Implementation of Occupational Safety And Health Induction In Work Practices For Increasing Hazard Awareness Along With The Learning Process (Case Study: Workshop of Civil Engineering Dept.)

Fitra Rifwan[1], Nidal Zuwida[2], Faisal Ashar[3], Prima Yane Putri[4], Utari Sriwijaya Minaka[5], Muhammad Ihsan[6], Savira Ahza Nurpadlina[7]
[1234567] Faculty of Engineering, Universitas Negeri Padang, Indonesia

fitrarifwan5163@ft.unp.ac.id

Abstract
This research was conducted to find out how the Occupational Safety and Health (K3) Induc-tion was implemented in Work Practices at the Civil Engineering Department Workshop, FT UNP. The method used in this research is a descriptive method using a quantitative ap-proach. This research was performed at the Civil Engineering Department, FT UNP. The re-sults of the analysis of the implementation of K3 induction were reviewed from the following 5 indicators: K3 procedures achieved an achievement score of 76.56% (Good), applicable reg-ulations achieved an achievement score of 86.42% (Fair), understanding the importance of K3 achieved an achievement score of 87.5% (Good), K3 information achieved an achievement score of 62.5% (Fair), potential dangers achieved an achievement score of 75% (Fair). Results showed the implementation of K3 induction in work practices in workshops is included in the sufficient category with an achievement of 72.396%.
Keywords: Implementation, OHS Induction, Work Practices, Workshop

1. INTRODUCTION

Civil Engineering is a field that designs, constructs and maintains physical buildings and the environment which includes the process of making roads, dams and bridges. The Civil Engineering Department of FT UNP has 3 workshops which include 2 construction workshops (wood workshop and concrete stone workshop) as well as a plumbing and sanitation workshop. Workshops are a forum for training students in terms of skills in carrying out practicum as well as experments. Quality human resources must take into account the occupational health and safety of workers, and this is used in education, especially in practical learning. K3 aims to create a comfortable and healthy workplace.

According to the Indonesian Dictionary (KBBI), practicum means part of the learning process which has the aim of providing students with the opportunity to

I. Widiyanah et al. (eds.), *Proceedings of the 8th International Conference on Education Innovation (ICEI 2024)*,
Advances in Social Science, Education and Humanities Research 888,
https://doi.org/10.2991/978-2-38476-360-3_55

concretely test what is obtained in theory. During the practicum at the workshop, students use various equipment and materials that have dangerous threats and have the potential for incidents and work-related illnesses. [1] stated that not only students, but everyone who enters the workshop, for example, lecturers and technicians, also has the possibility of experiencing an accident while working. Therefore, it is mandatory to implement Occupational Safety and Health (K3) in workshops [2].

K3, as defined by Government Regulation Number 50 of 2012, encompasses all activities aimed at ensuring and safeguarding the health and safety of workers by preventing occupational illnesses and accidents. In general, there are a number of factors that contribute to workplace accidents. These factors include worker incompetence, inadequate knowledge or information, workers' proficiency in their tasks, and the usage of instruments that do not meet regulations [3]. Therefore, before implementing work practices, K3 induction must be carried out. A strong safety culture also indirectly has an impact on improving customer service. [3] found workers feel safe and protected, they can focus more on the quality of service provided to customers.

The K3 Induction provides information and guidance on occupational safety and health (K3), including how to manage hazards, what personal protective equipment (PPE) is needed, emergency protocols, and procedures to perform rescue operations during an activity [4]. A safety induction is a socialization exercise that teaches the fundamentals of workplace safety. Safety Induction is an effort to provide safety information to new workers, customers or parties involved in company operations [5]. The objective is to educate staff members about work practices and relevant laws, foster in them a sense of the significance of workplace safety, and to apprise them of potential risks to their health and safety.

Workshops and laboratories are fantastic learning spaces that allow students to apply their theoretical knowledge in "real life." Planning and conversation go a long way toward ensuring that every student is included. The first thing to think about is the necessary learning outcome. [6] [7] found that many ways are in increasing learning outcomes, one of them is good learning management. In workshop, the management started giving safety induction to students. It can't be done with online materials but should be in offline meeting. therefore, the material would be difficult to attention if the teacher doesn't meet the student face to face [8].

[9][10] conclude that the management needs evaluation. Evaluation of learning process in workshop or lab. is the teacher's responsibility and stakeholder to maintain and achieve good learning outcomes. Safety induction, equipment, and learning modules (jobsheet or labsheet) also support it [11].

The lack of huge equipment in the concrete masonry workshop eliminated the potential of significant incidents occurring at work, according to information gathered from interviews with lecturers and concrete masonry specialists conducted on November 3, 2022. One metal cutting equipment, though, has a very significant risk of injury. It could result in a deadly accident if not utilized in accordance with the directions provided. The majority of work-related incidents involving concrete stone

workers are rather modest and include discomfort to the palms of the hands, feet crushed by stones, and hands scraped by nails.

On November 7, 2022, lectures and plumbing and sanitation technicians were interviewed. The results showed that there was a lack of information regarding K3, particularly when beginning the practicum, as well as a lack of knowledge about equipment use, a lack of personal protective equipment (PPE), a failure to inspect the APAR to determine that it had expired and was no longer suitable for reuse, and minimal danger symbols. The plate cutting machine is the only piece of equipment in the plumbing workshop that could be dangerous, although overall the risk to the equipment is not extremely significant. Accidents could happen if it is not utilized in line with protocol. Incidents involving scrapes and ripped hands during plumbing work procedures. This can be caused by students' negligence in not complying with K3 procedures during practice.

Interviews with lecturers and practical woodworking technicians on November 8 2022 explained that students were strongly emphasized regarding K3 before carrying out practical work because it has a high potential for danger. The potential for light or serious work accidents is at higher risk in woodworking compared to other practices because there are many sharp machines in it. Accidents had occurred in previous years, such as hands breaking off, headscarves getting tangled in machines, this happened due to lack of concentration during practice. Other accidents that occur include exposure to dust, scratches. This is the consequence of their lack of concern, negligence during practice, and failure to use PPE.

The summary of the findings from the interviews with lecturers and technicians shows that: (1) OSH induction is still necessary to guarantee worker safety; (2) there is still an absence of knowledge, inquiries, and resources regarding K3; (3) the use of personal protective equipment (PPE) during practical activities is still not being implemented; (4) students are aware of PPE but do not use it enough; and (5) some students disregard and disobey K3 procedures. A thorough investigation into the Implementation of Occupational Safety and Health (K3) Induction in Work Practices at the FT UNP Civil Engineering Department Workshop is required in light of the aforementioned issues.

2. METHODS

Descriptive research techniques with a quantitative approach are employed in this study. The analysis was carried out using data that had been collected in the form of descriptions of interview results, pictures and numbers. The research was conducted at the Department of Civil Engineering, FT UNP in the period January – June 2023.

The lecturers who taught woodworking, plumbing, and sanitation practices, as well as concrete masonry practices, were the subjects of this study. The Total Sampling method is used in the sample determination process to determine the

quantity based on population size. Total Sampling is a sample technique in which all members of the population are included in the sample [12].

A questionnaire is the method used in this study to collect data. Written statements are included in the questionnaire to collect data from respondents. [13] mentioned that in achieving the assessment scale, the instrument was designed using the Guttman Scale with an answer of Yes worth 1 (one) and No worth 0 (zero). The research instrument is created using the indicators of the theoretical study's Implementation of K3 Induction in the Workshop. It is then developed into an instrument grid consisting of 35 statement items.

The validity test needs to be conducted before the instrument is used, then the analysis is carried out using the Microsoft Excel software, furthermore, the reliability test is carried out using the SPSS software version 25. Aiken's formula is used as a validity test, as followed [14]:

(1)

Where:

= Rater's Fit Index

= Average score - the lowest score in the category

= Number of Categories

= Number of Raters

Data verification is the initial stage in the research data analysis process, after which data scoring is done to determine the percentage formula [12], as followed:

(2)

The following equation is used to calculate the achievement level:

(3)

Following the achievement test, the data was categorized into four predicates based on criteria that were taken from a quantitative scale [15]. The achievement criteria are displayed in Table 1 bel**ow** :

Table 1. Achievement Criteria

No.	% Achievement	Category
1.	76 – 100%	Good
2.	51 - 75%	Fair

3	26 - 50%	Poor
4	0 - 25%	Bad

3. RESULTS AND DISCUSSION

The primary objective of this study was to investigate how K3 induction is implemented to work practices at workshops. Each criterion is examined for each indicator, and the achievement equation is used to process the results in percentage form. The data analysis results are displayed in Figure 1 and Table 2 below :

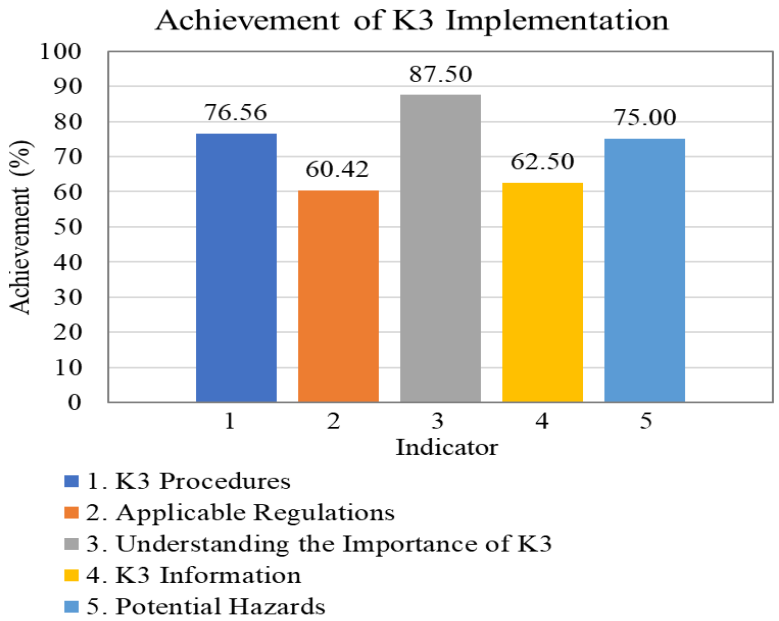

Figure 1. Histogram of Achievement of K3 Induction Implementation

Table 2. Summary of Description of Implementation of K3 Induction in Work Practices in Workshops

Variable	Indicator	Results (%)
Implementation of K3 Induction in Work Practices in the Civil Engineering Department Workshop, FT UNP	K3 Procedures	76.56
	Applicable Regulations	60.42
	Understanding the Importance of K3	87.50

	K3 Information	62.50
	Potential Hazards	75.00
Total		361.98
Achievement = ∑/5		72.396

Given analyzing data results, the application of K3 procedure indicators resulted in an achievement score of 76.56%, which included the good category. Based on the applicable regulatory indicators, the results of data analyzing obtained an achievement score of 60.42%, including the fair category. Through an achievement score of 87.50% in the indicator of understanding the importance of K3, the data analysis findings demonstrate that the indicator falls into the good category. An achievement score of 62.50% was attained in the K3 information indicator with the interpretation of data results, which included the fair category. The data evaluation provided an achievement score of 75.00%, ranging from the fair category, for potential hazard indicators.

Based from the prior explanation, it can be inferred that the percentage of K3 induction implemented in work practices at the Civil Engineering Department workshop, Engineering Faculty of UNP, stands at 72.396%, which falls into the fair category.

In the previous research, supporting the learning process was still focused on a learning model. However, the process in the lab or workshop is different [16]. Students should develop deep, robust, and long-term understanding related to safety induction. Teachers should induct it before planning the model. Learning Activity is not only about theory in the lab or workshop but also how to make the best practice for getting a good product [17]. The management is the key point [18] . The application of the K3 procedure following safety induction before starting the learning process can help the students when they are in the lab or workshop.

4. CONCLUSION

Consistency of style is very important. Note the spacing, punctuation and caps in all the examples below. The application of K3 induction in work practices at the Civil Engineering Department workshop, FT UNP, has been classified in the fair category with an achievement of 72.396%, according to the findings of the data analysis and discussion regarding the implementation of K3 induction in work practices.

REFERENCES

[1] Li, Y. et al. (2019) 'Impact of safety attitude on the safety behavior of coal miners in China', Sustainability (Switzerland), 11(22). Available at: https://doi.org/10.3390/su11226382.
[2] Jaroenroy, T. and Chompunth, C. (2019) 'An alternative integrated occupational health, safety and environmental management system for small and medium-sized enterprises (SMEs) in Thailand', International Journal of GEOMATE, 17(62), pp. 84–91. Available at: https://doi.org/10.21660/2019.62.8168.
[3] Soltanzadeh, A. and Mohammadfam, I. (2022) Cause-Consequence Modeling of Occupational Accidents in Construction Sites: A Retrospective Study in Iran, Journal of Health and Safety at Work. Available at: https://creativecommons.
[4] Yaghoti, H. et al. (2021) Assessing Predictive Factors of Awareness in Personal Protective Equipment Use (PPEs) among Workers Employed at Iran Aluminium Company (IRALCO): Application of Social Cognitive Theory, Journal of Health and Safety at Work.
[5] Babaei, M., Rezaian, S. and Jozi, A. (2021) Evaluating the Performance of Health, Safety, & Environment Management System (HSE-MS) in Dam Design and Construction Projects in Tehran Industrial Group based on EFQM Enterprise Excellence Model, Journal of Health and Safety at Work. Available at: https://creativecommons.
[6] Kuswati, E. (2021) Development of an E_Learning Management Model Based on Hybrid Learning.
[7] Triwijayanti, N., Sumaryanto, T. and Prihatin, T. (2021) Online Learning Management during COVID-19 Pandemic: a Study at Satya Wacana Christian Junior High School.
[8] Putra, L.V. et al. (2021) Evaluation of Elementary School On-line Based Learning Mathematics Management in Covid-19 Pandemic Period.
[9] Shovrotul Khoiriyah, E., Sumaryanto Florentinus, T. and Yuniastuti, A. (2021) The Development of 3D Pageflip Professional-based Pregnancy Care E-Module on Midwifery Students' Motivation and Learning Outcomes.
[10] Wang, S. et al. (2022) 'Research on the Influence Mechanism of the Engagement of Course Learning Process Evaluation for Undergraduates', in, pp. 3458–3464. Available at: https://doi.org/10.2991/978-2-494069-31-2_406.
[11] Aziz, W.A. et al. (2023) 'Project-based learning module on creativity and entrepreneurship products subject: Validity and empirical effect', Jurnal Pendidikan Teknologi Kejuruan, 6(3), pp. 216–227. Available at: https://doi.org/10.24036/jptk.v6i3.34323.
[12] Sugiyono (2013) Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D. Edited by Alfabeta. Bandung: Alfabeta.
[13] Aiken, L.R. (1980) 'Content validity and reliability of single items or questionnaires', Educational and Psychological Measurement, 40(4), pp. 955–959. Available at: https://doi.org/10.1177/001316448004000419.
[14] Aiken, L.R. (1985) 'Three Coefficients for Analyzing The Reliability and Validity of Ratings', Educational and Psychological Measurement, 45, pp. 131–141.
[15] Arikunto, S. (1989) Proses Penelitian, Suatu Pendekatan Proses. Edited by Bina

Aksara. Jakarta: Bina Aksara.
[16] Chang, K.E. et al. (2008) 'Effects of learning support in simulation-based physics learning', Computers and Education, 51(4), pp. 1486–1498. Available at: https://doi.org/10.1016/j.compedu.2008.01.007.
[17] Clough, M.P. (1999) Using the laboratory to enhance student learning. Available at: https://www.researchgate.net/publication/265200039.
[18] Pangestu, F. and Sukardi, S. (2019) 'Evaluation of the implementation of workshop and laboratory management on vocational high school', Jurnal Pendidikan Vokasi, 9(2), pp. 172–184. Available at: https://doi.org/10.21831/jpv.v9i2.25991.