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## Research and Innovations in Education for Global Changes: From Perspective of Curriculum and Instruction and the Way Forward.

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By

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### Abstract

*Life is nothing without new ideas and ways of living in it. Research is a human means of searching for and gathering information, usually to answer a particular question or problem, bringing about new knowledge and ways of living and modifying existing things to better our lives. It involves investigation undertaken in order to discover new facts, get additional information, improvement and also solutions to man's problem. People also carry out or engage in research in order to determine the causes of events, diseases or ailments and what people need as well as why people behave the way they do while educational innovation is a decisive operation carried out with a view to installing a given change to be accepted and used. It is the process whereby a new product is made available, spread through the system and infused into other operating practice. It is also a change that is deliberate, purposeful and can be on a small or large scale. Therefore, this paper is aimed at reviewing the reasons for increased interest in research,*

*stages of research/development and technological innovation for curriculum innovation. Some innovations made in Nigeria school curriculum, the challenges to curriculum innovation and solutions were also discussed.*

**Keywords:** Research, innovation, education, change, globalization.

Business, organization and people cannot do without research. Nations and societies cannot progress or develop without research. Research is strongly associated with idea, development and utilization. Research is a careful and detailed study into a specific problem, concern or issue using the scientific method (Denzin, 1984). It's the adult form of the science fair projects back in elementary school, where you try and learn something by performing an experiment. This is best accomplished by turning the issue into a question, with the intent of using research to answer the question.

Research can be about anything, and we hear about different types of research in the news. Cancer research has "Breakthrough Cancer-Killing Treatment Has No Side Effects in Mice" and "Baby Born with HIV Cured". Each of these began with an issue or a problem (such as cancer or HIV), and they had a question, like "Does medication reduce cancerous issue or HIV infections?"

To begin researching something, you have to have a problem, concern or issue that has turned into a question. These can come from observing the world, prior research, professional literature or from peers. Research really begins with the right question, because your question must be answerable. Questions like "How can I cure cancer?" aren't really answerable with a study. It's too vague and not testable.

Defined in simplest terms, research is searching for and gathering information, usually to answer a particular question or problem. (Heiman,1999). Research projects of various types and complexity are an integral part of the college experience which offer you the opportunity to learn a valuable set of skills. Research is also the fact-finding arm of business. Heiman (1999) saw research as the objective gathering and analyzing of all facts about problems relating to the transfer and sales of goods and services from producers to consumers or users.

### **Types of Research**

According to Zering & Westgrem (1998), different types of research are Empirical research, oral research, bibliographic research, action research and psychological research.

**Empirical Research** is any method of collecting information from direct experience, observation or experimentation. A laboratory experiment involving mice is an example of empirical research.

**Oral Research** is any type of research which involves gathering information by directly talking to people. Examples of oral research include interviews surveys, polls and questionnaires

**Bibliographic Research** is any research in which information is gathered from published materials. Traditionally, this has included books, magazines, journals

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newspapers and various specialized documents, in addition to printed materials, Bibliographic research may also include audio and video recordings, photographs, films, and more recently, computer-based programs and online information. Until recently, most bibliographic research was done only in libraries, but with the arrival of the computer certain amounts and kinds of bibliographic research can now be done wherever a computer and phone line or network connection are available. Most of the research done at the undergraduate level are bibliographic research.

**Psychological Research:** According to Heiman (1999), psychological research helps to shape our society from the way we raise our children to the way we treat our criminals and military enemies. Psychological researchers want to learn and understand human behaviour. It can be about how people think, how they feel, how they behave, or some combination of these issues. More specifically, psychological research is used to measure, describe and categorize human behaviour.

**Stages of Research/Development and Technology Innovation**

Fredrick, Davis and Post (1988) highlight the phases of technology and the social systems they create. According to them, looking at technology in a very general way, five broad phases of technology have developed. One phases at a time dominates the work of a nation, and in so doing it has a major influence on that nation and creates its own distinct types of social system. They assert that nations tend to move sequentially through each phase beginning with the lowest technology and moving higher with each level. So the five phases of technology roughly represent the progress of utilization throughout history.

The authors agreed that although each phase of technology tends to dominate nations activities at a particular time, other phases often will be practiced at the same time. The phases are outlined as follows;

1. Nomadic society
2. Agrarian society
3. Industrial society
4. Service society
5. Knowledge society

**Nomadic society**

People live primarily by hunting, fishing, picking berries and otherwise taking what nature has provided. They do not plant or cultivate and use crude technology of spear, fishing hooks and baskets. They move from place to place for better natural provisions. Their technology is poorly developed.

**Agrarian Society**

Fredrick and his colleagues submitted that in agrarian society, people grow plants and raise animals for their specific use. An agrarian society is one in which

agricultural activities dominate work and employ the largest proportion of the labour force. Most nation in the modern world still are primarily agrarian.

### **Industrial Society**

An Industrial Society is one in which the manufacturing and processing of material goods dominates work and employ the largest proportion of the labour force. It is the natural result of the industrial revolution which originated in Britain and it symbolically represents materialism that social critics sometimes condemn.

The authors noted that in the year 1800, the United States began moving towards an industrial society and it was clearly industrial by the early 1900. An industrial society such as this makes management more necessary and important. With its large factories, large labour force and economies of scale as happened in the United States, people left farms for cities in search of higher wages leading to city congestion and population. There are therefore, the need for large capital formation as life styles and living conditions changed Affluence and social system changed also. Better and improved technology evolved to take care of the overall improved systems.

### **Service Society**

A service society is one in which the majority of the labour force is employed in industries such as retailing, banking, health care and insurance that provides non-product value/service rather than indirect production work, such as manufacturing, farming and construction. Fredrick and his fellows emphasized that business was so successful in applying technology in factories that by the 1960s, the United States became the first world's service society, sometimes called post industrial society. The United States made remarkable technological progress by moving in less than one century from an agrarian through an industrial to a service society.

### **Knowledge Society**

A knowledge society is one in which the use of knowledge and information rather than manual skill dominates work and employs the largest proportion of the labour force. Knowledge is such a distinct phase of technology that when it dominates a nation's work activities, it creates a different type of social system. Examples of people in knowledge jobs are news editors, accountants, computer programmers, teachers and surgeons. Examples of knowledge (or intellectual based) industries are newspapers publishing, television, education, book publishing, tele-communication, and data processing.

The United States became the first world knowledge society sometimes in the 1970s since no nation has ever reached the technological goals before, there are no specific guidelines learned from the experience of others, but its effect is likely to be massive. As people moved from manual work to information processing and intellectual work, there are substantial changes in life-styles, education, recreation and

living conditions. A knowledge society technology is primarily electronic in nature and is heavily dependent on the computer and the semiconductor silicon chips (Fredrick, Davis and Post. (1988), P. 393.) Given the above account of research, and development and technological growth and innovation and considering the Nigerian situation we are of the opinion that Nigeria is at the agrarian phase or stage. Unfortunately, the country lacks what is needed to move to the next stage on industrial society. Nigeria today is operating a predominantly agricultural economy without the desired attention to improve productivity. A large population of Nigerian labour is engaged in agricultural – subsistence agriculture for that matter.

### **Meaning and Nature of Educational Innovation**

The society is always changing. Nothing is static except change as human beings strive to improve upon their former status. Education is the hub of improvement. Invariably, the educational system must change to take care of the societal changes which are deemed vital for the continuity of the society (Stemberg, Brown & Dornbusch, 1996.) Educational innovation is defined as the art of improving the culture we transmit to the young generation, so that they grapple with the challenges of today and tomorrow (Ofoefuna 2005). Innovation is also defined as a decisive operation carried out with a view to installing a given change to be accepted and used. It is the process whereby a new product is made available, spread through the system and infused into other operating practice. Innovation is a change that is deliberate, purposeful and can be on a small or large scale. For Nigeria educational system to be improved and made relevant, the curriculum innovation and reform should be implemented.

To remedy the situation for the present and future generations, it is necessary to implement educational innovation so as to achieve specified goals and objectives. To be successful in the process of innovation requires the simultaneous use of two types of implementation mechanism. The first is to encourage the people to actively accept the innovation ideals and to engage in its implementation through readiness to take risks. The second is designed to maintain organizational integrity which might be endangered by the risky innovative changes.

Curriculum innovation is a tool for running a race against obsolescence in educational system. The tension starts from the first element in the curriculum planning models (aims and objectives) to the last element which is evaluation. The needs and aspirations of the society are dynamic, the educational system is also dynamic and in tune with the needs and aspirations of the society. If the curriculum is the means through which education achieves the needs of the society, then the concept of education and curriculum are dynamic, always in the state of change which is innovation and change.

Mkpa and Izuagba (2003) explaining further on curriculum innovation stated that it includes all kinds of novel elements associated with the task of curriculum

development and implementation at all levels of operation. It also involves new pattern of school and classroom organization that deviates from status quo but are more efficacious in a bid to achieve more functional education.

From the definitions of curriculum innovation given by different educators, it can be summarized that curriculum innovation is a problem device used in solving some educational problems by eliminating the irrelevant aspects of the existing or operational curriculum and replacing them with the new ones which are believed to be more relevant and functional. In this regard as far as education is concerned, curriculum innovation is a necessity.

### **Curriculum Innovation Process**

The process of curriculum innovation starts from evaluation team constituted by government from the curriculum development agencies. These agencies are usually curriculum planning and development specialist known as Comparative Education Study and Adaptation Centre (CESAC) and National Education and Resource Development Centre which have been emerged as NERDC. They (NERDC) have contributed immensely in curriculum development and innovation in Nigeria. As they revise the curriculum, they also develop textbooks for students and teachers guide and other curriculum materials required for its implementation. Curriculum Innovation Process include: identifying the area that needs change and agreement on the needs of change.

Here the advocates of curriculum innovation and designer should observe and study activities in schools that do not meet up with the needs of the learners, schools and the societies. Based on the findings, suggestion for change will be made and agreement as to the area that requires innovation will be reached. (Duru, 2012).

- a. Identification of Direction of Change:** This step involves identifying new objective which essentially requires new practices (innovation) that will most probably satisfy identified needs. This step is very important because better objectives to replace the old ideas are produced.
- b. Organization of Workshops:** In this step, organization of workshops becomes essential in order to produce relevant materials. Some teachers and other personnel that will be involved in the innovative practices will be trained.
- c. Pilot Testing and Evaluation of the Innovation:** This step involves the trial of the innovation in the selected schools which serve as pilot schools. These schools are similar to the group that will eventually use the new materials. In this trial stage, any problem or difficulty dictated would be corrected.
- d. Dissemination and Adoption of the Innovation:** If the new material tried or tested as stated on the preceding step was successful, then such innovation will be disseminated to schools to be adopted and put into operation.
- e. Evaluation:** As the new materials or innovation are being operational, they will be formatively evaluated to identify any area of difficulty. The feedback from

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such evaluation will be used to correct any problem identified. When the innovation has been stabilized, summative evaluation will be carried out to determine the worthwhile or the new objectives and whether they are being achieved.

**Some Innovations made in Nigerian School Curriculum include;**

**i. Introduction of Compulsory Mother Tongue or Compulsory Nigerian Languages.**

Compulsory Nigerian Languages or mother tongue were introduced into the existing curriculum in order to continually sustain national unity and co-existence that had been in existence among people of Nigeria. In this regard, three Nigerian languages; Igbo, Yoruba and Hausa were introduced into primary and secondary schools. This gave rise to acronym WAZOBIA which is being practiced in schools e.g Federal Government Colleges (Unity) schools and which also receives popularity over the media.

**ii. Introduction of Special Schools for the Handicapped.**

The great need for educating the handicapped people in our society led to the introduction of special schools for the handicapped. This group of people include the deaf, the blind, dumb, cripple and other people who are physically challenged. It is realized that education will enable them manage their challenges with less burden and also offer them opportunity to be employed in different area of life. Education of handicapped is advantageous to the society. With education, their ways of life will change. They will no longer constitute problems to the entire society. In this regard special schools were introduced into Nigerian educational system for training the disabled. The use of special instructional materials and specialist teachers are adopted. In Nigeria today, some disabled persons have better jobs in the civil service.

**iii. Introduction of Open and Distance Learning Programme:** A changing concept of education has stimulated demand for correspondence education. There is a growing conviction that education is not for a privileged group in the society or to be confined to childhood and adolescence, but that all people should have the opportunity of the extent and kind of education their full development requires and that education should be a continuous process, from infancy to the end of life (lifelong education). Unamma (2008) stated that this was why distance learning offers people opportunity to update their knowledge without losing their jobs or having to pass through rigor before obtaining approval from the boss to enroll in school to update knowledge or to obtain certification for promotion. In realization of all these benefits the Federal Government introduced into the Nigerian educational system the Open and Distance Learning Programmes; examples are the National Open University of Nigeria and the National Teachers Institute, both have offices or centres in the thirty six (36) States in Nigeria. Both of the programs are capable of making education available and relevant to all.

**Some other innovations made in Nigerian School Curriculum according to Duru (2012) include;**

- iv) Introduction of Adult/Mass Literacy Programme
- v) Introduction of Nomadic Education
- vi) Introduction of Fisherman Education
- vii) Introduction of Guidance and Counseling Services in schools
- viii) Introduction of Continuous Assessment
- (ix) Introduction of Entrepreneurship Education.
- x) Introduction of Peace Studies and Conflict Resolution.
- xi) Introduction of HIV/Aids and Environmental Education
- xii) Introduction of Climate change.
- xiii) Introduction of Almajiri Education
- xiv) Introduction of compulsory Foreign Languages.

**Some Challenges to Curriculum Innovation**

There are myriads of challenges inhibiting curriculum innovation or change in Nigerian educational system. Some of these challenges include personal factors or conservation, lack of incentives for teachers or implementers, failure to involve teachers and schools administrators in decision- making, teachers incapability to effect the desired change, inability to adequately disseminate curriculum innovation, ambiguous or unclear objectives, lack of evaluation of innovation and lack of organizational health of the school curriculum innovation.

**i. Personal Factors or Conservation.**

Many school teachers and administrators had fear of the unknown concerning innovation and change. They entertain fear that they may not be able to cope with the new techniques or that the new techniques may pose much task for them. This fear will change the attitudes of these teachers and school administrators towards the implementation of the innovation. This is why there is time lag between the time needed for change to be felt and practices of innovation.

ii. **Lack of incentives for teachers or implementers.** Curriculum innovation is one of the vital elements required in a teaching situation for student's meaningful learning experiences and outcome to be actualized. Curriculum is dynamic changes in the society. It is quite normal and advantageous to offer incentives to the teacher's innovation. For innovation to be successful, appropriate incentives should be offered to the teachers. Whereby teachers are not given incentives, they will not be motivated to carry on with the extra task resulting from the innovation. They may show negative attitude to implementation of the innovation.

iii. **Failure to involve teachers and school administrators in decision-making.** It is believed that teachers are at the centre of curriculum implementation and as such it is advantageous to involve teachers in decision making and in the actual development of



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curriculum materials. It is natural and very essential that since teachers are the key agents of curriculum implementation; they should be given opportunity to make inputs in any curriculum decision. Feedback given by teachers who have used a particular curriculum will be essential for meaningful revision of that curriculum. Put differently, successful innovation and implementation of the innovation does not occur unless teachers are involved.

**iv. Teachers' Incapability to Effect the desired Change:** New methods or new curricular call for new knowledge, understanding and other abilities that the majority of teachers do not possess. A well designed curriculum may be abandoned or fail to be adopted if teachers have no knowledge of the desired change and so are incapable of effecting the desired change. For a new curriculum to be effectively implemented, teachers should be adequately trained concerning the aims, objective, materials, method or techniques of implementing the new material as well as evaluation techniques to be adopted. The success of innovation depends largely on the adequacy of training or orientation given to the teachers concerning the new material.

**v. Inability to Adequately Disseminate Curriculum Innovation.**

The point being explained here is that even after innovation has been made if it is not adequately disseminated and as such many teachers will still remain ignorant of the new aims and activities to be pursued. If teachers who are to implement this new curriculum are not aware of the changes/reforms in their subject area, how can they implement what they are not aware of? Invariably such teachers will continue to use the old material, hence the innovation becomes unsuccessful.

**Some other Challenges to curriculum innovation are;**

Ambiguous or Unclear Objectives

Lack of Evaluation of Innovation

Organizational Health of the School Curriculum Innovation (Wiles and Bondi, 2007)

Economic Factor (Mbachu, 2011).

Political Factors inhibiting curriculum innovation and change

**The political factors inhibiting curriculum innovations are listed below as factors militating against curriculum innovation. They are;**

- i. Lack of interest by parents who are so influential in the society.
- ii. Lack of interest in curriculum innovation by political leaders.
- iii. Lack of understanding of innovations by political leaders
- iv. Frequent change of governments work against consistency in policy making.
- v. Frequent change of education personnel in administration.
- vi. Fear that innovation might have adverse result which may disrupt the existing political situation.
- vii. Fear that innovation will require a lot of fund which the state and local education authorities may not be willing to provide.

### **Conclusion**

Nigeria is blessed with rich human and natural resources. These resources can be harnessed for the provision of adequate human, financial and material resources for qualitative education. The development of functional skills is crucial to tackling the skill gap. Functional education is a key to success because it opens door to learning, life and work. Since innovations are a product of human ideas. For these ideas to continue flowing, the human beings need to be reinforced at all times no matter the level and degree. It therefore, implies that participants need legitimating of the proposed innovation and resource to support them. These resources must be continuously maintained to enable effective and efficient productivity in the educational system.

### **Recommendations**

Based on this work, the following recommendations were made;

1. Researchers should endeavour to ensure that their research efforts at all times takes notice and comply with all relevant issues that would enhance the usage of their work.
2. Users of research findings should be aware of the necessary requirements that make research findings useful and applicable in the various circumstance.
3. From this section, it is clear that curriculum innovation and change involves interplay or many factors in this regard, it will be unfair to attribute success or failure of curriculum innovation and implementation to only one of the factors enumerated in this section. For it to be effective, the innovation initiators and planners, must consider all those factors.
4. It is normal and important that different cadres of political leaders should be involved in curriculum innovation in order to address the problem of both direct and indirect political interceptions of curriculum innovation and change.
5. Again, curriculum innovation normally involves huge amount of money. For if it succeed, the government should be made to clearly understand the planned innovation as to show interest and be willing to fund its implementation.
6. Nigerian Government through the Federal and State Ministries of Education should device means of sustaining reforms and innovations.
7. There should be strong political will from the legislatures. Enough support from both Federal, State governments as well as people in authority is needed if the articulated reforms and innovations are to be properly implemented.

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