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Students' Understanding of Occupational Safety and Health in UPI Building A

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ABSTRACT

Occupational Safety and health is a vital element in creating a safe learning environment, especially in building one of the Faculties of Engineering and industrial education, Universitas Pendidikan Indonesia. As a student academic study center, this building requires the implementation of strict Occupational Health and safety procedures to protect against possible incidents. This study aims to evaluate the level of understanding, awareness, and compliance of students to aspects of Occupational Health and safety, as well as assess the adequacy of safety facilities available. The approach used is a quantitative method with instruments such as direct observation, interviews with management staff, and the distribution of questionnaires to students who actively use the building facilities. Heinrich Domino Theory is used to analyze the factors that cause accident risk, while Cooper safety culture is a Model used to understand the comprehensive formation of safety and health culture. The results showed that most students demonstrated a strong awareness of the importance of safety and health practices, as evidenced by their consistent use of personal protective equipment and adherence to safety protocols. However, there are still some obstacles such as the condition of less than optimal safety facilities, the lack of Refugee Information media, and weak supervision from the management. For the purpose of fostering a greater emphasis on health and safety at work on campus, this inquiry proposes improving learning and social programs around workplace safety, along with periodic safety development sessions and regular securing of all emergency equipment.

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1. INTRODUCTION

Understanding of Occupational Health and Safety in the campus environment, particularly in Building A of the Faculty of Technology and Vocational Education, Universitas Pendidikan Indonesia, still lacks serious attention. This condition has the potential to pose accident risks and reduce comfort and productivity levels in learning and working activities. According to Law Number 1 of 1970 concerning Occupational Safety, it serves as the main legal basis regulating various aspects of occupational safety in different work environment. The implementation of the Occupational Safety and Health Management System has been carried out well and in accordance with the provisions of Government Regulation Number 50 of 2012. However, several obstacles are still found, such as the lack of collaboration among employees/staff and the minimal awareness of workers regarding the use of Personal Protective Equipment (Boakye et al., 2022). Coinciding with the rapid development of high-rise building construction, the role of controlling Occupational Safety and Health has become the main focus in the workplace. However, it was found that the Occupational Health and Safety system is still not being prioritized by the students of Building A (Mahendra et al., 2019).

This can be seen from the elevator facilities in the building, which has led many students to complain about the elevator being dangerous to use. Awareness of occupational safety and health must be instilled from an early age. Because the level of students awareness regarding safety and health practices has not yet reached an optimal point. (Andi Adwan. T, Nurlaela Latief, 2021); Yana, 2019). Therefore, further studies are needed to determine the level of knowledge and awareness of occupational safety and health among students in Building A.

Students who possess an understanding of occupational safety and health principles are expected to recognize possible risks and apply appropriate preventive actions. As evidenced in the research by (Mukhtar et al., 2023) the level of students' knowledge about occupational health and safety is influenced by several factors, such as practical experience, training received, and the availability of safety facilities in the campus environment. According to the research conducted by (Maharani et al., 2025), students who frequently engage in activities in laboratories and workshops have a better understanding of safety procedures compared to students who only receive theoretical knowledge without direct experience. Furthermore, students' awareness in applying occupational health and safety principles is also influenced by habitual factors and adherence to rules implemented in the academic environment. Students who are active in field practice understand safety better than those who only receive theoretical knowledge. The evaluation also shows that the implementation of occupational health and safety in the educational field, such as finishing practices in vocational high schools, is not yet optimal (Erfian & Raharjo, 2020), indicating the importance of continuous education and training.

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Several studies have explored awareness and understanding of safety and health practices within higher education settings. H.W. Heinrich's Domino Theory is among the well-established frameworks that describe the underlying factors leading to workplace accidents. According to the theory, accidents occur due to the interconnection of five factors, namely the work environment, human negligence, risky behavior, the accident itself, and the impact of the loss (Alamsyah et al., 2024). Furthermore, Cooper explains that there are three main dimensions as the foundation for building a safety culture, namely perception of safety climate, safety behavior, and safety management system (Hasbi & Ramdhan, 2024). In addition to theoretical aspects, the official guidelines on safety, health, and environmental protection in higher education institutions serve as a foundation for the integrated application of occupational safety and health practices, encompassing procedural standards, defined responsibilities, and emergency response action (Basiru, 2023). However, most previous research conducted by (Andi Adwan. T, Nurlaela Latief, 2021) and (Atmaja et al., 2024) still focuses on industrial environments or large-scale laboratories, so there has not been much specific research on the implementation of Occupational Safety and Health in academic environments, particularly in Building A of the Faculty of Technology and Vocational Education at the Universitas Pendidikan Indonesia.

This study aims to evaluate the level of students' understanding of Occupational Health and Safety principles and to examine the physical condition and conformity of Building A, which only describes the conditions in that environment and does not consider that educational environments have unique characteristics that are difficult to apply comprehensively to all institutions. In addition, this research also focuses on the cognitive and behavioral aspects related to Occupational Safety and Health, without deeply investigating the implementation or effectiveness of the Occupational Safety and Health programs that have been applied.

The novelty examined in this research is that it focuses on the implementation of Occupational Health and Safety in the technical academic environment, an aspect that is still rarely discussed. In comparison, most previous research has prioritized studies in the field of industry or large-scale laboratories, particularly in Building A, which plays a strategic role as a lecture hall. This study is expected to reveal the internal and external factors that influence occupational health and safety awareness among students of the Faculty of Technology and Vocational Education. The research by (Mamudi, 2017) indicate that enhancing safety and health awareness should be supported by methods that take into account the unique environmental conditions, so that training and dissemination strategies can be adjusted according to the characteristics of each institution.

Conscious behavior towards occupational health and safety is the initial preventive step aimed at reducing, or even eliminating, the risk of workplace accidents. According to research by (Saputra & Tandedi, 2021), this study analyzes the knowledge and awareness of occupational safety and health among students, as well as evaluates the damage in Building A, which does not meet occupational safety and health standards. The implementation of a safety and health culture is reflected through individual behavior within the organization, the working environment conditions (equipment, facilities, physical conditions), as well as managerial control systems such as standards, procedures, rituals, and company narratives related to occupational safety (Endriastuty & Adawia, 2018). According to recent research trends, the continuous strengthening of education and socialization of Occupational Health and Safety is a very vital aspect, especially when tailored to the unique conditions of the educational environment. Thus, this research is expected to serve as a foundation for raising awareness and developing Occupational Health and Safety facilities in Building A of the Faculty of Technology and Vocational Education, Universitas Pendidikan Indonesia.

2. METHOD

In this study, a quantitative approach using survey methods is applied. The aim is to measure variables objectively and systematically. Previous research indicates that this method is effective in assessing the execution of safety and health programs as well as students' preparedness to implement safety principles within an academic environment (Yuliandi & Ahman, 2019); (Desmonda et al., 2023); (Mukhtar et al., 2023).

This study focuses on analyzing data obtained from observations, interviews, and questionnaires to gather insights regarding the application of safety and health practices and the overall well-being conditions within Building A. A related study conducted by (Fathin, 2023), a civil engineering student, is considered to have a high level of relevance in the study of occupational health and safety implementation, in line with the demands of their readiness to enter the real work environment.

In this study, there are three main instruments used to collect data, namely observation, interviews, and questionnaires. First, the researchers conducted observations and interviews using the Heinrich Domino theory with 5 aspects, namely 1) Working Conditions, 2) Human Negligence, 3) Unsafe Actions, 4) Accidents, and 5) Loss Impact. This observation aims to present an overview of the building's physical condition and the manner in which safety and health practices are applied within that environment (Widowati et al., 2017). Meanwhile, interviews were conducted with the staff assigned to Building A to gather more in-depth information regarding the policies and implementation of occupational health and safety in that building.

For the questionnaire, the Cooper's Reciprocal Safety Culture Model, which includes four aspects (1) people, (2) situation, (3) behavior, and (4) safety and health practices was distributed to students to capture their perceptions of how safety measures are implemented in Building A. This questionnaire aims to obtain data on students' experiences and understanding of the occupational health and safety conditions in that building. These three instruments complement one another in offering a holistic understanding of how safety and health practices are applied within Building A.

3. RESULT AND DISCUSSION

From the analysis findings using three approaches, namely interviews, questionnaires, and direct observation, it can be concluded that the implementation of occupational health and safety in Building A of the Faculty of Technology and Vocational Education has been running quite well. However, it is not yet fully optimal in all aspects. Interviews with safety and health staff and office boys revealed that the safety and health reporting and inspection system is already in place, although it is hindered by a lack of staff and repair materials. The results of the questionnaire show that the majority of students are aware of the importance of occupational health and safety. However, some are still hesitant and need further education. Meanwhile, direct observation shows that safety infrastructure such as signs, light fire extinguishers, and evacuation routes are available, but not all of them are in optimal condition.

3.1 Survey results

To determine the extent of understanding and application of Occupational Health and Safety principles among engineering students at the Universitas Pendidikan Indonesia, a survey was conducted involving 30 respondents. This survey covers aspects of understanding, supporting facilities, and behaviors related to Occupational Health and Safety in the campus environment. The survey results are presented in the following diagram as a basis for further analysis, the graph can be seen in **Figure 1**.

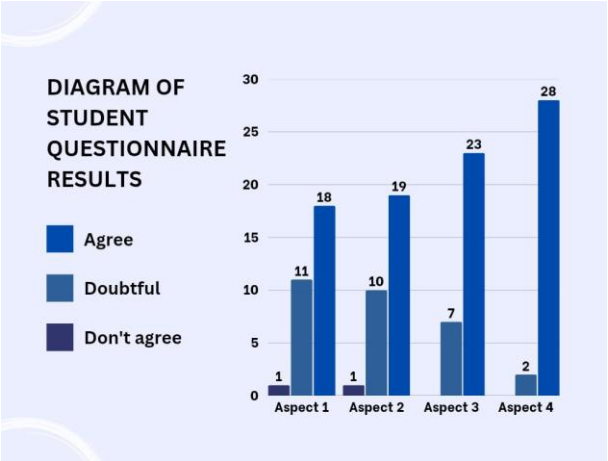

Figure 1. Diagram of student questionnaire results

Based on **Figure 1**, which presents data from 30 respondents, it can be concluded that most Engineering students demonstrate a solid understanding and practical implementation of fundamental aspects of occupational health and safety (OHS). These aspects include the consistent use of personal protective equipment (PPE) during laboratory and workshop activities, as well as adherence to established safety protocols and procedures. The availability of campus facilities that support safety, such as fire extinguishers, first aid kits, and clear emergency evacuation routes, is generally perceived as adequate by the respondents.

However, the interview results indicate that further improvements are needed, particularly in enhancing student participation in safety awareness programs and maintaining consistent supervision. While most students display positive safety habits, some still lack consistency in applying OHS practices. Overall, Engineering students demonstrate a good level of awareness and knowledge of occupational health and safety, reflecting a growing recognition of its importance in preventing accidents and fostering a culture of responsibility and professionalism in their learning environment.

3.2 Interview Results

After obtaining the survey results, interviews were conducted with the Occupational Safety and Health (OSH) staff in Building A of the Faculty of Technology and Vocational Education, Universitas Pendidikan Indonesia. These interviews provided deeper insights into the actual implementation of workplace safety, covering aspects such as potential hazards, preventive measures, user participation, and challenges in maintaining a safe environment. The qualitative findings complemented the survey data, offering a more comprehensive understanding of overall safety conditions. Detailed interview results are shown in **Table 1.**

Table 1. Interviews Based on Facts in the Field

No	Aspect	Conclusion
1.	Working Conditions	Hazards are identified through patrols and reports, addressed with marking, repairs, safety instructions, and reporting to superiors.
2.	Human Negligence	The students' negligence in using the elevator and the risk of slippery floors are addressed through informal warnings and instructions.
3.	Unsafe Actions	Lift abuse and old electrical risks are addressed through reports and inspections despite limited staff.
4.	Accident	Accident handling includes inspection, technician coordination, and technical evaluation starting from electrical inspection.
5.	Impact of Loss	The cost of the damage is calculated, and the issue is followed up through regular checks and reporting to superiors.

3.3 Observation Results

As an effort to assess the implementation of occupational health and safety in Building A of the Faculty of Technology and Vocational Education, Universitas Pendidikan Indonesia, direct observations were conducted on the campus environment conditions. The main focus includes the availability of safety facilities, adherence to procedures, and the feasibility of evacuation routes. This observation aims to identify strengths and potential improvements to create a safe and risk-responsive learning environment, with photographic documentation as supporting evidence **Figure 2**.

Figure 2. Findings of Conditions in the Field

Based on the analysis results from the three approaches used, namely interviews, questionnaires, and direct observation, it can be concluded that the implementation of occupational health and safety in Building A has been quite good, although not yet fully optimal in all aspects. These three approaches provide a complementary picture of the actual situation regarding the implementation of occupational health and safety in the field.

Through the interview approach in **Table 1**, in-depth information was obtained from safety and health staff and cleaning personnel regarding the daily safety practices carried out. It was found that the reporting and risk monitoring system had been implemented, such as routine patrols, marking hazardous areas, and reporting to superiors. However, several major obstacles have emerged, particularly related to the limited number of occupational safety and health staff and the lack of repair materials or tools, which has caused the handling to be neither quick nor thorough. Risks that frequently arise, such as slippery floors, misuse of elevators, and old electrical installations, have been addressed through informal actions like reprimands and supervision, but still require a more systematic and formal approach for long-term prevention (Allam et al., 2023).

The questionnaire approach distributed to 30 engineering students, can be seen in **Figure 1** shows that in general, students have understood the importance of occupational health and safety principles, such as the use of personal protective equipment and safety procedures in the campus environment. Most students demonstrate positive attitudes and behaviors toward recognizing the significance of safety and health practices. However, there are also some respondents who are still hesitant, indicating the need for continuous education and socialization regarding occupational safety and health, especially in the form of practical training and outreach based on real experiences.

In this case, the direct observation approach of **Figure 2** provides real data regarding the existing infrastructure and safety facilities. It has been found that safety and health facilities such as evacuation signs, light fire extinguishers, and evacuation routes are indeed available at several strategic points in the building. However, some of these facilities are not in optimal condition.

Some signs are in a dull condition, fire extinguishers are not inspected regularly, and evacuation routes are obstructed by certain items. This indicates that although awareness of the provision of safety facilities is quite high, their implementation still requires ongoing supervision and maintenance. Overall, the findings of this study indicate that awareness of the importance of occupational safety and health has begun to grow in the campus environment, both from the management side and the building users. However, technical implementation and supervision still need to be improved. The active participation of students and staff plays an important role in ensuring the implementation of effective, comprehensive and sustainable health and safety practices (Kavouras et al., 2023; Ozobu et al., 2023; Kineber et al., 2023).

Based on Cooper's theory (1998), occupational safety is influenced by three main aspects: people, situation, and behavior. The results of this study show a strong correlation with these three aspects. The human aspect is evident from the understanding and positive attitudes of most students and staff towards occupational health and safety, although there are still some inconsistencies. The situational aspect is seen in the availability of safety facilities such as fire extinguishers and evacuation routes, although not all are in optimal condition. Meanwhile, the behavioral aspect is reflected in the still-existing unsafe actions, such as the misuse of elevators and lack of adherence to procedures. These three aspects influence each other and need to be improved simultaneously for the occupational safety and health system to function effectively. Furthermore, this theory is also in line with Heinrich's Domino Theory, which outlines five stages of workplace accident causes: hazardous working conditions, human negligence, unsafe actions, accidents, and consequences/losses. Findings from interviews in **Table 1** and observations in **Figure 2** indicate the presence of hazardous conditions such as old electrical installations and slippery floors, as well as unsafe actions.

This indicates that controlling the initial factors (working conditions and human negligence) is very important to prevent the subsequent stages of accidents (Kang et al., 2021; Rafieyan et al., 2022).The findings of this study align with (Andi Adwan. T, Nurlaela Latief, 2021), previous research indicating that students' understanding of safety and health principles has a significant influence on their awareness and practice of safe behavior in laboratory settings. The findings of this research questionnaire also indicate that the majority of Engineering students at the Universitas Pendidikan Indonesia understand the principles of occupational health and safety, such as the use of personal protective equipment and a positive attitude towards safety.

This study also supports the findings of (Saputra & Tandedi, 2021) at Batam International University, which found that Civil Engineering students have a relatively high level of knowledge regarding occupational safety and health. A similar condition is observed in Building A, although education and socialization are still needed to maintain consistent safe behavior. The research by (Endriastuty & Adawia, 2018) is also relevant, as it shows that knowledge of occupational safety and health supports the formation of a safety culture. In Building A, that culture is beginning to form, but it still needs to be strengthened through training and regular supervision.

This research complements the study by (Erfian & Raharjo, 2020) which highlights safety infrastructure in building finishing practices at the State Vocational High School 2 Yogyakarta. In Building A, similar conditions were found, where facilities such as fire extinguishers and evacuation signs are available, but their maintenance and functionality are not yet optimal. These findings also support the study by (Atmaja et al., 2024) on occupational health and safety risk management in the construction of library buildings, which emphasizes the importance of hazard identification and joint supervision. sIn Building A, patrol and reporting procedures are already in place, although they are hindered by a lack of personnel and repair materials. Additionally, the research by (Desmonda et al., 2023) emphasizes that the implementation of occupational health and safety directly impacts productivity. This is in line with the finding that a safe campus environment supports the comfort of studying and student activities.

The findings of this study are not fully aligned with the study by (Widowati et al., 2017), which emphasizes the full readiness of campus emergency facilities. In Building A, evacuation routes that are poorly maintained and safety equipment that is not yet optimal were still found. This finding also contrasts with the research conducted (Yuliandi & Ahman, 2019) at the Lembang Artificial Insemination Center, which revealed active managerial participation in applying safety and health programs. Although Building A has a method for reporting potential dangers, the supervision largely depends on the expertise of technical staff and cleaning personnel due to limited management involvement.

Additionally, (Mahendra et al., 2019) emphasize the importance of a proactive attitude towards safety among workers. In Building A, there are still students who are indifferent to safety warnings, so educational approaches need to be improved. Thus, the results of this research not only reinforce previous theories and findings but also fill the research gap regarding the implementation of occupational safety and health in higher education environments, particularly in the context of engineering lecture buildings..

4. CONCLUSION

This research concludes that the implementation of Occupational Health and Safety in Building A, Faculty of Technology and Vocational Education, Universitas Pendidikan Indonesia has been quite good but not optimal. Students generally are aware of and understand the principles of Occupational Health and Safety, although some are still inconsistent. Safety facilities are available, but some are not well-maintained. The reporting and risk management system has been implemented by the staff, but it is hindered by the number of personnel and equipment. In general, these findings align with Cooper's theory (human, situational, and behavioral aspects) and Heinrich's Domino theory. The integration of training, infrastructure, and supervision plays a vital role in ensuring the success of Occupational Health and Safety implementation. Future research is recommended to assess the effectiveness of occupational safety education initiatives, strengthen emergency response systems, encourage greater managerial engagement, and expand participant representation to produce more comprehensive outcomes.

REFERENCES

Alamsyah, R., Kusuma Ningrat, N., & Hilman, M. (2024). Identifikasi resiko kecelakaan kerja pada home industri pembuatan keripik pisang dengan metode hazard identification and risk assessment (hira) di cisaga kota ciamis. *INTRIGA (Info Teknik Industri Galuh), Jurnal Mahasiswa Teknik Industri*, *1*(2), 87–93.

Allam, W., Abdelmegeed, A., Abokresha, S., & Ali, H. (2023). Pattern of intentional and non-intentional non-fatal children injuries in sohag city, egypt. *Ain Shams Journal of Forensic Medicine and Clinical Toxicology*, *40*(1), 76-86.

Andi Adwan. T, Nurlaela Latief, R. I. (2021). Pengaruh pengetahuan k3 (keselamatan dan kesehatn kerja) terhadap kesadaran berperilaku k3 di laboratorium jurusan pendidikan teknik mesin universitas negeri makassar. *Jurusan Pendidikan Teknik Mesin, Fakultas Teknik, Universitas Negeri Makssar*, *3*(July), 1–19.

Atmaja, M. R. K., Susanto, S., & Rahmawaty, F. (2024). Manajemen risiko keselamatan dan kesehatan kerja pembangunan gedung perpustakaan uin sayyid ali rahmatullah tulungagung. *Publikasi Riset Orientasi Teknik Sipil (Proteksi)*, *6*(1), 81–88.

Basiru, J. O., Ejiofor, C. L., Onukwulu, E. C., & Attah, R. U. (2023). Corporate health and safety protocols: A conceptual model for ensuring sustainability in global operations. *Iconic Research and Engineering Journals*, *6*(8), 324-343.

Boakye, M. K., Adanu, S. K., Coffie, G. H., Adzivor, E. K., & Ayimah, J. C. (2022). Building construction artisans' level of access to Personal Protective Equipment (PPE) and the perceived barriers and motivating factors of adherence to its use. *Journal of Environmental and Public Health, 2022*(1), 4870731.

Desmonda, E., Leman, L., & Uda, S. A. K. . (2023). Pengaruh keselamatan dan kesehatan kerja (k3) terhadap produktivitas tenaga kerja pada proyek gedung pemerintahan di kota palangka raya. *Device*, *13*(2), 177–187.

Endriastuty, Y., & Adawia, P. R. (2018). Pengetahuan tentang k3 terhadap budaya k3 pada perusahaan manufaktur. *Jurnal Ecodemica*, *2*(2), 193–201.

Erfian, M., & Raharjo, N. E. (2020). Evaluasi penerapan keselamatan dan kesehatan kerja (k3) pada praktik finishing bangunan smk negeri 2 yogyakarta. *Jurnal Pendidikan Teknik Sipil*, *2*(2), 139–148.

Fathin, U. S. (2023). Evaluasi dan pengembangan kurikulum s1 teknik sipil di era disrupsi berbasis stakeholders eksternal. *Jurnal Pendidikan Teknik Bangunan*, *3*(1), 77–88. https://doi.org/10.17509/jptb.v3i1.56953

Hasbi, h., & Ramdhan, D. (2024). Implementation of safety management system has a positive influence on safety culture in indonesian railway construction projects. Jurnal Aisyah : Jurnal Ilmu Kesehatan, 9(2).

Kang, Y., Yang, S., & Patterson, P. (2021). Modern cause and effect model by factors of root cause for accident prevention in small to medium sized enterprises. *Safety and health at work, 12*(4), 505-510.

Kavouras, S., Vardopoulos, I., Mitoula, R., Zorpas, A. A., & Kaldis, P. (2022). Occupational health and safety scope significance in achieving sustainability. *Sustainability, 14*(4), 2424.

Kineber, A. F., Antwi-Afari, M. F., Elghaish, F., Zamil, A. M., Alhusban, M., & Qaralleh, T. J. O. (2023). Benefits of implementing occupational health and safety management systems for the sustainable construction industry: a systematic literature review. *Sustainability, 15*(17), 12697.

Maharani, V. S., Nugroho, D., & Nurhayati, N. (2025). Analisis faktor yang mempengaruhi kepatuhan penerapan kesehatan dan keselamatan kerja pada perawat rumah sakit dr. ak gani palembangtahun 2024. *Jurnal Manajemen dan Administrasi Rumah Sakit Indonesia (MARSI), 9*(1), 76-85.

Mahendra, R., Yakin, K., & Bustamin, M. O. (2019). Kajian pengetahuan dan sikap pekerja terhadap keselamatan dan kesehatan kerja (studi kasus pada proyek avian tower surabaya). *Ge-STRAM: Jurnal Perencanaan Dan Rekayasa Sipil*, *2*(2), 74–78.

Mamudi, I. C. (2017). Pengantar pelaksanaan program bimbingan dan konseling di sekolah. *Rineka Cipta*, 43–44.

Mukhtar, E., Sudjani, & Supriatna, N. (2023). Pengaruh augmented reality terhadap hasil belajar siswa dalam mata pelajaran konstruksi dan utilitas gedung di smk. *JPTB: Jurnal Pendidikan* Teknik Bangunan, 3(2), 101-116.

Ozobu, C. O., Onyekwe, F. O., Adikwu, F. E., Odujobi, O., & Nwulu, E. O. (2023). Developing a national strategy for integrating wellness programs into occupational safety and health management systems in nigeria: a conceptual framework. *International Journal of Multidisciplinary Research and Growth Evaluation*, *4*(1), 914-927.

Rafieyan, A., Sarvari, H., & Chan, D. W. (2022). Identifying and evaluating the essential factors affecting the incidence of site accidents caused by human errors in industrial parks construction projects. *International journal of environmental research and public health*, *19*(16), 10209.

Saputra, A. J., & Tandedi, M. (2021). Tingkat Pengetahuan dan Kesadaran Berperilaku K3 Mahasiswa Teknik Sipil Universitas Internasional Batam. *Jurnal Ilmiah Rekayasa Sipil*, *18*(1), 1–9.

Widowati, E., Koesyanto, H., Wahyuningsih, A. S., & Sugiharto, S. (2017). Analisis Keselamatan Gedung Baru F5 Universitas Negeri Semarang Sebagai Upaya Tanggap Terhadap Keadaan Darurat. *Unnes Journal of Public Health*, *6*(2), 101.

Yana, R. (2019). Hubungan Pengetahuan K3 Terhadap Kesadaran Berperilaku K3 Pada Mahasiswa Di Laboratorium. *Indonesian Journal of Laboratory*, *1*(3), 46.

Yuliandi, C. D., & Ahman, E. (2019). Penerapan Keselamatan Dan Kesehatan Kerja (K3) Di Lingkungan Kerja Balai Inseminasi Buatan (Bib) Lembang. *Jurnal MANAJERIAL*, *18*(2), 98–109.