

# The Relationship between Training, Employee Attitude, Management Commitment and Safety and Health Awareness: A Study Among Workers in SIRIM Berhad

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## Abstract

The study investigates the relationship between training, employee attitude, management commitment, and safety and health awareness among workers in SIRIM Berhad, Shah Alam. The research aims to increase safety and health awareness among employees and contribute to a better understanding of training, employee attitude, and management commitment at SIRIM Berhad. The study uses a quantitative research design and focuses on a limited population of 1656 employees from four departments within the company. The research methodology involves a cross-sectional survey design, data collection through questionnaires, and data analysis using SPSS software. The study's objectives include determining the level of safety and health awareness, identifying the relationships between training, employee attitude, and management commitment, and providing suggestions for future work. Quantitative study had been used in the study. This study also used convenience sampling. An online survey has been conducted among 310 employees in SIRIM Berhad Shah Alam, Malaysia with a response rate of 100%. Data were analyzed using descriptive analysis and Spearman's correlation analysis. This study found that the level of safety and health awareness is high. Training, employee attitude and management commitment had a significant relationship with safety and health awareness.

## 1. Introduction

SIRIM Berhad, Shah Alam is a company is owned by the Government of Malaysia under the Ministry of International Trade and Industry (MITI) and a main business services sector in Malaysia. The establishment of this company in Malaysia began in early 1966s, then known as the Standards Institution of Malaysia (SIM). SIRIM is now recognized as the Standards and Industrial Research Institute of Malaysia (SIRIM) and SIRIM has been mandated as a machinery for the development of technology and research, and a national quality champion for Malaysia. SIRIM has also always been a key pillar in the development of the Malaysian private sector and has its vision and mission. Vision and their mission are to focus on the development of improvements and new technologies in the business services sectors. In addition, they want to play a role in promoting and conducting scientific industry research as well as providing industry development and consulting services to help the industry meet its standards. To ensure that the company has good growth and is well organized, safety and health awareness among employees in the workplace should also have to be noted. The impact of training, employee attitude, and management commitment on safety and health awareness among employees must be investigated

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the management needs to be aware of and concerned with the surrounding environment and work environment to reduce any risk of hazards, illness, and injuries at the workplace. Thus, this study focuses on staff from four selected departments in SIRIM Berhad, Shah Alam to identify whether some of the factors influence their safety and health awareness at the workplace. According to the occupational accident statistics provided by sector from January to October 2023, a total of 6,951 workplace accidents were reported to DOSH. The sector with the highest number of reported accidents was the manufacturing sector, accounting for 4,181 cases, followed by agriculture, forestry, and fishery with 1,064 cases. The construction sector had a significant number of fatal accidents, with 45 reported deaths out of 159 total accidents. The finance, insurance, real estate, and business services sectors also reported a notable number of accidents, with 584 cases and 15 deaths. These statistics highlight the importance of prioritizing occupational safety measures across various sectors to reduce incidence of workplace accidents and ensure the well-being of employees (Occupational Accident Statistics by Sector January-October 2023).

In the field of occupational safety and health, the attitude of employees is a critical factor that can significantly influence the safety culture within an organization. Unfortunately, there is a notable lack of positive employee attitudes toward safety and health practices at SIRIM Berhad, Shah Alam. This negative disposition can have an issue effect, leading to an increase in the number of accidents, a decline in productivity, and a detrimental impact on the overall well-being of the workforce. When such attitudes prevail, the general level of safety consciousness is also affected, potentially causing further issues within the workspace. The repercussions of these poor attitudes extend beyond just physical safety. They can contribute to a heightened sense of stress among employees, as well as foster an environment ripe for conflict. A stressful work environment can, in turn, exacerbate these negative attitudes, leading to a cycle where increased conflicts among employees become norm. This situation not only affects the morale and cohesion of the team but also undermines the company's efforts to maintain a safe and efficient workplace. Furthermore, the commitment of management is pivotal in fostering a strong culture of safety and health awareness within any organization. At SIRIM Berhad, Shah Alam, the absence of clear, consistent, and effective training led by management can have profound implications. Such a deficiency can result in an uptick in Occupational Safety and Health Administration (OSHA) cases, as employees may not be adequately prepared to handle workplace hazards. This lack of training can also erode the sense of improvement and commitment among the workforce, leading to a not interesting and potentially unsafe workforce.

Without proper staff training, there is a risk of inconsistent application of safety regulations, which directly disable in OSHA's mission to ensure safe and healthy working conditions for all employees. The repercussions of inadequate training extend beyond basic compliance issues; they can manifest errors and mistakes that involve rework and cause delays. These issues can significantly impact on the efficiency and output of the organization, leading to increased costs and reduced competitiveness. Next, the role of management in providing comprehensive training is not just about meeting regulatory requirements, it is about creating a foundation for a safe, knowledgeable, and committed workforce. By investing in training and indicating a real commitment to safety, SIRIM Berhad, Shah Alam, can enhance its operational efficiency, reduce the incidence of workplace accidents, and cultivate a positive organizational culture that values the well-being of its employees. The current research is motivated to identify the level of safety and health awareness among workers and to determine the relationship between training, employee attitude, management commitment, and safety and health awareness among workers in SIRIM Berhad, Shah Alam.

## 2. Literature Review

### 2.1 Safety and Health Awareness

Safety and health awareness of employees have been studied by several past researchers and as such, there are several meanings for safety and health awareness. Merriam-Webster (n.d.) classifies awareness as a realization of something's importance or subject of consciousness. However, according to (Gafoor, Kunnathodi Abdul, 2012), awareness is the ability or a state to feel, perceive, or be aware of objects, sensory patterns or events. Next, by looking at more specific awareness that focuses on safety and health context, safety and health awareness is defined as consciousness in preventing accidents and the importance of a safer and healthy environment at the workplace (Faiqah Binti Ramli, 2020). Safety and health awareness also means always being cautious or disciplined when doing work and no carelessness when in the work zone. Other than that, as pointed out by Rosmah *et al.* (2018) defined that awareness of safety and health is an individual's initiative to avoid accidents that may lead to injury, death or illness and seeks to raise awareness of the importance of occupational health and safety in the workplace. Safety and health awareness are very important in the organization as they will determine the level of safety and health of the workers and ensure that employees are always alert when they are in dangerous areas while on duty. Therefore, terms of safety and health awareness in the context of this study is referred to as the knowledge and attitude of SIRIM Berhad staff on the significance of occupational safety and health and also the implementation of safety policies and safety training by Group Human Resources and OSHA Department of SIRIM Berhad, Shah Alam.

## 2.2 Training

According to the National Institute of Occupational Safety and Health of Malaysia (2020), training is an essential element of the organization and must be implemented for each employee responsible for occupational safety and health (OSH) and also indispensable for safety and health practices to ensure that every safety and health program in the workplace is satisfied. Training empowers administrators, bosses, and laborers to comprehend the lawful consistency required and the working of safety management systems. In general, the term safety training is defined as a particular sort of training directed inside an association to improve worker skills. As indicated by Europe PMC, 2016 safety training is a casual or formal technique to assist people in performing safe work practices, changing perspectives, or procuring information. Indirect training can expand the degree of capability of a worker (Ismail, 2006). According to Mustazar & Peng (2009), most employees are interested in engaging in safety training organized by the company and the training should involve all parties for more workers to receive knowledge about OSH and this would reduce the risk of accidents at the workplace. Indirectly, as more workers comprehend OSH, it can reduce the risk of hazards, illness and reduce workplace accidents. Therefore, all workers need to be provided with an adequate amount of safety and the right kind of training to increase their safety and health awareness against the hazards and risks of daily life at their workplace. Thus, the terms of training on the perspectives of this research are described as the safety training that provides a program about OSH to reveal the knowledge and procedure about safety and health at the workplace and how to prevent any injuries or illness during work

## 2.3 Employee Attitude

Employee safety attitudes play an important role in assuring a safe work environment and are able to predict workplace injuries (Griffin & Curcuruto, 2016). Employee attitude refers to emotions, perceptions, values, and beliefs related to safety practices, policies and procedures including individual commitment and a sense of responsibility for safety and health at the workplace (Kundu et al., 2016). Definitions of employee attitude include characteristics such as interest in the job being performed, always thinking and being positive, and the ability of the representative to contribute to the association and work without constant supervision (Employeeedia, 2017). In addition, Cox & Cox (1991) has identified five factors that support employee safety attitudes. These five factors are effective measures for safety, individual tasks for safety, a safe work environment, individual assurance, and individual uncertainty. If employees do not have the right information, attitudes, and behaviors regarding health and safety practices, then all safety measures may not work in the workplace (Kundu et al., 2016). This is because the study of Weidner *et al.* (1998) has shown that attitudes have a relationship with safe mishaps and behaviors, and attitude management can be used in raising awareness levels by evaluating the effectiveness of training. Therefore, the terms of employee attitude in the context of this study are referred to as a positive attitude of employees on safety and health awareness at the workplace, so that the high-level safety and health awareness of employees in the workplace will be formed

## 2.4 Management Commitment

Management commitment is the engagement and participation of management in accomplishing the mission and vision of the organization (Dominic Cooper, 2024). According to Osman *et al.* (2015), management commitment is established in different manners for example rewarding employees, providing safety training, and providing opportunities to the employees to give any opinions and make decisions. Management's commitment in contributing to safety training not only enables employees to gain new information and skills about safety and health at the workplace but also enables employees to work safely. Other than that, management's commitment to the safety and health of workers is also reflected in their commitment to punish workers who do not follow proper safety measures such as the use of protective equipment at the construction site (Osman *et al.*, 2015). When an organization emphasizes two-way communication between employees and managers in driving effective OSH implementation in the workplace, it can create effectiveness of management commitment. Moreover, in the article provided by Bisbey *et al.* (2019) there is a discussion about the importance of management commitment to safety concerning safety performance. It is highlighted that when organizational leaders are committed to safety, their attitudes and actions express the priority of safety over other goals, which can influence employees to adopt safety-related behaviors. The findings of the study by (Chee Chong Hong *et al.*, 2018) conducted on 300 factories in Malaysia found that management commitment has a significant relationship with safety performance which is safety awareness. This shows that management commitment is fundamental to the implementation of a safety culture in organizations and individuals. Other study findings also indicate that management commitment to job security is a significant factor in ensuring employees adopt a safe workplace strategy. Researchers also emphasize the enforcement of internal controls as a key factor in improving safety awareness and performance and preventing injuries at the workplace.

## 2.5 Hypothesis Development

### 2.5.1 Training and Safety and Health Awareness

According to Rosmah *et al.* (2018), this study is about the level of occupational safety and health awareness where these researchers have focused on their objective which is to identify whether the attitude of employees and training has a relationship with the level of occupational safety and health awareness or not. The study involved employees working at the Mahkota Melaka Medical Centre by distributing a survey questionnaire to approximately 270 respondents from 16 departments at the Mahkota Melaka Medical Centre. This research objective was to determine the relationship between attitudes and training with the level of occupational safety and health awareness. The results showed that there was a positive relationship between training and the level of safety and health awareness among employees at the Mahkota Melaka Medical Centre. Subsequently, Ramli (2014) conducted a study at the Malaysian Government Agency to identify whether climate factors are related to the level of occupational safety and health awareness or not. The study was conducted at three government agencies by distributing questionnaires to them and the agencies involved was the Malaysian Public Works Department (JKR) involving 104 respondents, the Fire and Rescue Department of Malaysia involving 106 respondents and the Department of Irrigation and Drainage (DID) involving 164 respondents. The objective of this study is to investigate the factors influencing the level of safety and health awareness among workers in government agencies. The studies have indicated that there is a significant positive relationship between training and safety and health awareness, and this study showed that safety and health awareness of employees was influenced by training. A study was conducted by (Siti Fatimah Bahari, 2024) on safety training, safety climate, and safety outcomes which is an observational study conducted at the Malaysian Manufacturing Plant. The study was conducted at the Malaysian Manufacturing Plant by distributing a questionnaire to about 325 respondents. This research objective is to investigate the relationship between safety training and safety and health awareness of workers in a Malaysian Manufacturing Plant. The outcomes of the research found that there is a significant positive relationship between training and employee safety and health awareness. According to Eamizan & Rosmah (2018) the study of factors affecting the level of occupational safety and health awareness at DENSO Thermal Division in Bangi, Malaysia towards 87 respondents. The findings of the study indicated that there was a positive relationship between training and the safety and health awareness of employees.

**H1:** There is a positive relationship between training and safety and health awareness.

### 2.5.2 Employee Attitude and Safety and Health Awareness

One of the previous studies on this relationship is about safety behavior and safety management on safety and health awareness among employees of Malaysian Small and Medium Enterprises was conducted by Awang *et al.* (2017). This research was carried out at selected SMEs based in Klang Valley by distributing questionnaires to the employees involving around 207 respondents. The objective of this research is to determine the level of safety behavior and safety management among SMEs workers. The findings indicated that there was a positive relationship between employee attitude and safety and health awareness (Ahmed *et al.*, 2022). Furthermore, a study conducted by Mohd Kamar *et al.* (2014) is about the awareness of contractors on management systems of occupational safety and health (OSH) in the construction industry. The purpose of the research is to determine the level of awareness of contractors on OSH management systems. This study involved a class A contractor registered with the Contractor Service Centre (PKK) in Kelantan and conducted by distributing survey questionnaires to respondents that involving 34 respondents. The outcomes of the research found that there was a positive relationship between employee attitude and safety and health awareness. Wang *et al.* (2018) presented research on the relationship between safety climate, awareness, and behaviour in the Chinese construction industry. The objective of the research was to identify the multilevel relationships between safety behaviour, safety climate, and safety awareness. The study was conducted by distributing the survey and involving workers from various levels on the construction site in China with 164 respondents involved in the study. The results of this study found that there was a positive relationship between employee attitude and safety and health awareness.

**H2:** There is a positive relationship between employee attitude and safety and health awareness.

### 2.5.3 Management Commitment and Safety and Health Awareness

A study conducted by (Zhen Chao Tan, 2023) when organizations prioritize and implement effective safety and health management practices, employees are more likely to feel emotionally connected and committed to the organization. In essence, the sentence highlights the importance of occupational safety and health management in fostering employee commitment and engagement within the organization. The findings indicated that there was a positive relationship between management commitment and safety and health awareness.

**H3:** There is a positive relationship between management commitment and safety and health awareness.

## 2.6 Research Framework

The research framework (refer Fig. 1) contains two main variables which are independent variables and dependent variables. According to the literature review that has been studied, the independent variables stated for this study are training, employee attitude, and management commitment while safety and health awareness are the dependent variables. The relationship between these variables has been identified based on previous studies that support this theoretical concept for this study has been constructed as follows.

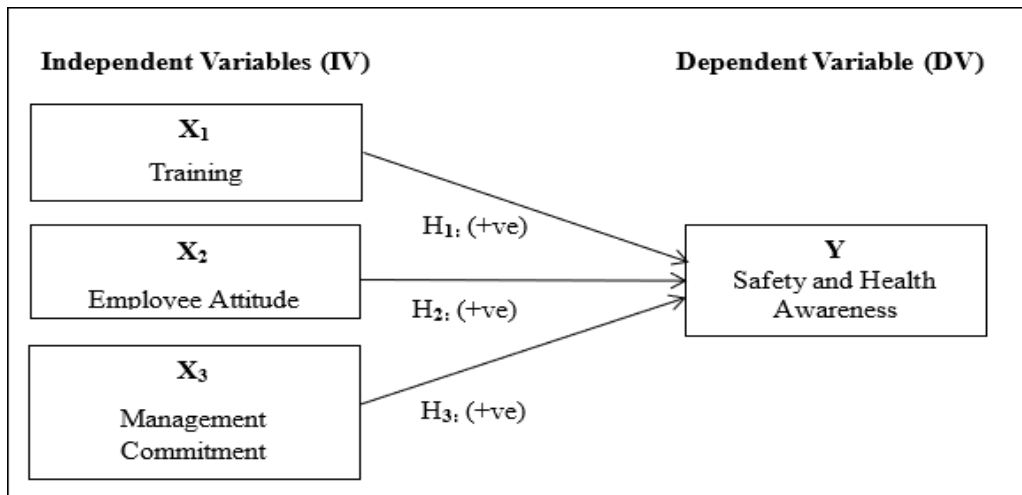


Fig. 1 Research Framework

## 3. Research Methodology

### 3.1 Research Design

This study adopts a quantitative approach. A survey questionnaire was used to collect data. The selected scales were incorporated into an online questionnaire distributed to SIRIM workers. Questionnaire surveys are widely recognized for efficiently gathering and analyzing data from a target audience. Descriptive research will be employed to formulate the hypothesis and define the research topic. The research design also identifies key variables for data analysis, aiming to gather responses from a large number of workers in SIRIM Berhad Shah Alam, Malaysia.

### 3.2 Population and Sampling

Accord Population refers to the entirety of individuals or objects that are of interest for analysis, whereas sampling is the act of choosing a subset of the population for further examination (Rahi, 2017). The focus of the research is on the labour force of SIRIM Berhad. This study has selected this location because to its significant concentration on the services and manufacturing sectors. The number of workers employed by SIRIM Berhad in Malaysia amounted to 1656 employees. According to this data, there are an estimated 1656 individuals now employed in SIRIM Berhad. In order to arrive at the correct overall conclusion, a sample is suggested from the population in the correct way. In order to develop findings that are applicable to the entire group, researchers employ samples to conduct studies on individuals from the population. Also, while a well-selected sample will contain the majority of data for a given population parameter, valid conclusions about the population as a whole may only be drawn from samples when the relationship between the two is well-defined. The data from online surveys was collected using a non-probability sample approach called convenience sampling in this study. This study made use of the convenience sampling approach due to its ease of use, lack of spending, and speed of research. A Google Form survey was sent out to employees of SIRIM Berhad, to collect data using a convenience sample. According to Krejcie and Morgan (1970), 310 employees will be selected to be respondents in this study.

### 3.3 Research Instruments

This study used questionnaire forms from related previous studies to determine the relationship between the independent variables which are training, employee attitude, and management commitment (refer Table 1). The questionnaire provided to the respondents can collect data to determine the validity of the research hypotheses and the data obtained from the respondents is easier to evaluate and interpret. The questionnaire form distributed

to the selected respondents is written in two languages which are in English and Malay and it is confidential. The questions provided are all in a closed-ended form. The purpose of using this method is because it saves time cost control is cheap and data entry is quick and simple. The questionnaire set for this study contains of 36 questions.

**Table 1** Summary of instruments

Section	Question	No. of Questions	Source
Section A	Demography	4	Siti Fatimah Bahari. (2024)
Section B	Training	8	(Faiqah Binti Ramli et al., 2020)
Section C	Employee Attitude	8	(Faiqah Binti Ramli et al., 2020)
Section D	Safety and Health Awareness	8	(Faiqah Binti Ramli et al., 2020)
Section E	Management Commitment	8	(Bisbey et al., 2019)

### 3.4 Pilot Study

According to Teijlingen & Hundley (2002) defined pilot studies also known as feasibility studies or full-scale mini versions which are pre-specific tests of specific research instruments such as questionnaires or interviews. To create a good research design, an important element that needs to be emphasized is pilot test as it can increase the likelihood and provides valuable insights for other researchers. A pilot test was conducted before the actual study to identify the questionnaire form provided to the respondents is effective or not. This pilot test is important because it helps the researcher to determine the validity of the study. Before the pilot test is conducted, a pre-test will be conducted based on the questionnaire structured by the researcher. This pre-test is performed to look at the sentence used is suitable in terms of content and time to answer the questions and the comprehension of question instructions. Then, according to Sekaran & Bougie (2013), the consistency of respondents' answers to all items in the scale used for multipoint-marked items was the most popular test for identifying reliability between items. To identify the questionnaire is good and reliable for analysis, researchers will look at the results of the scale in which it should be more than 70% ( $> 0.7$ ), while the results below the scale of 0.7 indicate that the questionnaire is unreliable and cannot be used for the actual study. The pilot test results demonstrate that all four variables which is training, employee attitude, management commitment, and safety and health awareness. It exhibited excellent reliability, with Cronbach's Alpha values ranging from 0.858 to 0.898, all well above the commonly accepted threshold of 0.7. Each variable's scale consisted of 8 items and was tested with 30 respondents, confirming strong internal consistency across the constructs. Management Commitment showed the highest reliability ( $\alpha = 0.898$ ), followed by Employee Attitude ( $\alpha = 0.878$ ), Training ( $\alpha = 0.871$ ), and Safety and Health Awareness ( $\alpha = 0.858$ ). These results indicate that the measurement instruments are consistent and suitable for use in the main study without further modification, ensuring reliable and valid outcomes when applied to a larger sample. According to Punch and Alis Oancea (2014) reliability is the scale at which an instrument generates equivalent results for repeated tests. If the research was recorded the same sample, the reliability of the questionnaire would be higher when the relevant questionnaire found. The reliability of the instrument was measured by using Cronbach's alpha values to ensure the stability and consistency of the research instrument. If the Cronbach's Alpha value is 0.6 or higher, it leads to a reliable consistent measure of the specific component. To achieve different results or sometimes to the same or similar results as previous studies, Cronbach's alpha will be used as a measurement of reliability (Zainudin, 2010).

### 3.5 Data Analysis

The Data analysis will be analyzed using the Statistical Process for the Social Sciences (SPSS) after the researcher receives the survey questionnaire from the respondents. SPSS is a software program that provides advanced statistical analysis tools for researchers and analysts in various fields including social sciences, business intelligence, and data management. SPSS allows users to input data, perform statistical analysis and generate reports to interpret the results. It offers a wide range of features such as data management, multivariate analytics, and advanced statistical procedures, making it a valuable tool for analyzing complex data sets. SPSS is known for its user-friendly interface and robust analytical capabilities, making it a popular choice for researchers and analysts in academia, business and other industries (Nanjundan, 2023). Descriptive and correlational analyses will be conducted utilizing the data gathered in this study using SPSS version 29. Descriptive analysis and correlation are key components of data analysis. Descriptive analysis involves summarizing and presenting the main features of a dataset through measures such as mean, median, mode, standard deviation, and visualizations like histograms or box plots. It helps to understand the basic characteristics and distribution of the data. Correlation, on the other hand, measures the statistical relationship between two variables, indicating the strength and direction of their association through metrics like Pearson's or Spearman's correlation coefficient. While descriptive analysis focuses on describing the data, correlation provides insights into potential relationships between variables, aiding in identifying patterns or trends for further exploration

## 4. Results and Discussion

### 4.1 Response Rate

The data for this study was collected from employees in SIRIM Berhad Shah Alam. A total of 310 respondents were necessary to complete the questionnaire for this study. However, 310 respondents answered all the questions. The response rate for this study is 100%. The response rate for the questionnaire is documented in Table 2.

**Table 2** *Response Rate*

Population	Sample Size	Questionnaire Distributed	Questionnaire Answered	Percentage (%)
1,656	310	310	310	100 %

### 4.2 Reliability and Validity Analysis

This survey involved 310 respondents, employees from SIRIM Berhad, Shah Alam. The Cronbach’s Alpha values for training, employee attitude, management commitment, safety and health awareness are 0.958, 0.960, 0.967 and 0.967 respectively. The results indicate that the reliability test for the actual research is acceptable, good, and excellent, which shows that the study is reliable. According to Sarantakos (2005), validity is defined as a platform of researchers to recognize whether the measure is correct and accurate and evaluate what should be evaluated. According to Wright (1996), a survey questionnaire in Malay and English can help to improve the validity and reliability if the respondent can understand the questions included in the survey questionnaire. Researchers are also encouraged to use questions from previous studies. In this study, the validity of the instrument will be proven with face validity. The face validity can be proven with the approval and validity of expert or professional judges such as supervisors that the instrument being measured is logically based on the concept being measured (Zikmund et al., 2023). The validity of the instrument was evaluated by the research supervisor and also the HR Manager at SIRIM Berhad, Shah Alam.

### 4.3 Demographic Analysis

Table 3 shows the questions designed in Part A, which are related to the demographic of respondents. These questions cover various aspects, such as age, gender, education level, and business sector. The data collected from the complete questionnaires have been analyzed, and the results are summarized in tables and pie charts, showing frequencies and percentages for each demographic category.

**Table 3** *Summary of demographic analysis*

Demographic Profile	Category	Frequency N=310	Percent (%)
Gender	Male	171	55.2
	Female	139	44.8
Age	18-25 years	74	23.9
	26-35 years	87	28.1
	36-45 years	81	26.1
	46-55 years	48	15.5
	56-60 years	20	6.5
Race	Malay	149	48.1
	Indian	82	26.5
	Chinese	49	15.8
	Others	30	9.7
Work Experience	1-5 years	87	28.1
	6-10 years	68	21.9
	11-15 years	77	24.8
	16 -20 years	46	14.8
	Above 21 years	32	10.3
Monthly Salary	RM1,500-RM2199	76	24.5
	RM 2,200 – RM 2,899	75	24.2
	RM 2,900 – RM 3,599	76	24.5
	RM 3,600 – RM 4,299	48	15.5
	RM 4,300 – RM 4,500	35	11.3

#### 4.4 Descriptive Analysis

Table 4 offers a descriptive analysis of training. The findings indicate that the average score for the statement “I have received adequate training on Occupational Safety and Health (OSH) practices relevant to my job scope” is 4.18 reflecting a dominant level of clarity in job training. The statement “The training sessions I attended were effective in enhancing my understanding of safety protocols” has a mean of 4.22 indicating a high level. Next, the statement “I feel that the frequency of safety training provided is sufficient for maintaining a safe working environment” is 4.24 with a standard deviation of 0.948 also indicating a positive level. The statement “I am aware of the procedures for reporting safety incidents as a result of my training” also has a mean of 4.24 and its signifies a lofty level. Subsequently, the statement “The training I received included practical exercises that helped me understand safety measures better” has a mean of 4.26 which refers to a high level of mean measurement. The statements “I believe that ongoing training is necessary to keep up with safety regulations and practices in the workstation” and “I feel comfortable using safety equipment due to the training I have received ” with a mean of 4.31 which is the highest of the items indicating a strong presence and its stands in a high mean measurement. The mean score of 4.26 for the statement “I believe that my training adequately covers emergency procedures for my work department incidents” signifies a potential area for enhancement. The average score for training is 4.25, with a standard deviation of 0.942, signifying an elevated amount of training.

**Table 4** Descriptive analysis for training

No	Items	Mean	Std Deviation	Level
1	I have received adequate training on Occupational Safety and Health (OSH) practices relevant to my job scope.	4.18	1.011	High
2	The training sessions I attended were effective in enhancing my understanding of safety protocols.	4.22	0.961	High
3	I feel that the frequency of safety training provided is sufficient for maintaining a safe working environment.	4.24	0.948	High
4	I am aware of the procedures for reporting safety incidents as a result of my training.	4.24	0.955	High
5	The training I received included practical exercises that helped me understand safety measures better.	4.26	0.913	High
6	I believe that ongoing training is necessary to keep up with safety regulations and practices in the workstation.	4.31	0.946	High
7	I feel comfortable using safety equipment due to the training I have received.	4.31	0.885	High
8	I believe that my training adequately covers emergency procedures for my work department incidents.	4.26	0.921	High
	Total Average Score	4.25	0.942	High

Table 5 gives a descriptive examination of employee attitude. The results demonstrate that there is a high degree of satisfaction in utilizing skills and talents, as the mean for the statement “I believe that maintaining a safe working environment is a personal responsibility for all employees” is 4.33. The statement “I feel that my colleagues take safety protocols seriously in the workstation” has a mean of 4.27 and a standard deviation of 0.933. Next, the statement “I am proactive in identifying and addressing potential safety hazards in my work area.” shows a mean of 4.25 which shows a high level of mean measurement. The statement “I believe that a positive attitude towards safety can prevent accidents in the workstation” with mean of 4.35 which is a high mean compared to all the items in employee attitude with a standard deviation of 0.900. The statement “I feel comfortable speaking up about safety concerns without fear of negative consequences” shows the mean is 4.31. Besides that, the statement “I believe that my attitude towards safety influences the behaviour of my peers” with a mean of 4.30 shows a high level of mean measurement. Then, the statement “I am willing to participate in safety initiatives and programs organized by SIRIM” with a mean of 4.28 indicates a dominant level of mean measurement. Finally, for the statement “ I think that a strong safety culture is essential for the success of workstation operations” has a mean score of 4.32. With a standard deviation of 0.93 and a mean score of 4.30, satisfied with the employee attitude.

**Table 5** Descriptive analysis for employee attitude

No	Items	Mean	Std Deviation	Level
1	I believe that maintaining a safe working environment is a personal responsibility for all employees	4.33	0.963	High



2	I feel that my colleagues take safety protocols seriously in the workstation.	4.27	0.933	High
3	I am proactive in identifying and addressing potential safety hazards in my work area.	4.25	0.994	High
4	I believe that a positive attitude towards safety can prevent accidents in the workstation.	4.35	0.900	High
5	I feel comfortable speaking up about safety concerns without fear of negative consequences.	4.31	0.901	High
6	I believe that my attitude towards safety influences the behaviour of my peers.	4.30	0.923	High
7	I am willing to participate in safety initiatives and programs organized by SIRIM.	4.28	0.922	High
8	I think that a strong safety culture is essential for the success of workstation operations.	4.32	0.906	High
Total Average Score		4.30	0.93	High

It provides a descriptive analysis of management commitment, as seen in Table 6 According to the data, a mean score of 4.25 on the statement “Management prioritizes safety in all operational decisions” indicates that safety is at the forefront of all management decisions. The statement “Management effectively communicates safety policies to all employees” and the statement “Management demonstrates a commitment to improving workplace safety standards” indicate both of the same mean of 4.29 with a high level of mean measurement. Next, there another two items in management commitment with a mean score of 4.28 which are “Management provides adequate resources for safety training programs” and “Management actively engages with employees regarding safety concerns”. Then, the statement “Management recognizes and rewards employees who follow safety protocols” has a mean of 4.25 with a standard deviation of 1.029. The statement “Management regularly reviews and updates safety policies based on feedback” has the highest mean with a score of 4.33 compared to all the items in management commitment. Lastly, the statement “Management takes immediate action when safety issues are reported was a score of 4.26 with a signify level of mean measurement. With a standard deviation of 0.96 and an overall mean score of 4.28, the degree of management commitment is quite high.

**Table 6** Descriptive analysis for management commitment

No	Items	Mean	Std Deviation	Level
1	Management prioritizes safety in all operational decisions.	4.25	0.995	High
2	Management effectively communicates safety policies to all employees.	4.29	0.951	High
3	Management provides adequate resources for safety training programs	4.28	0.943	High
4	Management actively engages with employees regarding safety concerns.	4.28	0.959	High
5	Management demonstrates a commitment to improving workplace safety standards.	4.29	0.969	High
6	Management recognizes and rewards employees who follow safety protocols.	4.25	1.029	High
7	Management regularly reviews and updates safety policies based on feedback.	4.33	0.924	High
8	Management takes immediate action when safety issues are reported.	4.26	0.946	High
Total Average Score		4.28	0.96	High

Table 7 gives a descriptive examination of safety and health awareness. The findings indicate that the average score for the statement “I am aware of the Occupational Safety and Health (OSH) policies implemented in my workstation” is 4.28, reflecting a high level of clarity around the workstation. The statements “I feel confident in my ability to identify potential hazards in the company environment” and “I believe that the safety committee effectively communicates safety protocols and procedures” both have the same mean of 4.27 and their level of mean measurement is high. Next, the statement “The safety training I received adequately prepared me to work safely in the workstation” has a mean score of 4.30 with a standard deviation of 0.944. The statement “I regularly participate in safety meetings or workshops related to OSHA safety” means 4.29 with a high mean measurement.

Then, the statement "I feel that my workstation environment is safe for me to do my work" mean score of 4.33 with a standard deviation of 0.904. The mean score for the statement "I am aware of the proper procedures for handling hazardous materials in the workstation" is 4.34 the highest among the items in safety and health awareness. Lastly, the statement "I believe that there is a strong commitment to safety from the department leader" with mean score of 4.32 with a standard deviation of 0.937. The average score for safety and health awareness is 4.3, with a standard deviation of 0.95, signifying a high amount of safety and health awareness.

**Table 7** Descriptive analysis for safety and health awareness

No	Items	Mean	Std Deviation	Level
1	I am aware of the Occupational Safety and Health (OSH) policies implemented in my workstation.	4.28	1.003	High
2	I feel confident in my ability to identify potential hazards in the company environment.	4.27	0.987	High
3	The safety training I received adequately prepared me to work safely in the workstation.	4.30	0.944	High
4	I regularly participate in safety meetings or workshops related to OSHA safety.	4.29	0.968	High
5	I believe that the safety committee effectively communicates safety protocols and procedures.	4.27	0.958	High
6	I feel that my workstation environment is safe for to do my work.	4.33	0.904	High
7	I am aware of the proper procedures for handling hazardous materials in the workstation.	4.34	0.926	High
8	I believe that there is a strong commitment to safety from the department leader.	4.32	0.937	High
Total Average Score		4.3	0.95	High

The level of safety and health awareness among the SIRIM Berhad employees in Shah Alam is found to be high with a mean score of 4.34 and standard deviation of 0.926. This suggests that while employees are somewhat aware of safety and health measures, there are gaps in their understanding and implementation of such practices. The findings reveal that the awareness level is high indicating that employees have a general knowledge of safety protocols but may lack consistent adherence or deeper comprehension of the policies. Safety and health awareness in Malaysia's corporate sector is often influenced by factors such as limited training programs, inadequate communication about safety policies, and the absence of regular inspections. A low level of safety and health awareness could lead to increased workplace accidents, reduced productivity, and higher costs due to employee absenteeism and medical claims. To improve safety and health awareness, SIRIM Berhad should focus on addressing these gaps by implementing regular training sessions, enhancing communication channels regarding safety policies, and conducting periodic audits to ensure compliance. Such measures can foster a safer working environment, increase employee confidence, and improve overall organizational efficiency.

#### 4.5 Correlation Analysis

The normality test data shows that every single variable has a p-value lower than 0.05. That these variables' data do not conform to a normal distribution is evident from this. Therefore, in order to investigate any relationships between the dependent variable and the independent variables, this study will move on with performing Spearman's rank correlation analysis. When the distributions of the variables being studied are not normal, Spearman's correlation is a suitable tool for determining the nature and direction of the links between them. The purpose of this study is to use Spearman's correlation to handle data that does not follow a normal distribution. This will allow for a more thorough examination of the variables' associations without having to depend on the assumptions of normalcy that are necessary for parametric tests.

**Table 9** Correlations between Technological Barriers and E-commerce Sustainability

Hypothesis	Factor (s)	Correlation Rank (r)	Significant (p)
H1	Training	0.884	<0.001
H2	Employee Attitude	0.887	<0.001
H3	Management Commitment	0.916	<0.001

The Spearman's rho correlation analysis indicates significant correlations between the variables in the study. For H1, the positive correlation coefficient ( $r = 0.884$ ,  $p < 0.001$ ) ranges from 0.71 to 0.91, showing a strong positive link between training and safety and health awareness. This means that training is strongly and

significantly associated with the dependent variable. An increase in training leads to a significant increase in safety and health awareness. Because the correlation is significant and consistent with the hypothesis, H1 is accepted. For H2, the positive correlation coefficient ( $r = -0.887$ ,  $p < 0.001$ ) is within the range of 0.71 to 0.91. This finding shows that, employee attitude has a strong and significant positive relationship with safety and health awareness. An increase in training leads to a significant increase in safety and health awareness. A positive employee attitude significantly enhances safety and health awareness. The relationship is considerable and supports the hypothesis, hence H2 is accepted. For H3, the positive correlation coefficient ( $r = 0.916$ ,  $p < 0.001$ ) falls within the range of 0.91 to 1.00, indicating a very strong and statistically significant positive relationship between management commitment and dependent variable. Greater management commitment strongly improves safety and health awareness. The correlation is significant and supports the hypothesis, hence H3 is accepted. The investigation shows significant correlations for all hypotheses, with training, employee attitude, management commitment and safety and health awareness. All hypotheses (H1, H2, and H3) are accepted.

The relationship of training among the SIRIM Berhad employees in Shah Alam is found to be high with a mean score of 4.31 with coefficient of  $r = 0.884$  and significance level of  $p < 0.001$ . This indicates that employees who receive regular and comprehensive training tend to have higher levels of awareness regarding safety and health measures. Effective training programs play a critical role in equipping employees with the knowledge and skills needed to adhere to workplace safety protocols and maintain a safe environment. A consistent and well-designed training initiatives significantly improved safety and health awareness in organizations with stringent safety standards. In the context of SIRIM Berhad, Shah Alam, the survey findings align with these studies revealing that employees with limited access to training opportunities were less likely to be aware of or follow safety guidelines. To enhance safety and health awareness, the organization should implement regular and customized training programs, use technology to deliver interactive e-learning modules, and conduct periodic assessments to monitor awareness levels. These strategies will not only improve employees' safety and health consciousness but also foster a culture of accountability and care, ultimately leading to a safer and more efficient workplace.

The relationship that employee attitude has a significant very strong correlation with safety and health awareness was supported, with the coefficient of  $r = 0.887$  and  $p < 0.001$ . The relationship is strong; a positive employee attitude contributes to greater safety and health awareness in the workplace. Employees who demonstrate proactive, positive attitudes are more likely to engage with safety protocols and adhere to health-related guidelines, fostering a safer working environment. Emphasized that employees with optimistic and responsible attitudes often exhibit higher levels of compliance with workplace safety measures, as they view these practices as essential for their well-being and productivity. Employees who hold negative attitudes towards workplace policies, often due to dissatisfaction or lack of motivation, are less inclined to prioritize safety and health practices. Contributing factors include unclear safety policies, insufficient recognition of employee efforts, and a lack of collaboration between management and staff. To enhance employee attitudes, the organization should focus on fostering a culture of safety through recognition programs, open communication channels, and collaborative decision-making processes. Providing regular feedback, celebrating achievements in safety compliance, and involving employees in safety planning initiatives can significantly improve attitudes and, in turn, awareness levels. These measures can contribute to a safer and more harmonious workplace, benefiting both employees and the organization.

The result shows very strong relationship between the management commitment and the safety and health awareness correlation coefficient  $r$  equal to 0.916 and  $p < 0.001$ . Higher management commitment is associated with greater safety and health awareness among employees in SIRIM Berhad, Shah Alam. Management commitment, reflected in the organization's prioritization of safety policies, resources allocation, and consistent communication, plays a pivotal role in fostering safety and health awareness. Organizations with committed leadership in safety practices observed heightened employee adherence to health protocols and a significant reduction in workplace incidents. Visible and active involvement of management in safety initiatives, such as regular inspections, training programs, and transparent communication, creates a culture where safety and health are valued. Employees demonstrated better awareness of safety measures when management showed consistent dedication to providing necessary tools, addressing hazards, and emphasizing the importance of compliance. For SIRIM Berhad, this relationship underscores the importance of management's active role in promoting safety awareness. Practical strategies include establishing regular safety briefings, providing adequate safety resources, and ensuring open communication between employees and leadership regarding safety concerns. Additionally, incentivizing safety practices through recognition programs and setting measurable goals for health and safety initiatives can further enhance awareness. By committing to these measures, SIRIM Berhad can strengthen its safety culture, foster higher compliance among employees, and ultimately achieve a safer and more productive workplace. Such efforts would not only improve employee well-being but also positively impact the organization's overall performance and reputation

## 5. Conclusion

First addressing the research gap. This research explicitly focusses on the unique context of the SIRIM Berhad as opposed to the limited observation of safety and health awareness in large organization. This to identify the major factors affecting safety and health awareness . The research illustrates training, employee attitude, management commitment critical variables affecting safety and health awareness among SIRIM Berhad employees. The study clarifies the connections the cause revealing their influence on an employee's attitude in not following the rules to have good safety and health awareness. This understanding supports organizations in recognizing the fundamental causes of safety and health awareness, providing more specific actions to enhance more safety issues. This study is also useful in investigating further information regarding training, employee attitude, management commitment, and safety and health awareness among workers in SIRIM Berhad, Shah Alam. The study's technique, employing both quantitative and descriptive analysis, can serve as an example for future research in related organizational contexts. SIRIM Berhad's efforts to enhance safety and health awareness, contributing to a safer, more productive work environment and showcasing its commitment to employee performance and organizational excellence. This study explores the relationship between training, employee attitude, management commitment, and safety and health awareness among employees at SIRIM Berhad, Shah Alam. The research successfully achieved its objectives through careful data collection and analysis, providing valuable insights into factors influencing employee engagement and satisfaction. While the study offers significant findings, limitations such as a single organizational focus and limited variables suggest the need for broader exploration. Future research should incorporate additional factors and mixed methodologies for more comprehensive insights. By improving training, fostering positive attitudes, and enhancing safety awareness, SIRIM Berhad can boost employee satisfaction and organizational success.

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## Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Ashweena Kaur Chahel and Siti Norziah Ismail; **data collection:** Ashweena Kaur Chahel; **analysis and interpretation of results:** Ashweena Kaur Chahel and Siti Norziah Ismail; **draft manuscript preparation:** Siti Norziah Ismail. All authors reviewed the results and approved the final version of the manuscript.

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