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Investigation into the Challenges Facing Planning of Mathematic Programme in Senior Secondary Education in Abuja, Nigeria.

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Abstract: The aim of this study is to investigate the challenges facing the planning of mathematics programme in Federal Capital Territory, Nigeria. The study adopted descriptive research survey design. The population of the study comprised ninety (90) respondents. Stratified and systematic sampling technique was used to select the sample population. The study employed the used of questionnaire as instrument for data collection. Two lecturers from Educational Administration and planning from University of Abuja was consulted to validate the questionnaire. Three research questions and two hypotheses were developed for the study. Test-retest reliability was employed for the study. Percentage and Chi-square test was used to test the hypotheses and data collected from the study. The result revealed that there are challenges facing the planning of mathematics programme of senior secondary education and the challenges includes; inadequate data/information to plan, inadequate funding of planning of mathematics programme, poor capacity development of few mathematics planners, inadequate professional mathematics planners, political instability, corruption and lack of political will to support planning of mathematics education. The study concluded that the implication of the challenges on the implementation mathematics education is poor implementation of the mathematics programme in the senior secondary schools. The study recommends that the government should increase the funding of educational planning in the country especially mathematics education.

Keyword: Challenges, Planning, Mathematics Education

INTRODUCTION

The importance of education in the development of any nation cannot be overemphasized. There is an increasing belief in the power of education to transform the society. In Nigeria, education is viewed as an instrument per excellence for national development. Education is needed for the social, economic, political and technological transformation of the nation. It is education that can transform the economy of a country from where it is to where it should be. Therefore, for education to play its leading role in the development of a nation, it needs to be properly planned, taking into consideration the needs and aspirations of the citizenry, the social, cultural and technological changes as well as the impact of globalization on the growth and development of the country (Akpan, 2000).

The success of any educational system depends greatly on effective panning. Planning is the process of examining the future and drawing up appropriate actions for achieving specified goals and objectives. Educational planning on the other hand involves the setting of educational goals and objectives, the formulation of educational policies and the coordination of educational programmes and activities that would lead to the accomplishment of the predetermined educational goals and objectives. It also involves financial planning and budgeting as well as human resource planning (Akpan, 2000).

Ogunode Niyi Jacob (Investigation into the Challenges Facing Planning of Mathematics)

The planning of education is very important at every level and in all programme. The educational sector is very complex and because of this, planning becomes a necessity.Planning of education looks at programme or subject, site, infrastructural facilities, human resource, material resources, students' projection, curriculum, lesson, management and administrative planning. Programme planning or subject planning is very important. Programme planning involve systematically identifying professional teachers needed to teach, how many students, facilities needed, instructional aids, financial resources required and other materials resources needed.

In Nigeria, many programme or subject offered in the Nigeria educational institutions are not properly planned. The educational wastage that occurs in the educational system is as a result of lack of planning. Research available shows that in the Secondary schools in Nigeria, is either there is a shortage of teachers, inadequate instructional aids, over-crowdness of class, inadequate infrastructural facilities or inadequate funds.

Mathematics programme which is one of the fundamental subjects offered in the Nigerian educational sector and in the rest of the World is one of the most affected by the problem of lack of planning. Mathematics is an essential discipline which forms the basis of all other sciences and deals with the material substance of space and time. Mathematics can be divided into pure and applied mathemathics. Pure mathematics focuses on concepts which are based on the rules of mathematics. The aim of these concepts is not necessarily for meeting the needs of the physical world. Pure mathematics mainly deal with the determination of mathematical proofs. Applied mathematics is that branch of Mathematics which is applied to other branches such as chemistry, physics, chemistry, etc. It focuses on a problem-solving approach. It attempts to discover practical solutions to solving the everyday problems of life. In practical life, pure mathematics and applied mathematics overlap each other. The concepts of pure mathematics are also used by applied mathematics to discover practical solutions (Info-guide Nigeria, 2018).

The place of Mathematics in any nation development cannot be overemphasized. According to Betiku (2001,p.8) Sciences, Technology and Mathematics Education (STME) have been widely acclaimed to be the index of measuring any nation's socio economic and geo-political development. Among science and Technology courses, according to the National Policy on Education Federal Republic of Nigeria (2004), Mathematics is one of the core subjects to be offered by all students till the tertiary levels of education. This compulsory nature of Mathematics carries with it the assumption that the knowledge of the subject is essential for our live

As important as mathematics to the development of the country, the subject has not been given the maximum attention that will make it to achieve its objectives. Obodo (2000, p.56) lamented the poor state of mathematics instruction in Nigeria and averred that the problem of quality of mathematics instruction and learning are from diverse sources. The teacher has been accused to be responsible for the low quality of student performance in our secondary schools (Cooney, 1994). Despite the relative importance of mathematics, it is very disappointing to note that the student's performance in the subject in both internal and external examinations has remained consistently poor Salau (1995) and Amzigo (2000, P. 8).

Many education stakeholders in the country have listed some possible problem facing the teaching and learning of mathematics and even linked it to reason for poor performance in the subject. Some of the problems listed includes; The planning aspect of mathematics education has been ignored for long. Many researchers have never deep it fit to actually look at the planning of the entire programme. Every programme required planning first before implementation. The quality of planning giving to a programme determined to an extent the level of its implementation. If mathematics as a School programme is not properly planned then the implementation will failed.

Sunday, Obed ,&Yalwa (2018, p.54) looked at the issues in Mathematics Education in Nigeria. Obodo (2006) did principle and practice of Mathematics Education in Nigeria while Odili (2006, p.34) wrote on Mathematics in Nigeria secondary school: A teaching perspective. Also, Terna, kuje, Jamila, (2018, p.78) conducted a research to investigate the problems facing the teaching and learning of mathematics in secondary schools. Research on planning of mathematics education in primary, secondary and tertiary education is limited or not even available. Base on this problem, this study aim to investigate the challenges facing the planning of mathematics programme of Senior Secondary Schools in Federal Capital Territory, Nigeria.

LITERATURE REVIEW

Mathematics can be defined as a group of related sciences, including geometry, calculus and algebra, which is focused on the study of number, space, shape, and quantity, and how they interrelate using a specialized notation. Mathematic is involved in the solution of a problem or study of some scientific field (Info-guide Nigeria, 2018). Mathematics uses numbers and symbols in the study of measurement, relationships, and properties of quantities and sets. The branches of mathematics include Arithmetic, algebra, geometry, and calculus.

Mathematics entails the study of equations, functions, geometric shapes, numbers, equations, and their relationships (Info-guide Nigeria, 2018). The place of Mathematics goes beyond the science of numbers which is taught by teachers in institutions which appeals to or feared by many students. It is vital and contributes significantly to the live of individuals, the world and society as a whole. Mathematics is an important discipline acknowledged universally and needs to be significantly spread in education to provide student the skills required for achieving higher education, career and for the achievement of personal fulfillment. mathematics affects all aspects of human life it is essential in education to assist students and all categories of people in all occupations to execute their daily tasks efficiently and productively so as to be functional, independent individuals , well informed, and members of a society, where Mathematics is fundamental(Info-guide Nigeria, 2018).

Challenges of Facing the Teaching and Learning of Mathematics

There are many challenges facing the teaching and learning of mathematics in Nigeria and other developing countries. Some of the problems include; lack of professional mathematics teachers, negative attitude of students towards mathematics programme, poor teaching method, inadequate of mathematics instructional aids, poor motivation of mathematics teachers and underfunding of mathematics education.

One of the major challenges facing the mathematics programme in Nigeria is the problem of inadequate fund. According to Ogunode (2009) the issue of funding mathematics programmeby the government and other institutions has been a major problems. The budgetary allocation to the education sector and mathematics programme in particular has been grossly inadequate as compared to funding from both developed. The education sector in Nigeria has not received much priority in budgetary allocation as it deserves over many years. Mathematics education has a lot of potentials and prospects to

offer to the young Nigerian if the government will adequately fund the programme in all aspect of education.

According to info-guide Nigeria (2018) one of the fundamental problems facing mathematics education is the lack of competent teachers in the field of mathematics. This to a great extent impedes on the ability of the students to understand and appreciate the subject even from the basis. This invariably means that a teacher who have only a shallow understanding of mathematics cannot deliver effective teaching that would impart the necessary knowledge to the students as a result there exist a gap between the contents and its application which invariably will affect student's knowledge of applicability. Also gross inadequacy of mathematics teachers in the primary, secondary and Tertiary level constitutes a greater challenge to mathematic education in Nigeria.

Many Nigerian students have phobia for mathematics. They have been told that mathematics is hard and because of that wrong impression they developed negative attitude toward the learning of mathematics. info-guide Nigeria (2018) observes that many students exhibit negative attitude toward mathematics as they see no importance of the subject in the application of real life other than for gaining admission to their respective courses in the higher institution. To some others they exercise fear and dread the abstractness of mathematics and its concepts. This problem is also link to the general society where there is a negative thought about mathematics. The wrong value and attitude towards mathematics among the people in the society signals hatred for mathematics. This trend is imbibed by the younger and upcoming students who also show hatred for the subjects. Also the emphasis place on certificate rather content has encourage many students to engage in exam malpractice to secure grades in mathematics exams without having the content (info-guide Nigeria, 2018).

According to Alade (2005, _{p.}78) in Durojaiye, &Okwuoza, (2013). Curriculum provides the content of the subject which propels educational programmes and practice. Therefore where this content is not implemented it constitutes a problem of understanding to the students and defies the attainment of the objectives of the curriculum on the students and on the society. For example right from the time of introduction of modern mathematics in Nigeria, it has developed debates as to its applicability and functionality in Nigeria.

Uwadiae (2009) quoted in vanguard newspaper, 2009 that seventy seven percent (77%) of the candidates who sat for 2008 West African School Certificate Examination failed to get credit in mathematics. In view of this National challenge, this study sought to find out what could have influenced the problem, since mathematics was introduced into the syllabus with proper study, so many problems have been confronting effective teaching and learning of mathematics like

- 1. The attitude of students towards the learning of mathematics.
- 2. Unqualified teachers or using non- mathematics specialists to teach the subject in some Nigeria schools.
- 3. Lack of learning facilities e.g. mathematics laboratories in school.
- 4. Lack of appropriate method of teaching mathematics.
- 5. Overcrowding of mathematics syllabus.

Ogunode Niyi Jacob (Investigation into the Challenges Facing Planning of Mathematics)

The problems associated with teaching and learning of mathematics is seen from the lukewarm attitudes of some mathematics teachers and their ineffectiveness in mathematics education. Lack of student-teacher relationship has also been seen in the environment in which teaching and learning is conducted. Teaching and learning of mathematics in secondary schools is very essential, no doubt because, it is regarded as a yardstick in the development of any nation. Source (iproject.com)

No educational programme can be successfully implemented without a comprehensive planning. To achieve the objective of mathematics education, the programme must be well planned. Then what is planning? According to Akpan, (2000) Planning involves examining the future and drawing up a course of action for attaining specific goals. It means working out in broad outline the things to be done and the procedures for doing them to accomplish set purpose. Planning is intelligent preparation for action. It is a process of deciding in advance what to do, how to do it, when to do it and who should do it. It bridges the gap from where we are and where we want to go. Planning is therefore, future-oriented. It is concerned with the future and involves predicting the effect of future events so that hindrances of the present could be minimized or eliminated in order to meet the future with more confidence and success (Akpan, 2000).

Now that planning have been defined, let look at educational planning, Adepoju (2000, p. 79) educational planning is the process of identifying educational needs and the direction education should take and how to implement decisions. This means that educational planning must reflect the state of development of a nation, including its needs and the readiness to execute the planned objectives. Combs cited in Akpan (2000) views educational planning as the application of rational systematic analysis to the process of educational development with the aim of making education more effective and efficient in responding to the needs and goals of the students and the society. This definition connotes that planning of education should take cognizance of the learners' needs in the areas of learning facilities and equipment, textbooks, classroom spaces and qualified educational personnel. In terms of meeting the needs of the society, educational planning should take cognizance of the manpower, cultural, social and communication needs of the society (nation) as well as the economic changes (Akpan, 2000).

Educational planning according to Akpan (2000) therefore, must take into account the population growth of children of school age in relation to educational opportunities and the demand for education. Educational planning should take into account political, economic and social changes going on in the society as well as technological changes. It is therefore, a blue-print that gives direction for future educational development and prescribes the direction and course of actions for the accomplishment of set educational goals and objectives.

Educational planning should focus on:

- 1. Identifying educational needs of the nation
- 2. Setting realistic educational goals and objectives.
- 3. Formulating a set of policies and decisions to guide implementation.
- 4. Prescribing the means (action plan) to achieve set goals and objectives.
- 5. Providing strategies for monitoring and evaluation of progress
- 6. Providing appropriate channels for feedback and review.

However, the objective of this study is to investigate the challenges facing the planning of mathematics programme of senior Secondary Schools in Federal Capital Territory, Nigeria.Specific objectives are to:

- 1. To find out if there are challenges facing the planning mathematics programme
- 2. To find out the challenges facing the planning mathematics programme
- 3. To find out the implication of the challenges on the implementation mathematics programme

In order to give direction to this study, the following research question where generated to guide this study:

- 1. Are there challenges facing the planning mathematics programme?
- 2. What are the challenges facing the planning mathematics programme?
- 3. What is the implication of the challenges on the implementation mathematics programme?

Based on the research questions raised, two hypotheses to test the hypotheses:

- H0: There is no significant relationship between challenges and planning of mathematics programme
- H1 There is significant relationship between challenges and planning of mathematics programme
- H0 There is significant relationship between challenges and implementation mathematics programme
- H2 There is significant relationship between challenges and implementation mathematics programme

METHOD

The study adopted descriptive research survey design. This research work was carried out in FCT. The total population of the study was 90 education officers with specialization in mathematics related field. Ten [10] mathematics teachers from each area council and five [5] quality assurance [planners] officers making from each of the area council making a total of ninety [90]. The population of the study comprised ninety (90) respondents.Stratified and systematic sampling technique was used to select the sample population from the educational institutions across Abuja.

A structured questionnaire, titled the 'Investigation into the Challenges Facing Mathematic Education Questionnaire' (ICFMEQ) was used in collecting information for the study. It is an open item questionnaire and is made up of two sections 'A and B'. Section A explained the rating scale and instructions to the respondents on how to fill the questionnaire, while section B was organized in line with the three research questions of the study.

The questionnaire contains 10 sub-question items, and the response options with values assigned to them are: Yes and No. To ensure the face and content validity of the instrument, two experts in the Department of Educational education and Planning University of Abuja were sent copies of the questionnaire to along with copies of the research questions and the purpose of the study. They scrutinized the items in terms of clarity and adequacy in addressing the purposes and research questions. Their suggestions were used to produce the final draft of the questionnaire used in this study.

The reliability of the instrument was determined through the test re-test method. Twenty teachers of mathematics were administered twenty (20) copies of the instrument in Niger state closer to Abuja and after one week, the questionnaire was re-administered to the same teachers. The scores of the first and second administrations were correlated using Pearson Product moment Correlation Co-efficient statistic and the correlation co-efficient value stood at 0.83 which was considered high enough to confirm the instrument reliable.

Data was collected by the questionnaire and were analyzed using percentage and chisquare.

RESULT AND DISCUSSION

Research Question One:

1. Are there challenges facing the planning of mathematics programme?

Table 1. Responses Subject

No	Item	Yes	%	No	%	Total
1	Are there challenges facing the	74	82.22	16	17.88	90[100]
	planning of gender education					

In regard of if there are challenges facing planning of mathematics programme, research question one table one item one showed that 74(82.22%) of the respondents ticked Yes that there are challenges facing the planning of mathematics programme while 16(17.88%) ticked No that there are no challenges facing the planning of mathematics programme. This means that the majorities of the respondents agreed that there challenges facing the planning of mathematics education.

Research Question Two:

2.What are the challenges facing the planning mathematics programme?

Table 2 Responses On The Challenges Facing The Planning Of Mathematic	s
Programme.	

No	The following are challenges facing	Yes	%	No	%	Total
	the planning of mathematics					
	education					
1	Inadequate data/information	67	77.44	23	22.66	90[100%]
2	Inadequate funding of planning	66	73.33	24	26.66	90[100%]
	mathematics programme					
3	3 Poor capacity of few mathematics		65.55	31	34.44	90[100%]
	planner					
4	Inadequate professional		75.55	22	24.44	90[100%]
	mathematics planners					
5	Political instability	49	54.44	41	45.55	90[100%]
6	Corruption	62	68.88	28	31.11	90[100%]
7	Lack of political will to support	65	72.22	25	27.77	90[100%]
	planning of mathematics education					
	planners					

In respect of challenges facing planning of mathematics programme, research question two item one showed that 67(77.44%) of the respondents ticked Yes that inadequate data/information is a challenge facing planning of mathematics programme while 23(22.66%) of the sampled respondents ticked No that inadequate data/information is not a challenge facing planning of mathematics programme. This implies that the majorities are of the view that that inadequate data/information is a challenge facing planning of mathematics programme. This result is in agreement with Otive (2017) who observes that there is no systematic planning framework for the country that ensures that adequate data and research, good information system, monitoring and evaluation and

tracking of results. The end result is abandonment of projects, poor plan implementation and poor service delivery.

Research question two item two revealed that 66(73.33) of the respondents ticked Yes that Inadequate funding of planning mathematics programme is one of the challenges facing planning of gender education while 24(26.66%) of the sampled respondents ticked No that inadequate funding of planning mathematics programme is not one of the challenges facing planning of mathematics programme.This result is in line with the submission of Nwachukwu(2013, p.41) who opines that funds provide for education planning is too small for proper planning to take place. The condition of the sector remains a thing of concern. Under-funding and systemic corruption makes the matter worse. The insufficient funding of the education planning sector stands as one of the major factors working against effective planning and implementation of education programmes.

Research question two item three disclosed that 59(65.55%) of the respondents ticked Yes that poor capacity of few mathematics planner is one of the challenges facing planning of mathematic programme while 31(34.44%) of the sampled respondents ticked No that poor capacity development of few mathematics planner is not one of the challenges facing planning of mathematics programme.

Research question two item four showed that 68(75.55%) of the respondents ticked Yes that Inadequate professional mathematics planners is among the challenges facing planning of mathematics programme while 22(24.44%) of the sampled respondents ticked No that inadequate professional mathematics planners is not among the challenges facing planning of mathematics programme. Ogunode (2009, p.34) submitted that one of the challenges facing education planning in Nigeria is the shortage of professional planners.

Research question two item five showed that 49(54.44%) of the respondents ticked Yes that political instability is among the challenges facing planning of mathematics programme while 41(45.55%) of the sampled respondents ticked No that political instability is not among the challenges facing planning of mathematics programme.

Research question two item six showed that 62(68.88%) of the respondents ticked Yes that corruption is among the challenges facing planning of mathematics programme while 28(31.11%) of the sampled respondents ticked No that corruption is not among the challenges facing planning of mathematics programme.

Research question two item seven showed that 65(72.22%) of the respondents ticked Yes that lack of political will to support planning of mathematics education planners is among the challenges facing planning of mathematics programme while 25(27.77%) of the sampled respondents ticked No that lack of political will to support planning of mathematics education planners is not among the challenges facing planning of mathematics programme.

Research Question Three:

3. What is the implication of the challenges on the implementation mathematics programme?

No	The following is the implication of	Yes	%	No	%	Total
	the challenges on the					
	implementation mathematics					
	programme					
1	Poor implementation of the	82	91.11	8	8.88	90[100]
	mathematics programme					

 Table 3 Responses on Implication of The Challenges On The Implementation

 Mathematics Programme.

In regard of the implication of the challenges on the implementation mathematics, research question three table three item one showed that 82(91.11%) of the respondents ticked Yes that the implication of the challenges on the implementation mathematics is poor implementation of the mathematics programme while 8(8.88%) ticked No that implication will not lead to poor implementation of the mathematics programme.

TESTING HYPOTHESIS

- H0: There is no significant relationship between challenges and planning of mathematics programme
- H1 There is significant relationship between challenges and planning of mathematics programme

Table 4 Hypotheses Testing

Variables	Ν	Df	r-cal	r-table	Result
Х	90	88	0.587	0.195	Significant
Y	90				

The table above showed that the r calculated is 0.587 which is greater than the t calculated of value 0.195. This means that there is significant relationship between challenges and planning of mathematics programme.

- H0 There is significant relationship between challenges and implementation mathematics programme
- H1 There is significant relationship between challenges and implementation mathematics programme

Table 5 Hypotheses Testing

Variables	Ν	Df	r-cal	r-table	Result
Х	90	88	0.558	0.195	Significant
Y	90				

The table above showed that the r calculated is 0.558 which is greater than the t calculated of value 0.195. This means that there is significant relationship between challenges and implementation mathematics programme

CONCLUSION

The objective of this study is to investigate the challenges facing the planning of mathematics programme of senior Secondary Schools in Federal Capital Territory, Nigeria. Specific objectives are to:

- 1. To find out if there are challenges facing the planning mathematics programme
- 2. To find out the challenges facing the planning mathematics programme
- 3. To find out the implication of the challenges on the implementation mathematics programme

Data were collected and analyzed and the following conclusion was draw that there are challenges facing the planning of mathematics programme of senior secondary education and the challenges includes; inadequate data/information to plan, inadequate funding of planning mathematics programme, poor capacity development of few mathematics planners, inadequate professional mathematics planners ,political instability, corruption and lack of political will to support planning of mathematics education planners. The study concluded that the implication of the challenges on the implementation mathematics education is poor implementation of the mathematics programme in the senior secondary schools.

Based on the findings, the researcher suggests the following:

- a. The government should increase the funding of educational planning in the country especially mathematics education
- b. The government should employ more mathematics planners in the various ministries of education to aid the effective planning of mathematics programme in the country
- c. Training and retraining programme should be organized for the mathematics planners to improve their capacity of planning mathematic education
- d. The government should strengthen its various agencies to improve on data/information generation and management
- e. The government actors should imbibe the culture of implement policies geared towards the development of mathematics programme in the country

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