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THE ROLE OF POLITICS ON NATIONAL MATHEMATICS CURRICULUM IN NIGERIA: A HISTORICAL PERSPECTIVES

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Abstract

The study was designed to examine the role of politics on National Mathematics Curriculum from the pre-independent period to the contemporary date. As an historical study four periods were identified to have direct bearing on the Mathematics Curriculum. Sequel to the Curriculum conference of 1969 and government sensitization to put the nation on sound Educational system as dictated by the Universal Primary Education (UPE) in 1976, government pronounced the cancellation of "Modern Mathematics" and changed to three separate Mathematics Curriculum in order to realize education for "Self-reliance". Some of these political roles and under tones were either positive or negative forms but they suggested a better reform in the National Curriculum on Mathematics that the nation is enjoying today, and as reflected in the National Mathematics Curriculum.

Introduction

Development of Mathematics was mooted out of solving agricultural system around the River Nile in Egypt by 550 B.C, since farming was regarded as the main sustenance of the entire political structure then. Land was divided to accommodate the competing agricultural needs around the river that provide better irrigation system for farming. There was no distinction between Mathematics and Mathematics Education until 1890s when educationists worldwide were concerned about how to make the school curriculum functional and dynamic as against achieving narrow objectives of solving Agricultural problems that Mathematics was subscribed-for (Jones, 1970). History had it that various moves to position school subjects according to their relevance and

contribution to the development of the society sees Mathematics as one of the subjects that cut across all human endeavours and that was why it was suggested by various interest groups that it should be made compulsory for all in order for everyone to contribute meaningfully to the total development of the society. Prominent among the interest groups, according to George (1986), were "Humanists" led by Elliot and Harris who emphasized the importance of traditional disciplines of knowledge as an embodiments of Western cultural heritage. To this end they suggested that Mathematics should be made compulsory for all to do as a symbol of individual's contribution to societal progress.

As a result of different political ideology, another interest group "Developmentalists" under Hall as corroborated by (George, 1986), argued that Mathematics Curriculum should be based on the natural order of development in the child rather than forcing it on everyone. Mathematics Curriculum should be based on the natural order of development in the child rather than forcing it on everyone. Taking a mild and soft side with the developmentalists was another interest group "Social Efficiency Educators" under Rice that advocated scientific approach to developing Mathematics curriculum that would contribute to smooth functioning and efficient society. Such Mathematics curriculum should prepare the individual for his/her predetermined place in the society. Another group "Social Meliorists" led by sociologist Ward saw the schools as an instrument for improving society. With these interest groups Mathematics curriculum came under serious and divergent politics as to what group of learners should offer the subject in the school system without compromising individuals' right.

Sequel to the role of political interference other various bodies came on board as a fall out of different conferences to lend credence to the role of Mathematics curriculum. Prominent amongst these were the National Educational Association (NEA) in Canada in 1893, and the National Council of Teachers of Mathematics (NCTM) Conference (Washington D.C) in 1920 to harmonize these ideological differences in the Mathematics school curriculum. The activities of these bodies spread across the globe and sensitized people on how to accommodate divergent ideologies in the curriculum towards functional and dynamic one. This intervention led to the establishment of Nigeria Education Research Council (NERC, 1964), which was charged to prepare Mathematics curriculum for deliberation ahead of the National Curriculum Conference, scheduled for 1969. The context of politics is dual in nature as it includes both the direct and indirect politics. Direct politics refers to the policy makers in deciding the turn of event and eventually carried it out to suite their purpose even though it might contradict the masses opinion but just to score political point against the

opponents. On the other hand, indirect politics refer to series of movement by different bodies or agents to actualize the betterment of the society despite the fact that they have no direct power to achieve such goal, but they make public awareness on important issues. Hence, politics means the activities of people that unite them together as a result of specific interest to preserve, though not necessarily including personal gain in the short run but it would bring about changes in the life style of people that would say something positive of them later. The second type of political move is being referred to in the present study.

Statement of the problem

It should be noted here that the role of politics and series of under tones on Mathematics curriculum had great influence on Nigeria even when the nation had never existed as an entity as it is today. As a result the study was designed to examine the phases of development in Mathematics Curriculum in Nigeria with emphasis on the role which politics had on Mathematics from the pre-independent period to the contemporary date. Specifically, it examined the influence of politics on the Mathematics contents at the primary, secondary and teacher training colleges relatively to the situations on ground.

Objectives of the study

The objectives of this paper include critical examination of the followings:

i. Mathematics Curriculum period of the pre-independence to 1960.
ii. Post independence Mathematics Curriculum period to 1969.
iii. Mathematics Curriculum transition period of (1970-1977).
iv. Mathematics Curriculum transition period of (1977 to date).

Methodology

The study was an historical one, which focused on the different roles of politics on the Mathematics curriculum from the pre-colonial period to the present state in Nigeria.

Mathematics curriculum period of the pre-independence to 1960

Prior to the colonial administration the influx of the early missionaries to Africa, and Nigeria, in particular, had the mission of spreading the gospel which

was feasible only through education as those missionaries were in need of the local men that would interpret the Bible. The school curriculum comprised the missionaries' needs in the areas of Readings, Writings, Calculations and Arithmetic with a domination of foreign contents. The arithmetic was designed to an extent to make it easier for the missionaries account for day to day spending and give report to mother bodies in Britain; and not that relevant to the needs of average Nigerian. According to Badmus (1997) early Mathematics books were efficiency arithmetic, dominated with a shilling arithmetic and authored by Larcombe. These were politically planned to slow down the rate of development for which Mathematics serves as an index. During that period writtens by Durell, Chanon and Smiths were the main books used in schools. English and Mathematics were made compulsory at the higher elementary teachers colleges where Mathematics consisted of arithmetic, algebra and geometry. Some of these higher elementary colleges included the Church Missionary Society (CMS)'s teacher-training college in Abeokuta in 1859, though it was moved to Lagos in 1867 and later moved to Oyo in 1896 to become St. Andrews College, Oyo. Other denominations like Baptist founded Baptists training college at Ogbomoso in 1897, the Wesleyan Methodist Missionary society established Hope Waddell (training) institute in 1892 and Nassarawa School in the Northern part by the government in 1909 (Fafunwa, 1974; 1991). The irony of the matters was that each missionary decided what to teach in Arithmetic in her area of jurisdiction, no uniform Arithmetic Curriculum for the entire entity.

In 1956 Mathematics became one single subject in the West African School Certificate Examination and Arithmetic remained a separate subject from Mathematics in the teachers training colleges. The curriculum neglected the integrated Mathematics curriculum that emphasized process and concepts in Mathematics, rather routine calculation was embraced. Integrated Mathematics curriculum provides alternative to solving problems and reinforces insight in more than one way for the understanding of the problem. By 1959 the West African School Examination Council came up with three Mathematics curricula in the secondary schools with specifications as alternative A, which comprised Arithmetic processes, algebra, geometry and trigonometry. Alternative B contained the same items as in A with additional topics in coordinate geometry and alternative C contained topics in commercial subjects for commercial students. Alternatives A, B and C were for the average students in Mathematics (Badmus, 1997). By interpretation the Mathematics Curriculum did not cater for interest of the mathematically inclined students towards science and technology. This development is one of the devastating roles which politics subjected the nation Mathematics Curriculum at the secondary school levels into. It resembles

that of the nineteen centuries of the Primary school Mathematics Curriculum when there were no concrete efforts to prepare primary pupils for Mathematics save arithmetic. Apart from that most of the personnel that handled students in the higher elementary colleges were foreigners with no Nigerians. The emerging independence of Nigeria transformed these politics to a meaningful course for science and technology, which resulted into drastic change in Mathematics curriculum for the nation. The major cause of the changes in the Western world and in Nigerian school Mathematics Curriculum and programmes was the launching of the Sputnik, the first earth satellite space in November 1957 by Russians.

Post independence Mathematics Curriculum period to 1969

Major conferences and projects held around the world such as Conferences of Sciences in the Advancement of New States of Rehovoth, Israel in 1960, African Education Programme held in Endicott House, Delham Massachussets in 1961, Entebbe Secondary School Mathematics, the Joint School Project (Ghana Project) and School Mathematics Project (SMP) among others spurred the African nations to look inward into how to make the school curriculum dynamic. This led to the series of workshops like African Mathematics Group (AMG) projects in 1964, which was chaired by Grace Alele-Williams. These curriculum reform activities culminated in the mandate of Nigeria Education Research Council (NERC) to map out curriculum needs in all subjects, Mathematics inclusively, for the 1969 National Curriculum conference. The national curriculum conference of 1969 was an extensive deliberation on a way out pre-independence politics left behind by the colonial people on school curriculum, Mathematics inclusively. Essentially, the secondary school Mathematics Curriculum consisted of Arithmetic processes, Algebra and Geometry, which emphasized rote learning as against the integrated Mathematics to attain high level of scientific outlook. The outcome of the conference was the birth of the 'Modern Mathematics 'Curriculum that comprised the topics like Set theory, Binary operation among others. Most of these topics were rote learned as problems envisaged earlier still persisted. As at that period Modern Mathematics Curriculum, which was regarded to solve preceding Mathematics Curriculum was later found inadequate. Many indigenous mathematicians saw it as a gimmick by some cross section of people to retrogress the Mathematics curriculum of the young nation. Success of its introduction was not unconnected too much link, which some trained Nigerian educators had with the colonial master that had

skimmed another avenue to perpetuate slow development of the nation. Some of the then educators were not aware.

Mathematics Curriculum transition (1970-1977)

Modern Mathematics spread its tentacles faster among the primary schools though with varying period of commencement in the different parts of the country. It started in Lagos State primary schools in 1971, while other states of the federation started in 1974. The political under tones experienced during that period include acute shortage of personnel to implement the curriculum, lack of suitable textbooks, multiplicity of courses and poor level of information dissemination by existing educational bodies. Evidence was glaring that Northern states had no trained teachers to handle the curriculum. In 1973, Modern Mathematics curriculum was drawn for the secondary schools as it was thought to make Mathematics more meaningful, and make use of set theory to make Mathematics concepts meaningful but few teachers could do this. This is another political under tones on the implementation of Modern Mathematics curriculum. The efforts of the NERC, Mathematical Association of Nigeria (MAN), Institutes of Education of Universities and West African Examination Council made the nation to realize the flaws in the scope and contents of Modern Mathematics, which some educators believed were the handwork to re-enslave Nigeria via her school system. The poor Mathematics result in WASCE 1974 was part of evidence that there was problem in Modern Mathematics. As a result of consistence failures in Mathematics for which Modern Mathematics was high around 1977 due to examination tension, increased and culminated in the malpractice scandal of 1977 tagged 'Expo 77'. This made different mathematicians like Iya Abubakar, Chike Obi, Adegoke Olubunmo, James Ezeilo and their contemporaries to cry out and suggested for the cancellation of Modern Mathematics. The activities of some of those mathematicians led to the formation of different Mathematics movement to protect the nation curriculum from further degenerating into backwardness among other nation. Some of these movements include African Mathematics Union's Commission on Women in Mathematics in Africa (AMUCWMA) by Grace Alele Williams and others. It was obvious that the non-appropriation of the Modern Mathematics curriculum also slowed down the pace of science and technology. The phenomenon as at that period affected teacher-training curriculum that was prepared to cater for the teeming pupils of the primary schools. Furthermore, the government was nursing the ambition of the Universal Primary Education (UPE) to start in 1976, saw the need to arrest students' mass failure and to put the nation on the threshold of science and

technology, organized stakeholders' meeting in 1977 in Benin. Col. A.A. Alli (Federal Commissioner of Education) chaired the conference.

Mathematics Curriculum transition (1977 to present date)

The 1977 Benin conference on Modern Mathematics marked a great turning point on the Mathematics curriculum as the participants met something different from their expectation of curriculum situation as at then. While the participants were deliberating on the way out of correcting the problems engendered by 'Modern Mathematics' the then federal commissioner of Education announced that government was no longer interested in the continuation of Modern Mathematics. This singular pronouncement caught the stakeholders with great surprise as the conference upholds the pronunciation to be the end of the subject. At the conference NERDC was mandated to come up with proposal to put Mathematics Curriculum especially at all levels on sound footing. This body organized series of workshops among which was a national critique workshop on Mathematics Curriculum at Onitsha in March 1978 under eminent mathematician, Professor J.O.C. Ezeilo and came up with Primary school Mathematics Curriculum, Primary teacher education Mathematics Curriculum and Secondary Schools Mathematics Curriculum. Table 1 shows the Nature of Mathematics Curriculum in the Secondary Schools, testifying to the laudable scope and contents of Mathematics at that level.

The role of politics on National Mathematics Curriculum and its influence on the level of science and technology in Nigeria is further enumerated by contents areas which the present Mathematics Curriculum at different levels comprised, and as reflected in the tables

Table 1: Nature of Mathematics Curriculum in the Secondary Schools

S/N	Major Topics	Junior School Topics	Senior School Topics
1	Numbers and Numeration	Number System, Functions, Decimal, Factorization, Proportion and Approximation	Indices and Logarithms, Exponents, Set Theory and Progression
2	Algebraic processes	Mathematical-statements, Simple-equations-and-Inequalities Variables	Quadratic-equation, Simultaneous equation, and Inequalities
3	Geometry and Menstruation	Basicpropertieson2-and3-dimensional-shapes, properties of angles, scales and the elementary-trigonometry-ratios	Geometrical Constructions, basic Euclid Theorems, Advanced mensuration in 2- and 3-dimensional shapes
4	Everyday Statistics	Data collection techniques and graphical-representation, frequency	Construction-and interpretation of statistical

		tables, measures of central tendency (mean, median and mode), elementary ideas of probability	representation, Histogram, Bar Graph and Chart, Group Data Analysis, Measures of central tendency and dispersion in a continuous case and data interpretation
5	Trigonometry	---	Further treatment of angles and compound angles, equation involving trigonometry identity
6	Probability	---	Experimental and theoretical probability, conditional and discrete cases

Source: National Curriculum for SSS by Federal Ministry of Education (1985)

Table 2: Nature of Further Mathematics Curriculum in the Secondary Schools

S/N	Major Topics	SS I	SS II	SS III
1	Pure Mathematics	Identification-and Mensuration-in-2-and 3dimensions.Constructio n, Formal Geometric Proofs, Trigonometric Ratios, Indices and logarithms, Calculating- and Processing Devices, Algebraic Equation, Polynomials, Partial Fractions, Linear Inequalities and Logic	2-dimensional Rectangular Cartesian Coordinates, Differentiation, Logic, Sets, Mappings, Operations, Calculating and Processing Devices, Geometry and Trigonometry	Mensuration in 3 dimensions, Analysis, Functions, Calculating and Processing Devices, Matrices and Determinants
2	Mechanics	Vectors and Dynamics	Vector Geometry, Dynamics	Static
3	Statistics	Measures of Location and Dispersion	Correlation, Probability and, Permutations and Combinations	Probability Dimensions, Scatter Diagram

Source: National Curriculum for SSS by Federal Ministry of Education (1985)

Unlike old secondary schools Mathematics Curriculum that comprised Arithmetic processes, Algebra, geometry and trigonometry the new integrated Mathematics Curriculum spelt the contents areas of the Curriculum into major topics and the section of students at which these topics were to be exposed to. This clarify the

confusion which the old curriculum brought about as there was not such specification to allow the then teachers understand how to handle the topics even when few of them know the topics. Moreover, there was no other Mathematics specifically prepared for the talented students that would pursue Mathematics further in life. This might be one of the reasons for the proliferation of liberal arts courses like Classics, History, and Law just to mention a few at the expense of scientists and technologist for the advancement of science and technology. The new Mathematics Curriculum provided separate Mathematics Curriculum as shown in table 2, spelt out in the upper three year of the secondary school levels. More scientific and technological Mathematical topics were introduced to ensure the nation goal of self-reliant that had eluded the nation for long.—

Discussion of Implication

Critical analysis of the Mathematics Curriculum from the pre-independence period revealed no meaningful development to the society for which Mathematics was noted for, instead the curriculum then served as a moribund avenue to clamp the nation towards looking at the colonial masters and missionaries for their needs without productivity. At the primary levels prior to the independence period only Arithmetic was emphasized and the teaching was stereotyped, as against Mathematics, which pupils were to be taught. In contrast, post independence primary school Mathematics curriculum spelt out the topics according to the levels of pupils being taught, performance objectives, which makes the contents meaningful to pupils and forms the basis upon which pupils were evaluated. Contents areas were spelt out in relation to the immediate surroundings of the pupils, and the curriculum was activities dominated. Teachers and pupils' activities in line with previous knowledge towards the attained goals were clearly analyzed. Furthermore, the relevant learning and teaching materials to ensure meaningful learning, and those that could be sourced locally emphasized. To attain the stated goal the primary school mathematics curriculum placed premium emphasis on the evaluation. Through this manner pupils' difficulties towards the understanding of the subject is solved unlike rote learning of the Arithmetic of the pre-independent era. Also, the secondary schools Mathematics consisted of extended arithmetic processes, algebra, geometry and few trigonometries as against integrated Mathematics contents shown in tables 1 and 2. The worst area where this political under tones was felt lie in the training of teachers of Mathematics where the scope in the then training colleges was limited to the Arithmetic processes only. One aspect of Missionaries' Mathematics was narrow preparation of those teachers at the detriment of the

advancement in the subject. They could not understand other concepts of the areas offered in the integrated Mathematics. This could attribute to the short of manpower that led to the failure of Modern Mathematics on one hand, and the lack of suitable instructional materials to disseminate information in the course of teaching. It should be emphasized here that even when Nigeria was under colonial master, many nations had started space exploration via advanced science and technology, which integrated Mathematics curriculum had made easier to achieve. e.g. November 1957 Sputnik satellite launch by Russian. Nigeria's Mathematics curriculum was stereotyped to produce manpower in the areas of liberal arts and classics. Despite the fact that colonial people had overall political influence on the nation, the education sector was left in the hand of different missionaries with different syllabi to the people under their jurisdictions with little or no funding and supervision. Had it been that political under tones of the missionaries and colonial masters were in line of science and technology for which their own country was rated as developed nation in the world the Nigerian products would have been job providers instead of job seekers, Nigerians would have been self-reliance as the present educational goal dictates. Meanwhile, some foreign political roles on the nation Mathematics Curriculum portends danger to the development of Nigeria while that of local ones sequel to the outcomes of different workshops made the nation to be in the stream of global development and advantageous to satisfy the need of the nation as perceived by mathematics scholars. With different reforms in the National curriculum in Mathematics from the primary, secondary and to the teachers training colleges in place the pace of science and technology that serve as indices of development could be assured.

Conclusion

Meanwhile, the study has examined different roles of politics on the Mathematics Curriculum stressing the ones that put the nation on threshold of science and technology. The reforms, which contemporaries would appreciate the efforts of different indigenous mathematicians for tackling the problems and ensure that meaningful integrated Mathematics Curriculum that had eluded the nation, is put in place. It is imperative for the government to make available adequate supports for the war against bad foreign influences on the nation Mathematics curriculum and welcome innovations, both local and foreign, which would be advantageous and satisfy the needs of Nigerians. Feature that stands out in the integrative Mathematics is the new educational programme that is explicitly mentioned as education for self-reliance; and this is being monitored in

Mathematics especially by special center like National Mathematics Centre (NMC) under Professor Sam Ale in Abuja.

Recommendation

As science and technology have been acclaimed worldwide as panacea to the underdevelopment of the nations, there is a need to understand the real language to which meaningful development could be ascertained. Mathematics as a universal language of science and technology should not be politicized so as to catch up with the developed nation; and this could be attained when all the contents areas that are scientific oriented are emphasized more than mere aesthetic aspects. More importantly, there should be inward looking into the production of text materials on Mathematics that would make use of the locally available resources to enhance its teaching and learning at all levels of the nation education system. By this manner the apron string to which foreign dominated analyses of concepts, which often make the subject dreadful to the students would be minimized if not eradicated.

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