

# Safety and Health Awareness among Staff and Students in Workshop and Laboratory of an Engineering Technology University Campus

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**Abstract**— This study was conducted to assess the level of awareness on safety and health among staffs and students when using the workshops and laboratories of an engineering technology university campus. A survey was done on 132 respondents which included staffs and students. The main instrument for collecting data in this study was Questionnaires. The collected data was analyzed by using Statistical Package for Science (SPSS) software based on frequency, percentage and mean in order to determine the level of awareness of the respondents towards occupational safety and health factor. The result obtained from the analysis provided that respondents had a high level of awareness of work safety based on their overall mean score of 4.13. The overall mean for staff is 4.19 is higher than the overall mean for students which is 4.07. The details of the level of awareness towards safety and health that were taken into considerations were safety policy, safety procedure, safety training, safety tools and equipment, OSH committee, commitment and attitude and working environment. The lowest factor in the analysis was OSH committee with a medium level of awareness 3.30. As a conclusion, to raise the level of awareness into OSH, the management of this institute should increase the role of OSH committee, increase the number of training programs, increase the safety program through campaigns and safety talks, conduct spot checks, and increase signage and posters around workshops and laboratories.

**Keywords**— *Level of awareness, Occupational Safety and Health, Questionnaires, Statistical Package for Science (SPSS)*

## I. INTRODUCTION

Nowadays, the numbers of accidents that happen at workplaces are increasing every year either in the industries or educational institutions. In the education sector, some of the workshops and laboratories have potentials to contribute to accidents if they are not handled properly according to their instructions. Therefore, staffs and students should not ignore the safety rules and regulations in order to prevent accidents and injuries from happening. Safety and health are important aspects especially when they involve high risk jobs such as in the factory, construction and other industries that use chemicals and machines. For example, in educational institutions, there are various machines in the workshop and hazardous materials in the laboratory which need special attention regarding safety procedures. Most of the equipment or machines have to handle

with the correct procedures with good practice and care. If not, the accident can happen anytime and the number of accidents and injuries would be increased (Goestech, 1999).

Occupational safety and health (OSH) is a cross-disciplinary area which involves protecting the safety, health and welfare of people who work or with employment. All organizations have a responsibility to ensure their employees working in the safety workplace and remind them about safety all the time. In order to enforce the safety regulation in the workplace, each company should establish a safety committee as stated in section 30(1) Occupational Safety and Health Act (OSHA) 1994, each of the employers with the minimum of 40 workers need to set up the Occupational Safety and Health Committees (OSHA, 1994). This provision applies to these institutions with a staff of more than the minimum amount required. On the other hand, the institution is offering engineering courses which involve with the machine and chemical.

In this study, the level of students and staffs awareness at workshop and laboratory in engineering technology university campus were investigated to ensure any of the possible risks can be eliminated. This research was conducted at engineering technology university campus that has a workshop and laboratory with lathe machines, milling machines, CNC machines, EDM wire cut machines, punching machines, welding machines, power system lab, robotic lab, pneumatic and hydraulic lab which can cause injury if the equipment are not handled with care and not aware about safety rules and regulations. The staff and students exposed to the risk of accidents and hazardous chemicals and equipment in the laboratory (Shariff and Norazhar, 2012).

## II. LITERATURE REVIEW

Previous researches on the workers awareness in OSH are divided into two which are in the industry sector and education sector. Therefore, the previous work on OSH awareness in industry and education either local or overseas researches are discussed to get the clear picture of the worker awareness on OSH.

### A. Industry Sector

Fadzli et al. (2002) has found that the awareness of OSH among the estate rubber tappers was at a satisfactory level. From the finding, he also found that level for not following the order, rules and procedure of OSH was low. Thus, in order to increase the level of awareness he had suggested programs such as promotion organize and give a talk on OSH, give counseling and related information of OSH or work place.

Abdul Rahim et al. (2008) did a study on the causes of accident at construction site. They concluded that the main cause of construction accidents found are the workers carelessness to obey work procedure, work at high elevation, working without safety devices, poor site management, harsh work operation, low knowledge and skill of workers, failure to use personal protective equipment and poor workers attitude about safety.

Harper and Koehn (1998) in its review of construction site safety management in the Southeast, Texas has shown that whether or not an accident involving injuries or fatalities in the construction industry can be controlled by holding effective safety management program. The program emphasizes a safe working operation, employee awareness of dangers and risks, direct employee participation in a issues, frequent investigation, construction site and environmental protective.

### B. Education Sector

Kukarni V. MD et al. (2012) did a research on awareness and practice of road safety measures involved undergraduate medical students in a South Indian States. The area or field of this study is road (medical students in numerous medical colleges). Safety measure that been used in this study is road safety and road sign. Method that been used is questionnaire analysis using SPSS software. The result of awareness and practice of road safety measure was low among the respondents. The recommendation is access current situation regarding road safety measures across various sub-group and populations.

Yahya Thamrin et al. (2010) in its review of time trend and predictive factor for safety perception among incoming South Australian University students show the safety measure for his study is safety skill, confidence and attitude, safety training and injury experience. Method that used in this study is questionnaire analysis which is using SSPSS software for obtained the data. The overall results indicate strong indication between safety training, skills and confidence. However, the attitude is not significant.

Durrishah Idrus et al. (2004) did a research on Level of Awareness of UTM Staff on Occupational Safety and Health at the Work place. This research is doing for university staff. The safety measure for determine awareness is safety policy, safety procedure, safety training, tools and equipment, safety committee, commitment and attitude, working environment. Then the method has been used for this study is questionnaire analysis by using SPSS software. The overall result is IPTS have average level of compliance of OSH with 3.54 and dominant factor that comply with the OSHA 1994 are commitment and attitude, safety training and safety procedure. For recommendation, improvement in self-

evaluation, effective communication, OSH committee, effective safety program and reward program.

## III. METHODOLOGY

In this study, one set of questionnaire which adapted from Durrishah Idrus et.al. (2004) is used in order to define the awareness of students and staffs in engineering technology university campus on the occupational, safety and health (OSH) at workshop and laboratory. This questionnaire consists of two parts, Part I and Part II. Part I of this questionnaire is to get the background of the respondents, meanwhile Part II is to get the detail of the respondent perception on safety policies in workplace, safety procedure, tools and equipment, a safety training, safety and health committee, commitment and attitudes and work environment ( Durrishah Idrus, 2004). First stage, the questionnaire is adapted. After that, the questionnaire is distributed to staff and students in the stage two. In the stage three, the obtained data will be analyzed by using Statistical Package for Social Science (SPSS) software. Descriptive analysis of frequencies and percentage were used to explain the respondent demography and the answer of the questions. At the last stage (stage four), the discussion and conclusion made based on the analysis results.

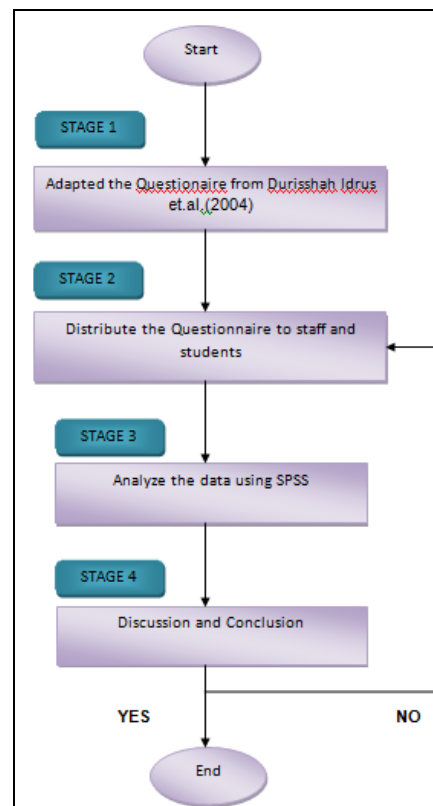


Fig. 1. Model of Design Study

## IV. RESULTS & DISCUSSION

This analysis or study is based on the analysis of distributed questionnaire in engineering technology university campus located in Kulim, Kedah. The respondent of this study are staff and students who are using the workshop and laboratory. In this study, 150 numbers of questionnaires were distributed among staff and students.

However, only 132 respondents have responded the questionnaire that was given. Therefore, the analysis of the data is based on the 88% of the returning questionnaire. The analysis data is divided into two parts. There are demography factors such as position, department/course, gender, age and education level and other factors which are safety policy, safety procedure, safety training, safety tools and equipment, committee of OSH, commitment and attitude and working environment. The descriptive analysis was done by using the frequencies, percentage and means to support the finding by using SPSS software.

Table 1 shows total mean score level of awareness on OSH among staff and students (respondents) in engineering technology university campus is 4.1323. This value proved that high awareness range among staff and students. Although the awareness level is high, the OSH committee factor did not contribute much on the level of respondents awareness as the mean score is 3.2954.

TABLE 1  
 TOTAL MEAN SCORE OF AWARENESS STAFF AND STUDENTS IN UNIKL MSI

Institution	No of respondents	Total mean score
UniKL MSI	132	4.1323

The factors of OSH that are being study for this research are safety policy, safety procedure, safety training, safety tools and equipment, OSH committee, commitment and attitude and working environment. The results of mean score for each factor are summarized in the Table 2 and Figure 2 is illustrated the results in bar chart.

The highest value of mean score is safety policy which is 4.4034. The value indicates the high level of awareness among respondents toward OSH. Meanwhile, the lowest value of mean score is 3.2954 which is OSH committee. Some improvement action needs to take in order to ensure it can turn to high level as other factors. The reason is the committee did not perform their job perfectly as 50% respondents said and 61.4% of respondents said the committee not conducted the training program regularly. However, 50% of respondents not realize the existence of the committee in the campus and the committee comes from lecturers and technicians who are focus on their daily work such as teaching and conducting and demonstrating laboratory not fulltime officer that can give more attention toward safety issue that occurred in workshop and laboratory. This is further strengthened that committee did not do the inspection on equipment because not enough time to do so.

Other factors such as safety procedure, safety training, safety tools and equipment, commitment and attitude and working environment perform the high level of awareness according to the mean score.

TABLE 2  
 MEAN SCORE OF THE FACTOR WHICH CONTRIBUTES TO THE LEVEL OF AWARENESS ON OSH AT WORKSHOP AND LABORATORY BETWEEN STAFF AND STUDENT

Factor	Position	
	Staff	Students
Safety policy	4.4	4.44
Safety procedure	4.53	4.38
Safety training	4.35	4.29
Safety tools and equipment	4.11	4.09
Safety committee	3.35	3.12
Commitment and attitude	4.3	4.21
Environment	4.24	3.99
Total	4.19	4.07

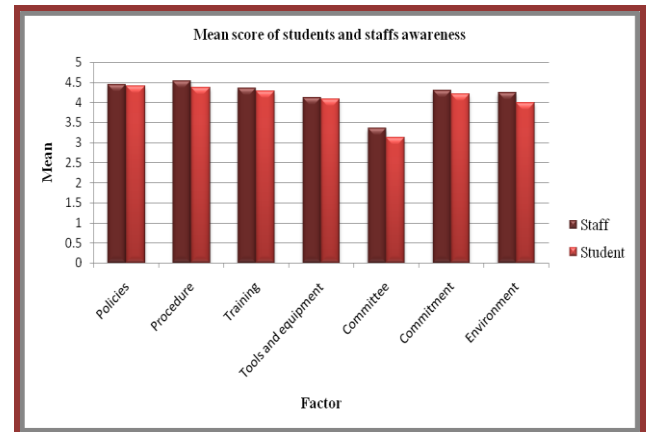


Fig.2. Mean Score of the Factor Which Contributes to the level of Awareness on OSH at Workshop and Laboratory between Staff and Student

From the analysis, it can be concluded that the respondents from staff position have a high level of awareness compared to students with total mean score 4.19 compared to 4.07. it also can be proved by looking at mean score for each factors of awareness on OSH which the staff mean score higher than students. As summary in term of factor of awareness on OSH that was studied, staffs have the highest level of awareness in safety procedure while students have the highest level of awareness in safety policy.

## V. CONCLUSION

The analysis of level staff and students awareness is high where the mean score is above 4.00 because they were well informed on the safety matters apart from the subjects taught. Meanwhile for OSH committee the mean score is 3.30 and all respondents made a perception that safety is important and need to practice. From the analysis of all factors, staff (4.19) awareness towards Occupational Safety Health (OSH) is higher than students (4.07). The reason is staff is more experience in handling the equipment with safety and awareness of staff in term of safety is more compared to students.

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