

ENHANCING CREATIVITY AND INNOVATION THROUGH SKILL ACQUISITION IN THE TECHNOLOGY EDUCATION PROGRAMME IN NIGERIA COLLEGES OF EDUCATION

Ogunsola Femi, Abutu Francis, *Abdulmalik, S. O. & **Ojulokunrin, R. W.

Department of Industrial & Technology Education, Federal University of Technology Minna.

*National Automotive Design and Development Council, Abuja.

**Department of Vocational and Technical Education, Adekunle Ajasin University, Akungba.

Email: francis.a@futminna.edu.ng **Phone:** 08067901229.

Abstract

Teaching is a dynamic profession that requires continuous review in order to address contemporary challenges in the society. This is because technological advancement has brought about continuous changes in societal demands from vocational teachers. To meet the needs of the vocational teachers at the NCE level, the NCCE introduced creativity and innovation in the NCCE Vocational and Technical Education (VTE) curriculum. This paper unveiled the creativity and innovation in the present NCCE Vocational and Technical Education curriculum. It also explained the concept of skills, skill acquisition, creativity, innovation and highlighted the creative and innovative areas captured by the present NCCE VTE curriculum. The paper also explained the relevance of creativity and innovation in the curriculum and recommended full exploitation of the creativity and innovation in the present NCCE Vocational and Technical Education curriculum to improve basic education, promote technology literacy and awareness at the basic education level.

Keywords: Creativity, Innovation, Curriculum, Vocational and Technical Education, National Commission for Colleges of Education (NCCE).

Introduction

Technology Education programme in Nigeria Colleges of Education is designed to train Vocational and Technical teachers to teach effectively in Technical Vocational Education and Training (TVET) institutions as well as to function effectively as skilled technicians in the industries. Enhancing the performance of technology education graduates from Colleges of Education demand that they possess adequate level of skills in specific occupational areas in which they were trained to specialize. A skill refers to expertise or ability developed in the course of training and experience demonstrated by an individual's ability to expertly use manual dexterity in a particular vocation (Adetokunbo, 2009). Skill acquisition is the development of a new skill, practice or a way of doing things usually gained through training or experience. To possess a skill is to demonstrate the right habit of acting, manipulating, thinking or behaving in a specific activity which has become so natural and automatic to the individual through repetitive practice in a given occupation or trade area. The programme prepares individuals to become technical teachers who can enhance teaching and learning in schools.

Teaching and learning are two activities that are geared towards the attainment of educational goals. Both terms when used together denotes an organized instructional process that is consciously geared towards transforming and developing students' intellectual ability, skills, ethics and values to enable individuals function effectively and become self reliant, at the same time contribute positively to societal development. According to Akamobi (2005), teaching is the process of transferring information from the teacher to the learner to facilitate desirable change in behaviour in the learner while learning can be defined as a relatively permanent change in behaviour that occurs in a learner when the learner is exposed to some experiences or training. In teaching and learning activities, the teacher is the pivot and major facilitator. As a result of the vital role played by teachers in knowledge transfer, researchers revealed that the extent of civilization in any nation to a large extent depends on the performance of the teachers exhibited in the classroom. It is therefore incumbent on government at all levels as well as tertiary institutions to produce qualitative teachers who have commitment to the teaching profession.

In any educational institution, the role of the teacher is vital because the teacher contribute immensely at implementation stage, thus enhancing effective teaching and learning at all levels of schooling. The Federal Republic of Nigeria (FRN)(2013) in recognition of the relevance of teachers

towards achieving quality education for all citizens, stated in her National policy on education that the goals of Teacher Education shall be to:-

- a) Produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system;
- b) Encourage further the spirit of enquiry and creativity in teachers;
- c) Help teachers to fit into social life of the community and the society at large and enhance their commitment to national goals.
- d) Provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations;
- e) Enhance teachers' commitment to the teaching profession.

The national policy on education also stated that the minimum qualification for entry into the teaching profession shall be the Nigeria Certificate in Education (NCE). At the NCE level, the Federal Republic of Nigeria (FRN, 2012a) in the NCE minimum standards for vocational and technical education document stated that the major goal is to produce quality teachers for the Basic Education sub-sector. The Basic Education sub-sector comprises of the following categories of education:

- i. Pre-primary education or Early Childhood and Care Education (ECCE),
- ii. Primary education,
- iii. Junior secondary education,
- iv. Adult and non formal education, and
- v. Special needs education.

All these efforts of the federal government are geared towards ensuring effective implementation of the curriculum designed by the National Commission for Colleges of Education (NCCE) at all categories of approved NCE awarding institutions in Nigeria which among others include: conventional College of Education, College of Education (Technical) and College of Education (Special). FRN (2013) revealed that other approved NCE awarding institutions benefiting from the NCCE curriculum include: Faculties of Education, Institutes of Education, National Teachers Institute, Schools of Education in the Polytechnics, National Institute for Nigerian Languages, and the National Mathematical Centre.

The National Commission for Colleges of Education (NCCE) is an educational regulatory body saddled with the responsibility of laying down minimum standards for all programmes of teacher education, accrediting their courses and designing of their curriculum and so on. Curriculum can be described as the totality of all the learning experiences which learners are exposed to under the guidance of the school. Curriculum gives a definite focus and direction to the educational process. It provides specific implementation guideline to effective content delivery and also enhances and promotes appropriate instructional practice in schools. Despite the importance of curriculum to program implementation, an outdated curriculum cannot meet the needs of the changing society brought about by technological advancement that occurs on a daily basis. This is because teaching is a dynamic profession that requires continuous review in order to address contemporary issues and challenges in the society.

Over the years in Nigeria, there is a general outcry by the general public that there is a decline in the quality of education. This calls for the need to inject creativity and innovation into the curriculum. Creativity and innovation in curriculum at the NCE level has to do with injecting new ideas into the existing curriculum to enhance more effective programme implementation at the basic education level as well as production of quality teachers for the Basic Education sub-sector in Nigeria. This paper therefore unveils the creativity and innovation in the new NCCE Vocational and Technical Education curriculum and stressed the need to enhance creativity through skill acquisition in the technology education programmes in Nigeria colleges of education.

Concept of Vocational and Technical Education

According to the National Policy on Education (FRN, 2013), Vocational and Technical Education is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Vocational and Technical Education is further understood to be:

- (a) an integral part of general education;

- (b) a means of preparing for occupational fields and for effective participation in the world of work;
- (c) an aspect of lifelong learning and a preparation for responsible citizenship;
- (d) an instrument for promoting environmentally sound sustainable development;
- (e) a method of alleviating poverty.

The federal government of Nigeria in her national policy also stated that, the preparatory aspect of the pre-vocational training offered to students at the junior secondary level or basic education level is for the purposes of :-

- (a) Introduction into world of technology and appreciation of technology towards interest arousal and choice of a vocation at the end of junior secondary school and professionalism later in life;
- (b) Acquiring technical skills;
- (c) Exposing students to career awareness by exploring usable options in the world of work; and
- (d) Enabling youths to have an intelligent understanding of the increasing complexity of technology.

The National Policy on Education further stated that the goals of vocational and technical education shall be to:-

- (a) Provide trained manpower in the applied sciences, technology and business particularly at craft, advanced craft and technical level;
- (b) Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development ;
- (c) Give training and impart the necessary skills to individuals who shall be self-reliant economically.

At the NCE level vocational and technical education exist in the following areas of specialization: Agricultural Education, Business Education, Fine and Applied Arts Education, Home Economics Education and Technical Education. Achieving the national goals of Vocational and Technical Education as stated in the education policy requires the availability of sound, creative and innovative-minded vocational teachers who can efficiently implement the curriculum by effectively teaching vocational and pre-vocational subjects at all levels and areas of the basic education sub-sector. Effort by the Ministry of Education and NCCE to train the desired creative and innovative-minded vocational teachers for the basic education-sub sector led to the injection of creativity and innovation into the new vocational and technical education curriculum at NCE level.

Concept of Creativity and Innovation in Vocational Teacher Education Programme

Creativity and innovation are two related terms that both leads to the production of something new which could be a new product, service or new method of doing things. Creativity involves the use of skills and imagination to produce something new. Alison (2005) defined creativity as an imaginative activity fashioned so as to produce outcomes that are both original and of value. Everyone has the capacity to be creative. Creativity is not unique to the arts. It is equally important to advancement in the teaching and learning process, sciences, mathematics, technology, politics, business and in all areas of everyday life. When people are thinking and behaving creatively, they are: questioning and challenging; making connections and seeing relationships; envisaging what might be; exploring ideas, keeping options open; reflecting critically on ideas and outcomes. To develop young people's creative skills, educators need to be creative and teach for creativity.

While innovation according to Hornby (2012), is the introduction of new things, ideas or ways of doing something. Innovation is the term used to describe the development and implementation of new ideas (products, services and models) to meet the needs of the society. In the education setting, creativity and innovation encompasses all new practices directed towards achieving the goals of

education or the improvement of teaching and learning process. It is worthy to note that while the words creativity and innovation are sometimes used interchangeably, they are not exactly the same because creativity is not time bound which innovations is a function of time (period). A product emanating from creativity can be use to solve immediate problems but may not necessarily consider time or period for which the product was produced relative to other existing similar product. While a product from innovation considers time in coming up with a novel product that solve problems better than other existing similar product.

The creativity and innovation in the NCCE Vocational and Technical Education curriculum represents the various characteristics injected into the existing curriculum to enhance more appropriate instructional delivery at the basic education levels as well as efficient attainment of the goals of NCE programmes in vocational and technical education in Nigeria. Creativity and innovation in vocational teacher education programme at the NCE level encompasses all teaching and learning activities or styles adopted by the vocational teachers to enhance effective instructional delivery and attainment of the goals of education at the basic education sub sector as well as the goals of vocational and technical education teachers at the NCE level.

It also includes and not limited to the ability of the vocational teacher to effectively improvise new instructional materials and effectively utilizes such instructional materials to teach the wide varieties of vocational subjects at all levels and areas of the basic education sub-sector. The need for creativity and innovation in vocational teacher education programme became paramount as a result of the continuous changing needs of learners brought about by changes in technology and demands for more effective form of teaching and learning environment. Over the years, technological dynamism has created a dramatic change in instructional process and necessitates the availability of creative and innovative-minded teachers who can effectively adapt to changing instructional needs and competently teach vocational subjects.

Overview of the NCCE Vocational and Technical Education Curriculum

Curriculum can be described as the totality of all the learning experiences which learners are exposed to under the guidance of the school. Drake and Burns (2004) described curriculum as the planned programme content to be delivered to the student under the guidance of the school to enhance achievement of educational goals. In the present dynamic society where change is inevitable, curriculum also encompasses all the unplanned learning experiences which learners are exposed to in a training institution. Curriculum gives a definite focus to the educational process in the school system. It shows that school life is a continuation of learning experiences both within and outside the vicinity of the institution. The common types of curriculum among others include subject centered curriculum, learner-centered curriculum, hidden curriculum and core-curriculum (Atsumbe, 2010). The federal government of Nigeria in realization of the relevance of curriculum to qualitative teacher education established the National Commission for Colleges of Education (NCCE) as a regulatory body in 1989 for the supervision of teacher education programmes at NCE level in all categories of NCE awarding institutions in Nigeria.

Since inception, the NCCE has been involved in a lot of activities that focus on pursuing quality assurance in teacher education programmes in Nigeria. In response of the commission to the widespread criticism that that the existing NCE curriculum is deficient in meeting the needs of the teacher in modern society, the NCCE in the last five years has been involved in a number of activities such as conferences, workshops and critiquing sessions among others to address the discrepancy between teacher certified qualification and the quality of teachers performance on the job. FRN (2012a) revealed that it has become clear that a major part of the problem has been an observed dislocation of the existing NCE programme from its' service sector, as the existing NCE programme is not tailored towards the production of teachers for the various categories at basic education level. FRN (2012a) also stated that the objective of the teacher training programme at the NCE level, which is the recognized minimum teaching qualification in Nigeria, is to produce teachers for the basic education sub-sector.

The Basic Education sub-sector comprises of the following categories of education: pre-primary education or Early Childhood and Care Education (ECCE), primary education, junior secondary education, adult and non formal education, and special needs education (Edho, 2009). Each of these

categories of education has an approved curriculum which is distinctive and extensive in content and focuses towards meeting societal needs. Thus, if the NCE programme is to remain relevant to the basic education sub-sector it is intended to serve, it must do more than it is presently doing. It must prepare teachers with knowledge and skills required to teach effectively at the different levels and areas of basic education programmes without neglecting the needs for higher education of the beneficiaries. This necessitated the injection of creativity and innovation in the new NCCE vocational and technical education curriculum in Nigeria.

Creativity and innovation in the new NCCE Vocational and Technical Education curriculum

Effort by the Federal Ministry of Education and the NCCE to inject creativity and innovation in the new NCCE Vocational and Technical Education curriculum led to the production of the new NCE minimum standards document for Vocational and Technical Education. The Federal Ministry of Education (FME) (2013) revealed that the emergent minimum standards document, especially those for vocational and technical education programmes are accompanied with a curriculum implementation framework or guidelines to assist institutions and especially the educators in the implementation of the new ideas. The NCCE introduced creativity and innovation in the new NCCE Vocational and Technical Education curriculum in Nigeria to enhance attainment of its vision to produce well motivated teachers with high personal and professional discipline, integrity and competence needed to bridge the gap between prescribed curriculum content and good curriculum practice in the teaching profession.

Therefore, in order to produce effective career-focused teachers in line with current best practice, the NCCE has restructured its existing curriculum and brought in new educational approach that now pays more attention towards producing creative and innovative-minded teachers for all levels and areas of the basic education sub-sector. The new teacher education programme at NCE level also involved restructuring of the NCE-awarding institutions into schools that will now reflect the identified specialized professional teaching areas and programmes: pre-primary education or Early Childhood and Care Education (ECCE), primary education (PED), junior secondary education (JSE), adult and non formal education (ANFE), and special needs education (SPED). The new educational approach also has implications for the way lecturers at NCE awarding institutions conducted assessment, provide learning opportunities and undertake teaching practice.

The FRN (2012b) curriculum implementation framework for NCE revealed that the creativity and innovation in the new NCCE Vocational and Technical Education curriculum in terms of the new educational approach exist in two major characteristics: the shift from teaching to learning, and a belief that "not only content is learnt but also skills and attitudes". The shift from teaching to learning is an important creativity and innovation feature in the new NCCE Vocational and Technical Education curriculum which recognizes that teaching can be inefficient when it focuses solely on the transmission of curriculum content without considering whether anything is being learnt.

A detailed study by the researcher, reveals that researches in education have shown that learners need to be engaged actively in the learning process and their learning must be supported and monitored explicitly. Learning only becomes meaningful if it is centered on the learner and on the development of the learners' ever-growing and changing understanding and application of professional content knowledge, skills and attitudes. Therefore, in line with the creativity and innovative shift from teaching to learning, it is expected that courses will be offered by the teachers not through a relatively simple "teaching programme", but rather through a comprehensive "learning programme". A learning programme provides a comprehensive plan to ensure that the required knowledge, skills and attitudes are developed by each student teacher. This implies that a learning programme for any course should describe the learning resources such as learning materials, learning activities, learning tasks among others that will be used, as well as what assessment strategies will be applied to show evidence of successful achievement of learning goals.

The belief that "not only content is learnt but also skills and attitudes" is a creativity and innovation characteristic in the NCCE Vocational and Technical Education curriculum which recognizes the fact that, apart from the required content knowledge, student teachers are also provided with opportunities to acquire the skills and attitudes of an effective teacher. In line with this, the teacher

education programme use the learning of professional knowledge in such a way that it also relates to and supports the development of professional skills and professional engagement or attitudes. The development of appropriate teaching skills will require the provision of adequate opportunities to teaching practice (TP). It will require not just supervision but a well organized mentoring system that provides support to the student teacher and the newly qualified teacher. This implies that a mentoring component needs to be integrated into the existing TP exercise and more time needs to be devoted to practical school experience. Supervising a student teacher twice during TP programme is inadequate for the development of excellent teaching skills; hence the need to inject creativity and innovation into the teaching practice programme is paramount.

The following is a brief comparative overview of the outcome of creativity and innovation in the NCCE Vocational and Technical Education curriculum:

- i. The old NCE curriculum aimed at creating a generalist teacher able to teach a subject or two at any level in basic education while the present NCE curriculum focused on creating teachers for specific areas in basic education (ECCE, PED, JSE, ANFE and SPED) .
- ii. The old curriculum focuses on transmitting content of school subjects while the present curriculum merges subject content with the achievement of skills and attitudes as described in the teacher standards.
- iii. In the old curriculum it is believed that providing appropriate teaching input (content) will result in developing effective teachers while in the present curriculum, it is believed that providing appropriate learning opportunities will result in developing effective teachers.

The researchers in a personal research study stated that, in line with creativity and innovative shift in focus from “teaching to learning”, the NCCE emphasizes the need for institutions to create effective learning opportunities for all student teachers. This is with a view to ensuring that there is an appropriate teaching input into the 3-year NCE programmes and also a quality learning output, that is, how are teachers implementing the present curricula, what is taught, how it is taught by teachers and how students learn. The creativity and innovation in the present NCCE Vocational and Technical Education curriculum demands that experienced teachers must be assigned to student-teachers for mentoring before the micro-teaching for continuous support till the students graduate. The institutions must provide adequate support work such as orientation for trainees and periodic evaluative comments on student-teachers progress. Coping with the creativity and innovations in the present NCCE Vocational and Technical Education curriculum further demands that NCE-awarding institutions must assign supervisors to student teachers based on their areas of specialization such as ECCE, PED, JSE, ANFE, SPED VTE to ensure that such supervision is focused, well-informed and based on the supervisors practical professional skills and knowledge.

It is worthy to note that the creativity and innovation in the present NCCE Vocational and Technical Education curriculum in Nigeria exist in the following educational areas: Agricultural Education, Business Education, Fine and Applied Arts Education, Home Economics Education, and Technical Education. The curriculum for each of these Vocational and Technical Education areas has creativity and innovation-inclined courses and specific objectives tailored towards meeting the teaching needs of the vocational education teachers to enhance attainment of the national goal of “basic education for all “ and promotion of technology literacy at each level of the basic education sub-sector in Nigeria.

Conclusion

Based on the content of this paper, one would acknowledge the fact that the researchers have unveiled the creativity and innovation in the present NCCE Vocational and Technical Education curriculum. Exploiting and full utilization of the creative and innovative areas in the NCCE Vocational and Technical Education curriculum is necessary for effective training of creative and innovative-minded vocational teachers needed for efficient curriculum implementation at the various levels and areas of basic education sub-sector in Nigeria. Appropriate and timely exploitation of the creative and innovative areas in the present NCCE Vocational and Technical Education curriculum will also help to achieve the vocational and pre-vocational goals of education at the basic education sub-sector in Nigeria. It will also help to promote technological literacy and awareness among students as well as introduction into the world of technology and appreciation of technology towards interest arousal and choice of a vocation at the end of junior secondary school and professionalism later in life.

Recommendations

- I. NCE awarding institutions should emphasize the need for student teachers and newly qualified teachers to explore and fully utilize the creativity and innovation in the present NCCE Vocational and Technical Education curriculum to improve education at the basic education sub-sector.
- II. NCE awarding institutions should provide a comprehensive preparation programme for teaching practice by effectively coordinating content, methods and linking these meaningfully using micro-teaching.
- III. NCE awarding institutions should design and operate school-based teachers' professional development programmes that assist basic education teachers in these schools to enhance their capacity for more effective instructional delivery.
- IV. NCCE should carry out a regular quality assurance exercise to ensure that NCE awarding institutions comply with the novel teaching practice guidelines that focus on producing creative and innovative-minded teachers at the basic education sub-sector.

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