

THE INSTRUCTION OF THE OCCUPATIONAL HEALTH AND SAFETY (OHS) IN VOCATIONAL EDUCATION IN INDONESIA

Bambang Endroyo

(Semarang State University, Email: bbendroyo@yahoo.com)

Abstract— Occupational Health and Safety (OHS) in Indonesia still in worst performance among Asean states, after Singapore as a first, followed by Malaysia, Thailand and Filipina. In Indonesia, fatal accident in all sectors is 20 per 100.000 workers, with the rate of 52 from 53 surveyed states. That phenomenon is challenging the industrial participant and government to improve OHS as better as possible. Until now, through the increasing of rights awareness of safety as a needs, the rights of the worker, and also the demand from international regulation, occupational health and safety being improved. One of the effort to improve the performance of OHS was education and training. In Indonesia, OHS as a part of the curriculum of vocational education (school and college) and its instructional may be revised periodically, to make a better solution.

Key word: Instructional, Occupational health and safety, vocational education.

I. INTRODUCTION

Until now, accidents in the workplace is still a serious problem. In the developed countries, fatal occupational accident have a good rate. In USA, until 2009, the average number of fatal accidents of all industries was 3.3 per 100,000 workers (<http://www.osha.gov>, 13/10/2010). In the UK, until 2010, the average fatal accident rate of all industries was 0.5 per 100,000 workers (www.hse.gov.uk, 11/09/2010). In developing countries, that rate was very bad. In Indonesia, the performance of Occupational Health and Safety had fifth ranks (worst) in ASEAN after Singapore as the first, followed by Malaysia, Thailand and Philippines (Bali Post, 13 Mei 2005). Until 2008, that rank did not change by refer to the Arka (2008), that the rate of accidents in Indonesia have rank of 52 among 53 countries have been surveyed. Supono as Director of *Pengawasan Norma K3 Depnakertrans Indonesia* says that the number of fatal accidents in all sectors was 20 per 100 000 workers (Arsipberita.com, 11/02/2011). There need an effort to reduce the number of occupational accidents to a minimum as possible. One of the efforts is through instruction of occupational health and safety in vocational education.

This paper will discuss about instruction of occupational health and safety in Indonesia especially in the vocational schools and vocational colleges. Instruction in this paper means the process of teaching and learning about a specific topic.

II. LITERATURE REVIEW

II.1 Definition of Accidents, Safety, and its Consequently

Accidents are unplanned events, unpredictable, unexpected, no element of intent, is detrimental, resulting in equipment damage, injury and even death to workers (Hinze, 1977). According to the opinions of several experts, among others, Davies (1996), Levitt (1993); Mitropoulos (2005), safety is an attempt to identify and control hazards, incidents, accidents and occupational diseases that predicted to occur, so that workers, visitors or anyone who was on workplace, including those in the surrounding environment, can be free from the bad risk that can not be tolerated.

Accidents have many adverse effects. Accidents causing financial loss and humanitarian issues (Koehn, 1995). According to Tang SL (2004), the impact of accidents is financial loss, social loss, and human suffering. Financial losses according to Levitt (1993) are: (a) the costs incurred for the victims of the company include transportation costs and medical expenses the injured worker, a visit to the victim, (b) decrease in productivity due to worker injury or illness not immediately return to work, (c) payments to temporary workers who are unable to work, (d) the costs of site cleanup, repair damaged equipment and facilities, and materials damaged due to cessation of employment, (e) schedule delays and cost to revise the schedule, (f) added administrative work such as typing, investigations, explanations to the media, (g) the cost of training new workers to replace workers who can't work again. Social disadvantage is the loss borne by the community in relation to the incidence of accidents, among others, (h) loss of productive time an injured worker, (i) the opportunity cost of family members who care for the victim, (j) the increasing burden of government services such as police, health services, courts and so on. Human suffering is the loss suffered by the accident victims and their families in

relation to injuries, disabilities, fear, and loss of livelihoods. Barrie (1990:23) says that accidents often cause terrible disability that can lead to the loss of ability to work for the lifetime of the victim. Furthermore accidents can lead to death and suffering in this case will also be experienced by a family member whose life depends on accident victims. Due to an accident caused many losses, the effort to prevent it should always be sought.

II.2 The Role of Education for Improving Occupational Health and Safety

One of the efforts to minimize the rate of accident is through education and training (Suma'mur, 1981). Similarly, Florio (1979), professor of safety education from University of Illinois, said that to prevent an accident must improve a person's knowledge, skills, attitudes, and habit. However, knowledge, skill, and habits are not adequate without the social responsibility. To develop this ability, and thereby to reduce the country's accidental rate, is challenge that safety education must accept in a school curriculum. Florio (1979) also said that vocational students are more likely to respect accident prevention. The safety-educated person is more likely to regard an accident as being predictable and preventable.

Crosby (1993), professor of occupational education from University of Louisville Kentucky also said that safety is one element of instructional. It is the responsibility of every occupational teacher to include those things in the curriculum guide, that facilities safety when working with tools, machinery, and materials. Pellicer (2009) also said that education and training are vital issues to obtain a safety culture. Gambatase (2003) declared that education and training of project personnel in the area of safety are significant aspect of safe job sites. The finding of Endroyo research (2010) that education as a significant factor role to safety attitude. Next, the finding of Hariwibowo research (2012) that the interest to safety and the knowing about safety had significant contribution to safety attitude.

III. THE EXISTING OCCUPATIONAL HEALTH AND SAFETY EDUCATION IN INDONESIA

III.1. The Curriculum of Occupational Health and Safety (OHS) in Vocational School and College

In Indonesia, Occupational Health and Safety was a part of vocational (technical) school curriculum. At the old curriculum, OHS has been taught as a separate subject. Now, in line with the spirit of decentralization, each school may develop its own curriculum with reference to the guidelines, there was a variation in instructional of OHS. Some schools put OHS as a separate subject in productive group, and the other integrate OHS to a practical subject or theoretical subject. In this case, better when OHS as a separate subject and taught by instructional model based on industry.

Occupational Health and Safety also as a part of vocational college curriculum in Indonesia. The result of author survey, there was a variation in instructional of OHS. Some colleges put OHS as a two *sks* (semester credit units) subject and given at fourth semester, whereas the instructional material refer to process of work (example: foundation work, roof work, etc). The second group colleges put OHS also as a two *sks* subject, given at first semester, whereas the instructional material refer to component of work (example: safety of worker, safety of machine and devices, safety of environment, etc). The third group colleges put OHS also as a two *sks* subject, given at sixth semester, whereas the instructional material combined with the law and labor regulation. The fourth group colleges, OHS given only as a part of a two *sks* subject. Another colleges even taught OHS in the subject of three *sks*. Because of very variation in instructional of OHS in colleges in Indonesia, the competency of OHS may be not at the same level.

III.2. The Instruction of Occupational Health and Safety in Vocational School and College

The finding of Kadir research (2000) that knowledge of the students of vocational school about OHS is only 46,10%, indicates that the instruction of OHS is not work properly. The Instruction of OHS in vocational school and college must be improved continually to accommodate recent technology and other changed issues. Mager (1996) says that vocational teacher may be more than another teacher, because several information must be obtained, several devices "born", and the changes other. Vocational teacher must always create their instructional process in order relevant with the change of technology.

One of the improvement in instruction of OHS is create an instructional model in order to practice, centered to students, using multimedia, and portfolio assessment. That instructional model will be discussed bellow.

IV. INSTRUCTIONAL MODEL OF OCCUPATIONAL HEALTH AND SAFETY BASED ON INDUSTRY

In ongoing research, author try the instructional model of occupational health and safety based on industry. This model consists of four element, namely (1) the instructional material, (2) the instructional process, (3) the instructional media (4) the evaluation process. The instructional material not only theoretical but

also must take from that been applied in industry. The instructional process use Contextual Teaching- Learning, Competency Based Learning/Training, and Cooperative Learning. Media for this instructional may use LCD projector, photo, film, textbook, and field study. The evaluation process may use porto folio assessment. Untill now, this experiment research is still conducted, more than mid semester.

At the pre-test, the experiment group (instructional model based on industry) have lower achievement than the control group (ordinary instructional model). But at the mid semester test, the experiment group have higher achievement than the control group. See Table 1.

Table 1. Pre-test and mid semester test, from experiment group versus control group

Group Score	experiment group		control group	
	Pre test	mid test	pre test	mid test
Upper score	65	90	65	80
Lower score	60	70	60	65
Average score	63,25	76,892	64,15	71,7647
N (student)	38	38	34	34

T-test formula use to analyse empirical data, and the result was $7,577 > 2,042$ (t table). It means that experiment model have significant difference than ordinary model. The achievement of the students at experiment group was better than the students at ordinary group.

V. CONCLUSION

According to the above discussion, the conclusion of this paper was:

- Occupational Health and Safety in Indonesia have a bad reputation.
- Instructional of Occupational Health and Safety in Indonesia must be prioritized to reduce an accidents as minimal as possible.
- In the teaching process, instructional model based on industry can be used to improve students achievement in occupational health and safety.

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Author's detailed information

Name : Bambang Endroyo

Age, Sex : 59 th, Male

Institution : Semarang State University, Faculty of Engineering, Civil Engineering Department

Lecture on: 1. Construction Management, 2. Occupational Health and Safety, 3. Curriculum Study in Vocational Education.

Status : Student of S3 program in Civil Engineering, Diponegoro University