Contribution of occupational health and safety knowledge and vocational high school students attitude towards OHS behavior awareness.

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Abstract. The primary objective of this research is to assess how OHS knowledge and the attitudes of students influence their awareness of OHS-related behaviours. The investigation was conducted as a case study vocational school in East Java. The study involved a total of 42 students from the 12th grade, selected through a purposive sampling method. The findings from this research revealed that the knowledge students possess regarding OHS accounts for 25.7% of their overall awareness of OHS behaviours. In contrast, the attitudes held by these students contribute even more significantly, at 37.8%, to their awareness of OHS behaviours. Furthermore, the analysis demonstrated a positive correlation between the knowledge of OHS and the attitudes of students towards OHS behavioural awareness within the context of the Creative Products and Entrepreneurship Subject. In summary, the combined influence of OHS knowledge and student attitudes towards OHS behavioural awareness accounts for a substantial 59.23% of the variance observed in this awareness. The remaining percentage is attributable to other variables that were not explored within the scope of this study.

1 Introduction

The current state of Occupational Safety and Health (OHS) implementation within the industrial sector raises significant concerns. This is particularly evident from the various work-related challenges that contribute to accidents, which can largely be attributed to a lack of awareness among workers regarding the necessity of adhering to established procedures. Additionally, insufficient supervision in the workplace and an inadequate

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recognition of potential hazards further exacerbate the situation. According to data from the Ministry of Manpower of the Republic of Indonesia,
the number of work accident cases fluctuated from 2022 to 2023. In 2022, there were around 12,000 work accident cases, while in 2023, the number increased to around 14,500 cases. This increase shows the importance of paying more attention to work safety.

Occupational Safety and Health (OHS) is a very important aspect in the world of education, especially for Vocational High School (SMK) students. SMK as an educational institution that prepares students to enter the world of work, has the responsibility to provide a deep understanding of OHS. This is not only relevant when students do practical work at school, but also very crucial when they enter the real world of work.

OHS education in SMK aims to equip students with the knowledge and skills needed to maintain the safety of themselves and others in the workplace. Students who understand the principles of OHS will be better prepared to face various risks that may occur in the field [1]. They will be trained to recognize potential hazards, conduct risk assessments, and implement appropriate preventive measures. Thus, students not only become skilled workers, but also responsible for maintaining safety in the work environment.

In addition, the implementation of OHS in SMK helps students understand the importance of mental and physical health in carrying out work. Occupational health is not only about avoiding accidents, but also includes psychological well-being. Students are taught to recognize signs of stress and fatigue, as well as ways to manage the pressure they may face in the workplace. With this knowledge, students will be better able to create a healthy and productive work environment.

OHS also has a positive impact on work productivity. Students who are trained in OHS tend to be more disciplined and responsible. They will be more careful in carrying out their tasks, which in turn can reduce the number of work accidents and increase efficiency. In a competitive work world, companies will prefer employees who not only have technical skills, but also awareness of work safety. Thus, an understanding of OHS is an added value for vocational high school students when they are looking for work [2].

The importance of OHS is also reflected in government regulations and policies. Many companies are required to implement strict OHS standards. Therefore, vocational high school students who have knowledge of OHS will be able to adapt more easily to company policies and meet existing expectations. This will give them a competitive advantage in the job market, because they are familiar with the applicable OHS procedures and practices.

In the vocational high school curriculum, there should be a special subject that discusses OHS in depth. In addition to theory, students also need to gain practical experience through simulations and training. For example, they can be taught how to use personal protective equipment (PPE) properly, as well as first aid techniques [3]. This experience will give students confidence when they face real situations in the field.

In addition, collaboration between schools and industry is also key to implementing effective OHS education. Companies can provide input on OHS needs in the workplace,

so that the curriculum taught in vocational schools can be adjusted to actual conditions. With this collaboration, students not only learn from books, but also gain direct insight from practitioners in the field [4].

Vocational school students also need to be encouraged to develop a proactive attitude towards OHS. They should be taught not only to follow existing rules, but also to take the initiative in creating a safe work environment. For example, students can be invited to get involved in safety programs at school or at their internship. In this way, they will feel responsible for the safety of themselves and their colleagues [5].

In today's digital era, the use of technology in OHS education also needs to be considered. Schools can use digital media to deliver OHS materials in a more interesting and interactive way. For example, the use of videos, simulations, or mobile applications that can help students understand the concept of OHS better. Technology can be an effective tool to improve students' understanding of occupational safety and health.

Observations conducted during the School Field Introduction programme at a vocational school in East Java, specifically within the workshop focused on Building Modelling and Information Design, indicate that OHS continues to receive insufficient attention. A considerable number of students demonstrate a lack of understanding regarding the principles of OHS, particularly within the workshop environment [6]. Many engage in practical activities without first consulting the theoretical foundations, leading to a limited comprehension of proper work methods. Furthermore, during their internships, students often neglect safety protocols, resulting in a predominantly negative attitude towards OHS. The educational institutions themselves also appear to be neglecting OHS, as evidenced by the scarcity of informative posters and photographs, minimal socialisation efforts, and teachers' inconsistent approaches to educating students about OHS compliance, particularly when violations occur. Teachers tend to focus more on students who fail to wear appropriate work attire, enforcing a strict no-practice policy without the requisite clothing [7]. This behaviour reflects a concerningly low level of awareness regarding OHS among students in the workshop setting.

Occupational Safety and Health Knowledge encompasses the scientific principles behind the application of OHS aimed at preventing workplace accidents or diseases. The successful implementation of OHS necessitates both a proactive attitude and a heightened awareness of safe practices. An individual's attitude can be defined as their internal response to specific stimuli or objects, which involves a complex interplay of opinions and emotions (such as happiness or dissatisfaction, agreement or disagreement, and notions of good or bad). Attitudes can also be viewed as a constellation of psychological symptoms, encompassing thoughts, feelings, anxieties, and other emotional responses [8]. For students, the cultivation of positive attitudes towards OHS is fundamentally rooted in self-awareness.

Awareness of OHS behaviour refers to an individual's perception of the importance of adhering to OHS procedures. Behaviour itself is a broad assessment that individuals make regarding themselves, while consciousness denotes a state in which individuals engage in actions that are self-acknowledged [9].

Research investigating the correlation between OHS knowledge and students' attitudes towards OHS behavioural awareness is essential at the school level. The findings from

such studies could serve as valuable evaluative tools for both educational institutions and teachers, aiding in the effective implementation of OHS practices during workshop activities. This research will be conducted in one of the private vocational schools located in the Surabaya region, with the specific objectives being: (1) to assess the contribution of students' OHS knowledge to their awareness of OHS behaviours; (2) to evaluate the impact of students' attitudes on their OHS behavioural awareness; and (3) to analyse the relationship between OHS knowledge and OHS behavioural awareness within the context of Creative Products and Entrepreneurship subjects.

2 Method

This research employs a quantitative correlational methodology aimed at assessing the extent to which independent variables, specifically knowledge of Occupational Health and Safety (OHS) (denoted as X1) and student attitudes (denoted as X2), contribute to the behavioural awareness of OHS (designated as Y). The investigation was carried out in a vocational school located in East Java, focusing on a sample of 42 students from the twelfth grade as respondents. Data for this study were collected using questionnaires and relevant documentation.

The validation of the research instrument involved several stages, including consultations with experts (often referred to as expert judgment), trials of the instrument, as well as tests for both validity and reliability. In order to reduce potential errors associated with the instrument, expert consultations were conducted. Following these consultations, the next phase involved executing an instrument trial, which entailed distributing questionnaires to the 42 selected students who participated as respondents.

Upon completion of the instrument trial, both validity and reliability tests were conducted with the assistance of SPSS software, specifically version 23. This was essential for determining whether the statements contained within the distributed questionnaire were indeed valid and reliable.

Before proceeding with the actual data analysis, it was necessary to perform prerequisite tests to ensure the data met the required conditions for analysis. The prerequisite tests employed in this study included normality tests, linearity tests, and multicollinearity tests. Once these prerequisite analyses were satisfactorily completed, the study moved forward with hypothesis testing, which was conducted through multiple linear regression analysis, again utilising SPSS version 23 for computational support.

This structured approach not only ensures the integrity and reliability of the data collected but also facilitates a comprehensive understanding of the relationships between the variables of interest. By employing rigorous methodological standards, the study aims to contribute valuable insights into the factors influencing OHS behavioural awareness among students.

3 Result and Discussion

3.1 Result

The analysis conducted utilising SPSS version 23 involved a comprehensive examination of three distinct sets of instruments: 25 items assessing knowledge of OHS (Occupational Health and Safety), 25 items evaluating student attitudes, and 20 items measuring OHS behavioural awareness. The validity assessment of the OHS knowledge variable revealed that out of the total items, 18 statements were deemed valid, as indicated by a calculated r value exceeding 0.476. Conversely, there were 2 statements that did not meet the validity criteria, with their calculated r values falling below 0.476.
In relation to the student attitude variable, the findings showed that 16 out of the 25 statements were valid, again with an r value greater than 0.329, while 3 statements were classified as invalid due to their r values being less than 0.329. For the OHS behavioural awareness variable, all 15 items were found to be valid, each with a calculated r value surpassing 0.329.
The reliability analysis for the OHS knowledge variable yielded a Cronbach's Alpha value greater than 0.6, which indicates a satisfactory level of internal consistency. Similarly, the student attitude variable also achieved a Cronbach's Alpha result exceeding 0.6, as did the OHS behavioural awareness variable, confirming that these questionnaires are reliable instruments that can produce consistent results when administered repeatedly.
When examining the OHS knowledge variable, data was collected from 42 respondents who completed the questionnaire. The statistical analysis produced a mean score of 73.25, a median of 72, and a mode of 68. The standard deviation was calculated to be 6.954, with the maximum score recorded as 87 and the minimum as 61. An analysis of these results indicates that the tendency level for the OHS knowledge variable falls within the category of "less good," with the highest frequency of responses at 42.11%.
For the student attitude variable, data was similarly gathered from 42 respondents, resulting in a mean score of 72.81, a median of 68, and a mode of 64. The standard deviation for this variable was 5.365, with a maximum score of 83 and a minimum score of 57. Based on the aforementioned results, it can be concluded that the tendency level for the student attitude variable is also categorised as "less good," with the highest frequency of responses recorded at 30.56%.
Further analysis of the student attitude variable revealed that the data from the questionnaire indicated a mean of 60.72, a median of 59.50, and a mode of 56. The standard deviation was calculated to be 6.060, with the maximum score being 74 and the minimum score being 50.
The results derived from the multiple regression analysis can be articulated in a detailed manner as follows: (1) the constant value of 11.092 suggests that if there is no increase in the values of student knowledge regarding OHS and their attitudes—meaning these values remain at zero—the awareness of OHS behaviour would be 11.092; (2) the coefficient for the OHS knowledge variable, which is positive at 0.261, indicates that for every unit increase in the OHS knowledge variable, there is a corresponding increase of 0.261 in OHS behavioural awareness, assuming that the student attitude variable

remains constant; (3) the coefficient for the student attitude variable, also positive at 0.438, signifies that for each unit increase in the student attitude variable, OHS behavioural awareness increases by 0.438, again under the assumption that the OHS knowledge variable remains constant.

In summary, the data analysis has provided valuable insights into the OHS knowledge, student attitudes, and behavioural awareness among respondents, highlighting the areas that require further attention and improvement. The findings underscore the importance of enhancing both knowledge and attitudes towards OHS to foster better behavioural awareness in the context of occupational health and safety.

3.2 Discussion

Contribution of students' OHS knowledge to OHS behavioral awareness

The findings from the initial hypothesis testing, conducted through multiple regression analysis utilising SPSS version 23, revealed a correlation coefficient of 0.780. This indicates a strong positive relationship between knowledge of Occupational Health and Safety (OHS) and behavioural awareness regarding OHS within the context of Creative Products and Entrepreneurship Subjects. Furthermore, the analysis demonstrated an effective contribution of 25.7% to the variance in OHS behavioural awareness, alongside a significance level of 0.000, which is notably less than the threshold of 0.005, thereby affirming the results at a significance level of 5%.

From these statistical outcomes, one can deduce that there exists a positive and significant correlation between the variable representing OHS knowledge and the variable denoting OHS behavioural awareness. The implications of this analysis suggest that as students' understanding and knowledge of OHS improves, so too does their awareness and behaviour concerning OHS practices. Conversely, a decline in OHS knowledge among students is likely to result in a corresponding decline in their behavioural awareness regarding OHS.

This assertion is further supported by the insights of [10];[11], who posits that knowledge is fundamentally a sensory process involving the engagement of the eyes and ears with an object, leading to the acquisition of new insights and understanding. Knowledge, therefore, is pivotal in shaping open and responsive behaviours. In light of this perspective, it can be concluded that students who possess a solid foundation of OHS knowledge are inclined to exhibit more informed and conscientious behaviours in relation to OHS practices.

Contribution of student attitudes to OHS behavioral awareness

The findings derived from the second hypothesis test, which employed multiple regression analysis through SPSS version 23, revealed a correlation coefficient of 0.784. This indicates a positive relationship between students' attitudes and their awareness of OHS (Occupational Health and Safety) behaviour within the context of the Creative Products and Entrepreneurship Subject. Furthermore, the analysis demonstrated an effective contribution rate of 37.8%, alongside a significance value of 0.000, which is notably less than the threshold of 0.005, thus affirming its statistical significance at the 5% level.

From this data, it can be concluded that there exists a positive and statistically significant correlation between the variable representing student attitudes and the variable reflecting awareness of OHS behaviour. The implications of these findings suggest that as students' attitudes improve, so too does their awareness of OHS behaviour. Conversely, a decline in students' attitudes correlates with a decreased awareness of OHS practices.

This conclusion is further supported by the observations made by [12];[13], who assert that attitude can be understood as a predisposition to engage in behaviours that reflect a preference or aversion towards specific objects or concepts. Therefore, students who possess a favourable disposition towards OHS are likely to exhibit a more positive attitude towards OHS behaviours. In contrast, students who harbour a dislike or indifference towards OHS are likely to show a lack of engagement with OHS behaviours, highlighting the critical role that attitudes play in shaping awareness and behaviour in this domain.

Contribution of OHS knowledge and student attitudes towards OHS behavioral awareness

The findings derived from the third hypothesis test, which employed multiple regression analysis through SPSS version 23, revealed a calculated F value that surpassed the F table value, specifically 23.136 compared to 3.22. This indicates that there exists a positive contribution of knowledge regarding OHS (Occupational Health and Safety) and the attitudes of students towards their awareness of OHS-related behaviours within the context of Creative Products and Entrepreneurship Subjects. Furthermore, the analysis yielded an effective contribution rate of 59.23%, alongside a significance level of 0.000, which is notably less than the threshold of 0.005, indicating a significant level at 5%.

From the data presented, one can deduce that there is a positive and statistically significant relationship between the variable of OHS knowledge and the attitudes of students in relation to the variable of OHS behavioural awareness. The interpretation of the above data analysis suggests that both OHS knowledge and the attitudes of students play a crucial role in fostering an awareness of OHS behaviours among students. As elucidated by an expert [14]; [15], the formation of behavioural habits can indeed be initiated through the provision of knowledge. This acquired knowledge has the potential to cultivate a positive attitude, which manifests as intrinsic motivation to act in accordance with the information imparted. Such motivation is likely to serve as a catalyst for promoting OHS behaviours among students.

In essence, the study underscores the importance of integrating OHS knowledge into educational frameworks, as it not only enhances students' understanding but also significantly influences their attitudes and behaviours towards safety practices in their respective fields. The implications of these findings are substantial, suggesting that educational institutions should prioritise the inclusion of OHS-related content in their curricula to foster a safer and more aware generation of students. By doing so, we can anticipate a more profound commitment to OHS practices, ultimately contributing to a safer working environment in the future.

4 Conclusion

The knowledge of Occupational Health and Safety (OHS) plays a significant role in enhancing the awareness of OHS-related behaviours in the context of the Creative Products and Entrepreneurship Subject. This assertion is supported by statistical evidence, specifically a significance value that is less than the threshold at a 5% significance level, with the observed value being 0.000, which is indeed lower than 0.005. Additionally, the effective contribution of OHS knowledge to this awareness is quantified at 25.7%. This indicates that students who possess a solid understanding of OHS principles are likely to exhibit a heightened awareness of appropriate OHS behaviours in their practices.

Furthermore, students' attitudes also demonstrate a positive influence on their awareness of OHS behaviours within the Creative Products and Entrepreneurship Subject offered by the department. This is substantiated by the same significance value of 0.000, which is again below the 0.005 mark at a 5% significance level, and the effective contribution of students' attitudes is measured at 37.8%. This suggests that students who maintain a favourable or constructive attitude towards OHS are more inclined to develop a greater awareness concerning OHS behaviours, thereby fostering a safer and more responsible approach in their entrepreneurial endeavours.

In addition to the individual contributions of OHS knowledge and students' attitudes, there is a noteworthy synergistic effect of both factors on the awareness of OHS behaviours within the Creative Products and Entrepreneurship Subject. This conclusion is reinforced by the outcomes of a multiple regression analysis, which reveals a calculated F value that exceeds the F table value, specifically 23.136 compared to 3.22. The significance level remains consistent at 0.000, which is again lower than the 0.005 threshold at the 5% significance level, and the effective contribution of both OHS knowledge and attitudes is recorded at 25.7%. Consequently, it can be inferred that students who possess comprehensive knowledge alongside positive attitudes regarding OHS are more likely to demonstrate a heightened awareness of OHS behaviours, ultimately leading to safer practices in their creative and entrepreneurial activities.

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