

ROLE OF TECHNOLOGY AND VOCATIONAL EDUCATION TEACHER AS A SAFETY MANAGER IN TECHNICAL COLLEGES

K. H. Bulama (Ph.D); D. W. Quahha; T.J. Tika and R. N. Gayus

Abstract

The issue of the safety of students and facilities in our technical colleges and Vocational schools is becoming more sophisticated due largely to the rapid technological development taking place across the Globe. Nigeria is in dire need to have a place among the first 20 most developed nations of the world by the year 2020. This desire poses a greater challenge to the Technology/Vocational Education (TVE) teacher in the area of the safety of students and facilities, since they occupy a central position in the training of low and middle level manpower in the economy. This responsibility placed on TVE teachers demand high level of competence in handling safety matters, particularly the issue of education; such as accident prevention, care of facilities and handling of accidents when they occur. This paper advocates three major roles of the TVE teacher in ensuring the safety of students and facilities in technical and vocational education institutions. Some recommendations were made which if adopted and practiced would go a long way in ensuring the safety of both the students and facilities in our nation's technical and vocational institutions.

Introduction

Safety was not considered to be a matter of public concern in the ancient times. Accidents were considered as a supernatural phenomena which man cannot do anything about. According to Encyclopedia Britanica the modern notion of safety developed in the 19th century as a result of the industrial revolution in Europe a period during which terrible factory accidents claimed thousands of lives.

Nigeria has set for itself a new vision called vision 2020. The heart desire of the people and government of Nigeria is to move away from the present state of development and move to a new status of belonging to the 20 most industrialized nations of the world. During the process of realizing this vision, it is obvious that huge quantity of dust and noxious gases would be released into the environment, thousands of decibels of noise would fill the air and large unwanted quantity of radiation would be present in industries. All these hazards and others not mentioned would cause large number of human casualties and damage to physical infrastructure (Apagu, Bulama and Diraso 2000).

Technology and vocational education (TVE) at both secondary and tertiary levels of education is an effective instrument for developing the required human resources for the national vision. The National Policy on Education in FRN (2004) defined TVE as the study of technologies for the acquisition of practical skills, attitudes, understanding and knowledge related to occupations in various sectors of the economic and social life of the citizens. Furthermore the Policy sees the TVE as a means of preparing citizens for various occupational fields and for effective participation in the world of work. It is also seen as an instrument for promoting environmentally friendly production process for sustainable development.

In order to effectively achieve the goals of TVE, the policy specified a number of trades courses which include among others, mechanical, computer, building, woodwork, hospitality and textile trades. Others are printing, beauty culture, business and leather trades. All these trades involve use of dangerous equipment, and chemical that can affect the health of human resources engaged in various process of production. All the safety problems can however be reduced by putting in place proactive safety strategies, so that causality can be reduced to the barest minimum.

The TVE teacher is at the centre of the implementation of the technical and vocational education curriculum. Various scholars such as Uga (1996), Okoro (1999) and Okrie (2001) agree that the TVE teachers has the responsibility of meeting the goals of TVE curriculum including the development of safety consciousness and accident prevention during practical lessons. The teacher

has enormous task of ensuring the safety of the students and the facilities as he strive to implement the curriculum.

This paper aims at unveiling the roles of the TVE teacher as a safety manager in ensuring the safety of students and facilities in schools. Specifically accident prevention, accident scene, and post accident roles are being considered for improving the safety of students and facilities during training process.

Technology and Vocational Education Teachers

The technology and vocational education teacher occupy a most important place in the modern society because he is the link between the industries, the society and the educational system. Etuk (1987) is of the view that the quality of TVE depend upon the teachers. For the teacher to sustain the linkage he should be devoted to the pursuit of excellence in order to discharge the overall goal of technical and vocational education.

The competence of TVE teachers is an important factor for the implementation of the curriculum of TVE. Okorie (2001) advised that the teachers should be well educated in the various form of TVE to ensure effective teaching of theoretical and practical aspect of this form of education. The competence factor enables the teacher to play an effective role in safeguarding the lives and facilities used in imparting the required skills for self reliance and development of technology in the country.

The Role of the TVE Teacher as a Safety Manager

The prevention of accidents in a College workshop is the duty of every staff and students working in the workshop. For a TVE Teacher as a safety manager ensuring the safety of others including himself as well as the facilities is of particular importance. This is because he is like a captain of a ship, he direct, coordinates and organizes the affairs of the workshop. Nick (2007) believes that frequent accidents in the workshops lead to lost of confidence by the students and staff thereby discouraging learning and production processes.

It is therefore necessary for accidents to be reduced through involving both students and staff in its prevention under the effective leadership of the TVE teacher. This paper discusses three major roles of TVE teachers as a safety manager in ensuring the safety of students and workshop facilities. The roles are accident prevention, accident scene role and post accident role. Each of the roles is discuss in detail.

1. Accident Prevention Role

The International Labour Organization ILO (2005) In a statistics of occupational accident across the globe stated that 2.2 million men and women are victims of work-related accidents or diseases every year. Death due to work related accidents and illnesses represent 3.9 percent of all deaths across the globe. The TVE teacher by virtue of his profession as a teacher of potential workforce in the industry can play significant role in instilling safety consciousness to students at the early stage. This will go along way in accident prevention through identification of causes of accident, educating staff and students, identification and control of hazards, safety inspection programme and enforcement of safety rules and use of protective wears. A birds eye view of each of them will be made.

(a) Identification of causes of accidents

Accidents are caused mainly as a result of Human and the employer or management factors. Ibadode (2001) enumerated some of the major causes of accidents in workplace and school workshops. They include:

- i. Insufficient skills among the workforce.
- ii. Lack of adequate safety knowledge in relation to the job at hand.
- iii. Poor work habit and attitude when carrying out specific job which may require proper work habit.
- iv. Unsafe behaviour among students and the workforce in a school workshop and
- v. Hazards that exist in the work environment

(b) Identification and control of hazards

This is the next preventive role that the TVE teacher need to embark upon to ensure the safety of the students, staff and facilities. Ibhadode (2001) defined hazard as any condition which cause actual or potential loss or damage or undesirable effect on human capital and infrastructure in a workplace. Hazard may come in any of the following forms:- physical, biological, Ergonomical psychosocial and mechanical.

The identification of hazards by the TVE teacher is made possible through the training he received during his technical teacher training programme, experience on the job, regular inspection of workshop facilities and observations of the students and staff activities during working sessions. After identifying the hazardous conditions the TVE teacher need to evaluate the situation with the aim of:

- Determining the probability of an identified hazard occurring
- Quantifying the hazard such that if it happens how serious the effect would be on students, staff and the facilities.
- Proposing a solution to nullify the effect of the hazardous condition on students, staff and the facilities (Ashfahl 1994).

Hazard control involves the effective implementation of solution from the hazard evaluation process. FRN (1990) spelt out clearly the workplace hazard control. In particular part III, IV and V of the document can serve a very useful purpose in controlling hazardous conditions in the workshop.

(c) Educating the students and the staff

The TVE teacher can prevent or reduce the rate of accident by educating the students and staff. William (1998) posits that such education can bring about modification on safety behaviour. This according to him can be achieved through:

- i. Organizing safety training workshop, seminars, conferences etc. Resources persons from industry and universities can be invited to make presentation, this will give the opportunity for the students persons to interact freely with safety experts.
- ii. Staging safety awareness campaign through dramas, display of safety posters at strategic places in workshop and distribution of safety hand bills
- iii. Organizing award ceremony to reward staff and students who exhibited exceptional safety attitude and action within a specified period of time. This would go a long way in motivating the beneficiaries.

During any safety training and safety campaign programme, FRN (1990) recommends that emphasis should be placed on:

- Personal safety requirements such as personal hygiene and use of appropriate safety wears in the school workshop and workplace.
- Machine tools and equipment safety requirements such observance of carrying capacities of machine, operational procedures and safety requirements in handling each and every machine and equipment.
- Observance of environmental safety rules such as effective use of ventilation and illumination provided, effective use of emergency exit when need arise and proper staking of materials in the workshop and work environment.

One of the desired levels that students and staff should attain after the various educative sessions is the development of safety consciousness, which William (1998) define as a mental awareness or understanding of existence of a dangerous object, state or influence. This mental state enables staff and students to work. with high level of concentration.

(d) Safety inspection programme

This is a major accident preventive role of TVE teacher in a workshop set up. George Mason University safety office recommends the appointment of a supervisor in each unit of a workshop to carry out the following responsibilities under careful supervision of a TVE teacher:

- Proper instruction on safety matters to new comers and visitors in hazard prone area.
- Effective use of safety checklist to make sure that all safety factors are properly inspected

- Keeping accurate records of accidents and their causes and taking effective action where special trend appear
- Putting in place a system where everybody feels he/she is part of safety programme in the workshop through the rotation of inspection exercise no matter how small the exercise appear and
- Effective supervision of the appointed safety supervisors or inspectors.

(e) Enforcing Safety Rules and Use of Protective Wears

FRN (1990) requires that all safety rules and regulations in workshops and workplace must be enforced to the later to ensure the safety of the students, staff and facilities. All aspects of the safety rules and regulations such as general safety rules, safety in the work premises, safety rules in machines operation, and safety regulations in high altitude works. Other safety rules and regulations are in relation to repair of mechanisms, fire protection strategies and prevention of electric shocks. A committed TVE teacher strives to ensure that all safety rules and regulations are strictly obeyed. Protective wears and equipment, protect the worker or student from direct bodily harm or injuries. Tomhnson (1984) in Shehu (2008) categorized the wears and equipment as shown in Table 1.

Table 1: Personal protective safety equipment, parts of the body protected and hands

Body Part Group	Protective Equipment	Hazard(s)
1. Eyes & Face	Safety glasses splash-proof goggle, impact goggle, face screen, welder’s mask etc.	Dust, Electric flash, flying objects and rays.
2. Head	Hard hat, Bandanna, Flame-retardant cap, leather cap, Acid Proof hoods, hair net etc.	Falling objects, hair catching in a rotating parts of machines
3. Ear/Mouth	Plugs and Muffs, protective Masks, gas respirators, dust cartridge.	Noise, toxic and non-toxic dust.
4. Hand and Arms	Glooves (Leather, Asbestos, Synthetic and metal mesh) sleeves and ganlets.	Cuts, abrasior, burns, electric hocks spark etc.
5. Feet and Legs	Safety shoes, synthetic boots, shin guards and wood-soled shoes	Heavy or sharp objects, rough surface, spark from welding burns etc.
6. Body	Boiler suits, warehouse coat	Dust or dirty

Source: Shehu, 2008

2. Accident Scene Role

The provisions in FRN (1990) address accidents and industrial diseases. The TVE teacher should adhere to the provisions. Accidents in workplace and school workshop according to the provisions include cuts, bruises, injury with profuse bleeding, burns and carbon monoxide poisoning. Others are fracture of bones, electric shock and eye injury. If all effort to prevent accident fail and any of these accidents occurs the TVE teacher as a safety manager has to play a major role in taking care of the situation, with other staff and students providing necessary assistance. FRN (1990) provides that the safety Manager (TVE teacher) should take the following vital steps to help the victim as soon as possible.

- i. Assist the victim through the effective use of the First Aid service. It is necessary to ensure that the First Aid Kit is well equipped to take care of unfore-seen challenges.
- ii. Take the appropriate step to control emergencies
- iii. Avoid becoming a casualty in the process of saving the situation through taking appropriate precautions.
- iv. Transport the injured person, taking note of all the recommended method, depending on the magnitude and type of injury sustained.
- v. Inform the appropriate authorities that the accident has occurred.

3. **Post Accident Role**

The post accident role has to do with what the TVE teacher does after taking all necessary measures to contain the accident that occurred. The following are the major post accident roles.

- a. The TVE teacher should report to the principal of the college all he needs to know about the accident. FRN (1990) has prescribed a form for reporting accidents. The form is LAB/F/06. Another form (LAB/F/10) is for reporting outbreak of diseases in a workplace as a result of industrial pollution. The school authority should access the form from the nearest Federal Ministry of Labour and Productivity office.
- b. The next post accident role is the appraisal of the condition that caused the accident. The TVE teacher in carrying out the role, assesses the human factor involved in the accident and the state of the facilities involved. The information obtained is analyzed and put to use to prevent future occurrence of accidents.
- c. The TVE teacher uses the information to develop accident and cost control method, safety programme and the procedure to implement the safety programme to safeguard the students, staff and the facilities.

Conclusion

The TVE teacher today is faced with greater safety challenges. This is because the issues of safety is becoming more sophisticated as a result of rapid industrial growth across the globe. The TVE teacher in Nigeria should put more emphasis on prevention of anticipated hazards in the college workshops to ensure the safety of students, staff and the facilities. Nigeria has an ardent desire to be among the first 20 developed nations by the year 2020. It is a known fact that industrial development is accompanied by hazards as experienced during the industrial revolution in Europe. These industrial hazards should not slow down the growth of industries in Nigeria. The TVE teacher has roles to play in the achievement of our national vision by striving hard to create safety conscious workforce right from our technical and vocational schools, who shall no doubt be in the centre in the realization of our nations industrial growth and development.

Recommendations

In view of the need to protect students staff and facilities and the need to develop safety consciousness in the students and staff, the TVE teacher need to be given attention in the area of developing competence in handling safety issues. Based on the important role the TVE teacher plays in ensuring the safety of students, staff and facilities, this paper recommends that:

- i. Training workshops should be organized for TVE teachers to enable them update their knowledge and competence in handling safety issues.
- ii. Safety equipment and protective wears should be made available to all staff and students in the workshop.
- iii. Fire extinguishers should be provided and serviced regularly for effective fire control incase of its out break.
- iv. To ensure a safety conscious generation of Nigerians public and occupational safety should be incorporated into the senior secondary school and post-secondary school curricular.
- v. Non-governmental organizations (NGOs), students bodies etc. should be encourage to form safety associations to enlighten themselves and the public on safety matters.

References

- Apagu, V.V., Bulama, KH, Diraso, D.K. (2000). Industrial safety \training progamme; Curriculum for Technical Schools/Colleges in Adamawa State. *Nigeria Journal of Education and Technology* 1 (1), 1 80 – 188
- Asfahl, C.R. (1984). *Industrial safety and health management*, New Jersey: Prentice Hall Inc
- Etuk, G.T. (1987). Developing curriculum for technical and vocation teacher education and Training *Technical Review* _1(1) 19-26.

Federal Republic of Nigeria, (1990). *The laws of the Federation of Nigeria Factories Act* (CAP 126).

Federal Republic of Nigeria, (2004). *National policy on education* (Reviewed Ed.) Abuja: NERDC Press.

George Mason University Safety Office: Infrisbby@gmu.edu . Retrieved on 04/09/2008

Ibhadode, M.O.R (2001). *Introduction to manufacturing technology* Benin: Ambik publisher

ILO (2005) World day for safety and health safework@Il.org Retrieved: 02/05/2006

Nick, N. (2007). Construction safety in technical education: A dead over sight.
http://www.asseorg/academics_Journal/ossfau-featurearticle_02_php. Retrieved 02/05/2005.

Okorie, J.U. (2001) *Vocational Industrial Education*. Bauchi: League of Researchers.

Okoro, O.M. (1999). *Principles and methods in vocational and technical education*. Enugu: University Trust Publishers.

Shehu, I.Y. (2008). stakeholders' role in maintaining safety in school workshop and industries.
Journal of technology and Education Research 1(1) 278-289

Uga, O (1996). *Curriculum development for Africa* Ibadan: Africana FEB Publishers.

William, W.A. (1988). *Training Manual for Accident Programme* New York: American Technical Society.