



Importance of Safety in a Workshop at Schools for a Safe and Effective Teaching and Learning Sessions

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Abstract: Dangerous situations can develop at any time in a workshop if the people who use the workshop are not alert. It can be very dangerous even though a simple mistake occurs when the safety procedures are compromised. This research aims to obtain the perception and comments from students regarding their knowledge about workshop safety in schools. The objective of this research is to acquire the perception and comments from Faculty of Technical and Vocational, Sultan Idris Education University students. There are 5 different questions distributed among the students for them to give their judgements. This study is an interview based approach. The data was collected by distributing the questions to 148 students and 35 student's answers were randomly picked to be analysed. The students are expected to give their perception and comments based on their knowledge and observation about workshop safety and its practises in secondary schools. Results show that, around 40% of the students feel that all the teachers know about safety in workshop to avoid an accident from occurring. Some students commented that teachers need to enlighten the students about safety because many of them are not practising it at the fullest. Many students feels that first aid kit is the main instrument which must be kept in a workshop in the event of accident occurs. The conclusion is, knowledge about workshop safety is good but it must be practised by students and teachers in all schools to minimize injuries and damages.

Keywords: Safety and health, workshop, school, accident and injuries, perception

1. Introduction

In the era of high technology, safety is the utmost important thing that should be practised in all the workplaces especially workshops. Safety in a school workshop environment is very important for the students and staff. Technicians, cleaners and also visitors in the workshop are equally important as all the people need to be safe. The working atmosphere in a workshop must have the basic elements to ensure a safe and healthy environment. It can be very dangerous even though a simple mistake occurs when the safety procedures are compromised. Hazardous

circumstances will bring harmful scenarios. The potential for a hazard to cause harm to the students and teachers in a school workshop is high (Adamu & Idris, 2016). Dangerous situations can develop at any time in a workshop if the people who use the workshop are not alert; therefore teachers or the workshop caretakers have a vital role to play to make sure the safety of everyone in the workshop. Teachers can create a responsible and disciplined attitude in their pupils from the way they control the sessions in the workshop. Chemical substances, all kinds of tools, furniture, electronic equipment, decorative plants, and many more can cause harm to a human being if it is not well managed in a school workshop. A smooth teaching and learning session in a workshop can take place via systematic management. Vocational education which includes Occupational Safety and Health as a fundamental study will have the advantage of students adopting a safe work procedure within the vicinity of their workplace (Okun, Andrea, Rebecca, Guerin, & Paul Schulte, 2016).

Negligence of safety aspects will result in injury, loss of life and property damage. In 1970, the United States enacted law and act on safety. The Act is known as 'Occupational Safety and Health' or simply OSHA. This Act was introduced to ensure the safety and health of workers in the workshop or industry. In Malaysia, the security act, SOCSO or Social Security Organization was established in 1969. This Act aims to implement, administer and enforce the social security act of workers and social security regulations of workers (Mohd & Iruhnizam, 2011). The Ministry of Education Malaysia (MOE) had issued Circular Letters Professional (SPI) regarding the needs of the school management to ensure the safety of current school students which is within the school grounds, especially regarding school laboratories, school buildings, sporting events, and playground. One must understand the operation of a work that must be done and be aware of the risks that may occur while he or she involved in it (Meyer & Thierry, 2017). This statement is supported by the 1980 International Labor Office report which states that most accidents involving equipment and machinery are due to the weaknesses of the workers themselves, carelessness while doing work, selection of equipment or machines that are not suitable for a particular job (Mohd & Iruhnizam, 2011).

A decentralized approach to safety management was the most effective way to promote workforce motivation (Raduan et al., 2017). A good segregation technique must be followed at the storage place to avoid mishaps to take place. Chemicals which are flammable substances must be stored separately from other items (Walters, Ayana, Wendy & Nigel, 2017). It must be marked clearly for people to know the danger of it and also can be located easily when it is needed. Heavy items should be stored at a reachable place to avoid the person who is reaching for it to bend too much or use excessive height. Machines can produce a lot of noise while it is being used. The high level of noise can be pollution in a workshop and affect teachers and students hearing ability. According to Basner and co-researchers, a Noise-induced hearing loss (NIHL) is a public health concern (Basner et al., 2014). Safety in the workshop includes physical, mental, environmental, property and workplace hazard-free aspects (Esa et al., 2017). A workshop is a room that has the equipment and materials used to deliver teaching and learning (Zainudin & Rosini, 2010). All practical work and tests conducted in the workshop are part of the translation of theories and formulas presented in the theoretical learning sessions. The situation of the environment while doing practical work should be given special attention because a comfortable environment will make the teaching and learning process run smoothly. This is also supported by Talib and Selamat (2004) who stated that the environment has a psychological impact on students. Organizing activity is important because it will increase the ability of equipment and its willingness to be used. It establishes a code of conduct ethics to ensure a safe work environment (Mohd & Rahizah, 2011). Safety in schools is very important to ensure students and teachers don't get hurt during practical sessions. This research was triggered by the sentiment and conviction that safety awareness is fundamental to a sustainable working environment in school workshops. Thus the aim and the objective of this study is to obtain the perception of students about the safety knowledge and practices in workshops among students and teachers in schools.

2. Problem Statement

The rising cases of accidents involving students in the science laboratory are alarming and it needs proficient measures to eliminate or reduce incidents and one of the measures that can be taken is the development of awareness and practice of laboratory safety (Ester, Shreeshivasan & Hesam, 2019) One of the most common problems happens in many sessions in the workshop is negligence which gives rise to unwanted mishaps, such as equipment damage, injuries to our body, disability and even death. There are also possibilities for an accident to occur due to a lack of proper maintenance of the machines and equipment (Putut, 2011). The students who wear loose clothing such as neckties, loose sleeves and fluffy clothes must be made aware of the dangers that can arise from it when working on the lathe machine. Students need to be a little bit more cautious when working with chemicals in a workshop to prevent accidents which can cause injuries to them from the chemical burn or by inhaling poisonous gases. They need to know about identifying hazards and the dangers which might arise during their sessions in a workshop. Basic knowledge about the introduction of toxicology and hazard communication systems is essential for them to know so that they could understand these hazards (Hill Jr & Robert, 2016; Kates & Robert, 2011).

3. Methodology

The research method used in this study is a survey study using the qualitative approach method. The research had adopted a narrative enquiry approach, where the researcher develops a set of questions and setting interviews to reduce expenses, time, and energy to collect data (Mohd & Iruhnizam, 2011). These students are taking workshop management and safety course and were chosen as the sample for this study because of their knowledge in safety after they were enrolled in this course.

3.1 Participants of the Study

This study involved 148 students who are the population for this study. A total of only 35 sets of answers were picked because of the most relevant answers given by the respondent as the sample from the population for this research to be analysed and reported. Participants of this research ranged in age from 20 to 22. The majority of the participants were male (60%) and 40% were female.

3.2 Instrument

The instrument used in this study is a set of 5 open-ended questions. Respondents are required to provide their perceptions in the space on the sheet provided. The students were required to give their perceptions or comments based on their knowledge about school workshop safety. The instrument were sent to 3 experts to validate the questions.

3.3 Data Analysis

The data obtained were analysed by going through all the students' comments thoroughly and the similar comments are gathered and reported by putting it into paragraphs and tables. The data was analysed by segregating all the answers given by students using in a thematic way.

4. Results and Discussion

4.1 Students' Perception towards Workshop Safety at Schools in Malaysia

A workshop is a place where students will gain knowledge about crafts activities and the creation of a tool or model in practical (hands-on) using hand tools and machines. Champion the necessity for a cultural change within the workshop relating to safety which incorporates leadership, management, supervision, accountability, and personal responsibility (Andrea et al., 2020). Everyone and everything must be protected from physical, social, occupational, educational, and other matters involving damage or unwanted incidents. Good results can be achieved in the long-term run when occupational health and safety are made the main priority of each administration (Makovicka Osvaldova et al., 2021). It covers in terms of planning, control, coordination and encouragement. Students carry out many tasks in groups and should take turns to monitor safety according to the tasks that have been set. Each student must practice a safe and systematic work ethic when practical sessions are conducted in the workshop to ensure their safety. Workshop safety is also a situation that is protected or spared from danger or disruption that can lead to accidents or physical injuries. Safe handling of equipment and machines can provide comfort to the students while in the workshop and it also trains the students to be cooperative and responsible for the rules that have been established. In addition, it also ensures that the workshop management system is more organized and systematic.

Furthermore, it is also important for students to be aware of the standard safety rules of the workshop. It would become a culture in a workshop to practice safety if the rules were emphasized in a professional manner. Culture is a term used to relate the work surroundings providing some indication as to why accepted standards and practices exist within that environment (Jennifer, Andrea, Davis, Lauren, Shepler, Carolyn, Dov, Christian, 2019). Workshop safety is also related to how the management of a school provides a workable condition and atmosphere for an attractive and safe place to work in. Workshop safety in the schools means measures taken to prevent accidents in the workshop by proper arrangement and usage of the tools and machines. Therefore, by maintaining tools or materials in a working condition can create a cheerful atmosphere and produce students with a positive attitude. Workshop safety will ensure the students and teachers to be in a safe condition and stop students from experiencing things that can cause pain, injury and loss. The safety rules of this workshop must be adhered by all users, namely students and teachers when doing practical to prevent accidents. This is because the practice of this workshop needs to be done carefully and according to the procedure so that all these practices run smoothly. In addition, it also explains the steps that need to be taken in the event of an accident in the workshop.

4.2 Students' View of the Accidents That Can Occur While They Do Practical Work in the School

In the current era of the industrial revolution, a lot of changes in the labour market had occurred with automated machines replacing humans (Jeehee et al., 2019). In this kind of situation, accidents are prone to happen anywhere or at

any time and it can be very damaging as well. Accidents happen without our knowledge and investigation of it is a common approach to evaluate the safety of a workplace (Lars Harms-Ringdahl, 2021). Rapid progress in technology making it to create a concern that there will not be enough time to conduct adequate and appropriate research that can define the risks involved in a working environment (Joel, 2020). Therefore, accidents can occur as a result of the failure of teachers or technicians in monitoring the work of students while they are doing practical work which is dangerous and risky due to lack of experience handling machines. These phenomena can lead to big mishaps or severe injuries if the students did not follow the standard procedure to use the machines or equipment. These accidents can also occur when there is a lack of knowledge and skills especially in using new machines and equipment during student’s practical work. A common accident which occurs to students during practice is because they do not operate a machine or equipment properly by having the standard operating procedure in their mind. One of the examples is when a machine is being cleaned; the plug should be taken off to avoid any danger of current flowing due to a short circuit. The cause of accidents that occur in a workshop can be divided into three. The first one is due to machines which can happen when students use old and unsuitable equipment. The second one is due to the carelessness of the students themselves while doing their practical work. Lastly, in terms of the administration factor, accidents can happen when there is no guidance by the responsible party before the students start their practical work.

4.3 Methods Used to Avoid Mishaps and Injuries According to the Students Response

Safety assessment has a primary role in hazardous operations (Ming, 2020). The assessment of some practical work posing potential danger will help to prevent any unwanted accidents and injuries. Learning in a workshop is a compulsory way for students in order to be well equipped with the knowledge and practical experience needed to face the world in their working career. In order to make sure students are safe when they use the equipment, there are several ways which need to be observed. Displaying safety signs at dangerous places such as do not smoke cigarettes, slippery floors and the emergency route will help students to be careful when they are there in the respective areas. Protective gears or safety equipment must be used while doing the practical work. Ensuring the neatness and cleanliness of the working area is important because that will ensure the safe environment created in a workshop. Some of the ways to avoid unnecessary circumstances or danger are by following the instructions that have been established by the teacher while in the workshop and do not break the rules during practical work sessions. The rules imposed must be very strict and if the rules have been broken, the students must be punished for it so that that wrongdoing won’t be repeated. After using the tools, it must be cleaned thoroughly before storing it at the right place all the time. Teachers should ensure that awareness and knowledge of workshop safety is well implanted in students through relevant safety discussions and campaigns organized by the institutions (Bello, 2017). The teacher should explain about the rules that need to be followed during the use of the workshop before the practical session starts. In addition, teachers should also constantly monitor student’s behaviour during the time when they are the occupants of the workshop. Ensure that each student in the workshop take turns to monitor the other students on whether they are following the rules to avoid misfortune.

4.4 Instruments Used or Actions Needed to be Taken When There is an Emergency in the Workshop

The rules and safety of workshops must be given close attention by everyone. If anyone takes it for granted, it might cause harm to the students and teachers and even people who are visiting the workshop. In a practical session, students always use tools and equipment which can cause a hazard if it is not handled in a correct way (Nurwani & Asnul, 2018). Table 1 shows the instruments and actions to control danger suggested by the students.

Table 1 - Instruments and actions to control danger suggested by the students

No	Material	Description	Percentage %
1.	First aid kit	Store all the things which are needed to do treatment	53
2.	Training	Train students to have a good working practice	10
3.	Floor cleanliness	Avoid slippery and dirty	8
4.	Fire extinguishers	Put out the fire when needed	12
5.	Fire alarm	Alert everyone when there is a fire	10
6.	Emergency route plan	Move accordingly when there is a fire	7

First aid kit is the main priority according to the students when they were asked about the instruments and type of actions that should be taken to control danger in a workshop. About 53% of the comments given are regarding the first aid kit and the contents in the kit. According to the students, accidents can happen anytime, so if it does happen, we can minimize the damage of it if we have a first aid kit in the workshop. Around 10% of the students feel we can avoid tragedy if all the students and teachers can be trained on how to deal with emergencies or danger. The understanding gained from the training can help them to keep away from the danger which causes injuries. The other 37% of the

remaining students suggested that the danger can be avoided if the floor is clean and not slippery. They also feel that having fire extinguishers, fire alarms and an emergency route well planned will help tremendously if disaster strikes.

4.5 Students' View about Knowledge and Practice of Workshop Safety in Schools

Knowledge on safety practices in a workshop is very helpful and crucial. Safe practices must be exercised throughout the practical classes which will help to prevent the occurrence of accidents in a workshop at anytime. (Nurwani & Asnul, 2018). Safety measures should be emphasized not only when doing practical work but at any time when the students are in the workshop (Meyer & Thierry 2017). Occupational Safety and Health is an important part of the study that have to be delivered to students as a fundamental part of vocational education. This may set a good knowledge so that these students can adopt safe work procedures while they are in the school workshop (Okun et al., 2016). Negative effects in a workshop can be avoided if knowledge regarding occupational hazards and safety practices is gained (Onowhakpor et al., 2017).

Table 2 - Knowledge and practice of students and teachers in the workshop for safety

No	Answers given by students	Percentage %
1.	All the teachers know about safety	40
2.	All the students and teachers should know about safety	5
3.	Not all the students know about safety so, teachers need to enlighten them	15
4.	All the students and teachers are compulsory to know about safety	20
5.	Teachers in some schools are putting effort to know about safety	10
6.	All the teachers and students know about it but they still ignore to follow safety	5
7.	All the students and teacher know about it	5

In this study, the output from the interview is clearly showing that all the teachers have knowledge about safety practices in the workshop in schools. The respondents agreed that teachers do know about what is safety practices in a workshop but they also feel that some of the teachers fail to practise all the safety rules outlined. This situation occurs maybe due to the teacher's lack of knowledge about the danger which can surface when some safety rules are being ignored. The research also indicated that many students know what is workshop safety is all about and how they are going to uphold it so that it can protect them from harmful incidents. On the other hand, it also shows that some students don't know about workshop safety and some of them tend to ignore it although they know about it due to their playful attitude. About 40% of students think that all the teachers know about workshop safety very well. Another 5% of the students who had been interviewed think that teachers and students should know about workshop safety in order to avoid any wrongdoings while being in the workshop. The teachers should enlighten the students about workshop safety. This view are given by 15% of the students in this research. They feel many students tend to ignore it although they know about it. There are also around 20% of them believe that teachers and students must be made it compulsory to learn regarding workshop safety. About 10% of students feel that many teachers are putting effort to know and practice the workshop safety but unfortunately, some are not putting enough effort to know about it or practice it fully. Around 5% of students feel a big percentage of teachers and students know it but they are not giving enough importance for it. Lastly, nearly 5% of students said that all teachers and students know about workshop safety very well. Table 2 shows the results of the survey study done to gather the perception of students about the workshop user's knowledge on safety practices in school workshops.

5. Conclusion

As conclusion, workshop safety is always dependent on a teacher and students cooperation in the workshop. Students also must play their part to take turns to monitor everyone to make the environment safe in a workshop. Accidents which occur in the workshop can be always summarized into three different factors. Machines malfunction is the first one, carelessness of a human being is the second and poor management of the administration is the third. There are several methods which can be used to avoid mishaps including, displaying a signboard, workshop cleanliness and strict rules by administrates. Students proposed many ways to deal with a danger when it occurs such as having a first aid kit, training for students and teachers, clean floor, fire extinguishers, fire alarms and emergency route are among the suggestions given. It is also found that knowledge about safety practices among teachers and students in a workshop is at a respectable level. The high percentage of comments from the respondents showing that most teachers know about safety and also practising it. It also shows that many students know about it also but some tend to ignore it. However, there are still some students who don't know about this workshop safety and the respondents indicated that teachers are the people responsible to advise these students about workshop safety. Although the teachers are doing their best to take care of the students while they are in the workshop, the ignorant attitude that the students show can cause accidents which directly and indirectly can hurt students or teachers. Therefore, all the teachers and students need to learn workshop safety and also practice it completely.

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