

AN ASSESSMENT OF THE CURRICULUM FOR TECHNICAL TEACHERS' CERTIFICATE (TTC) PROGRAMME

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Abstract

Technological advancement of any nation depends upon its development in science and technology. Consequently, it revolves around science and technical/technology education as it can be best fostered through the educative process. This paper assessed the curriculum of Nigeria Technical Teachers' Certificate Programme. Particular attention was given to National Board for Technical Education (NBTE), curriculum for Technical Teachers' Certificate Programme. Separating micro-teaching from a course and introduction of educational research methods were recommended. It is hoped that the recommendation will enhance the competencies of the products of the programme.

Introduction

One of the questions that require urgent attention is how can Nigeria effectively provide the catalyst for adequate national development in science, and technology? Another imperative is: how can the nation prepare her citizens adequately to deal with scientific and technological challenges of the 21st century? If the nation is to effectively develop a culture of science and technology; one of the best ways is through the educative process. And since there cannot be an effective educational system without adequate teacher education, the question then arises as to what response the Nigeria teacher education has for the development of science and technology in contemporary Nigeria secondary schools.

Teacher education can be defined as that form of education which is properly planned and systematically tailored and applied for the cultivation of those who will teach particularly, but not exclusively, at the primary and post-primary levels of the school system. It also encompasses the preparation of administrators, supervisors and guidance counselors within the same frame of reference (Okafor, 1988).

Technical/technology education is a teaching learning process that equips an individual with the right kind of knowledge, attitudes and skills that enable him to have an intelligent understanding of his environment and propel him to act in a way to improve it (Ezeani, 1998). Technology education according to Eze (1987a), emphasizes the acquisition of technical skills, knowledge and work attitudes as well as the methods for imparting them to students. It is essentially designed to prepare the practically oriented technical teachers (Todd, 1987). Technology is the correct application and utilization of organized and accumulated scientific knowledge in the production of equipment and materials necessary for proper enhancement of our living standard (Ugochukwu, 1989). It is primarily concerned with finding solutions to practical problems using scientific theories and principles. Hence, it is often difficult to divorce science from technology. As the scientist is concerned with discovering of concepts which help him, *explain how*, the world works the technician/technologist is concerned with the application of these concepts to help him do the world's work. The scientist seeks to understand in order to explain, the technologist attempts to understand in order to do something (Okafor, 1988).

The fundamental objective of technical teacher education is to ensure that teachers as facilitators will be capable of assisting the student to acquire maximum scientific and technological skills, "knowledge or optimum change towards desired and desirable behaviors. This good and purposeful teaching and instructional programme therefore, cannot be left to chance.

National Objectives of Technical Education and Its Implementation

The objectives of Technical Education as contained in the National Policy on Education 2004 are:

- To provide trained manpower in applied science, technology and commerce particularly at sub-professional levels;
- To provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development;
- To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;

- To give training and impart the necessary skills leading to the production of craftsman, technicians and other skilled personnel who will be enterprising and self-reliant and.
- To enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

In an effort to achieve the objectives, Federal Government with degree No. 9 of 1977, established the National Board for Technical Education (NBTE), (Okafor, 1988). Within short time, large number of post-secondary institutions designed to produce various technological/technical manpower were established. For instance, between 1977 and 1980, a total number, of thirteen polytechnics and colleges of technology were established (Okafor, 1988). By 1983, there were twenty-nine polytechnics and colleges of technology spread across the country (NBTE, 1983/84). Also by 1990 the number of Colleges of Education (Technical), has increased to nine. Technical Teachers' Programme (TTP), embarked by the governments was an attempt to increase the number of technical teachers. There were also deliberate efforts by both state and federal government to supply science and technology equipment to schools.

Some efforts have been made but it is however, far too short of expectations in view of enormous needs in science and technology.

For instance, in Bagauda seminar, on Perspective of Quantities and Qualities in Nigeria Education, it was estimated that between 1980,, when there were twenty three polytechnics and colleges of technology and 2000 AD, if It) or 11 more institutions are established annually, Nigeria shall be able to reach parity with the world, first in the number of institutions, then in the students enrolments and finally in technological graduate output into employment (Nigeria Research Council, 1980).

Technical Teachers' Certificate (TTC) Programme

The TTC Programme was introduced in the late 60s as a result of the felt need to equip persons who already have technical area of study with appropriate dose of pedagogy to enable them teach this skills at appropriate levels. That is to say that, teachers of technology should in addition to their technical areas of specialization, be able to:

- develop an understanding of their role as teachers of chosen vocational subjects;
- acquire and apply knowledge of the principles and method of teaching and the use of instructional media;
- develop appropriate communication skills for effective delivering of the subject matter;
- relate meaningfully with others the occupational skills and experiences to which they had been previously exposed and

Contribute meaningful in chemical manpower development (N.B.T.E., 1986).

To provide the student teachers with the above experience a well thought out curriculum is needed. Hence research methodology, measurement and evaluation, philosophy, psychology, administration etc become important areas for professional preparation of those who teach.

The TTC curriculum as provided by NBTE has four major components. There are general studies, professional education studies, teaching practice and terminal project. The course codes are in one hundred (100), and two hundred (200), series, and course contents structured in modules to allow for flexibility in its administration. Innovatively, the course contents are presented in behavioral objectives.

Micro-teaching is subsumed in one of the five units of the course 'methods of teaching vocational subjects'. Contextually, one may argue in justification of the arrangement, that micro-teaching will provide forum for the learners to demonstrate different skills contained in the course. But micro-teaching is wide and an important area of pedagogy having both theory and practicum. To do justice to micro-teaching and realize its objectives, more time and space should be allotted to it.

The enormous problems generated by teaching and learning need to be investigated. A teacher researcher creates opportunities for learners to observe situations and investigate phenomena. The

absence of research methods, which equip the students with research skills in the curriculum, is a great omission thereof. The TTC curriculum as provided by NBTE (1986), is shown below.

Table 1: Technical Teachers' Certificate-Curriculum Table

Course Code	Course Title	Credit Units
GSE 101	Communication in English	2
GSE 102	Human Values and Ethics	2
EDH 103	Human Development and Learning	2
EDM 104	Instructional Media	2
EDL 105	Method of Teaching Vocational Subjects	3
EDE 106	Measurement and Evaluation	2
EDE 107	Ethical Foundation of Education	3
EDS 201	Nigerian Systems of Technical Education	2
EDC 202	Curriculum Development in Vocational and Technical Education	2
EDO 203	Vocational Guidance and Counseling	1
EDA 204	Institutional Management	3
EDR 205	Seminar	1
EDP 206	Project	1
EDT 207	Practice Teaching	4
	Total	30

Source: Technical Teachers Certificate Programme (Curriculum and N.B.TE. Module

It is being suggested that 'micro-teaching' and 'research methods' be included in the 100 series and taken as EDT 107 with two credit units and EDD 108 with two credits units respectively. Consequently the units for methods of teaching vocational subjects are reduced from three (3) to two (2). There are two philosophy courses in the one hundred series, one of them EDF 107 be shifted to two hundred series and taken as EOF 208. The new arrangement will bring the total number of credits for graduation from 30 to 33.

Table 2: Suggested Technical Teachers¹ Certificate - Curriculum Table

Course Code	Course Title	Credit Units
GSE 101	Communication in English	2
GSE 102	Human Value and Ethics	2
EDH 103	Human Development and Learning	2
EDM 104	Instructional Media	2
EDL105	Method of Teaching Vocational Subjects	2
EDE 106	Measurement and Evaluation	2
EOT 107	Micro-Teaching	2
EDD 108	Research Method	2
EDS 201	Nigerian Systems of Technical Education	2
EDC 202	Curriculum Development in Vocational and Technical Education	2
EDO 203	Vocational Guidance and Counseling	1
EDA 204	Institutional Management	3
EDR 205	Seminar	1
EDP 206	Project	1
EDT 207	Practice Teaching	4
EDF208	Ethical Foundation of Education	3
	Total	33

It is noteworthy to mention that these recommendations have been implemented since 1993 in a system where the author pioneered mounting of TTC programme when she was a Director of Technical Teachers\ Certificate and Sandwich Programmes. With these modifications the problems hitherto witnessed by students in project writing and teaching practice were reduced.

Conclusion

Technical Teacher Education is said to be functional if the products of the programme are able to demonstrate reasonable competence in classroom, industries or in private entrepreneurship. An electrical/electronics educator who cannot man a service workshop is not likely to do better in the classroom. Hence the technical education programme has to be planned and implemented in such a way as to meet these needs.

The paper has critically delved into Technical Teachers' Certificate Curriculum by NBTE. It highlights the strength and weaknesses of the programmes and made recommendations.

It identified among others that the depth attained in technological is a major ingredients of quality in technical education. The quality of teachers, the range of equipment, the standard of production and the competition for excellence, will deepen technological knowledge and enhance skill and competence.

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