

THE NATURE AND IMPORTANCE OF A FUNCTIONAL METAL WORKSHOP FACILITIES IN VOCATIONAL TECHNICAL EDUCATION

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Abstract

The acquisition of practical skills, basic scientific knowledge and attitudes that would facilitate efficient occupational training require good manipulation of skill oriented instructional facilities in a conducive learning situation. Where tools and other equipment are not functional or adequately provided, technical training programmes will suffer and lead to the production of highly unskilled personnel who are unemployed and unproductive. Therefore, the paper highlighted the needs for providing functional facilities in metal workshop-such as machines, hand-tools, materials etc. The paper also recommended some strategies that can be adopted if objectives of vocational technical educations are to be achieved. Some of the recommendations include: Launching of endowment funds for development of vocational technical education by the federal government. Philanthropist and philanthropic organizations should assist in improving the provision of facilities in vocational technical education.

Introduction

Learning in vocational technical education is a conscious effort to acquire an experience, which creates room for a change in behaviour. The task of vocational technical education therefore, is the transmission of ideas, skills, knowledge and values of work and environment, and what individual can do with his or her life. It is also aimed at promoting in the learner the capacity to reason, use intuition and understanding changing relations through holistic thinking.

Okoro (1993) described vocational education as any form of education whose primary purpose is to prepare persons for employment in recognized occupations. This is the type of education that provides the skills, knowledge and attitudes necessary for effective employment in specific occupations. Vocational needs of Nigeria require not only that unskilled labour be reduced to a minimum, but also that adequate engineering and science technicians be produced who can provide leadership in her respective occupation or field.

Technical education is designed to prepare technicians for industry, agriculture, commerce, home economics, which is usually provided at the senior secondary or lower tertiary level. Graduates of technical education programmes usually bridge the gap between the professional engineer and craftsmen. There is no doubt the unemployment is one of the major problems facing the Nigerian nation, therefore any educational system that promises to reduce the high unemployment rate even if marginally has to be embraced with enthusiasm. Technical education forms the basis for our technological development, when facilities are adequately provided.

Facilities in technical education are those goods and services that help to facilitate the teaching and learning process in an educational set up. These include equipment (tools and machines), workshops, library, classroom and other facilities etc., which assist education to function and attain the goal of acquiring technical skills used in the world of work (Olalekan, 1999). Facilities such as workshops, laboratories, machines, equipment (fixed and portable), hand tools, consumable materials are for teaching and learning in vocational technical education programmes.

Tools are the instruments or devices that are commonly utilized in transmitting knowledge in the workshops or on the field or laboratory to the learners. They are easily handled while carrying out special operations as well as learning activities in the metal workshops. Examples of hand tools in metal workshop are scribe, steel rule, Screw Driver, T-Square, Spring divider, Calipers, Sliding bend, Vernier, Height gauge, Files, etc. Machines are portable or heavy mechanical devices that make use of human power or electricity for its operations in the workshop. Some of the examples are: Lathe, Miller, Shaper, Drill Press, Grinder, etc.

Consumables are materials that are utilized or fed -into machines as components of the production of observable outcomes. They are the basic materials required for facilitating skill development activities

and practice (Olaitan, 1999). Examples of consumable materials in metal workshop are Sheet metal, Cast iron, Steels, Carbon, Gas, Electrode, Oxyacetylene, Lubricants, etc. These facilities are insufficient and some are obsolete.

Objectives of Vocational Technical Education

Osuala (1998) described vocational technical education as a systematic learning experience, which is designed to fit individuals for gainful employment in recognized occupations as semi-skilled workers or technicians or sub professionals. National Policy on Education (FRN, 1998: 13) states the goals and objectives of vocational education as to:

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

The aims of technical education should be to give training and imparting of necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant. To introduce technical and vocational courses into secondary schools so that students will acquire practical skills and learn to use their hands in making, repairing and assembling things. It is also to increase the employability of school leavers by giving students technical and vocational skills and to train and equip them for entry into the world of work. Vocational technical education also aims at providing technological literacy to all pupils and to help develop the right attitudes towards work and the habit of mind conducive to the proper use of technology. To achieve the above objectives, adequate provision of metal workshop facilities must be provided.

Facilities Used In Metal Workshops

Metal workshops have to be efficient and effectively planned in terms of procurement and utilization of facilities. No metalwork programme can be functional without an effective and efficient facilities for inculcating the skills needed to exploit one's environment. Castaldi (1994) disclosed that educational facilities are those things which enable a skillful teacher to achieve a level of instructional effectiveness that far exceeds what is impossible when they are provided. Educational facilities include physical facilities such as site, accommodation for workshop, laboratories, classrooms, studio

equipment for the workshops and library resources. Akiri (1991), defined school facilities as physical elements of teaching, learning and operating environment which include all properties, media and materials. Facilities in metal workshops refer to equipment (hand tools and machines) and consumable materials used for teaching students. Nwachukwu (2000) explained machines as instruments that are manually or electrically operated for performing specific tasks in the workshop. They could be portable or fixed to the bench or floor. Teachers teach better in well-equipped schools with furniture, accommodation and facilities than when the facilities are lacking.

Facilities in metal workshops, often are expected to serve both present and future needs of the society. If facilities are to truly enhance opportunities for metal workshop programmes, adequate provision has to be made. In metal work technology, facilities are usually designed to complement a traditional technology curriculum. As a result, facility planning reflects tools, equipment, machines and materials that would facilitate the teaching and learning processes. Therefore, in order to facilitate this high level of teaching and learning process, there is need for a well-planned and organized school plant.

Needs For Improving Facilities Provision For Metal Workshop

Functionally planned facilities for metal workshop not only assist the instructor in implementing his programme, but also motivate the students by providing an atmosphere and environment that encourage learning. Skills acquisition in metal work requires a laboratory setting as a unique learning situation in which the learner may experiment, test, construct, disassemble, repair, design, create, imagine and study. The issue of the survival of metal work education has become increasingly critical as it hinges on the fate of individuals and organizations in the present day. If it must survive in this period of global economic recession, alternative approaches must be sought in order to

sustain the programme. The skills acquired on outdated equipment are of little value to prospective employers and diminishes the value of the students.

Effective vocational training can only be given where the training jobs are carried out in the same way, the same operation and the tool as in the occupation itself (Okoro, 1993). Metal work programme aims at preparing individuals to acquire practical skills, basic and scientific knowledge and attitudes as craftsmen and technicians at a sub-professional level. If the aim of vocational education is to be achieved, there would be need for adequate provision of facilities in metal workshops.

Facilities should be designed to encourage effective instruction in schools. Well-organized facilities that assist teachers to perform their tasks safely and with minimum loss of time and effort are requisites to a programme which attempts to characterize modern industry. Machine shop should be equipped with basic machines, representing a number of related cutting and forming principle and supported by instructional lecture rooms for demonstrating basic principle of each process. A service and maintenance lecture room for training service technicians to maintain the more complex machine tool system would be an integral part of future machine shop training facilities. A good facility planning is an integral part of our educational system, and the resulting educational programme will help in solving the future.

Job (1990) postulated that, the country's economy would be in serious trouble if more attention were not paid to skill development. To promote technological development for self-reliance, there should be opportunities for technical innovations. These innovations can be possible only where material resources are available. The impact of well-designed and well-constructed facilities promote parental and student acceptance of the instructional programmes of the school and it enhances the effectiveness of the actual learning process.

Constraints In The Provision Of Metal Workshop Facilities

The present state of effectiveness of vocational technical education programme has not been promising. Vocational technical education is education for work and therefore, all human and material resources required for the successful execution of this education should be given adequate attention by the government and policy makers (Olaitan, Nwachukwu, Igbo, Onyemachi and Ekong 1999). Since this attention has not been provided for the needed improvement of the available facilities, the state of effectiveness of vocational education has remained very low and may remain so until adequate attention is given to it. Technical institutions in the country are facing varying dimensions of resource constraints which include leadership constraints. This hinders the achievement of the potentials of technical institutions in meeting the training needs of students and society since some of them do not know the facilities required in each workshop.

One of the obstacles to improving and maintaining facilities in the workshops is shortage of qualified and dedicated teachers, artisans and attendants who can man the school workshops have not been adequately provided. Financial constraints, which results into starvation of funds, leading to a failure in the standard of men and materials such as qualified teachers and modern instructional materials. Qualitative manpower cannot be trained without adequate finance. Financial inadequacy results in lack of adequate modern training/institutional facilities in technical institutions.

The merging of technology and general education in the ministries, which resulted in a situation where administrators of technology are those who have little or no knowledge of technology education, consequently they do not understand the needs of technology education and divert funds meant for technology education into areas that appeal to them (Sara, 2001).

Non-challant attitudes towards the development of technical education. Many people look at anybody involved in skill acquisition with contempt because they think it is meant for drop-outs or those who do not have hope for any other thing. The problem of improving facilities provision for-metal workshops is also compounded by high cost of tools, machines, materials and even spare parts. This makes it difficult for educational institutions to replace and sustain important tools and other equipment in our schools. When these facilities are not adequately provided, learning becomes ineffective.

Conclusion and Recommendations

The vision of vocational technical education is based on acquisition of basic skills, functional knowledge and experience that lead to gainful employment in the world of work. To realize this vision, it requires good manipulation of skill oriented instructional facilities in a conducive learning situation. Such a learning situation can be created through effective provision and utilization of adequate instructional facilities for metal workshops in technical schools.

There should be proper planning and organization of workshop facilities for the smooth running of the programmes.

Government should increase the level of funding to vocational technical schools, for the provision of workshop equipment and materials and this would increase teacher's wealth of knowledge and their output would be enhanced.

Government should launch endowment funds for development of vocational technical education. Philanthropic as well as private organizations should contribute to the development of vocational education.

Science and technology are vehicles for technological development, therefore, provision of modern and adequate equipment should be given a priority by federal and state government to be supplemented by industries and philanthropists.

Government and societal non-challant attitudes towards vocational technical education should change by responding more positively to the demands of the programmes.

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