

RESEARCH AND INNOVATION IN TEACHER EDUCATION: A CASE OF EMERGING GLOBAL CHALLENGING ISSUES

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Abstract

In the contemporary time, there are a lot of issues and challenges that are globally situated, posing, social, economic, political, cultural and security problems to the entire universe. Such issues include climate change, Environmental degradation, HIV/AIDS, Terrorism, Insurgence, Poverty etc. These problems and issues are collectively referred to as emerging global challenging issues. There is great need to tackle these problems by creating wide awareness of their existence and effects and also how to avoid, prevent, or adapt to their effects. This can be done through education which has been globally acknowledged as an instrument for national development and solving societal problems. This paper examined the concept research and innovation and strategies to integrate these issues in the existing teacher education curriculum (Pre-service and serving teachers) as innovation, so that they will be adequately equipped with the knowledge of these issues, their effects on human lives and preventive measures, and be able to implement the innovation in schools.

Research and innovation are two important words in advancement of knowledge and in solving human complex social problems. Research brings about new knowledge which in turn fuels innovation. Knowledge is therefore dynamic, what is new and most relevant today may become obsolete and irrelevant within few years. As a result of continuous search for more authentic knowledge through research, new ideas and new knowledge are gained which are used to replace the old and irrelevant ones in the curriculum.

This new knowledge, ideas, techniques or the most efficient ways of doing things gained through research are usually introduced into the curriculum of the educational system to be implemented in schools. This is due to the fact that curriculum is the tool for achieving Educational objectives and Education is in turn the tool for meeting societal needs, aspirations and for addressing societal problems (Duru 2011). Curriculum is the totality of learning experiences both planned and unplanned designed to be offered to the learner for his/her willful development under the guidance of the school. (Taba 1962 in Duru 2011.9)

The introduction of such new knowledge into the existing curriculum and / or the removal of the old and irrelevant knowledge from the existing curriculum are referred to as curriculum innovation or curriculum renewal or curriculum change when it involves changing of the whole system of education. This process of innovation may usually cut across the five stages of curriculum development process which include:

- Selection of aims, goals, and objectives
- Selection of contents
- Selection of learning experiences
- Organization of contents and learning experiences and
- evaluation procedures.

In most cases when content and learning experience change, instructional materials and instructional methods do change. When the innovation has been made, serving teachers and new teachers are expected to interpret and implement the new curriculum in schools because they are key actors in curriculum development and implementation (Duru 2011). Based on these assertion, it is imperative that the innovations made should be integrated into the teacher education programme which comprises:

1. The teacher training programme.
2. The teacher re-training (development) programme

The teacher training programme includes (i) (National certificate in Education programme (NCE) which is currently the minimum qualification for teachers in Early child care education and primary schools in Nigeria. (ii) Bachelor of Education Programme (B.Ed)

(iii) Post Graduate in Education Programme. (PGE)

This is because when teachers have good knowledge of what they should impact on learners, they have self-confidence. Besides, one cannot give what he / she does not have. Put differently when innovation made are integrated into the teacher education curriculum, they will learn, understand, interpret and be able to teach it.

Again research has brought to our knowledge some emerging global issues which are currently posing serious challenges to the entire world. What it means is that these problems are globally situated. Example of such emerging global issues are Gender inequality, HIV/AIDS, climate change, conflict and conflict resolution, Insurgence, Ebola virus, Terrorism, Environmental degradation, Poverty, Bribery and Corruption etc.

The consequences of these issues on human lives points at insecurity. There are loss of lives daily as a result of these problems. It is only through education that they can be properly addressed. Put differently these emerging globally issues should be integrated into the curriculum of the educational system at all levels. They should be first integrated into teacher training programme and teacher re-training or professional development programme using effective strategies of knowledge integration.

Concept of Research

Research as defined by the Thesarus English dictionary is seeking of knowledge, data, or truth about knowledge. It is a systematic study or inquiry about something. Research and innovation are the two words in Education literature which some educators use simultaneously because research leads to innovation. Research can be carried out in different disciplines for search of new and authentic knowledge. The findings of a research are used to update the existing knowledge or even discard the existing knowledge when there is an overwhelming evidence against the old knowledge. Educational research is systematic and procedural. There are five main approaches to educational research which include scientific research, interpretative research, action research, critical research and post modern research (Pollard 2005). The approach mostly adopted by researchers is the scientific research which has the characteristic stages of;

- recognize and define a problem
- develop hypothesis
- design a controlled research procedure to test the hypothesis
- accumulative observations
- analyze the data
- Interpret the data and for generalisable explanation

Pollard (2005) explained that the hall mark of the scientific approach is that, the investigation has a hypothesis, which is testable and replicable, which provides an explanation and is generalizable. Such research is referred to as scientific, just to highlight two features that are believed by some to be crucial. These are; first, that the way the research is carried out is “systematic” and, second, that the interpretation of the data collected is objective.

However, the findings of research are meant to solve some problems, and clarify misconceptions. Findings of research fuel innovation in which the new knowledge or findings are used for solving educational or societal problems Educational research is an important tool because it directs Innovation and is also a tool for running a race against obsolescence in Education (Duru 2011)

The Concept of Innovation:

Innovation on the other hand can be defined as the process of effecting changes to something as a result of new knowledge from research findings or development in technology. The new knowledge must be positive, relevant and problem-solving. Educational research is a continuous exercise which is in tune with changing nature of the societal needs and problems, and knowledge itself. The society is dynamic, what is new and relevant soon becomes obsolete and irrelevant. Mangesha in Duru (2011). defines innovation in the context of education as:

A dynamic policy, a programme, a project, a method, a technique, a pattern or a design, formulated, planned, desired, created or invented to bring about a change in the

educational policy, programme, structure and operation in a given system of education so that the system meets the changing needs of the individual and the society at large and effectively increase the efficiency of the various resources it employs in performance of its tasks.

Innovation involves a deliberate and purposeful effort to bring about a change of some sort for education to improve (Duru 2011). Again the innovation must be newly felt by the society, community and even the school. For example, the introduction of Adult education which was meant to solve the problem of illiteracy among school dropouts and adults who lost the opportunity to be educated in their youthful age. With the adult education, a lot of peoples' lives have changed

(2) The introduction of Universal Basic Education (UBE) which was meant to solve the problem of poor pupil enrollment in schools and encourage the policy of "Education for all" (EFA) and "no child should be left behind jingle"

(3). The introduction of continuous assessment at all level of educational system is another example. It solved the problem of one shot examination at the end of every term, session or a semester. Students are now being assessed severally and the records of marks are combined with examination scores to produce their final score and grades.

(4). The introduction of computer studies at all level of educational system is another example. It was meant to solve the problem of computer illiteracy and to enable the nation to key into the digital world for international recognition and relevance. Research and innovations are problem solving devices, effective tools for social intervention, instrument for excellence in societal rescue agenda while innovation is always "a new comer", or "best arrival" in Education.

Concepts of Teacher Education

Teacher education refers to the totality of deliberately designed programme and exposure meant to turn individuals who so desired into teachers and to sustain their interest throughout their carrier as professionals (Nwokeocha 2013). In Wikipedia-online, Dictionary, teacher education is "explained as the process by which a person attains education or training in an institution of learning in order to become a teacher". It equips pre-service and in-service teachers with the professional knowledge, and skills necessary to educate others in general or specialized subjects. Teacher education is grouped into three levels of training as follows;(Famant 1980), Pollard (2005).

(I) Initial teacher training/ education, that is pre- service course before entering the classroom as a fully qualified teacher.

(II) Induction, which is the process of providing training and support to newly qualified and employed teachers.

(III) In- service training or re- training programme for serving teachers.

In teacher education, prospective teachers are offered opportunities to develop cognitive perspectives affective dispositions and psychomotor competences which will afford them with qualities, capacities and capabilities for teaching. The focus of teacher education is the professional preparation of teachers. Duru (2011.193) defines teaching

profession as a profession in which one deliberately and consciously engages “to earn a living”. As a profession, it requires that the individual should receive a form of professional training which is meant to equip him/her with skills competences and knowledge in a more or less specialized area of studies which he/she is expected to impact to the learners. Teacher education curriculum refers to the totality of the planned and explained learning experiences offered to the prospective teachers under the guidance of the school for the prospective teachers, personal and professional development. The curriculum contains subject matter knowledge, skills, competences, ethics and values meant to help them reach the threshold of competence. (Nwokeocha 2013) This initial professional training qualifies the prospective teachers to gain employment in different schools where they can practice what they have learnt depending on the level of training.

There are three levels of programmes in teacher education these are;

- (1) National certificate on Education (NCE)
- (2) Bachelor of Education
- (3) Post graduate studies in education (M.E.D and ph.D).

These three different levels of teacher education programme are used to produce teachers for different levels of education, example, in primary school, NCE remains the minimum qualification, in secondary schools B.ED is the minimum qualification and in the universities, M.ED and Ph.D are the accepted qualifications. The relevance of teachers in education is that through the implementation of the curriculum of the education system, teachers help to achieve the national aims, goals and objectives. Education is a powerful tool for achieving national and personal development. It is also used to meet the needs of the society and address every emerging issue. The solution to emerging issues can be arrived at through research findings, also techniques, and effective ways of doing things are identified through research. Technological inventions are discovered through research findings. The imperative of research is that it fuels innovation which is the introduction of the new knowledge, new ideas, techniques, strategies into the educational system for implementation. Teachers are the people next to innovation; they make innovation work through curriculum implementation.

Currently there are emerging global challenging issues which are calling for international attention. These issues if not properly addressed will lead the world to both economic political and social set back through loss of lives and properties. These global challenging issues are climate change, HIV/AIDS, environmental degradation, insurgence etc. Ebola virus, terrorism kidnapping since teachers are next to innovation, it is more appropriate to package and integrate these issues into the teacher education curriculum at different programme (NCE, B.ED and PGE). These issues should also be packaged appropriately, integrated into the teacher retraining programmes other wise called teacher continuing professional development programme (TCPDP). For the pre-service teachers, the question is who will teach them? They will be taught by the serving teachers and the next question is, have the serving teachers been aware of these issues and have they been taught? It is certain that one cannot give what he/she does not

have. If the global challenging issues are packaged and integrated into the serving teachers continuing professional development programmes where they will be mandated to attend the programmes, they will better understand these issues and their implication to human lives and will more effectively deliver to the prospective teachers. The right approach to this is to get the serving teachers at all levels adequate information about the existence of such issues and the strategies to mitigate, prevent or adapt to their problems. If serving teachers at all levels are adequately educated about gender issues, such as gender inequality and its implication to national economic development, they will be able to educate the prospective teachers on the negative effects of this issue on national building.

This will in turn enhance the achievement of national objectives teachers in this global world are meant to be current and relevant to be able to meet the challenges of the contemporary society. It is based on this notion that Adebule (2015) stated “that engaging students on these issues of contemporary concerns, will sharpen their insight about the world around them, enable them to be critical about such issues and to be able to articulate their opinions on them”. Teachers have the noble task and responsibility of implementing the curriculum at all levels, equipping them with the knowledge of these global challenging issues will help them to effectively implement the innovated curriculum. It is only well informed quality teachers that can provide quality education.

Strategies for integrating global challenging issues into the curriculum of the pre-service and serving teachers. There are different strategies that can be used in integrating emerging challenging issues in the existing teacher education curriculum. Ivowi

(1999) in Duru (2008.100)classified appropriate strategies to knowledge integration into two: traditional and modern approaches or effective approaches. The traditional approaches were classified into three:

- (I) content and process approach,
- (II) Spiral approach,
- (III) Thematic approach.

Duru explained that these approaches were first used by Science Teachers Association of Nigeria (STAN) in developing Integrated Science Curricular in 1970. The modern or effective approaches to knowledge integration as enumerated by Duru (2008) include;

- (I) Conceptual scheme approach which involves the selection of concepts from the various emerging issues. The concept are developed comprehensively from various principles without any reference to divisions as in English.
- (II) The inquiry approach which involves the treatment of topics through an inter disciplinary manner.
- (III) The relevance approach with practical every day issues. This approach involves two techniques, one is environmental science approach which organizes courses around issues affecting the natural environment .e.g. conservation of natural resources, pollution and pollutant, man and his environment etc. the other one is the applied

science approach whereby scientific knowledge are used to solve problems concerning health, safety population or conservation.

(IV) The process approach which emphasizes the acquisition of physical and mental skill through participation in science activities.

(V) Institutional affiliation approach. The essence of this is to ensure that the quality of programmes available at a lower level institution and higher level institution are at par and the needs of the society.

(VI) Emergent issues approach. This approach is purposeful and comprehensive. It presents collectively emergent issues affecting the students and the society. Such emerging issues have been highlighted in this paper; they include HIV/AIDS, Environmental education, entrepreneurship education, climate change education, terrorism, gender issues, poverty alleviation, insurgence etc.

The most appropriate approach for integrating these contemporary emerging global challenging issues is the emergent issues approach. It gives room for these issues to be integrated into the curriculum. Since Education has been acknowledged as a powerful tool for solving personal and social problems, through the curricular of the educational system, the point being made by this paper is that curriculum development agencies should adopt this emergent issues approach of knowledge integration to package and integrate all the emerging global issues into the curriculum of the entire teacher education which includes; NCE, B.ED, M.E.D and Ph.D programmes. These stages of teacher education are collectively known as pre-service training for serving teachers at different levels of educational system which includes, primary school level, secondary, and tertiary levels. The emergent issues should be packaged for them using emergent issue approach of knowledge integration. At primary school level, the serving teachers can be taught through special compulsory workshops or seminars organized by the ministry of education or other educational authorities. At secondary level, these issues can also be packaged using the emergent issue approach. These serving teachers at the secondary school level should be educated on these issues through compulsory workshops or seminars which can be organized during vacations. At the tertiary school level, the same approach should be used. Teacher should be educated on these emerging issues through faculty-wide workshops, seminars or conferences. This will enable them to gain in dept knowledge about the contemporary challenging issues of global concern. The awareness and knowledge of these issues by serving teachers at different level of the educational system will place them in good position for effective implementation of these issues in schools. In addition materials will be made available for them for continues learning. This will guarantee the achievement of national objectives, which among others is to be able to solve human and complex social problems through research and innovation in education.

Conclusion

This paper examined the concepts of research and innovation, and how research propels innovation. It also discussed how innovations made through research can be

integrated into the teacher education curriculum at all levels using the case of emerging global issues. The strategies for integrating innovation were examined and the most appropriate strategy suggested for integrating the emerging global issues in the curriculum of teacher education programme. If this strategy is adopted to integrate the emerging global challenging issues into the curriculum of teacher education pre-service and serving teachers at all levels; they will be able to gain adequate knowledge on how to mitigate and adapt to the problems or overcome these problems. They will also be in the proper position to teach the learners at the various levels of the educational system.

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