

Strategies for Developing Curriculum Activities in Secondary Schools. A Case for 'Cognology' System of Education

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Abstract The paper analyses Nigeria educational system as the springboard towards innovation in school curriculum and recommend urgent future direction having observed inherent weakness and failure of Nigeria system. The proposed direction is applicable to any society in the world. Strategies for selecting curriculum activities and school subjects for primary and secondary education as contained in National Policy on Education were highlighted. "Cognolgy" is propose as option for technology, cognitive and personality development of learners and subsequently, the society as a whole.

Key Words: Curriculum, Constructivism, Policy, Cognitive Development, Holistic Education

1. Introduction

The post-colonial Nigerian state witnessed a spontaneous reaction against colonial educational, policies shortly after independence in 10th October, 1960. The arrays of rising educated elites were in the fore-front of this somewhat radial movement which eventually culminated into adoption of a National Policy on Education following a National conference on curriculum that took place in 1969. The wide spectrum of those who attended the conference demonstrates the depth of societal desire for change: the artisan, professionals, federal and state government ministries of education officials, universities lecturers, and so on fully participated. Even though the focus of intended plan was African view, specifically Nigeria as focus, international agencies such as Ford Foundation, UNESCO, were fully represented. The final decision was adoption of 6:3:3:4 system of education, each figure representing number of years to be spent in each level of education structure i.e. 6 years in primary school, 3 years in Junior Secondary School, another 3 years in Senior secondary school and lastly a minimum of 4years post-secondary education.

The effort of the conference was commendable as it sought to address Nigeria problems and geared towards her collective aspiration. The differentiation nature constitutes inherent weakness that makes the project goal unachievable. A distinction between intellectually and vocationally inclined students and the curriculum they will be exposed to at senior secondary school makes it unrealistic. Aside inherent deficiency embedded in such an educational system, there is no political will to execute it. The system failed to achieve "technical knowledge and vocational skills" which is one of the core objectives of secondary education in Nigeria.

Suffice to say that children exposed to intellectual curriculum provision eventually occupy higher social status. The implication is that future lives of students are rigidly determined while they are in secondary school. The belief that curriculum package should be differentiated into separate areas for different occupational pursuit has always been a subject of controversy and in most cases contested by curriculum theorist (Franglelin 1982).

Subsequent to this background, the vocational and technical aspect of educational development suffered a fatal failure at least at high school educational level. It is our belief that while core curriculum provides sound intellectual, cognitive development, the different areas of specialization should be synthesized with a child preferred technical, vocational, etc area of interest in which such a child believes his/her future success lies. This is the core area of my proposition term 'cognology'.

2. Curriculum Development Strategies for Primary School

The history of primary school development in Nigeria coincides with the history of education in Nigeria. Basically, there have been many factors that have influenced the development and adoption of this system.

- i. The influence of educational system of ancient Greek educators such as Plato, Aristotle and Socrates. Their writings had profound influence on the development of primary school system.

- ii. The ideas of Roman educators
- iii. British education system which naturally diffused into Nigeria during colonialism. Nigeria school system was patterned after British system.
- iv. Christian missionaries who introduced Western Education into Nigeria. Their belief system formed the basis of primary school curriculum in Nigeria. Learning was consistently related to the scripture no matter how remote the concept being taught.
- v. Nigeria cultural heritage were integrated in the curriculum, cultural values such as story-telling, nature study, family living were part of primary school curriculum

2.1. Objectives of Primary School and Curriculum Development

The objectives of school to a large extent determine the planned curriculum. It is from the objectives that the planners derive direction towards planning.

The objectives of primary education as stated in the National Policy on Education (2004) are as follows;

- a. the inculcation of permanent literacy and numeracy and the ability to communicate effectively
- b. the laying of a sound basis for scientific and reflective thinking.
- c. Citizenship education as a basis for effective participation and contribution to the life of the society
- d. Character and moral training and the development of sound attitudes
- e. Developing in the child the ability to adopt to his changing environment.
- f. Giving the child opportunities for developing manipulative skills that will enable him to function effectively in the society within the limits of his capabilities and
- g. Providing basic tools for further educational advancement including preparation for trades and crafts by linking the school with the trades and crafts of the locality.

From the perspective of the planners, the subjects for the primary school include:

- a. Language arts, using the mother tongue or the language of the immediate community for the first three years and English at a later stage (French, Arabic, English Language of the Environment)
- b. Mathematics
- c. Elementary science
- d. Social studies and Citizenship Education
- e. Cultural Arts and Creative Arts (Drawing, Handcrafts, Music and Cultural Activities)
- f. Physical Health Education
- g. Religious Moral Instruction
- h. Agriculture/Home Economics

3. Curriculum Strategies for Secondary School Education

3.1 Objectives of Secondary School Education

Unlike the primary school objectives, the secondary school objectives are limited in scope, but precise and definite.

The National Policy on Education states two broad aims of secondary education in Nigeria. They are;

- i. Preparation for useful living within the society, and
- ii. Preparation for higher education.

Aside the broad objectives, the specific objectives according to the policy are to:

- a. provide all primary school leavers with the opportunity for education at a higher level, irrespective of sex, social status, religious or ethnic background;
- b. offer diversified curriculum to cater for the differences in talents, opportunities and future roles;
- c. provide trained manpower in the applied science, technology and commerce at sub-professionals grades
- d. develop and promote Nigerian Languages, Art and culture in the context of world's cultural heritage;
- e. inspire students with a desire for self improvement and achievement of excellence;
- f. foster National Unity with an emphasis on the common ties that unite us in our diversity;
- g. raise a generation of people who can think for themselves, respect the visions and feelings of others, respect the dignity of labour, appreciate those values specified under our broad national goals and live as good citizens.
- h. Provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development.

At junior secondary school, students will be exposed to the following subjects:

3. 2. Core Subjects

English, French, Mathematics, Language of environment and Nigerian Language other than that of the environment, Integrated Science, Social studies and Citizenship Education, Introductory Technology.

Pre-Vocational Elective

Agriculture, Business Studies, Home-Economics, Local crafts, Computer Education, Fine Arts, and Music.

Non-Prevocational Electives - Religious knowledge, Physical and Health Education, Arabic

At senior secondary schools, students are provided opportunities to study the following subjects:

Core Subjects - English (ii) Mathematics (iii) A major Nigeria Language (iv) One of biology, Chemistry, Physics or Health Science (v) One of Literature-in-English, History, Geography or Religious Studies (vi) A vocational subject.

Vocational Electives - Agriculture, Applied Electricity, Auto-Mechanics, Book-Keeping & Accounting, Building Construction, Commerce, Computer Education, Electronics, Clothing and Textiles, Food & Nutrition, Home Management, Mental work, Technical Drawing, Woodwork, Shorthand, Typewriting, Fine Art, Music, etc.

Non-Vocational Electives - Biology, Physics, Chemistry, Further mathematics, Health Education, Literature-in-English, History, Geography, Bible-Knowledge, Islamic Studies, Arabic, Government, Economics, any Nigerian Language that is orthography and literature, etc

4. Operational Implication and Practice

At junior secondary school level, a child is expected to offer maximum of twelve and minimum of ten subjects. The core subjects are seven, while the rest subjects are selected from pre-vocational elective and non-prevocational electives. The original conception of 6:3:3:4 system was to distinguish between the academically inclined and vocationally inclined students. While the academic oriented students proceed to senior secondary school, the vocational oriented will proceed to technical school. Non adherence to this practice denied us the knowledge of effectiveness of this system in the light of educational and national goals.

At second year of senior secondary level, a child makes a choice whether to focus on arts, social science or natural science subjects. At first year, every child is exposed to all subjects in arts, social and natural sciences. This is to enable a child discover his/her area of interest. English language, Mathematics, Biology and language of immediate environment out of the language of three major ethnic groups in Nigeria serve as core curriculum and made compulsory at senior secondary school. After secondary school education, a child proceeds to higher institution where he/she is expected to spend a minimum of four years.

5. Defects of the Curriculum

As observed earlier in this paper, various shortcomings were observed in the conception and implementation of the curriculum provisions. Such problems include but are not limited to the following:

There was lack of political will to implement the provisions of the programme by the government. It appears government lacked the political will and required courage to implement the provisions. The obvious fact is that the curriculum is never implemented as planned. The technical schools are obviously non-existing.

Second there is inherent weakness such as distinction between intellectually and vocationally inclined students. It is the opinion of the writers that it is too earlier at age eleven to rigidly categorize some students as intellectually or vocationally inclined. They should be exposed to various aspect of human knowledge till they have completed senior secondary school. The early distinction negates the call for equal opportunities in education.

Lastly, from our point of view, there were lacks of fund to properly implement the project. The technical college requires the use of machines that has to be exported. This requires a huge financial outlay. Those machines that are imported for technical subjects require technical expert for effective maintenance. This was clearly lacked.

6. A New Direction

There is a remarkable paradigm shifts in societal perception of goals of education and the realities of the moment. From the period of colonial era, a university degree is a sure avenue to a good job and subsequently, a enjoyment of a respectable standard of living. With an astonishing growing rate of unemployment in Nigeria, education should focus on a new direction. The societal unconfirmed perception is that of every three Nigerians, two is unemployed or under-employed. This represents about six five percent (65%) of the population.

As school administrator and curriculum planner, this is part of our motivation. We hold it imperative to look towards a new direction. However, one of our strongest inspirations emanates outside conventional curriculum literature, but rather from motivational literatures. This suggests that we need to think outside the box and project to unconventional ways of making the school and its curriculum more relevant to our world. Robert Kiyosaki and John C. Maxwell are quite handy in this respect. John Maxwell wrote

many educators would have us believe that good grades leads to a better life, and that the more formal education the better lives one lives. Education can't deliver on such promises. Don't you know highly educated people who are highly unsuccessful? Haven't you see college professors with PhDs who cannot arrange their lives effectively? And conversely, don't you know of dropouts who live and become very successful? (Think of Bile gates, Thomas Edison, Federico Fellini).

Robert Kiyosaki reported a conversation between a woman and her son. The son response is quoted below:

Mon... Get with the times! Look around; the richest people didn't get rich because of their educations. Look at Michael Jordan and Madonna. Even Bill Gates, who dropped out of Harvard, founded Microsoft; he is now the richest man in America, and he's still in his 30s. There is a baseball player who makes more than \$4 million a year even though he has been labeled "mentally challenged" I also know that a college graduates today earn less than you did when you graduated. Look at doctors. They don't make nearly as much money as they used to. I know I can't rely on social security or company pensions for retirement. I need new answer.

To make education relevant in the in-coming generation, school should provide answers to socio-economic challenges of her socio-cultural milieu. Though, the school may find it impracticable or most suitably impossible to produce learners who turn out to be millionaires like Bill Gates, it should reduce to the minimum the rate of unemployment and related dye functional traits of sub-standard living.

6.1. Core Curriculum Revisited

My focus is not to over-flog the concept of core curriculum. Since it is part of curriculum provision among secondary school students in Nigeria, attention must shift from mere designation of certain subjects as core while at the same time missing out the substance of core curriculum conceptualization.

Core curriculum is aspect of curriculum considered central and indispensable to learners' critical and intellectual development. It is usually made mandatory for all students in a school system. In Nigeria, Ehindero (1994) observed that core curriculum is "organized around content of social problems or themes of social living, e.g national integration, and unity, political and religious tolerance, poverty, rural development, etc.

My conception of future core curriculum is rooted in the hybrid of the process and product conception of curriculum. The national policy on education states some core subjects especially for Junior Secondary School. The experience has shown that school focus on the product as reflected in mastery of these subjects. This is often reflected in biro and paper based assessment. While one cannot completely denounced cognitive based assessment, it is inadequate to asses the extent to which a child has mastered aspects of core curriculum. The core subjects should exploit development of thinking process, skills and intellectual reasoning of learners. In other words, curriculum is not just an end but a means to achieving desirable goal.

7. Towards Holistic Education –A case for 'Cognology' Approach

'Cognology' is coined from two words cognition and technology. The dream school curriculum is a product of cognitive development and mastery of technology. The technology should not be confused with traditional psychomotor domain nor

with vocational subjects even though they are intractably related. The cognition aspect focuses on the curriculum process and product as desired from the national educational goals. The technology aspect will focus on development of technology rooted in the learner career orientation. The technological drive is intrinsic of a specific learner and never be externally imposed by school stakeholders. The school will provide enabling environment in terms of diversity of options for learners, provision of enough facilities, flexible time structure and avenue for feedback in terms of learners' progress and achieved innovation. A proper link between traditional school curriculum and learner preferred technology should be provided by the school. Areas of technology could be art work, financial intelligence, sports, catering, barbing, electrical work, mechanized farming, etc. Further suggestions from learners should be welcome with open hard. The argument is that learners' goal expectancy should find expression within the structure of school system. It is the duties of instructors to ensure proper harmonization of interest and prevention of seemingly "white elephant" idea by learners.

'Cognology' is highly relevant considering the prohibitive cost of education when juxtaposed with the rate of available satisfying employment in Nigeria at present. Among Igbo speaking southeastern Nigeria, there is high rate of male dropouts from school. An average Igbo male would prefer learning trading enterprise to pursuit of career in formal education. The common trend is to see a wealthy Igbo trader without a formal education married to a PhD holder Igbo woman. It is our view that an avenue where learners areas of interest or where they are knowledgeable with deep seated conviction of attaining financial freedom should be made available in a formal school settings, alongside a cognitive based curriculum. Each child/learner should be given equal opportunity to develop cognitive aspect of learning without losing focus of their preferred 'technology'. There should be no form of restrictions as applied in the 6: 3: 3: 4: system where the intellectually inclined proceed to higher secondary school and subsequently, to university for higher degrees, where as the technically inclined proceed to technical colleges without chance of acquiring university education.

The concept of 'cognology' is fundamentally related to experiential learning theories of Carl Rogers. Rogers (1969) identified two types of learning which he termed cognitive and experiential. Cognitive aspect focuses on academic knowledge and intellectual development, while experiential focuses on practical application of cognitive knowledge in specific areas of learners' interest. He posits that in experiential theory, learning is initiated and evaluated by learners, where as teachers are to provide positive climate, clarify purposes and assist learners to balance their intellectual and emotional components of learning.

Expectancy- value theory establishes a direct link between the learners' perception of likelihood of successful completion of a task and actual successful completion of such task. If learners believe they possess innate capacity to complete a task, the tendency is high that they will complete it. The value learners place on the task and successful mastery of the task are positively correlated (Atkinson, 1989). A self-determination theory posits that learners are well motivated if they feel they are in control of their duties. Svincki (1999) sheds light on Attribution concept which is closely related to self-determination theory, in which, learners possess a reasonable degree of internal control over learning outcomes. This locus of control influences their energy towards achieving the set goals. He observed that; "when learners have choices and believe that their success rides on those choices, they are highly motivated".

Bruner (1966) in his theory of instruction identified the primacy of intrinsic motivation. If learners are self-motivated, their chance of effective learning increases. Drawing support from current theories of learning and research, Svinicki (1999) rightly pointed out that "the best sources of motivation are those that are intrinsic". Either from Dewey pragmatic paradigm or the general constructivist school of thought, we need to look into this direction, or possibly develop something higher.

'Cognology' seeks to employ meta cognition approach to learning process and to initiate curriculum content in a dynamic form in which the learners and teachers form a community of innovator.

7.1 Operational Strategy and Implication for school Administrator

One is not unmindful of various implications this would have on the existing school structure and organization. Such re-organization should not be seen as a cog in the wheel of development, but challenges that are central to any developmental enterprise. The following implications are noticeable;

There is tendency to increase the capacity of instructors in terms of increased depth of knowledge and sufficiency in terms of numerical strength. In this regard, capacity building enterprise is a recommended option couple with employment for more hands. From our point of view, the intended outcomes would justify the cost implication.

Meeting various needs of learners may be a daunting task. Since the 'technology' aspect is self-initiated, wide range of interest may likely correspond to available number of learners in a particular school. This calls for differentiation along the line of interests to a particular school or region. For example, students whose area of 'technology' is financial literacy are to apply into a defined school while those whose 'technology' is trading activities are to apply in another

defined school where such area of specialization exists, etc. School administrators and teachers roles will undergo certain changes. It is the duty of school to identify learners' distinctive area of interest. School administrators should also ensure that resource persons are employed from time to time as situations and the needs arise. Agree that there are various areas learners may indicate an area of interest, but beyond the competence of available teachers in the school, the use of resource persons is a viable option. From another perspective, certain fields may be limited to a defined geographical location. It is left for learners to identify the locality where their preferred interest available.

The structure of school times table is another area of consideration. A suggested structure is where cognitive based subjects hold in the morning follow by 'technology' and round up by cognitive subjects may be adopted. Each school can adopt her own preferred structure. In cognitive based class, teachers take the lead, while in 'technology' class; a great deal of interaction prevails. The school actors- learners and teachers becomes a collaborative force in achieving desired roles.

Teachers become an agent of curriculum development. New tested ideas that emanate from new discoveries in "technology" class become an integral of school system. This can be integrated into the relevant cognitive based subjects.

Teachers discover various talents and provide guidance services for learners. This is one of the major tasks of teachers.

Teachers' roles are in two fold. He is a leader in the cognitive based class while he acts as facilitator technology class.

Lastly, the use of constructivist-based teaching methods should properly be adopted and utilized. Methods should properly link cognitive aspects of learning to learners areas of technology specialization. In this regards, a distinction between the child preferred technology and core cognitive based subject is narrow down to possibly zero level. For example, a child whose 'technology' is Investment, cognitive based subject must include subjects such as Economics, Commerce, Accounting, etc. For a child whose 'technology' is Electronics and Invention, cognitive subjects must include applied science subjects.

8. Conclusion

The idea of 'cognology' will provide a converging point between the two school of thoughts on curriculum as a process and as a product. The cognitive aspect will take to consideration the concept of curriculum as a process, while the 'technology' will take care of product conception. Learners interest will be considerably taken care of, drop in the school enrolment will drastically decreased, e4mployment will be facilitated and invariably, overall growth and development of the society.

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