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Better be safe than be sorry”: An analysis of workshop behaviour in vocational and technical schools

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It is an indisputable fact that wherever work is done with machines or hand tools, there is likelihood of accident occurring, causing injuries to people, damages to machines, tools and materials in such a workplace. This accident may be caused by the worker's acts or omissions. Technical schools being equipped with a variety of such tools and machines for teaching and learning process are not left out. These schools full of young people whom we have much hope need to be protected and prevented from engaging in acts capable of causing accidents. As a result, safety rules and regulations must be devised and enforced for their smooth interaction and operations. They should be encouraged in any way deemed feasible to observe these rules and regulations. This safe working habits if imbibed in workshops would even help them to apply same in situations outside the school. As such, some of such rules and regulations have been carefully analyzed in this write-up as personal safety, safety at the bench, safety on machines and general workshop safety which there is every believe that it would be of immense importance to technical schools' personnel, remember, it is better to be safe a - anywhere any time than to be sorry as people would choose to sympathize with victim's of accidents even when the victims are the cause of such accidents.

INTRODUCTION

In every human society, people in that society strive for survival and to live free from danger. This singular need to survive comfortably drives them to engage in various activities to achieve this objective. The activities being undertaken by people in any society culminate in what can be described as multiple or diverse needs of man identified below by A.V Baez (1987).

“Any list of basic human needs, past, present or future would include food, shelter, health and safety as survival needs, education, employment and possibly some form of industrialization as development needs, wealth, security and growth as perceived needs.

Technical schools being part of human society, various activities are being engaged in it in order to realize the said needs by both teachers and students in the workshop.

What is a workshop?

A workshop may be explained as a building or room where skills, machines, parts, tools, furniture etc and re-

pair work are acquired or made for our own use and convenience. Any list of workshops in technical schools would include motor mechanic, fitting and machining, carpentry and Joinery, electrical installation, radio and television, welding and fabrication, painting and decoration, refrigeration and air conditioning to mention just a few. These workshops can be called technical laboratories and that of motor mechanic the garage. However, the activities being carried out in these laboratories render them unsafe for the inhabitants and something must be done to safeguard all and sundry. Students and others due to carelessness, ignorance, negligence, over self-confidence etc jeopardize the entire working environment by their actions or omissions. Some are overwhelmed of the attractiveness of the assorted tools, machines and equipment neatly arranged in these workshops become impatient to be taught workshop behaviour, let alone of how to use these tools, machines and equipment and their potential hazards begin to touch them at will and their own risk. Being too excited of their opportunity to use these tools for the first time completely forgets about the detrimental consequences. As result,

accidents do occur in these shops causing injuries, damages and waste of time, frustrating plans from coming to fruition at that precious time. It has also revealed that the only way to safe guard against these unfortunate happenings in a workplace is to be disciplined while in that workshop or by strict compliance with rules and regulations peculiar to that shop. That rules and regulations are devised for the smooth interaction as well as operations of humans in their society. Technical schools as part of human society are no exception. According to Mudd (1972), In any society rules and regulations must be devised for the guidance and benefit of all concerned, the workshop is no exception. These rules are necessary to make the workshop a safe, efficient and healthy place in which to work.

This statement by Mudd clearly and abundantly substantiated the need for safety. That capacity to live free from danger. This safety need as pointed out arises from man's activities, which are capable of jeopardizing lives and properties in that society.

Dolan (1979), also observed that accidents in workshop claim far too many victims and approximately 70% of these accidents are caused by neglect or carelessness on the part of the workman, consequently the need for safety cannot be overstressed.

Mitchell (1977) quoting health and safety act (1974) pointed out "it shall be the duty of every employee while at work to take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions".

This responsibility cannot be ignored or neglected, for if you don't value good health others do and would not want to be endangered by your acts or omissions.

ANALYSIS OF WORKSHOP BEHAVIOUR

When causes of a problem are identified the solution to such a problem is not far. The preceding passages informed us of the effects of accidents happening in workplaces. The causes are also highlighted. As there is no benefit in accidents in a workshop, we cannot afford to permit its continuity lest people be discouraged by our efforts for technological advancement.

We believe that people in these laboratories are normal and reasonable persons and that if reasonable thoughts precede their actions accidents will be reduced if not completely eliminated.

As part of our contribution to promote safety behaviours in technical schools, we are activated to expose the sources of accidents in our workshops with the expectations that the following safety behaviors would seriously be adhered to.

Personal safety

This is the personal precaution one has to observe for his

own well-being. It is good to point out that it is not very distinct from other safety behaviours for all geared towards achieving a common goal such personal safety are observed in the following;

Clothing: This is the covering of part or all of your body. In the workshop always wear aprons or overalls to protect your body and other clothes you wear from dust, oil and dirt which result from workshop activities. This will also safeguard your life from rotating machineries. You should be informed that not all rotating parts of machines are guarded. Wear hard rubber boots with toecaps to protect your feet against chips, chaff, nails and other materials that may accidentally fall penetrating to your feet. Face shield and safety goggles must be worn when observing welding light or in grinding on wheel grinder. The strong rays of electric arc welding and solid flying particles on the grinder are harmful to the eyes. Remember sight is very important in any occupation" (Wilkinson 1972).

Another problem to guard against is breathing of dangerous gases, dust and fumes. A face pad should be worn. This covers the nose and mouth and it is half a mask. Vapours with strong characteristic smell should not be inhaled too long. The vapours and spray from paints irritate the delicate linings of the nose, lungs and stomach. Some paints are also poisonous. Always wear the mask provided. Outside the shop drink as much milk as you can to stop the paint injuring the stomach lining. Do not take food to the spray shop. During spraying ensure that the extractor fans are working (Mudd 1972).

Put on hand gloves to protect your hands from heat during engineering processes of heating cold metals or during filing operations. Also during operations on machines your hands occasionally come in contact with machine oils. This may be dangerous if they penetrate your skin. (Wilkinson 1972).

Electrical works: As a reasonable and responsible person, do not attempt to remove wire insulations with your teeth.

- i) Use well insulated tools always in doing electrical work.
- ii) Switch off before touching any live part of the circuit or equipment.
- iii) Do not expose current carrying conductors where insulations are needed.
- iv) Joints in electrical conductors must be properly done to permit good mechanical and electrical continuity.
- v) Use appropriate sizes and types of accessories e.g. fuses, cables, switches etc for all wiring.
- vi) Good finishing is essential for all installations. Cables must be run flat through out their runs, clippings of sheathed cables for vertical and horizontal runs must be in accordance with the appropriate requirements in current regulations.
- vii.) Always obey safety rules and procedures, laid out' in manufacturers handbooks or laboratory manuals (Bamiro et al., 1988)

Safety at the workbench

The workbench is a table for workmen.

- i) Do not place tools close to the edge of the bench to be easily knocked off by someone.
- ii) Check that the vice is properly fastened to the bench before clamping any work.
- iii) Use only hand pressure on the lever to tighten the work piece. Should the work piece extend beyond the bench have a piece of coloured material attached to it to attract attention.
- iv) On no account should files be used without handles, for the palm may be pierced by the tang.
- v) Chisels that develop mushroom heads should never be used. This may cause either the hammer to glance through and hit the hand or the chisel may slip causing severe injuries, or a piece of metal may fly off inflicting injury on anyone in the vicinity. Also in chiselling metals; chisel away from workmates.
- vi) Check that hammerheads are tight in their handles before use.
- vii) The correct size, type and length of spanner for the particular job should used spanners that often slip result to personal injury.
- viii) Hot work pieces in the workshop must be marked to indicate to others.
- ix.) Sharp and pointed tools should be held with their edges pointing downwards to prevent accident. They must also be placed in such a way that may not easily injure someone.
- x) Always give tools by their handles.
- xi) Always use tools that are in good condition.
- xii) Avoid excessive speed when cutting with a hacksaw. Exert pressure only on the cutting stroke. The blade must be properly tensioned (Dolan, 1979)

Safety on machines

A machine tool can be explained as tool that supplement human efforts to accomplished a given task. Some machines are mounted on the table or floor while others are portable. Those permanently mounted, work pieces are taken to them while portable machines are carried to work pieces. They may be electrically, hydraulically and manually operated.

- i) Do not attempt to operate any machine unless you are instructed in its use.
- ii) Never operate any machine if you are at fatigue.
- iii) Check that the machine switch is off before switching on the socket.
- iv) On portable machines always switch-off before fitting the plug. Reverse the procedure when the work is completed.
- vi) Avoid using portable electric tools while standing on wet floors. If this must be done wear thick rubber boots.
- vii) Do not pull tools by their cables. Always arrange them

so that neither you nor others will trip over them. Never allow them to be run over, trapped or soaked in oil or water for example portable drill, soldering irons, valve and seat grinding tools.

- viii) If the speed of a machine is adjustable, select suitable speed for the job at hand.
- ix) This changing of speed must be done when the source of power is switched off.
- x) Choose short hairstyle or wear cap to protect your hair from entanglement by rotating machinery e.g drill spindle or lathe chuck. Your necklace or wristwatch may be a menace, remove them.
- xi) Work pieces must be properly clamped before any work could be done on it.
- xii) Turnings and swarf are very sharp and so should never be removed with hands, Use a brush or metal scraper.
- xiv) Never attempt feeling of burrs on edges of work pieces (Dolan 1979).

Greasing is a maintenance function that is carried out on machines using grease guns. Grease from high-pressure grease guns leaves the nozzle in fine spray between 35-70 MN/m⁻². Their careless use may cause serious accident, even at a distant; the needle jet on manual high-pressure guns can be just dangerous. Never point the gun at another person, keep your fingers away from the trigger until the nozzle is against the grease nipple, and do not put a finger over the jet while holding the trigger. If accident occurs, get medical attention promptly. It may save a finger or a hand.

Compressed air (Compressor in motor vehicle garage): To young inexperienced apprentices and students the use of compressed air is something of novelty and they may think it a joke to aim the nozzle at workmates.

This practice is highly dangerous, as airs entering human body from any direction and at any pressure above that of atmosphere (other than when administered under medical supervision) can and often result in death.

The safety valve of the compressor should be set to open at the correct blow-off pressure, regular inspection to ensure that oil is not passing into the receiver should be made, and the receiver be drained every night. Switch off the isolator each night. A competent mechanic should service the compressor.

Welding precautions: Welding is a permanent method of joining metals. This could be by arc welding or oxy-acetylene-welding. In both methods you must learn how to use the equipment properly.

- i) Protective clothing should be worn to reduce the risk of burns.
- ii) To reduce the risk of fire, and explosion, the oxygen bottle and fittings should be free of oil and grease.
- iii) Do not check for leaks with matches, use water.

iv) Do not use acetylene- bottle when it is lying on the ground, stand the bottles upright and fasten them to a bench or trolley.

v) Servicing must be according to manufacturer's specifications (Dolan, 1979).

Lifting equipment: In auto-mechanic, it is often required that the vehicle should be lifted up for work to be performed under. This must be carefully done.

i) There are lifting and supporting equipment such as screw, bottle and trolley jacks, cranes and chain hoist cranes and the supporting equipment as axle stand and wheel cradles.

ii) Prior to lifting a vehicle, make sure that the vehicle is centralized and that the vehicle doors are closed so that they cannot foul any other vehicle or part of the building.

iii.) If the ceiling is low, check that the vehicle cannot touch it when the lift is fully raised.

iv) Lift operated by compressed air; check that adequate pressure is in storage tank.

v) Some equipment have automatic locks to prevent any accidental dropping of the lift, when the lift is raised ensure that they are correctly engaged.

vi) Work on the underside of the vehicle should only be carried out while the lift is raised.

vii) It is a most harmful practice to work while standing on the ramps.

viii) On lowering the lift first check that other mechanics, tools and equipment are clear of the ramps and ramp pits. Guide the ramps carefully into their pits. Keep the legs and feet clear of the ramps always.

ix) Screw, bottle and trolley jacks must all be used on firm and level ground. They must be inspected before subjecting them to task. Always check that they are fitted at their jacking points or sockets. Jacks collapse with injurious effect so the wheels must be properly chocked when they are in use.

x) With the exception of screw jack, bottle and trolley jacks are hydraulically operated and therefore liable to collapse if neglected or over loaded. Never work under a vehicle supported only by these jacks. Apart from collapsing the jack permits the car to rock and it may eventually slide off the jack platform especially when lifting by the centre of the rear axle. Use jack solely to lift the vehicle to the height required to install axle stands or wheel cradle.

xi) When lifting a vehicle that is loaded, the load must be taken into consideration never use a jack where it is not designed to be used (Mudd).

General workshop safety

As we have earlier stated the classification done in this write up does not mean there is a clear distinction between each other. It is a matter of preference. General safety entails observing those rules and regulations for

the entire shop and its inhabitants be safe. Such as:-

Tidiness: The principal rule of all rules is tidiness. A good workman detests untidiness and the accumulation of dirt that accompanies it. Like repair of machines and vehicles is never a clean work but a mechanic does not have to be dirty himself, nor should he allow the tools and equipment he uses to remain dirty longer than is necessary. It takes little time and effort to wipe tools clean during and after each work, and the cleaning it self-leads to more care being taken of tools and the job at hand. Tidiness entails working to a logical and definite system during each job. The job then progresses without delays. Accidental damage is reduced, tools are ready to hand, related parts are kept together, their locations are correctly marked and one becomes bumptious in performing a good job in a reasonable time. When the job is completed the floor or bench should be cleared and cleaned ready for the next job, An untidy man who works in a confused mess of tools, dirt, oil and parts is a poor advertisement for himself, his trade and his employer. It is far more pleasant and healthy to work in a clean and tidy surroundings, and a well ordered workshop gives the impression of good craftsmen turning out high standard of work. A clean and well-ordered shop is much more attractive to customers.

Time keeping: Delays or time lost cost the workshop charging time money which should be coming in. Good time keeping is very necessary duty of a workman to his employer. Work must start and finish on time throughout each day. To a businessman time is money.

Skylarking: Playing practical jokes must not be permitted in workshops. This is common to young people. Quite apart from time wasted and ill feeling caused it always results in someone being hurt or equipment damaged.

Ventilation: Windows and doors provided on the workshop must be fully opened each working day for full ventilation.

Inflammable liquids: Some shops have special chambers for storage of inflammable liquids and gases never bring any source of direct heat or naked light near it. There should be no smoking near it whatsoever. Those entering these chambers must wear rubber boots to reduce the chances of sparks. Never draw them out more than can be used in the immediate time. Fire extinguishers must be provided and kept in proper order. Have all instructed in its use. In an event of accident only immediate action can save lives or reduce damage, no need of reading instructions at the time (Mudd, 1972)

Movement: Most young trainees move about the shop quickly. Being obsessed with the urgency of their task tries to move very fast to their destinations. Too much haste can be dangerous, a rapidly moving body is difficult

to control when an unusual object is met. Injuries may result if you strike hard an awkwardly shaped object, which are very much inevitable in the laboratory, talkless of sharp cutting tools. That notwithstanding, it is equally unsafe if a hurrying body falls.

Gang ways: Gang ways are provided for access to be gained to all parts of the laboratory. Walk along the marked aisles. It is deadly to take short cuts through machine lines hence you don't know which state of operation a machine will be taking. These aisles must also be kept clear, never use them as storage for anything (Wilkinson, 1972).

Always Be Careful in workshops and practice them so that lives and properties will no longer be endangered. Remember, it will be very displeasing and inexplicable to go to a workshop with two hands and come back with one, two eyes and return with one or blind. And the worst of it all is to be brought back in caskets. Observe these rules better be safe than be sorry.

SUMMARY

The society lack comprehensive safety literature covering multiples of shops for their consumption. The available literatures are inclined to subject specializations. This shows that only those in that trade would have knowledge of safe behavior in that trade's workshop. The intending users of these workshops are not motivated. It has been revealed that indiscipline is the cause of accidents and that it is the responsibility of all in 'the work place to ensure safety of the entire environment.

RECOMMENDATION

This work has come to stay and the author recommends its use at levels. He equally acknowledges the right of criticism, but believe that it cannot be completely useless, therefore he recommend its publication and use in technical schools.

The author understood that safety behaviour is the key for the survival and longer service of a workshop; jet-yards should be presented to students who observe safety rules and regulations throughout their period of schooling on graduation to encourage safety among others. Remember there is no amount of publicity that would be superfluous concerning safety.

CONCLUSION

In conclusion, it is the author wish that it should be well with all and sundry in our technical schools so that we can achieve this objective of technological advancement. We therefore appeal to all in the workplaces to study this ABC of safety and apply it accordingly so as the workshop becomes a work friendly environment instead of a work-frightening one. For it is the man that has head that wears cap. Observing these rules in the workshop effectively will make us to be "safe" instead of being "sorry".

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