PROVISION OF EQUIPMENT AND FACILITIES IN VOCATIONAL AND TECHNICAL EDUCATION FOR IMPROVING CARRYING CAPACITY OF NIGERIA'S TERTIARY INSTITUTION

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Abstract
The paper looked at the provision of equipment and facilities in vocational and technical education for improving carrying capacity of Nigeria’s tertiary institution. Vocational and technical education consists of the applications of scientific concepts and principles to the practical skills, techniques and projects relevant to everyday life of the students. With an increase of students’ number, adequate provision of equipment and facilities in tertiary institution will become vital enterprise for carrying capacity and development of tomorrow’s leaders in order to meet the set goals. This paper was written to address these issues following the sub-headings: concepts of vocational and technical education; objectives of vocational and technical education; problems of vocational and technical education; funding vocational and technical education and the implications for carrying capacity in tertiary institution; effort made towards providing adequate vocational and technical education equipment for effective teaching of the subjects. Vocational and technical education equipment and facilities provision for carrying education equipment and facilities provision for carry capacity in tertiary institution; challenges of vocational And technical education programmers for carrying capacity in tertiary institution; challenges of vocational and technical institution. Recommendation were made and the paper was concluded with the following points that government should provide workshops, classrooms, equipment and necessary facilities in tertiary institution to improve the carrying capacity for effective teaching and learning.

Introduction
One of the issues of great controversy among educators in tertiary institutions today is the issue of the poor state of equipment and facilities. A school of thought argues that the problem is that of inadequate equipment required for teaching the students that is responsible for the quality of graduate the university produce. While another school of thought believes that it is the manner of utilization of the available equipment and facilities in the universities, the prime aim of this paper is to assess the adequacy and utilization of equipment and facilities in tertiary institutions.

Federal Ministry of Education, Science and Technology in 1985 decided to enhance the academic performance of students in different institution by equipping the schools with standard equipment. Okoro (1998) pointed out that the facilities which include the buildings, equipment, tools and school materials available are inadequate for effective use in schools. One of the major problems
in tertiary institutions in Nigeria is lack of materials and equipment. Oranu (1990) revealed that lacks of physical facilities are the problems of tertiary institutions in Nigeria. On the problems existing in the schools and the system of education, it is lack of materials and necessary equipment in teaching science and technology subjects (Aromolaran, 1985). To achieve the sub-goals of equipping students to live effectively in the age of science and technology, the practice of starving the schools of equipment, facilities and fund need to change (Nwana, 1983). The National Policy on Education (2004) pointed out that the government is aware that only limited equipment and facilities exist for teachers at different levels.

Afolabi (1990) noted that the federal government is directing its attention and resources to the development of an engineering infrastructure that will enable Nigerian design, fabricate and mass-produce basic equipment, machine, tools and engines within the shortest possible time. He also stated the remarks made by the Federal Government that Nigerian must respond to the challenges of technological development in a methodological stage by stage process targeted at an ultimate sustainable national competence in era of industrialization in Nigeria. It is evident that inadequate provision of equipment and facilities is due to low level of funding tertiary institutions in Nigeria and this made it impossible to actually attain the desired carrying capacity in Nigerian universities. It is also clear that proper installation of equipment in our workshop cannot be carried out without adequate fund. Consequently, the workshops and laboratories as a means of aiding the teachers of vocational and technical education are not properly equipped for the tasks.

Nigeria remains a major defaulter in complying with the UNESCO recommendations that at least 26% of the National budget must be committed to education. The 2009 Federal government budget of N3 trillion has allocated only N183 billion to education. This translates to a mere 6% allocated to education. Osakwe (2009) pointed out that this is still below the UNESCO
recommendation. These allocations were not quite adequate, as the institutions had not much to show in terms of rehabilitation for funds made available by the government.

**Concept of Vocational and Technical Education**

Vocational and Technical education is a comprehensive term referring to the education process when it involves, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills and knowledge relating to occupations in various sectors of economic and social life. The broad educational goals of vocational and technical education distinguish it from vocational “training” which is directed to developing the particular skills and related knowledge required by a specific occupation or group of occupations.

**Objectives of Vocational and Technical Education**

The objectives of vocational and technical education as stipulated in the National Policy on Education (2004) are:

(i) to provide trained manpower in applied science, technology and commerce particularly at sub-professional grades.

(ii) to provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development.

(iii) to provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;

(iv) to give an introduction to professional studies in engineering and other technologies;

(v) to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant, and

(vi) to enable our young men and women to have an intelligent understanding of the increasing complexity of technology.
To enable the objectives of vocational and technical education to be realized in the institutions for carrying capacity, the provision of equipment and facilities in vocational and technical education programme should be addressed properly and be supplied to various institutions.

**Problems of Vocational and Technical Education**

The government cannot come out openly in support of the benefits inherent in vocational and technical education while at the same time paying lip-service to its funding and existence. Also the provision of equipment, facilities and tools cannot be carried out in some tertiary institutions and others left without any equipment or facilities.

However, anybody who has at least a little experience of what it means to give practical technology training to university students, that are inadequately equipped with materials, equipment and facilities will understand that it is almost impossible to get 100 or more students in one classroom to individually practice how to effectively use the only available machine, equipment or tool. Equipment, machines, facilities and instructional materials for the purpose of vocational and technical education should mean that these training items are provided in adequate quantity to a degree where it is possible for individual students to use during practical lesson in workshop. The success of the implementation of core curriculum introduced in 1985 will largely depends on the availability of the necessary equipment and facilities, the provision of the equipment and the effective utilization of equipment and facilities should be given priority attention to improve the carrying capacity in the institutions.

Mbaiorga (1991) stated that education planning is further complicated by the fact that in addition to the social, economic and political forces which concern other aspects of education, the vocational, technical and technology educators must be concerned with the technological changes, manpower trends, current and projected labour force demand, unemployment and host of related
problems of equipment, facilities and conditions which may influence policy regarding vocational and technical education.

**Funding Vocational and Technical Education and the Implications for Carrying Capacity in Tertiary Institution**

The Vocational and Technical education institutions in Nigeria face serious financial problems today because the industries and the existing organizations that are the main consumers of the vocational products are not supporting and financing vocational and technical education programmes. The vocational and technical education in this regard does not have funds needed to execute developmental research projects/programmes. In Nigeria, we have engineers who cannot produce scientific or technical invention since most of our institutions do not have the equipment and where this equipment are available, there is shortage of personnel in technology, engineering profession and the professionals prefer to work in industries for more pay than teaching in schools.

In the next millennium, Nigeria should take after the developed world like USA, Japan, India, France and West Germany, that usually support, sponsor the vocational and technical institution by industries, individual or organizations in addition to government subventions to enable these institutions execute their vocational and technical education programmes.

Nwaokolo (1990) stated that the problems of vocational and technical education are lack of basic instructional facilities for training, lack of trained professional teachers, and lack of capital. Oranu (1990) revealed that lack of physical facilities is the major problems of vocational and technical education in Nigeria. One of the problems in our system of education in Nigeria is lack of materials and necessary equipment in teaching the vocational, science and technology subjects (Aromolaran, 1985). Okoro (1990) made it known that ineffective teaching may be caused by lack of suitable tools, equipment and materials due to inadequate funding. They have to be supplied if remarkable improvement in the performance of students is to be made for the attainment of the
carrying capacity needed in the tertiary institutions. The nation must therefore look ahead to evolving strategies for meaningful implementation of the present day vocational and technical education, curricula objectives, if the challenges posed by the contemporary needs are to be met. The logical thing to do is to identify the root causes of the ailment and apply appropriate cure (Oriaifo, 1988).

Vocational and technical education provided the necessary remedy in Nigeria. Afolabi (1990) indicated that the federal government is directing its attention and resources to the development of an engineering infrastructure that will enable Nigeria design, fabricate and mass produce basic equipment, machine, tools and engines within the shortest possible time. He also stated the remarks made by the Federal government that Nigerians must respond to the challenges of technological development in a methodological stage-by-stage process targeted at any ultimate sustainable national competence in industrialization in the next millennium for carrying capacity in the institutions.

Effort Made Toward providing Adequate Vocational and Technical Education Equipment for Effective Teaching of the Subject.

Aigbe (1990) stressed that a fresh indication of the state government commitment to vocational and technical education was given with the announcement of additional N50 million investment to the vocational and technical education sector. The government in this regard realized the problems and difficulties facing the tertiary institutions with obsolete sub-standard, out-dated, and damaged equipment. Aigbe added that the government assured the state that assistance will be given to the tertiary institutions for the purchase of materials, equipment and other facilities to provide the needed middle level technical and human resources for the state.

Umunadi (2007) cited Prosser’s theories of vocational and technical education when he stated that the school workshops, laboratories and the total environment where vocational and technical education programme is given must be adequately equipped to reflect the actual working
environment. That is the vocational and technical education workshops, laboratories and the working environment should be well equipped to attain the standard of where students will work after training. The school workshops should have the same equipment, tools, and materials in terms of types, designs and specification with the industry where the students will work after training.

Ifejike (1990) supported the theories of vocational and technical education when he pointed out that the teaching of vocational and technical education subjects require the use of specialized laboratories, workshops, machines, tools and equipment. Unfortunately, in Nigeria, the low level of funding of institution makes it impossible to properly and adequately equip their workshops, laboratories, studio and classrooms. A situation where 50 students crowd a piece of equipment, where the nearest a student get to understanding the use of a machine, cannot make for a true and successful acquisition of skills, in order to achieve the objectives and technological breakthrough in vocational and technical education. It is expected in vocational and technical education that the teacher must observe the students as they work in the school workshops, laboratory or classroom using the right instructional equipment and tools. It is necessary to correct them during practical work using the right equipment and facilities to enable the students meet the set objectives of vocational and technical education.

Vocational and Technical Education Equipment and Facilities

Provision for Carrying Capacity in Tertiary Institutions

The major problem facing vocational and technical education includes inadequate quantities of equipment, machines, tools and instructional materials (Osuala, 2004). Carrying capacity can be achieved in tertiary institutions when there is fund for purchase of adequate equipment and facilities in our tertiary institutions. The development of capacity, potentials, self actualization, appreciation and application of knowledge gained to solve practical problems in the fast technological changing society cannot be achieved, if equipment, teaching techniques and devices are not adapted to the
demands of the technological and scientific age in which students have to live and function (Onyegegbu, 2001).

Vocational and technical education is the key for carrying capacity in tertiary institution in Nigeria. Vocational and technical education has been presented in this paper as a design activity, which leads to problems solving and decision-making. Vocational and technical education consists of the applications of scientific concepts and principles to the practical skills, techniques and projects relevant to everyday life of the students. The main thrust of the provision of vocational and technical education equipment and facilities is to assist the teachers to teach students and utilizing the equipment and facilities to learn and this ought to provide students with the necessary knowledge, skills and experiences as tools which students can use in translating theoretical principles into practical design for problems solving and making functional use of devices for carrying capacity in tertiary institutions.

**Challenges of Vocational and Technical Education Programmes for Carrying Capacity in Tertiary Institutions**

Vocational and technical education are applied science for the 21st century, as there is an increase number of tertiary institution students in Nigeria offering it. With an increase of students’ number, adequate provision of equipment and facilities in vocational and technical education, classroom will become vital enterprise for carrying capacity and development of tomorrow’s leaders. The glaring challenge is in the provision and utilization of these facilities and equipment in the vocational and technical education workshops, laboratories and classroom. Vocational and technical education teachers and students are faced with the following challenges:

1. The vocational and technical education equipment, machines, tools supplied should be properly installed with adequate provision of power supply to enable the equipment
function as required by the capacity of the equipment and machines to assist development and carrying capacity in tertiary institutions.

(2) Vocational and technical education teachers that are unskilled and lack the knowledge of using equipment and other facilities. They should be trained and retrained on the job, seminar and workshop, to enable the teachers gain current knowledge of new devices and equipment to cater for the desired carrying capacity in Nigeria.

(3) Government should provide workshops/classrooms, tools, equipment and necessary facilities in tertiary institutions for vocational and technical education programmes to sustain and improve carrying capacity in tertiary institutions.

(4) The government and non-governmental agencies should encourage vocational and technical education to assist in human resource and capacity building by funding the programme to improve carrying capacity in tertiary institutions.

(5) The government should be able to send inspectors from Ministry of Education (Technical Division) to monitor equipment utilization in each institution and to enforce the use of equipment during the period of their visit to improve the carrying capacity in Nigeria.

Conclusion

Vocational and technical education anywhere in the world has been described as a strategic and viable programme and a sine qua non to the attainment of the eight point of United Nation millennium development goals which require adequate provision of equipment and facilities in order to achieve set goals of the United Nations. This however is not the case in Nigeria situation. There is need therefore to move forward with the vocational and technical education programme of the developed countries. The government in this era of technological advancement should provide the tertiary institutions with the necessary fund to purchase the equipment, facilities and manage the initial problems associated with the use of the equipment and training of vocational and technical
teachers. Nevertheless, these problems can be surmounted with time. Nigeria cannot afford to be left out of the great benefits in vocational and technical education. It then becomes pertinent to provide the necessary equipment and facilities in the different institutions to prepare the institutions for the improvement of carrying capacity. The provision of facilities will stimulate the interest of students in the study of vocational and technical education subjects and improve the carrying capacity of tertiary institution in Nigeria.

References


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