shall be perceived as a thinking process and in addition to test and examination, students' learning shall be accessed through projects and group works in a constructivist learning environment that promotes the development of generic skills. It further stated that traditional methods of instruction will give way to activity-based, minds-on, hands-on student-centred strategies that enhance active learning. Ten years since the nationwide implementation of the new curriculum in September 2008 there are obvious indications that primary school teachers still follow the traditional methods of instruction and lack the Mathematical competence expected as pre-requisite of effective teaching and learning.

The Nation's expectation from school products with regards to Mathematics is still unsatisfactory. Fear, lack of interest, underachievement and poor attitude towards Mathematics at the primary, secondary and tertiary levels may not be unconnected with the lack of acquisition of the basic Mathematics concepts right from the primary school. Many of those teaching Mathematics at the primary school in Nigeria have even minimal credentials neither a major nor a minor in Mathematics. According to UBE (2001) [15], Primary education in Nigeria lacks teachers with the requisite knowledge and the necessary skills for curriculum delivery and school management. Eraikhuemen and Eraikhuemen (2005) posited that primary school teachers teach all subjects in curriculum and that 76 percent of the teachers teaching Mathematics in Nigeria primary Schools are non-specialists in Mathematics. Most Nigerian primary school teachers lack an educational background in Mathematics, yet are still required to teach the subject. These situations will affect the achievement of national development goals for teaching and learning mathematics unless major alterations in our Mathematics education are made, and quickly.

Poor academic performance especially in Mathematics in the Senior Secondary Certificate Examination (SSCE) in Nigeria has been traced to deterioration in the quality of teachers and in teaching and learning (Daso, 2013; Akpo, 2012; Agharuwhe, 2013; Papay and Kraft, 2014) [7, 3, 14]. Some of these teacher qualities have not been given satisfactory consideration possibly due to the notion that all primary school teachers can teach all subjects (Akpo, 2012) [3]. Mathematics foundation which is very weak at the primary school level is carried forward to junior secondary and is culminated in senior secondary school. The truth according to Azuka, (2013b) [4] is that teachers are facing challenges to achieve effective teaching of the topics in the new Mathematics curriculum in the classroom. The fact still remains that in Nigeria, most teachers at the primary school level teach across all the subjects irrespective of their area of specialization. It is expected that Mathematics teachers should have a minimum prerequisite of at least NCE in Mathematics. This lack of Mathematics background may not only impose a limitation on a teacher's ability to teach for critical thinking and to engage the pupils' interest and misconceptions in Mathematics but scarcely will they affect pupils' attitudes and achievement positively. Considering the proceeding this study investigated the qualifications and teaching experiences of both public and private primary school Mathematics teachers in Rivers state.

Statement of the problem

This study was born out of curiosity from the researchers' own observations and experiences as Mathematics teachers for many years; the awful situations of students' poor performance and poor attitude and lack of interest towards Mathematics at various levels over the years. Ten years since the national policy on education stipulated that there shall be specialist teachers of particular subjects such as mathematics in the primary schools as well as the nationwide implementation of the new Mathematics curriculum, the Nation's expectation from school products with regards to the achievement of national development goals for teaching and learning of mathematics in primary schools as drawn up by the Federal Ministry of Education (FME) is yet to be realized. What could be attributed to this? In the present circumstance, the researchers investigated the qualifications and experiences of primary school Mathematics teachers in Rivers State.

Aim and objectives of the study

The aim of the study was to review the qualifications and experiences of primary school Mathematics teachers in Rivers state for the achievement of national development goals.

The specific objectives of the study were to:

1. Examine the qualifications of primary school mathematics teachers;
2. Ascertain the number of qualified (specialist) primary school mathematics teachers in the public and private schools in rivers state; and
3. Find out the primary school teachers' year of teaching experience for the achievement of national development goals in Rivers state.

Research Questions

The study was guided by the following research questions

1. What are the qualifications of primary school Mathematics teachers in Rivers state?
2. What is the quantity of qualified (specialist) primary school mathematics teachers in the public and private schools in Rivers State?
3. What is the primary school teachers' year of teaching experience for the achievement of national development goals in Rivers state?

Methodology

A descriptive survey design was used for the study. The population of the study consisted of 8,560 primary school classroom teachers and head teachers. A total of 399 primary

school teachers consisting of 168 males and 231 females were sampled from the target population using a stratified random sampling technique. Data were obtained through a self-constructed questionnaire tagged: Primary school head teachers and classroom teachers' questionnaire (PSHCTQ). The instrument was content and face validated by 3 experts from the department of Curriculum Studies and Educational Technology, University of Port Harcourt. The reliability coefficient index of 0.72 obtained using Pearson product moment. Research questions were analyzed using percentages, mean and standard deviation.

Results and discussion

Research questions 1: What are the qualifications of primary school Mathematics teachers?

Table 1: Percentage response of respondents on the qualifications of primary school mathematics teachers

S. No.	Qualifications	Subject area	Private school	%	Public school	%	Total	%
1	NCE	Mathematics	3	2.19	22	8.40	25	6.27
2	B.Sc (Ed)	Mathematics	0	0.00	5	1.91	5	1.25
3	PDGE	Mathematics	0	0.00	2	0.76	2	0.50
4	SSCE/GCE/NECO/ TC II	Others	52	37.96	0	0.00	52	13.03
5	B.Ed/B.Sc(Ed)/B.A (Ed)	Others	16	11.68	55	20.99	71	17.79
6	OND/HND	Others	6	4.38	10	3.82	16	4.01
7	ME.D	Others	0	0.00	4	1.53	4	1.00
8	B.A/B.Sc	Others	13	9.49	25	9.54	38	9.52
9	B.Tech	Others	0	0.00	3	1.15	3	0.75
10	PGDE	Others	3	2.19	12	4.58	15	3.76
11	NCE	Others	44	32.12	124	47.33	168	42.11
	Total		137	100.00	262	100.00	399	100.00

***Source*:** Researcher's field work (2017)

Table 1 shows the percentage response of respondents on the qualifications of primary school Mathematics teachers. It shows that the respondents who studied mathematics were 32(8.02%) whereas those who did not study mathematics were 367(91.98%). The table also indicates that those who had NCE with mathematics option were 25(6.27%) whereas those who had B.Sc(Ed) with mathematics option were 5(1.25%) and those who had PGDE with mathematics option were 2(0.5%) in number.

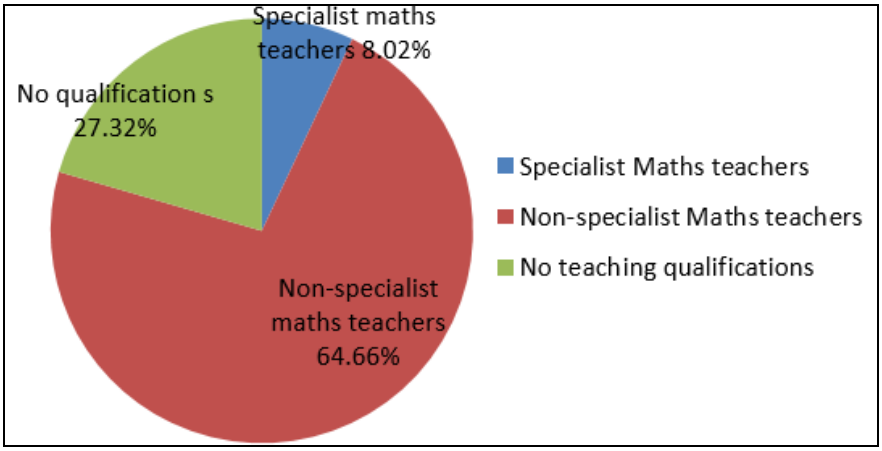

Fig 1

The rest of the respondents had other qualifications, with NCE, 168(42.11%) having the highest frequency and this was followed by B.Ed/B.Sc (Ed)/B.An (Ed), 71(17.79%) among others. In addition, Table 1 shows that most 168 (42.11%) of the respondents had NCE (without mathematics); this was followed by those who had B.Ed/B.Sc(Ed)/B.A(Ed), 71(17.79%) and WASSCE/GCE/NECO 52 (13.03%). Only 25(6.27%) of the respondents had NCE in mathematics, 1.25% had B.Sc. Ed in mathematics and 0.50% had PGDE in mathematics. A further examination of the table shows that 315(78.95%) has teaching qualifications. The table further indicates that 258(64.66%) non-specialist mathematics teachers and 109(27.32%) have no teaching qualifications the total number of respondents who did not study mathematics were 367(91.98%). The study found that though most primary school mathematics teachers are with the minimum qualification of the NCE, however, the proportion of specialist mathematics teachers is very low (8.02%). The results obtained, therefore, reveal that mathematics in the primary school is mostly taught by non-specialist teachers.

Research question 2: What is the quantity of qualified (specialist) mathematics teachers in public and private primary schools in Rivers state?

Table 2: Percentage distribution of the respondents based on the area of specialization

		Private		Public		Total
Mathematics teachers	**N**	**%**	**N**	**%**	**N**	**%**
Specialist	3	2.19	29	11.07	32	8.02
Non specialist	134	97.81	233	88.98	367	91.98

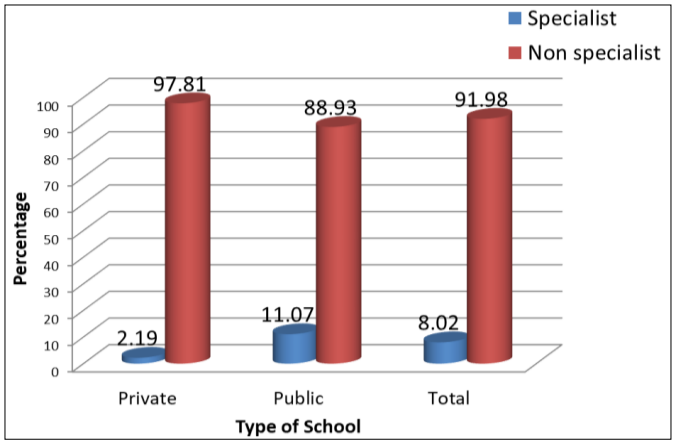

Fig 2: Percentage distribution of mathematics teachers based on school type

Table 2 also shows that there were 3(2.19%) of qualified mathematics teachers in the private schools whereas there were 29(9.27%) of the qualified (specialist) mathematics teachers in the public schools. There were 134(97.81%) of unqualified (non-specialist) mathematics teachers in the private school whereas there were 233(88.98%) of unqualified mathematics in the public schools. Specifically, there were 3(2.19%) of qualified mathematics teachers in the private schools whereas there were 29(9.27%) of the specialist mathematics teachers in the public schools. From the foregoing, it would be said that primary mathematics teachers fall into three categories; first, teachers with the required minimum qualification, a second trained teachers without the minimum qualifications and third teachers without a teaching qualification.

Research question 3: What are the primary school teachers' years of teaching experience for the achievement of national development goals in Rivers state?

Table 3: Percentage distribution of teaching experience of primary school teachers in Rivers state

Teaching experience	Frequency	Percentage
Below 6 years	194	48.62
6--------10	79	19.80
11------15	51	12.78
16------20	42	10.53
21 and above	33	8.27
Total	399	100.0

***Source*:** Researcher's field work (2017)

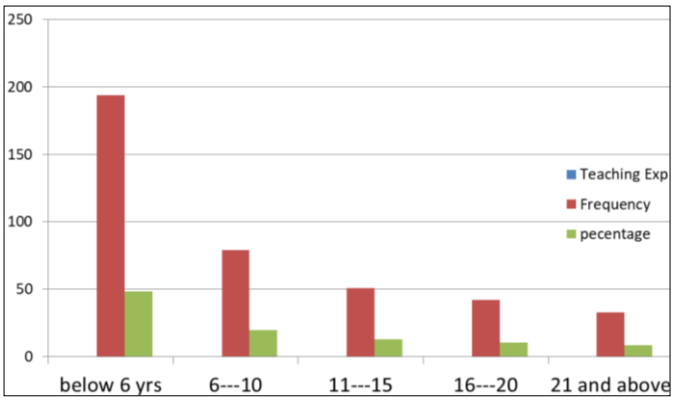

Fig 3: Primary school teachers' years of teaching experience

11-15 years of teaching experience, 42 (10.53%) acquired 16-20 years of teaching experience, while 33 (8.27%) were in the category of 21years and above teaching experience. The implication is that the primary school teachers in River state are dominated by teachers with less than 6 years teaching experience.

Discussion of findings

The study found that though most primary school mathematics teachers have the minimum qualifications of NCE, B.Ed., BSc (Ed) and PDGE, however, the proportion of specialist mathematics teachers is very low. The results obtained therefore revealed that mathematics in the primary school is mostly taught by non-specialist teachers. According to the study, all the WASSCE/GCE/NECO/TCII which forms 13.03% of the respondents were from the private schools. The results revealed that 91.98% of primary school mathematics teachers were a non-mathematics specialist. This finding is in line with the research findings of Eraikhuemen and Eraikhuemen (2005) [5] and UBE (200l) [15]. Eraikhuemen and Eraikhuemen (2005) [5] found that 24% of primary school teachers in Edo State specialized in mathematics, and the UBE reported that 44.4 percent of the classroom teachers specialize in some subjects including mathematics. According to Eraikhuemen and Eraikhuemen (2005) [5], 76% of primary school mathematics teachers did not specialize in mathematics, though all the 300 teachers sampled for the study possessed the NCE as their highest qualification. As primary school teachers teach all subjects in the curriculum, they concluded that 76 percent of the teachers teaching mathematics in Nigeria primary Schools are not 'specialists in mathematics.

The study revealed that there is a wide variation between public and private schools in the utilization of teachers with the minimum NCE qualifications might be explained by the inability of most private schools owners to pay the relatively higher wage bills of teachers with at least NCE. Public schools can afford these wage bills because they are entirely funded and maintained by the government. The study revealed that only specialist mathematics teachers should be allowed to teach mathematics in the primary. This according to the respondents is because teachers' specialization is important when it comes to instructional delivery in schools. This result is in agreement with the Federal government statement in the national policy on education (2014) [11] which stipulated that

teaching shall be participatory, exploratory, experimental and child-centred and there shall be specialist teachers of particular subjects such as mathematics, Science etc. Altogether, 32 (8.02%) teachers are qualified to teach mathematics in Rivers state based on this study. The result showed that a greater percentage of primary school Mathematics teachers in Rivers state is inexperienced compared to those with a greater number of teaching experience. The implication of this finding is that primary school teachers in Rivers state are less effective and efficient to improve students' academic performance in mathematics because they are yet in the growing stage of their profession (Darling-Hammond, 2000; Papay and Kraft 2014) [6, 14].

Summary of findings

1. The result revealed that 91.98 percent of the teachers teaching mathematics in the primary School in Rivers State are unqualified. Therefore it can be concluded that mathematics in the primary school is mostly taught by unqualified mathematics teachers.
2. From the analysis, it can be deduced that 27.32 percent of primary school teachers in Rivers state is without a teaching qualification.
3. There is a wide variation between public and private schools in the utilization of teachers with the minimum NCE.
4. The greater percentage of primary school teachers in Rivers state is in inexperienced.

Conclusion

On the basis of the findings of this study it could be inferred that unavailability of Mathematics specialist teachers and utilization of non-specialist Mathematics teachers to teach Mathematics at the primary school as well as the inexperience of most teachers could be responsible to why the State's expectation from school products with regards to the achievement of national development goals for teaching and learning of mathematics in primary schools as drawn up by the Federal Ministry of Education (FME) has not been realized.

Recommendations

The following recommendations were made based on the findings of the study.

1. The states and the Federal government should employ more qualified mathematics teachers to teach mathematics in the primary schools.
2. The government, stakeholders, Parents Teachers Associations (PTA) and school head should ensure that every mathematics period is taught by a qualified mathematics teacher in the primary school.
3. It is recommended that the primary school qualified mathematics teachers and teachers in training should be properly trained to ensure that they have adequate mastery and competencies essential to teach mathematics.
4. Frequent seminars, workshops and conferences should be organized for primary school specialist mathematics teachers to enhance the meaningful teaching and learning of mathematics and they should be given the opportunity to be participants in the ongoing technological development worldwide to ensure adequate mastery and competences essential to the teaching and learning of mathematics.
5. The current policy of every teacher in the primary school must teach all the subjects including mathematics should be abolished.

Contributions to knowledge

The study provided evidence that 91.98% of primary school Mathematics teachers in Rivers state are unqualified mathematics teachers, whereas only 8.02% are qualified Mathematics teachers.

References

1. Abubakar RB, Wokoma DSA, Afebuam AO. Mathematics: a pivotal rebranding tool for national development. Academic Research International. 2012; 2(3):20-25.
2. Agharuwhe AA. Effects of Teachers' Effectiveness on Students' Academic Performance in Public Secondary Schools; Delta State – Nigeria, Journal of Educational andSocial Research. 2013; l3(3):105-111.
3. Akpo SE. The impact of teacher-related variables on students‟ junior secondary Certificate mathematics results in Namibia, PhD Thesis, University of South Africa, School of Education, 2012.
4. Azuka BF. Activity- based learning strategies in the mathematics classrooms. Journal of Education and Practice. 2013b; 4(13):8-14.
5. Charles-Ogan GI, Amadi JC. Teaching mathematics using problem solving method: a tool for achieving global competitiveness and national development. Nigerian journal of Curriculum Studies. 2017; 24(3):127-135
6. Darling-Hammond L. Teacher quality and student achievement: A review of the state policy evidence. Education Policy Analysis Archives. 2000; 8(1):1-44.
7. Daso PO. Teacher variables and senior secondary students‟ achievement in Mathematics in Rivers State, Nigeria. European Scientific Journal. 2013; 9(10):271-289.
8. Eraikhumen L, Eraikhuemen IB. Practice and Problems of Mathematics Assessment in Nigerian Primary Schools. A Paper presented at the 18th national Conference of the Curriculum Organization of Nigeria (CON), University of Benin, Benin City, 2005, 13-16.
9. European Commission. Supporting teacher competence development for better learning outcomes. Improving the Quality of Teacher Education.COM 392 final. Brussels: European Commission, 2007-2013.
10. Eze W. He effect of instructional materials on primary pupils' academic achievement in geometry. An unpublished NCE project submitted to the department of mathematics, Federal College of Education (T), Omoku, 2016.
11. Federal Republic of Nigeria (FRN). National Policy on Education. Federal ministry of information, Lagos, 2014.

12. Haruna IU. Mathematics Education for National Development Values and Attitudes in the Socio-Cultural Context of the Nigerian Society. International Journal of Novel Research in Education and Learning. 2014; 1(1):10-14.
13. Kurumeh MS, Imoko BI. Universal Basic Education.A way forward for the development of primary school pupils in mathematics education. Journal of the Mathematical Association of Nigeria (MAN). 2008; 33(1):49-56.
14. Papay J, Kraft M. Productivity Returns to Experience in the Teacher Labor Market: Methodological Challenges and New Evidence on Long-Term Career Improvement, 2018, http://scholar.harvard.edu/ files/mkraft/ files/ jpubec_returns_to_experience_manuscript_r2.pdf Retrieved 1.
15. Universal Basic Education (UBE) Programme. National Assessment. Abuja: UBE Implementing Agency. 2001; 2:112.