

Curriculum Review in Technology Education: The Role of Technology Education Teachers for a Transformed Economic

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Abstract

Technology education curriculum review is inevitable as a result of the dynamic nature of science and technology. Technology education curriculum review is the process of increasing and deleting irrelevant contents of existing curriculum for bursting and updating human knowledge, enhances skills increase productivity, and stimulates resourcefulness of the trainees and is systematic, sustainable and strategic. This paper discussed the duties and responsibilities of Technology Education Teachers in curriculum review. The paper also discussed agents to be considered while modifying curriculum of technology education as well human capital development through systematic curriculum review. The paper concluded that Technology Education Teacher is the major initiator of curriculum review and therefore be acquainted with the enormous role for successful curriculum modification for a transformed economy.

Keywords: Curriculum, Curriculum review, Technology, Education, Teacher

Introduction

The term curriculum has not yet gained a universally accepted definition. The term has been with several meanings and a number of different definitions of it have been proposed. Thus, the meaning of curriculum differs among people in Nigeria historically and philosophically. Okoro (1994), present what he called a "conventional" definition of curriculum as the totality of all experiences that the student is exposed to under the direction of the school. Since the needs, interest of the students who are the consumers of the education offer by curriculum changes, curriculum has to be reviewed.

According to Olaitan and Ali (1997) Curriculum review is a modification of what exists for the purpose of adding or substituting some elements (modules) as a result of observable needs or societal demand for improvement. In a more technical form they defined curriculum review as a process by which a curriculum planner delete the irrelevant information or knowledge or skill of an existing curriculum and substituting with available improved ones, taking into consideration the required resources for its success. Curriculum review includes when shortfalls in a curriculum package are added and also when over loading are shed off for the purpose of effectiveness of the curriculum. Curriculum review will be a continuous process by which an individual acquires basic skills that enable him to function effectively as member of society if they are been educated.

Technology Education Teachers are the set of people that have the qualification, ability and methodology in the utilization of the resources in transmitting the appropriate skills, knowledge and attitudes to the students or trainees. The Technology Education Teachers plan and review the curriculum of schools both the formal and informal content and proceed with the process by which learners gain knowledge and understanding, develop skills, alter attitudes, and values. Interdisciplinary teams of technology education teachers trained and worked together for cross-curriculum planning and integrated delivery of instruction (Doll, 1996).

The curriculum of science and technology training institutions should move away from the traditional courses to embrace computer installation and maintenance, instrumentation, food technology, land surveying, metallurgical technology, glass and telecommunication technology and so on. The curriculum of science and technology education should focus more on creativity education. Often industries and colleges reject products of science and technology education whose training was based on the outdated method of developing skills. To the end science and technology education training institutions should shift focus to curriculum that acknowledges particular sets of talents and attempt to enable the trainee discover and develop his particular sets of potentials (Kennedy, 2011).

Concept of Technology Education

Technology education which is synonymous with technical education, industrial technical education, industrial arts, and Technical Vocational Education is defined by the National Policy on Education (FRN, 2004) as an aspect of education process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of the economic and social life. Technology education is further understood to be:

- An integral part of general education;
- A means for preparing occupational fields and for effective participation in the world of work;
- An instrument for promoting environmentally sound sustainable development and
- A method for alleviating poverty

Goals of Technology Education in Nigeria: The goals of technology education according to the National Policy of Education are:

- Provide trained manpower in the applied science, technology and business particularly at craft, advance craft and technical levels
- Provide the technical knowledge and vocational skills necessary for agriculture, commercial and economic development;
- Give training and impart the necessary skills to the individual who shall be self reliant economically

Need to Involve Technology Education Teachers in the Curriculum Review

Nigeria is a country undergoing economic reform. A productive, competent, and flexible workforce is a prerequisite for furthering economic development. The demand for skilled workers and technicians is already acute and will become ever more intense as the industrial sector becomes the dominant provider of employment; yet the Vocational and Technical Education (VTE) sub-sector is unable to respond to the changing labour market requirements because of its present supply-driven orientation. Its curricula, instructional equipment, teaching methods, and evaluation techniques are outdated, leading to inappropriately low internal and external efficiencies.

To provide sustainable industrial technology development there is need to infuse innovation in curriculum and in doing this experts must be involved in both formal and informal technology education curriculum review in the area of Automobile Technology, Building Technology, Electrical-Electronic Technology, Metal Work Technology, Wood Work Technology and other related area of technology endeavour.

Successful introduction of new and useful methods, techniques, practices, or new altered products and services requires expertise in the whole process. Luecke and Katz (2003) opted that curriculum review is any change to accustomed practice in learning or teaching or training whether in objectives, contents or methods. The learners or students are expected to

acquire appropriate skills and ability to make them fit in the industries or be self-reliant after leaving training centre and to contribute to the development of the society, therefore, it is imperative to update our curriculum using specialists in the field as the need of the society changes and technology advances.

Agents of Consideration in Technology Education Curriculum Review

When examining the various components of the technology education curriculum review from the perspective of inclusion and accessibility for all students, reviewers consider whether the document:

- supports the principles of learning
- accuracy in terms of subject matter and portrayals
- relevancy in the current area of development in technology
- provides prescribed learning outcomes, suggested achievement indicators, examples, instruction, and assessment that are accessible for a variety of teaching and learning styles
- provides opportunities for students to develop critical thinking, problem solving, and communication skills
- promotes awareness, understanding, and respect for the diversity of society;
- reflects and validates the life experience of students of varied backgrounds, interests, abilities, and needs
- provides positive role models and presents different points of view
- reflects accurate representations and avoids stereotype
- supports the development of positive social attitudes and promotes respect for diversity and human rights

Human Capital Development through Technology Education Curriculum Review

Technology education institutions are formed to address the issue of production of relevant manpower needs of industries and other sectors of the economy. Human capital development is inseparable from socio-economic development of a nation as well as the curriculum for training. Human capital development is the process of an increase capacity building and strategic mobilization of human capital which unlocks the door of modernization, increases productivity and greater global trade as well as integrates them with the world economies (Kazmi, 2007). According to Erhuria (2007) human capital development presupposes investments, activities and processes that produce knowledge, skills, health or values that are embodied in people. This cannot be achieved without understanding the status of the nation in term of needed improvement in various socioeconomic sectors especially in the field of science and technology that is witnessing development every day and therefore the call for technology education review is vital for developing updated human resources that will meet the need for employers of labour. Technology education curriculum review as crucial task ahead for technology teachers should be systematic to the extent that there should be a plan for which previous activities will provide support for upcoming activities while facilitating the attainment of set goals. The process should be sustainable since the product must make desired and enduring impact on the organization or society. The process should be strategic to the extent that there are well-defined goals and targets whose attainments are time bound. It should be dynamic, responsive and result oriented; continually evolving and proactive to address emerging challenges (Enyekit, Amaehuke & Teerah, 2011). The most important outcome of an effective human capital development through technology education curriculum review system is that it opens up decent employment opportunities by enhancing workers' abilities to secure and retain jobs, progress at work and cope with the change. Investment in priority areas of education

and skills development become very important for reducing the gap between knowledge based workforce and a low-skilled workforce. Technology education curriculum review improves skill levels of the workforce, impacts positively on economic growth, raises productivity levels and reduces unemployment. Wagner (2005) stressed that TVE and professional training system would have a major positive impact on national competitiveness when the curriculum is relevant. The International Labour Organization global report on information technology (2001) points out that the full benefits of the new wave of technological change cannot be appreciated without creating a striking balance of skills. Promoting a knowledge-based economy puts a huge premium on acquiring an appropriate education and demand-driven skills. ILO's *World Employment Report 1998-99*, demand for skilled labour has been rising as a result of globalization, and the technological advancement has led to changes in work organization. Human Capital Development through responsive curriculum modification is the intangible factor of the production that brings human intellect, skills and competencies in the production and provision of goods and services. It is that human capability and productivity engendered through knowledge and skills acquired from TVE, training and experience and facilitated by an environment.

Conclusion

Based on the facts available from this work, it can be concluded that technology education curriculum review is a continuous improvement process in which quality matter than quantity. Therefore, the position of the technology education teacher in technology education curriculum review process is central. As educational reforms throughout the globe continue to emphasize curriculum innovation and invention, the need for technology education teachers to be become acquainted with their responsibilities in carrying out task on curriculum review is paramount.

Recommendations

1. Due to dynamic nature of technology education, professional development sessions (seminars/workshops) should be held for teachers biannually organise by the government as a refresher for those trained a long time ago to enable them cope with the need of curriculum review.
2. Technology Education Teachers should ensure that the curriculum quality meet up with the challenges of 21st century therefore setting the directions for learning and teaching through coherent and flexible framework which can be adapted to changes and the different needs of the students and colleges
3. Technology Education Teachers should ensure that curriculum provide all students with essential life-long learning experience for whole-person development in domain of ethics, intellect, physical development, social skills and aesthetics, according to individual potential, so that all students can becomes active, responsible and contributing members of the nation and world-wide.
4. Technology Education Teachers should ensure that the curriculum is design to help students learn through cultivating positive value, attitudes and a commitment to life-long learning, and through developing generic skills to acquire, construct and communicate knowledge effectively.
5. Government should encourage international and local expertise discussion for sharing experience and ideas in term of curriculum modification as this will create enabling opportunity for developing and reviewing sound curriculum

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