



MATHEMATICS CURRICULUM IMPLEMENTATION IN NIGERIAN JUNIOR SECONDARY SCHOOLS

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Abstract

Implementation is an act of translating the curriculum content to the learners and it is important in achieving the goals and objectives of any curriculum. In this paper the discussion is on the mathematics curriculum implementation in Nigerian Junior secondary schools and the following concepts have being discussed: concept of curriculum, concept of curriculum implementation, factors that enhance the implementation, mathematics curriculum and its developmental stages from traditional, modern to general mathematics, the problem faced at each stage were highlighted and discussed. The paper also discussed the implementation of mathematics curriculum in both public and private schools and some factors which affect the implementation such as: Teachers, unconducive school Environment, Teachers student ratio. Some recommendations were made which include: employment of trained and qualified teachers, regular and thorough supervision and provision of conducive learning environment. Finally, the researcher find out that the level of implementation of mathematics in Nigerian Junior secondary schools affected with so many factors which is caused of failure and phobia of students in mathematics.

Keyword: *Mathematics, Curriculum Implementation, Public and Private Secondary Schools.*

INTRODUCTION

Curriculum implementation is very crucial in achieving aims and objectives of the planned curriculum and educational system in general, because it involves translating the curriculum document to the target learners whom

the curriculum purposely designed for. Curriculum implementation is the dissemination of the structured set of learning experience, the provision of resources to effectively execute the plan and the actual execution of the plan, in the classroom setting, where teachers' learners' interaction take place (Ivow, 2009). More so, mathematics as one of the core and compulsory subjects for both primary and post primary schools in Nigeria and without it, students cannot advance to Nigerians Universities. But the high rate of failure in mathematics, at both internal and external examination in Nigeria remained an issue of concern to educators, parents, students and government. Government and experts in different field of education are always making effort to find solution to this lingering situation still the mass failure is being recorded. Ajayi (2000) noted that, the performance of students in junior secondary in Nigeria has remained an issue of concern to all stakeholders, parent and educational researchers. As a result of the aforementioned failure by the students, most of the students in Government and Private own schools developed negative attitude toward mathematics.

However, the study tried to find out the nature of mathematics curriculum implementation in Nigeria Junior secondary school. There are many factors that account for the mass failure in mathematics by secondary school students. Literatures have shown some practical evidence to some factors that constitute mathematics failure such as teachers' qualification, teacher student ratio and unconducive school environment. Despite the identification and concern by government, teachers and stake holders gave to these factors; one could imagine that students still failed. In addition, peoples mind begin to debate wether teachers did not teach well or the curriculum is faulty. As such, the study tries to investigate the level of implementation of secondary school mathematics curriculum so as to fish out the major problem and resolve the debating mind people.

CURRICULUM

The definition of curriculum has no consensus among the curriculum experts, it is being defined base on individual perspective as follows: Offomer (2005) sees curriculum as a planned learning experience offered

to a student in school or college, adding that it is a program of studies made up of three components: program of studies, program of activities and program of guidance. Curriculum can be taken to mean the instrument by which schools use to translate the hopes of the society in which they function into concrete realities to the learners, it is designed and sequenced, and also a means through which education attained the desirable goal of societal need (Offormer, 2014). Hamna (2015) sees curriculum as a set of planned and guided learning experience for the learners' continuous and wilful growth. Tricia (2010) defines curriculum as a prescribed course of study which students must fulfil in order to pass a certain level of education.

Curriculum is a document which contained needs of society stated in goals and objectives with arranged content and learning experience that are expected to transfer to the learners for better transformation of the learners and the society. The various meaning given curriculum makes it to be in different kinds such as society-centered and subject centered curriculum. The subject matter of this discussion falls into subject centered curriculum.

CURRICULUM IMPLEMENTATION

Curriculum implementation is the most important aspect of any planned curriculum, Obanya (2007) defined implementation of curriculum as day to day activities which school management and classroom teachers undertake in the pursuit of the objectives of any given curriculum. Chikumbi and Makamure (2000) viewed curriculum implementation as putting into practice the official courses of study, syllabuses and subjects. In curriculum implementation the learners for whom the program is being planned interact with the content and materials in order to acquire the necessary skills, attitudes and abilities (Mkpa & Izuagba, 2009). However, curriculum implementation cannot be meaningful without taking some factors into consideration as described by constructivist:

1. **Teachers:** - This is a trained person trained to teach in the society who has the responsibility of disseminating the content of curriculum to the learner. If untrained or unwilling teacher take the

Job of implementing curriculum the desired success of plan curriculum cannot be attained. (Ben 2008). The level of teachers' professional qualification and mastery of the content are essential for effective content implementation (Mehmet, 2005). Demurko (2011) stated that lack of teachers' competence and teaching qualification imply that wrong and poor method of teaching will be used in the class, and once that happened the criterion of methodology as determinant factor in curriculum implementation is equally affected.

2. **Methodology:** Methodology is a fundamental factor in determining the level of curriculum implementation. And the method shall not entirely be teacher based, it should be relevant to curriculum content, learner's need i.e. the methodology should be suggest activities for both teachers and students. Aminu (2005) mentioned that effective curriculum implementation cannot be achieved without proper evaluation of the methodology used in the delivery of the curriculum content to the learners. This implies that wrong application of teaching method can hinder the implementation of curriculum.
3. **Instructional Materials:** Constructivist believe that application of appropriate learning and instructional materials aside from the explicit, easier, simple and aid retention of the lesson is paramount (Abdu, 2014) Mehmet (2005) reveal that constructivist approach to curriculum implementation stated that, instructional materials are supposed to make learning real rather than abstract.
4. **Teachers' Competency:** The teacher (s) competency is an important factor that facilitates and enhances effective curriculum implementation. Mehmet (2005) posit that teachers' qualification and mastery of the content of the lesson is important for effective curriculum implementation. The author further noticed that teachers who are not competent tend to skip difficult topics to simple one's, the issue of skipping some topics included in curriculum are deterrent to implementation.

- 5. Learners Population:** The of the learners can positively or negatively influence curriculum implementation. If the number is manageable, it will encourage effective method as well as instructional materials to satisfy the psychological needs of the learners. But overcrowded classroom setting negatively affect the implementation.

Furthermore, poor implementation of the mathematics curriculum content as noted by Aminu (2205) result to students' inability to cope appropriately with the Academic challenges at the tertiary institution. Base on the researcher direct observation in some secondary school in Gamawa LGA of Bauchi state. It was observed that during mathematics curriculum implementation effective instructional materials are not available; the mathematics instructors have lower qualification and even some were not specialist in the field and also, the class size does not encourage active learning. However, literatures revealed that the general mathematics still adapted the traditional way of implementing mathematics curriculum this is because, the teacher is the activist in the curriculum implementation while the students were just massive respondents.

MATHEMATICS AND CURRICULUM

Ojrinde (1999) sees mathematics as a tool used in science, technologies and industries, the knowledge is require to every individual for efficiency in this life. Usman (2002) mentioned that everywhere we go, everything we do or propose to do, either the structure of mathematics or its applications play a vital role, and this is why most countries races and people put emphasis in all aspect of studying developing and applying mathematics.

In Nigeria mathematics curriculum have three developmental stages, which includes; traditional, modern and general mathematics. The poor method of teaching and foreign nature of teaching materials during the traditional mathematics curriculum led to mass failure in public examinations which attracted the attention of the general public as such the idea of a more scientifically and practically oriented mathematics curriculum was introduced which is modern mathematics (Lassa 2004).

According to Fajemidagba (2001) modern mathematics too was partially foreign based and introduced in Nigeria secondary schools in 1964 without proper and adequate preparations. Due to some reasons such as: lack of qualified mathematics teacher, low standard and poor quality of the few existing mathematics teachers, absence of teaching materials and lack of motivation (Shirley 2008). To add other reason as mentioned by National Education Research Council (NERC) (2007) even the teachers college and University were not able to produce enough qualified mathematics teachers for the programmed, the aforementioned reasons necessitated the abolishment of the modern mathematics with the introduction of General mathematics curriculum, the general mathematics curriculum was developed and implemented in junior secondary school in 2009 (NERC 2009). According to NERC (2009) because there is no room for pilot testing the general mathematics curriculum before its implementation, for this, the problems experienced in the lass two mathematics curricular are still manifesting. More so, the researcher in this paper embarked on the research to find out the implementation of general mathematics curriculum.

FACTORS TO BE CONSIDERED IN IMPLEMENTATION OF THE MATHEMATICS CURRICULUM

There are fundamental issues to take into cognisance which are very crucial for the successful implementation of the mathematics curriculum, the issues among others are: Provision of teaching and learning facilities, teachers' participation in curriculum planning, assessment and implementation, teachers qualification, funding, motivation of teachers and Regular supervision and inspection (Abdu 2014)

Provision of teaching and learning facilities: This enhance the implementation of mathematics curriculum, olokor (2006) indicates lack of proper teaching and learning facilities makes curriculum implementation impossible and slow as teachers who are responsible and dutiful spend time on revision. The provision of adequate teaching and

facilities are serious issues in mathematics curriculum implementation in secondary schools because of their inadequacy in Nigeria (Ughamadu, 2004, Olorokor, 2006, Babalola, 2004 and Abdu, 2004).

Teachers Participation: The involvement of teachers in curriculum design and evaluation is relevant and necessary because teachers are the real implementers of the curriculum content (Nwachukwu 2005). Abdu (2004) stated that teachers' involvement in the key areas of the selection of content is important due to their closeness to students, they have the clear knowledge of the learners' intellectual disposition background, ability and psychological needs in Nigeria context teachers are being kept in classroom, this posit many challenges during curriculum implementation.

Teachers Qualification: The teachers qualification will contribute meaningfully to the teachers' mastering of the content and how it can be effectively pass down to the learners.

Funding: It is the process of providing the school administrators with the funds they will use in purchasing instructional materials, provision of conducive learning environment which will enhance the implementation of curriculum and understanding of the disseminated content of the curriculum. Aminu (2005) highlighted that without fund materials needed for effective implementation of mathematics curriculum cannot be provided and lack of it will automatically make implementation impossible.

Motivation of Teachers: When the teachers are well motivated they will have more interest in the teaching profession, this will stimulate them to properly discharge their duties and responsibilities. Lack of motivation discourages competent and qualified people to joint teaching profession and those in the profession are just awaiting more promising job to leave. These problems have detrimental impact on curriculum implementation (Aminu 2005).

IMPLEMENTATION OF MATHEMATICS CURRICULUM IN PUBLIC AND PRIVATE SCHOOL IN NIGERIA

Public schools are schools established and funded by the government of the nation and all students attained free cost. The public schools have the following characteristics as noted: Tuition free, centrally run by board, overseen by the ministry of education, adjusting managerial styles for improve service deliver and responding to change (Guga, 2014). The administration and control of public schools is sole responsibility of the government.

However, private school are being established and funded by individual, group of people, Business or religious organisations. According to Guga (2014) the private schools have been characterized as: Supported by private organization or individual rather than by the state; independent schools that are supported wholly payment of fees; schools that are not administered by local, state or federal government. They have the right to seek their students and they are schools that do not rely on mandatory taxation through public or government funding.

In addition, public and private schools differed in many aspects but this paper will look into things that contribute in the implementation of mathematics and their effect in mathematics curriculum implementation.

Qualified Teachers:

Teachers play an important role in functioning of schools and implementing curriculum in both public and private sectors, in public schools teachers' qualification must meet state mandate requirement and be highly proficient in their subject areas. This indicates that public schools utilized the service of qualified teachers' but in private schools must of the teachers are not qualified or untrained (Kabiru, 2015). The above sentences showed that public schools teacher will handle the task of curriculum implementation effectively and efficiently than their counterpart in private setting.

Students-Teacher Ratio:

Kabiru (2015) stated that private schools have reasonable small class size and greater control over the classrooms, Teachers-student, ratio is smaller in private school and teachers give complete attention to students than public schools which have larger overcrowded classroom. A teacher in public schools will only remember the name of student who often participates in class activity because teachers-student ratio is larger. The effect of class size in term of curriculum implementation will be more in public schools than in private schools.

Provision of Facilities:

Private schools have large spacious school building but small classroom, facilities like libraries, toilets, and playground are not available (Agi, 2013) but Kabiru (2015) noted that facilities in public schools including buildings, halls, library, fortune and utilities like electricity, water supply and toilet are adequately provide by government. The conduciveness that enhances curriculum implementation of mathematics is more available in public schools than privates.

However, both public and private schools are being affected with so many factors that hindered the smooth implementation of mathematics curriculum which will be discussed in sub-heading below.

FACTORS AFFECTING MATHEMATICS CURRICULUM IMPLEMENTATION IN NIGERIA

TEACHERS:

There are insufficient and qualified mathematics teachers that will served with the task of implementing the curriculum. Abdu (2014) observed that, the teachers' competency and effectiveness in mathematics have been one of the problems in mathematics education without good reliable system which will train qualified personnel that will handle the task, how can the mathematics curriculum be effectively implemented. It is true that teachers knowledge of the subject-matter, and content of a discipline has influence on students achievement, (Abdu 2014) this implies that the

masses failure of Nigerian students in most examinations of mathematics occur as a result of improper implementation of its curriculum.

TEACHER STUDENTS RATION

The over population of students in a classroom setting creates a barrier when implementing mathematics curriculum; the teacher will not be able to discharge the duty of implementing the curriculum. The number of students in a given class cannot be effectively control by a single teacher and it will be difficult for the teacher to properly evaluate crowded class.

UNCONDUCTIVE SCHOOL ENVIRONMENT

A school environment where not well ventilated, full of noise frequently disrupt the learning activities as such curriculum implementation will be hindered and the teacher in question will not be able to carry out his/her duties effectively and efficiently. This portray that the school environment in Nigerian school is not students friendly.

RECOMMENDATIONS

Based on the finding, the following recommendations were made:

1. Government should inject more fund in the educational sector
2. Trained and qualified mathematics teachers should be employed to handle the task of implementing the curriculum of mathematics
3. Regular and thorough supervision and inspection should be embarked on to check and make the level of mathematics curriculum implementation nationwide.
4. Teaching profession should be regarded with highest esteem in the country.
5. Workshops and seminars should be frequently organize to mathematics teachers in order to enhance their ability.

CONCLUSION

In Nigeria, poor curriculum implementation is major problems that constitute mathematics mass failure at secondary school level. There is poor apportionate of mathematics responsibilities to teach i.e. mathematics curriculum is being implemented by those that are not specialist in the field in fact some teachers that are handle the subject have no extensive knowledge of the subject matter.

However, there is low compliance to modern information and communication technology in teaching and learning of mathematics in Nigeria. This affects the effective implementation of the subject. To some extent, there is frequent turnover of mathematics teachers in secondary schools. More so, take the case of youth corps members how they were posted to handle mathematics curriculum implementation for just a year and leave the implementation half way. In addition, the suggested principle of mathematics curriculum by constructivist approach discuss in this paper are not adequately practice in most of the Nigerian secondary schools as observed by the researcher during investigation.

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