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CURRICULUM CHANGE MODELS AND THEIR SUITABILITY IN THE NIGERIAN EDUCATION SYSTEM

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ABSTRACT

The paper examines some curriculum change models and presents three as suitable models for the Nigerian education system. The paper starts by looking at the nature of a model, and its implications in the change process. Furthermore, two sets of change models - Early theories of curriculum change by Schon and New emergent theories of curriculum change by Havelock are examined. The early theories seem to have been over taken by modern global trends; hence the emergence of the new changes theories namely-the Research, Development & Diffusion Model; Social Interaction Model; Problem Solving Model, and Linkage Model are examined. Subsequently, Nduanya's change model which has a base in the RD&D model is also x-rayed in the process. Their advantages and disadvantages are weighed in the light of their relevance to educational trends, and suitability as change models. In the process, the paper opts for the modified RD & D model, Nduanya's model, and the modified version of the Linkage model as suitable change models for the Nigerian education system.

KEYWORDS: Educational System, Curriculum Development, Change, Model, Suitability.

1. INTRODUCTION

1.1 Nature of and Need for Curriculum Change

The phenomenon of change is inevitable as the society is a dynamic one and hence, keeps changing. Changes in world event bring about challenges, needs and problems, and require new knowledge, technology or skills to tackle them. Since education is an instrument deliberately designed to equip individuals in many societies to be able to live worthy and happy life, it must change from time to time. (Mkpa, 1987; Mkpa and Izuagba, 2004)

Accordingly, Hoyle (1993) states that curriculum change is necessitated as a result of findings from sociological studies, psychological investigations of social structures/forces, research in industrial relations, public opinion surveys, and practical curriculum works. He explains that information gathered through these sources is now used for curriculum change and revolution. Hoyle emphasizes that curriculum change is a very complex process involving the personalities of parents, students, teachers, the structure of the school system, and the patterns of personal and group relations among members of the school and community.

Change in the curriculum is as a result of changes in the social structure of a society. Unruh and Alexander in Mkpa (1987:242) and Agabi (1999:5) summarily put forth the need for curriculum change thus; the need to:

- Cope with pressure and problems from social change;
- Utilize research findings geared towards teaching and learning;
- Explore opportunities with potentials for improved education, and
- Package an education system that is more relevant to the contemporary situation in Nigeria.

2. A PREVIEW OF CURRICULUM CHANGE MODELS

In the development of a sound curriculum, different models are deployed. Hornby (1974) defines a model as a small-scale reproduction or representation of something. Stenhouse (1975:89) sees a curriculum model as “a theoretical framework that tends to represent a system or set of related concepts or events in a way that depicts surface features, and highlights essential organization”. In summary, a curriculum model can be defined as a laid-down framework systematically followed in the achievement of organizational goals. Ivowi (2008) posits that curriculum development/change models seek to provide answers to some basic questions which relate to the building and restructuring of some educational programmes. The questions according to Ivowi include the ‘why’, ‘what’, and ‘how’ of education. Ivowi goes further to differentiate between curriculum development model and curriculum change model. In the development models, the concern of the developers are-What do we need to develop? Why do we need to develop? And, how do we develop the essentials of education? On the other hand, the change or innovation models’ developers are concerned with-what do we need to alter? Why do we need to alter them? And how do we go about the change process? (P.6-7).

However, the main thrust of this paper is on curriculum change models and those that best suit Nigerian education system. Ivowi classifies the curriculum change models into two groups:

- (a) The Schon models popularly called the early theory models
- (b) The Havelock models popularly called the newer emergent models

2.1 EARLY THEORIES OF CURRICULUM CHANGE

One of the early contributions to the theory of the curriculum change was that of Schon (1971). He based his theory on the observed technological changes which he describes as “pervasive”. Blenkin *et al* (1975) thoroughly examined this model of Schon and discovered that his main focus was the society and its institutions that are in a continuing process of transformation. Schon then posits that institutions called “learning systems” should be developed in order to bring about their own continuing transformation. His centre of focus is on “systems” for diffusion which he claims is critical to the learning capacity of a society. Blenkin *et al* (1975) and Ivowi (2008) identify three evolving change models from Schon’s work.

- ❖ Centre-Periphery Model. (CPM).
- ❖ The Proliferation of Centres Model (PCM) and
- ❖ Shifting Centres Model (SCM)

2.2 Centre-Periphery Model (CPM).

This model of Schon rests on three basic assumptions:

- That innovation exists and is awaiting diffusion;
- That diffusion is the movement of innovation from centre out to its ultimate user, and
- That diffusion is directed towards centrally managed process of dissemination, training and provision of resources and incentives.

Blenkin *et al* make it clear that this change model can only be effective if the resources and energy generated at the centre are high enough; if it has large area coverage and efficient network of generating and monitoring feedback.

2.3 Proliferation of Centres Model (PCM)

This model of Blenkin *et al* is just an elaboration of the CPM, as it checkmates points of limitations and failures inherent in the first. The PCM retains the basic centre periphery structure of CPM, but differentiates between its

primary and secondary centres. Blenkin *et al* explain that the primary centres of the CPM are responsible for the different innovations; i.e. the originators are expected to disseminate the information too. In the case of PCM, it is the responsibility of the secondary centres to diffuse the innovations, while the primary centres specialize in the training, deploying supports and monitoring/managing of the innovation or change. In effect, the PCM has more multiplier effect than the CPM.

2.4 Shifting Centre Model or Movement Model (SCM)

This model unlike the centre-periphery systems of diffusion has no clearly established centre, nor a centrally established message. Blenkin *et al* (1975) describing this model of Schon posit that its centres 'rise' and 'fall' around new issues and leaders. As a result, doctrinal shifting and political evolutions become the order of the day. This can be likened to certain educational issues raised in Nigeria with each in-coming administration.

The next section of the paper will examine the newer emergent change models developed as a result of major deficiencies in these early change models.

2.5 NEWER EMERGENT MODELS OF CURRICULUM CHANGE

Newer emergent theories or models of curriculum change were initiated as a result of dissatisfaction and out-dated procedures of the early models. Blenkin *et al* (1975) and Mkpa and Izuagba (2004) critically analyzed the views and considerations of the originator of these change models –Ronald Havelock (1971). The authors note that Havelock focused more specifically on the process of education change which emanated as a result of his promotion of innovation. This he did by reviewing over 4000 empirical studies of actual instances of innovations.

Four basic change models emanated as a result of the intensive review works of Havelock, which many contemporary authors have taken time to study and apply to educational changes of their time. The models are:

- ❖ The Research, Development and Diffusion model (RD&D)
- ❖ The social Interaction Model (S.I)
- ❖ The Problem-Solving Model (P.S)
- ❖ The Linkage Model (L)

(Blenkin *et al*. 1975; Nduanya, 1991; Mkpa and Izuagba, 2004; Anaele, 2008 and Ivowi, 2008.)

2.6 The Research Development and Diffusion Model (RD&D)

The RD&D model looks at the whole process of change from the perspective of the originator or developer who formulates a solution in response to an identified user need (Blenkin *et al*, 1975 and Mkpa and Izuagba, 2004). The model according to Anaele (2008) is patterned in line with empirical -rational strategy with sub stages as: basic research; applied research; development and testing of prototypes; mass production and packaging; planned mass dissemination and receipt by the user (p.72). This model has sequential development of activities and represents the centre-periphery model of change earlier discussed. Ivowi (2008) explains that the idea or innovation is conceived at the centre. This centre according to him may represent curriculum development centres like Nigerian Educational Research and Development Council (NERDC) where it is researched, developed and then diffused into the education system. Substantiating this view of Ivowi, Mkpa and Izuagba (2004) posit that innovations in Nigeria follow this pattern. Those agencies like NERDC, CESAC, among others develop new curricula based on the national educational needs, available theories and research findings. In the whole process, the schools are located at the periphery and the teachers are more of passive agents.

In line with what other authors perceive about the model, Nduanya (1986; 1991) observes that RD & D model is a sequential order of solving an educational problem thus: **Research; Development; Diffusion and Adoption**. This he fully represents in a table. This model was used in the Carnegie Project to develop a new Social Studies curriculum in USA.

Table 1: The RD & D Process Model

Planning Research	Development	Dissemination or Diffusion	Evaluation (Summative)
Diagnosis	Formulation of instructional objectives	Lectures	
Choice of overall strategy	Development of texts and materials	Publications Teacher-orientation and in-service courses	(awareness)
Formulation of educational objectives	Development of evaluation instrument	Demonstration	
Repeated testing, evaluation and revision of texts and materials	Commercial publication		

Source: (Nduanya, 1986:104)

RD&D obvious advantages make it popular:

- It is solely based on established research findings
- Materials are adequately tested before use
- It provides an easy opportunity to train and re-train curriculum implementers.
- It uses proven curriculum development processes
- It has appropriate method of selecting specialists and experts in the trial testing of curriculum materials before installation in schools (Nduanya 1986:106-107; Mkpa and Izuagba, 2004:193 and Iwovi, 2008:8)

Howbeit, Nduanya (1986) presents a modified but a comprehensive model of curriculum change which he called 'A Model for the Process of Curriculum Innovation'. He developed this model after a thorough study of the Carnegie Project for the development of Social Studies curriculum for American schools, based on the RD & D model and other models of curriculum change. The model has thirty-one (31) sub-phases or activities. The starting activity is the beginning stage that analyzes the system on what should be changed and the processes involved. The various diagnostic/

Preparatory activities to the full experimenting on the innovation range from activity 2 to activity 28. This stops at activity 29 which involves the revision or modification of the innovation if need be. Activity 30 now depicts the full adoption or institutionalization of the innovation. Finally, activity 31 is the evaluation of the innovation after a long period of use to ascertain its worthwhileness.

2.7 The Social Interaction Model (SI)

The second model of Havelock examined is the Social Interaction Model which lays emphasis on the diffusion of an innovation through a social system. Rogers and Lionberger in Nduanya (1991) originated this model that was further developed by Havelock. Anaele (2008) states that this model involves the transmission of knowledge by individuals along informal networks of professional colleagues and friends. He reiterates that the S.I. model is subjected to the influence, judgments and opinions of people around.

He emphasizes that the model relates to the processes of diffusion of new ideas, practices or products. Nduanya (1991) makes it clear that the first stage of this model tries to create awareness of a need which will motivate the interest of the social group involved. He now explains that the group involved will move to study the proposed change closely (evaluation) and then try it out and if it works, the innovation will be adopted (P.124)

From their own point of view, Mkpa and Izuagba (2004) posit that the S.I. model depicts a process of planned or unplanned social interaction to spread new ideas or practices. They described the unplanned process as the spread of new ideas or practices through contacts between and among teachers within a school, among schools, between teachers and supervisors, among others.

As a planned social interaction, the authors state that the diffusion process can be kicked off through courses, conferences or workshops organized by agencies. These activities according to them provide the initial supports and in-service training required. At the stage of dissemination, the agencies will plan/implement their transmission strategies; and this can be done through organizing courses, demonstration and consultancy services (P.192-193).

The Advantages of the Social Interaction Model as enlisted by Mkpa and Izuagba (2004:195) are:

- That teachers are directly involved in some social network, so they can run with the innovation vision;
- The S.I. model is flexible because social interaction occurs in diverse forms, formally or informally; so it gives room for more diverse ways of disseminating and adopting an innovation.
- The process is natural as it deals with the formal communication pattern of mankind.

2.8 The Problem-Solving Model (PS)

This model was earlier originated by Lippit; Watson and Westley as reported in Nduanya (1991:123). The problem solving change model also called Need Reduction Model is regarded as a user friendly model by Havelock (1971), who further worked on it. The first two models of his earlier discussed assume that an innovation exists that have been fully developed and disseminated to a passive user. The P.S. model according to Mkpa and Izuagba (2004) rests on the assumption that an innovation is part of a problem solving process, which begins with a need that is translated into a problem. The problem they said, need to be diagnosed and solutions proffered.

Havelock associated this model with the normal problem solving process that encompasses all the main stages in the need elimination process, unlike the social interaction model. This implies that once a need is felt, it is instantly perceived as a problem that needs to be solved. In the process of searching for the solution, alternative choices are provided and the best is selected to solve the problem. This last stage according to Havelock is the adoption of solution. Blenkin *et al* (1975) echo that the model is user friendly because, the user is the initiator rather than the recipient of the change, as seen in the first two models discussed. They posit that an external person or group coming in the process will serve in consultative or collaborative capacity. Havelock claims that the P.S. model favours educational practitioners.

Mkpa and Izuagba (2004) identify *three major advantages of the P.S. Model*:

- Since teachers who will implement the said changes or innovations are active participants, they are likely to be more committed in their implementation;
- The model is so flexible that it can apply to various aspects of the curriculum like teaching methods and materials, and
- As the innovation is school based, it is designed in such a way that it will be able to meet the need of the school in question

2.9 The Linkage Model (L)

This is the fourth innovative model of Havelock in the change process which tends to integrate the three models so far discussed. Anaele (2008) reiterates that the linkage model attempts to unify and integrate the three preceding models by emphasizing the need to link procedures and agencies in a harmonious way. This he said could be done by connecting agencies that can offer resources to users, and link them up with more remote resource agents. He explains further that these resources could consist of curriculum materials from a central agency, consultancy or information about other users with related experiences or interests (p.72)

Agreeing with Anaele, Mkpa and Izuagba (2004) add that the linkage model draws upon the strengths of the first three models above, and tries to overcome their weakness. The authors analyzing the work of Hoyle (1993) concerning this model, state that the linkage process is based on the link between the school and the various specialized \centralized agencies. That the agencies' work is to help locate useful human and material resources that

will be needed to solve any problem in the school setting. According to Mkpa and Izuagba, the linkage centres just like Anaele has suggested, may be in form of Professional Centres, Resource Centres, ICT centres, Exam Centres, among others. The authors now see these agencies as linkage points between the national agencies of curriculum development, change and innovating schools, to provide consultancy services, and to offer in-service training for teachers as end users.

3. CURRICULUM CHANGE MODELS SUITABLE FOR NIGERIAN EDUCATION SYSTEM

After due considerations of the four enlisted curriculum change models of Havelock, some authorities have developed an affinity with the RD & D process as a suitable model for Nigerian education system. Ivowi (2008) agreeing with Bishop opts for the RD & D model on the ground that it is a commonly used model for the developing countries. Again, he observed the nature of the intensive research procedures and trial-testing that is associated with this model and attests that it is good. He laments on the obvious failure of many innovations in Nigeria that fail to follow the RD& D process. Ivowi even observe that the present Nigeria Basic Education Curricula was not trial tested before being implemented in schools in Sept 2008. Nduanya (1991) notes that the RD&D model makes provision to accommodate any kind of change in an education system. So Nduanya supports the RD& D model as a suitable model for Nigeria but with modifications, as reflected in his own change model.

In addition to the RD & D process and the modified version by Nduanya (1986), the Linkage model is also perceived as a suitable model for the Nigerian education system. This is because according to Mkpa and Izuagba (2004), it has special ways of remedying the anomalies of the first three models earlier discussed - The RD & D model; the S.I. model and the P.S. model. The authors present these modifications this way:

In the RD & D Model, they note that:

- Teacher involvement is low;
- It assumes similarity between schools, and
- It is applicable mainly to materials.

But in the linkage modifications:

- ✓ Teacher involvement is made high;
- ✓ It allows for differences in schools, and
- ✓ It is applicable to all forms of innovations

Coming to the Social Interaction model, they enlisted its shortfalls as; It:

- focuses on individuals;
- depends on verbal messages, and
- is a slow process of innovation dissemination

The Linkage modifications include:

- ✓ Focusing on the functional groups involved;
- ✓ Evolving working relationships among groups, and
- ✓ Designing systematic networks that will accelerate the dissemination of innovation

Finally, in the Problem-Solving model, the authors note the following inherent problems:

- The materials produced may be of low quality;
- The basis of educational theory and research may be particularly weak, and
- Teachers invest a considerable amount of time.

In the remedial process for these deficiencies, the linkage model now:

- ✓ Involves teachers in the production of good quality materials;
- ✓ Provide support for the development of an appropriate theory for research, and
- ✓ Their agency proposes innovations tried and tested elsewhere, thus saving sometime (p.199).

4. Conclusion

The onus of this paper has been to examine curriculum change models and the suitability of any three of them for the education system of Nigeria. The phenomena of curriculum change was also examined and its need in any education system. Changes are necessary in the curriculum as the societal tide changes with its economic structures, and research findings among others.

The approach to curriculum change was considered and according to Nduanya (1991), the systematic approach was discovered to be the best approach because of the logical order involved. Mkpa and Izuagba (2004) identify four major phases of the systematic approach-diagnostic study; induction of change; control of various forces, and establishment of new constellation of forces to sustain the change.

The paper presents a preview of curriculum change models: the early curriculum change models of Schon-Centre-Periphery; Proliferation of Centres and Shifting Centres models. The first two had similarities as diffusion is from the centre to the periphery, though proliferation model differentiated between its primary and secondary centres. The shifting centre model has no fixed diffusion centres, as it keeps changing as various governments introduce their change process at will.

The early change models could not meet up with current global trends and this led to the emergent of new curriculum change theories. Havelock (1971) popularized this change trend after reviewing over 4000 empirical works. He came up with four models of change: the RD & D, the S.I. the P.S. and L. models. The RD& D model follows detailed research procedures in the development and dissemination of an innovation. The S.L. model bases its assumption on planned and unplanned interaction in the social structure as a way of its dissemination. On the other hand, the P.S. model adopts a systematic problem diagnosis, presentation and dissemination procedures in working with an innovation. The linkage model tries to bridge the good sides of the first three models while producing remedies for their pitfalls.

The last section of this paper looks at the various models so far examined and tries to present three suitable models for the Nigerian education system. Some authors opt for the RD& D model because of its detailed procedure in handling an innovation. Also Nduanya's 31-steps innovation model is also considered with its strong attachment to RD& D and other change models. In addition, the linkage model was given a second thought as a suitable model because of its merging and remedying effects on the other models.

In conclusion, the paper suggests that the modified version of RD & D model, Nduanya's change model and the Linkage modifications be adopted to form ideal curriculum change models for the Nigerian education system.

5. Recommendations

A proper look at the RD & D, S.I. and P.S. models shows that they have some good sides that can be restructured or modified as depicted in the linkage model. In essence, when considering a suitable curriculum change model for Nigerian education system, the paper suggests that the RD& D model, its restructured version by Nduanya (1986) called "A model for the process of curriculum innovation" and the Linkage model modifications be comprehensively packaged, to form ideal change models for the education system of Nigeria.

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