

Effective Workshop Organisation and Management in Vocational and Technical Education

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ABSTRACT: *The term workshop refers to the facility in a vocational programme where learning or manipulative activities take place. Vocational and Technical Workshops are often the teacher's pride, a show place for the school and a pleasure for the students to work in. The heart of technical and vocational programme is the effective workshop management in the area of workshop itself and the work that goes on there. Workshops are expensive to build, equip and difficult to maintain, that is why technical teachers spend a great deal of their time and energy in organising and maintaining the workshop for which they are responsible. Therefore, vocational and technical workshops must be carefully planned and organised if it is to facilitate instruction, permit teachers and students to work efficiently, provide safety for students and security for equipment and supplies and justify its cost. Hence, the need to understand the general principles of managing and organising workshop, workshop arrangement with machines, equipment and tools maintenance; equipment, tools, machines and material storage; management of workshop officers and safety awareness in the workshop. This paper is desired to help vocational /technical teachers, technicians and students in this field of study to become competent in organising and managing vocational workshops.*

Key Words: *Vocational, Management, Workshop, Equipment, Technicians.*

Introduction

Vocational and Technical Education is any form of education whose primary purpose is to prepare persons for employment in recognised occupations. It provides the skills, knowledge and attitudes necessary for effective employment in specific occupations. Vocational and Technical Education is part of the total education process because it is usually based on a solid foundation of general education. Generally, education and Vocational and Technical Education complement each other and are both important in the total process of producing effective workers.

Vocational and Technical education is expensive because of the tools, equipment and materials that are part of the training process. In order to avoid wastage of resources, candidates for vocational and technical education should be carefully selected to ensure that they have the interest and aptitude to benefit from the training, hence, only those who are genuinely interested in entering those occupations in question should be considered for training. 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.

In essence, Vocational education covers such fields as Agricultural education, Business education, Health occupation education, Home economics education, Distributive education and Industrial arts education while technical education programmes include carpentry, cabinet making (furniture craft), electrical/ electronic, metal work, building and automotive trades.

It is equally necessary to note that, all the specialised areas of vocational-technical education specified above carry out their manipulative exercises in organised and specially build workshops and laboratories which require proper organisation and management for effective coordination of all activities. Therefore, organising and managing vocational/technical education workshop involves effective organisation and management of men, materials, tools, equipment and machines.

Purpose

The purpose of this paper is to:

- i. Prepare teachers and other occupational trainers in all occupational areas in order to demonstrate knowledge of the techniques and produces for workshop arrangement, maintenance storage of tools and equipment;

- ii. Equip teachers and other vocational educators the knowledge of the principles and procedures involved in organising a vocational workshop;
- iii. Familiarise teachers and other occupational trainers with the setting-up, organisation and usage of vocational workshop;
- iv. Evaluate the organisation of the workshop and develop plans for its improvement.

General Principles of Managing and Organising Workshop

Vocational/Technical teachers are highly responsible for the complex and expensive workshops or laboratories. Any workshop either specially built or not contain expensive pieces of equipment, machines and a lot of materials that are also expensive. All of these materials and equipment must be taken care of and used judiciously so that the objectives for which they were purchased can be realised.

The quality of vocational and technical workshop is the major factor for capturing and maintaining student's interest. A well planned and organised workshop makes it much easier to prepare students for the occupation. The purpose of a well-planned and managed workshop is to enable students to learn the skills needed in the occupation. By stimulating occupational conditions, the laboratory prepares students for the real world and thus, becomes a learning experience itself.

In addition to the primary quality of instructional effectiveness, there are several other important characteristics a well-organised vocational/technical workshop should possess which include the following:

It should provide access to instruction for all students. This specifically includes students with handicaps as well as students with other exceptional needs.

- It should provide security for the instruments, tools, equipment and supplies that are essential to the workshop/laboratory. The workshop/laboratory must be designed to minimize loss or damage from vandalism, theft, mishandling, weather and other negative elements.
- It should permit the teacher to be in control of workshop/laboratory activities at all times.
- It should provide for the psychological needs of students. The environment should be one that fosters desirable attitudes and promotes mental well-being.
- It should be efficient. Teacher and students should be able to work with maximum productivity and a minimum of wasted time and energy.
- It should provide a safe and healthful environment in which to work. Students should be able to complete the programme in at -least as good as a physical condition as when they entered.
- Workshop/laboratory should be a place of stimulation and excitement and certainly need not be one of confusion or dullness.

Workshop Arrangement

Must vocational and technical workshop be well equipped? "YES" but the equipment must be placed in an arrangement that will allow work to go on efficiently, conveniently, safely and pleasantly. Even though the recommendations and requirements for workshop arrangements will vary with the specific occupational areas, instructors in any existing workshops still have the opportunities to improve the available facilities with minor and major reorganization.

Most workshops must be rectangular in shape, about twice as long as they are wide. This will be an efficient design, relatively easy to organize and effective in operation.

There should be at least two entrances leading to the workshop for students, staff and visitors' safety as well as convenience in accepting services and deliveries. Ideally, there should be no columns or other structural members to obstruct the floor area. There should be adequate amount of space in the workshop to provide for the expected workshop/laboratory activities and the number of students enrolled but this varies greatly with the occupational area.

Students and teachers of vocational and technical education usually move around a great deal in a laboratory. They move from one machine to another, carry stock, get tools and instruments and move their job to a workbench. In organizing a workshop, traffic patterns must be taking into consideration. One should anticipate the traffic patterns and place tools and equipment so that the following criteria are met.

- i. Wide lanes are provided for major traffic.
- ii. Staff and students can move to get tools or stock without disrupting others work while enough working spaces are given between one machine and another without the operatives running into each other.

- iii. Travel distances between major work stations and to supply areas are as short as possible.
- iv. Long materials such as planks can be carried from supply rack to work place without turning sharp corners and endangering staff and students.
- v. Safe working conditions are created in such a way that benches and other workshop appliances are well arranged.

Machines, Equipment and Tools Maintenance

As one of the aspects of workshop management in vocational and technical discipline, all machines, equipment and tools require one form of maintenance or the other which should be recognized by workshop officers as one of the vital aspects of workshop management.

Maintenance is the process of keeping and handling of tools, equipment and machines in good working conditions in order to prolong their serviceable life. In this case, a good manager must map out functional and sequential plans to maintain those machines equipment and tools at their disposal. Reasons for maintenance are to promote a high degree of efficiency, maintain safe working conditions and to reduce the cost of maintenance, servicing period and prolong the life span of those machines, tools and equipment,

There are two basic forms of maintenance but emphasis must be placed on the preventive rather than the corrective form of maintenance since it is relatively cheaper to operate and the actions are carried out before the occurrence of failures in tools machines and equipment. After the failure had already taken place, corrective maintenance must be carried out to put the machines, tools and equipment back into operation. However, it is, essential that corrective maintenance guidelines are formulated for maintenance decision making after failure might have occurred.

Hence, workshop maintenance schedules for all machines, equipment and tools should indicate the following:

- i. Recommended routine maintenance by the manufacturers;
- ii. Preventive maintenance service;
- iii. Duration of services;
- iv. The experts (personnel) to handle those tasks;
- v. When general overhaul or inspections are to take place.

Finally, genuine and adequate records on maintenance schedules must be kept for future references.

Equipment, Tools, Machines and Materials Storage

Situations in vocational and technical workshop will be pathetic and unbearable if storage is inadequate or of the wrong kind. Effective workshop organisation and management requires that workshop officers should be versed in the area of storage and store-keeping techniques. All items of any kind such as machines equipment, tools, materials and already completed projects must be appropriately and safely stored.

Each vocational/technical area has its own particular storage needs and problems. Common to all occupational areas, however, is the need for:

- a) convenient storage to minimize the effort needed to handle and control materials;
- b) safety in the storage of hazardous substances;
- c) security from damage or unauthorized use; and
- d) an adequate amount of storage for present and future use.

Following are some specific guidelines for planning laboratory storage facilities:

Storage facilities should be convenient to the service entrance through which materials are delivered and close to the point of their use in the laboratory. It should not be necessary to carry large materials through the working area and it should also be easy for whoever is responsible to the workshop to locate needed supplies quickly and take inventory of the stock accurately and conveniently. Materials should be visible and organized, not stacked behind each other on shelves or stored in difficult-to-reach places. Storage spaces should be well lighted.

As a laboratory/workshop teacher, what you should do about storage needs are determine the type of items that require storage in your occupational programme.

- a) Identify the special storage requirements for each of the types of items.
- b) Survey the storage facilities available in the existing workshop/ laboratory for each type of material and determine the adequacy of the facilities.
- c) Prepare plans for improving storage in the laboratory.
- d) Implement the plans by changing the storage facilities or present your needs to the school administration.

Ensure safety in the storage of hazardous materials and that they are not haphazardly stored over each other with easy access to them in their respective stores

Management of Workshop Officers

Successful management of the entire workshop activities can be a major factor in the success of vocational and technical programme when human resources are tapped maximally. The organisation and management of vocational/ technical education workshop are hinged basically on the over-all coordination of all activities of the entire workshop officers and students in that workshop.

In the course of effective coordination of all activities, teachers of vocational and technical education perform a greater number of responsibilities. The officer in question acts as the sole entrepreneur in respect of fund generation, budget preparation, directing the affairs of other staff and over-seeing machines, equipment and tools maintenance.

Safety Awareness in the Workshop

Safety issues are inherent in all jobs. The need for safety awareness in science laboratory, vocational and technical workshops has become very urgent in the light of the new National Policy on Education. Hence, safety must be number one priority for both science, vocational and technical education teacher. Under this circumstances, providing safe environment lies the meticulous attention to the prevention of hazardous situations.

Safety in all vocational disciplines has become very necessary in the light of the importance of science, vocational and technical education in Nigerian school and colleges. According to Elwood (1990) safety and health are of utmost importance in achieving the goals and object of vocational Education in schools and colleges. Students who learn to work safely in the school will be a safe worker in business and in industry. Safety is everybody's business.

"Both instructors and administrators have the key roles to play in protecting students and emphasizing the importance that must be placed on safety" (Padham, 1990).

Therefore, managing vocational and technical education workshop in terms of safety awareness involves:

- a) Instructors must remember that students need instructions on safety practices, students should be taught about safety procedures and regulations beginning on their first day in the class.
- b) Orientation in precautions when operating specific machines and equipment and the importance of good house-keeping practices is important.
- c) Written safety instructions, rules and materials must be made available to the students all the time.
- d) Instructors should administer series of performance tests to make sure students understand safety procedures and their importance.
- e) Students must be made to learn fire prevention, the causes of fire, types of extinguishers and how to use them; and where they are located in the workshop or laboratory.

Recommendations

For effective workshop organization and management in vocational and technical education to be put in place, the following recommendations were made as follows:

- i. A safe and healthful workshop environment for students in terms of ventilation, illumination, sound control and temperature must be provided.
- ii. Arrange the equipment and work stations to allow the teacher to monitor and control workshop activities.
- iii. Traffic patterns must be planned to avoid hazards and congestion.
- iv. There must be upward review of hazard allowances for Technical and Vocational personnel.
- v. Seminar must be organised for vocational and technical teachers on the basis of effective workshop organisation and management strategies.

Conclusion

To be a good teacher is important, but it is also important that a teacher be a good manager. Teachers of industrial arts, vocational and technical education do most of their teachings in the workshop where there is vast assortment of tools, machines, equipment and materials. The effectiveness of teaching often depends on how well vocational and technical teachers can organise and manage their workshop or laboratory,

Students are easily prepared for the occupation of their choice through high quality workshop or laboratory with effective organisation and management. However, teachers of vocational and technical education must be versed in the art of organising and managing human and material resources available in the workshop or laboratory.

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