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Implementation of Safety Performance Using Safety Culture in the Oil and Gas Industry During COVID-19 Pandemic

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Abstract

The oil and gas industry includes the global processes of exploration, extraction, refining, transporting, and marketing of petroleum products as it becomes central to the economic growth of Malaysia because of its contribution to the fifth of Malaysia's GDP over the past 10 years. However, the emergence of a pandemic that Covid-19 caused the operating environment of the oil and gas industry to experience a monumental shift and subsequently affected workers in the oil and gas industry. As a result, great care and focus are given to the importance of safety culture implementation. The focus of this research is to investigate the influence of safety culture's elements on employee engagement in safety over safety performance, as well as analyze the relationship between safety culture's employee communication and safety performance during Covid-19 among employees at Solar Gas Sdn. Bhd. Furthermore, this study aims to predict safety performance by utilizing the safety culture of employers' leadership in that organization. As part of this questionnaire research, a random sample of 48 Solar Gas Sdn Bhd employees were chosen as respondents. Based on the discussion, discovered that Safety Training is strongly associated with employee safety involvement. However, there is no significant relationship between employee communication and safety training, just as there is no relationship between safety performance and the element of Employers' Leadership in regard to safety culture. In a nutshell, studies show that the employees of the organization do not fully understand and practice the safety culture during this covid 19 pandemic. This makes the safety culture difficult to practice and will indirectly lead to several accidents and the spread of epidemics in the workplace.

Keywords*: Safety; Health; Culture; Performance; Covid-19; Oil and Gas*

INTRODUCTION

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Oil and gas are one of the dominant sectors that are regarded to be one of the backbones of our nation, Malaysia. This industry is funding ongoing and prospective major ventures which provide long-term employment in a number of fields. Implementation of healthy, high-quality treatment ought to be the main priority of oil and gas sectors, including during emergencies including pandemics. There appears to be no thorough assessment of the effect of the Covid19 epidemic on gas and oil safety as of yet. Safety and health culture can be understood as either an amalgamation of attitudes, beliefs, and behaviors related to and promoting maintenance actions, or the climate in such a corporate setting (Kilaparthi and Gokapai, 2013).

Because it necessitates the participation of all group employees, the concept of a safety and health structure is seen and comprehended as a common belief. While the concept of the culture of health and safety is conceptualized by upper management or senior executives of business companies, it still relies on the majority of the workforce for its execution (Ariss, 2003). The definition of workplace health and safety, which is among the major concerns for oil and gas workers', is becoming an interesting subject that has gained considerable interest in recent years. In the hope to undertake the working life of workers, the main aim is to help and preserve their health and safety. A number of comprehensive studies, for this reason, defined workplace health, and safety (Tengilimoglu et. al., 2016). Health and safety play a pivotal role in building a healthy organizational safety definition in the workplace. Whenever the data on workplace injuries and illnesses are checked, the magnitude of this condition is better defined. In relation to its impact on employees, Covid-19 however has put a major workload also on the oil and gas industry, with dramatic implications for the delivery of safety and protection.

According to Petronas (2015), there seems to be no dataset in Malaysia to gather and exchange information on the safety performance of oil and gas fields including basic features including such deaths and occupational injuries, along with hydrocarbon leakage. Interdependent safety metrics that are very well established can set the course for organizations in the future and knowledge sharing. Success in performance analysis output using the same range of safety metrics relies on clarity in monitoring and system performance. Performance reporting has indeed been obtained voluntarily and it may be hard to convince performance reporting on all oil and gas industries in Malaysia leading to problems in data gathering and thus value concern.

However, in terms of its effect on workers, Covid-19 has also put a substantial strain on the oil and gas industry, with huge ramifications for the performance of safety and health. Abrupt changes in the oil and gas industry have been seen since the Covid-19 epidemic, including intensive work, changes in working hours, the latest standard operation procedure (SOP) introduced by the government, and more. It is possible that all these causes might have been established during the disease outbreak and, even so, protection and health even during Covid-19 contagion warrant further study. A way to acquire transparency further into the safety and health of oil and gas employees is through safety culture evaluation and accident investigation.

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LITERATURE REVIEW

This section provides a review of the literature on safety culture, safety performance, and its relations to the workers of oil and gas at Solar Gas Sdn. Bhd. Shawal (2022) has conducted employee perceptions of the occupational safety and health culture of petrol stations Petronas during the Covid-19 pandemic and found that 60 % of respondents agreed that commitment was essential in the successful management of occupational safety and health in the oil and gas industry during the covid 19 pandemic. Gehad et al. (2020) emphasis on the dimensions of worker's safety culture and psychosocial hazard that provide impact on safety performance among upstream employees in malaysia at oil and gas industry.

The framework explains how the safety culture used is suitable for the pandemic situation and does employees practice safety procedures with efficacy during these deathly times of pandemic. On the other hand, it discusses the conceptual framework and identifies the hypothesis of the study

Safety Performance

Researchers and industry professionals have already begun to recognize and recommend activities that can influence employee conduct with the overall intent of enhancing safety efficiency (Kao et al., 2017; Liu et al., 2020). Despite a large range of experimental attempts at the workplace to increase safety efficiency, the prevention of many risks in the workspace has not been adequately accomplished (MaGuire, 2017; Winge et al., 2019). Several scholars have defined the output of safety on the basis of their study of nature and context. Xia et. al, (2018) in their previous research definitions indicated the significance of safety success in relation to a set of rules, guidelines, and actions to enhance organizational safety practices and training. Such was typically self-reported (Andersen et al., 2018) as a means of supporting the protection and well-being of workers (Zahoor et al., 2017). In addition, safety efficiency is an indicator of the level of safety at work causing illness and mortality (Mullen et al., 2017). Protection results also show the pattern of pathogen events and diseases contributing to death, disability, and material destruction (Erdogan et al. 2018; Ashour & Hassan 2019).

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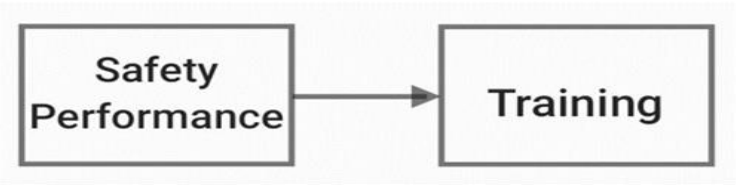

Figure 1: *Safety Performance's Model*

To summarize, more studies are aimed at evaluating the organizational and workplace practices that constitute the safety-related efficiency of the industry, according to Durdyev et. al. and Ioannou et al. (2017). For this study, safety assistance shall be evaluated in terms of safety program involvement. Regulation with safety, nevertheless, applies to actions that show adherence to safety protocols and operate safely, as indicated by Neal et. al. (2000). Inversely, safety performance means that it allows employees to support the safety program at the workplace, show some initiative, and make efforts to improve workplace safety through safety training (Figure 1).

Safety Culture

Cooper (2000) defines culture as "shared organizational values inside an organization that influences the attitudes and conduct of its members." Safety culture is a component of either the company's overall culture, and it is thought to have an impact on the behaviors of users on the basis of safety and health outcomes. According to Goldenmund (2000), safety culture entails the underlying ideas and morality of specific behaviors, i.e., the prevalent norms of the social society. While individuals inside an organization will be liable to the same rules and procedures, individuals will appear to see situations very differently due to which part of the organization they are in (Payne, 1996). According to the Advisory Committee on the Safety of Nuclear Installations (ACSNI) (HSE, 1993), an organization's health and safety performance is the collection of overall societal beliefs, behaviors, expectations, qualifications, and action trends that define the health and safety organization's dedication, style, and competence. Interactions focused on trust and understanding, similar perceptions of the significance of safety, and faith in the efficiency of preventative measures characterize organizations with such a supportive team (Figure 2).

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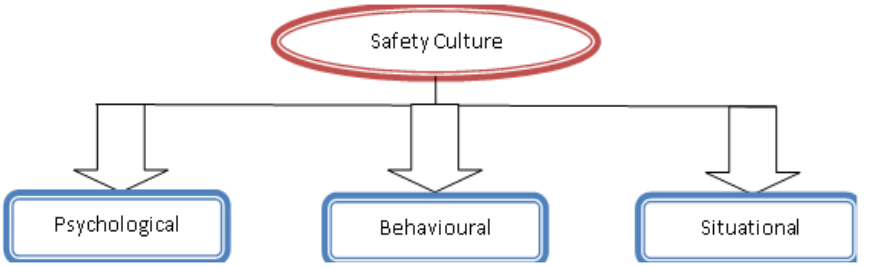

Figure 2: *Safety Culture's Model*

Goldenmund (2000) and Hale (2000) included that organizational culture factors that influence attitudes and beliefs linked to raising or lowering risk and behaviors, views and expectations expressed by natural communities as defining beliefs and expectations that decide how they behave and respond in managing risk and effectiveness of controls. More generally, it has been defined somewhere else as having to do with activities and behaviors within an organization and is also seen as the included values of an organization. The IOSH study reviewed by Glendon Stanton (1994), which addressed several of the risk assessments, indicated that safety culture incorporates or relates to safety practices and policies, shared principles, opinions, views, and actions of individuals with regard to safety. Corporate culture but in this sense, safety culture really isn't fixed ideas, but they are surprisingly long and nuanced, representing core beliefs. Despite the lack of a widely agreed concept as well as the labor shortage to identify 'positive' and 'poor safety cultures, safety culture has been defined as some of the most critical problems in organizational safety. Most eloquently, the word 'protection culture' is most commonly used to mean 'the everyday lives of people around here (Lawrie et. al., 2006; Turner and Pidgeon, 1997).

Safety Culture's Elements

The eight aspects of the safety culture were grouped in a circular pattern in the diagram in figure 3. All of the parts of the safety culture are interconnected, and the successful implementation of one greatly influences the chances of success of another. Speegle (2012) investigated and addressed the aforementioned safety culture aspects in the context of the oil and gas sector. According to the graphic, all of the aspects of the safety culture are centered on strategic gas and oil personnel. As seems to be the case,

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the management priority aspect sets out the mission and targets of the operational authority of the corresponding business organizations in relation to safety and health matters. Danger and hazard concerns are described by the operational stakeholders before making the decision to introduce a secure and wellness workplace environment (Speegle, 2012). The researcher also claimed that the assessment of risk differs greatly from one company to another.

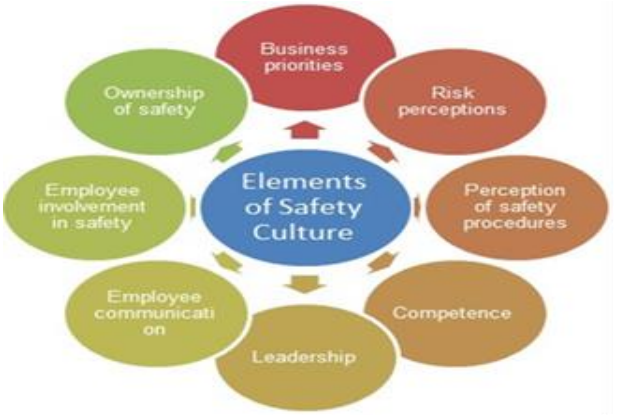

Figure 3: *Safety Culture's Elements*

This is due to the fact that each business organization works in a distinct sector, and the existence and types of lifestyle elements are largely determined by the sector in which the business organizations engaged operate. Risk perceptions are shown to be greater in the oil and natural gas, automobile, fabric, chemical, and pharmaceutical industries, for example. In contrast, business companies working in the financial resources, telecommunications, and financial industries are much less responsive and vulnerable to consumer perception. Only, as a result, the risk perception of the operational staff of the automotive plants is likely to be strong relative to that of the skilled trades. Thorough risk perception research and simulation cleared the way for discussion of the decision to integrate security mechanisms. The interpretation of the safety procedure aspect of any of this schematic also confirms this assertion. The tactical administrators of oil and gas companies imagine and interpret protection protocols in their brains before executing them in real fact. This depiction and

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interpretation are then provided in standard communication in the context of a template for safety precautions.

CONCEPTUAL FRAMEWORK

The framework structure used for this study is safety culture's elements of leadership, employee communication, and employee involvement in safety as variables of safety culture (figure 4). The concept and definition of safety culture are diverse and subjective according to researchers, and it is a person's ability to differ the elements subjectively. The concept of safety culture used in this study however has developed the same meaning and definition as that used by Cooper (2018) in his study.

The dependent variable in this study is Safety training. It is best defined as a significant organizational aspect that distinguishes firms with successful safety programs (Zohar, 1980), and it is an effective method for employees to improve their safety skills and knowledge in the workplace (Shea et al., 2016). Meanwhile, there are three independent factors in this study: employee safety involvement, employee communication, and employer leadership. Employee involvement is defined as the "process by which individuals may influence and regulate workplace OHS issues" (Masso, 2015, p. 64). In most other terms, employee involvement in the safety management process involves an upward flow of information among people or groups, as well as a decision-making process inside the business (Vredenburgh, 2000). According to Kapur (2020), employee communications are mainly defined as the communication of knowledge and opinions between an organization's management and its employees, as well as vice versa. It is critical for the ororganisation'erformance that there be a variety of communication channels available. According to Martnez-Córcoles et al. (2012) said that safety research emphasizes employers' leadership as the biggest key indicator of organizational safety performance. Along with Hoffmeister et al. (2014), leadership is concerned with how leaders affect and promote the safety of their employees at work. Hence, the dependent variable, which is Safety training is actually based on three independent variables: employee safety engagement, employee communication, and employer leadership.

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Safety Training

As highlighted by Abas et. al and Namian et. al. (2020) (2016), training was among the most critical safety management activities that can have an effect on high results of security efficiency in organizations. Practice in organizations is conducted via systematic preparation and ongoing efficiency activities which are primary components that can be used as safety strategic objectives. In addition, researchers however have stressed the strength of protection training in describing safety consequences as an efficient way to avoid accidents and leads to influencing the safe conduct of employees (Abas et al., 2020). Specifically, Loosemore and Malouf (2019) indicate safety training is described as the transition of safety-related information and how this gained information can make employees function as safely as possible without risk to their well-being. Safety courses have also been described as among the most important safety management practices that can affect high safety efficiency across sectors (Ashour et. al., 2018; Chloe and Leite, 2020; Manu et. al., 2017).

Though the connection between security training and education results, such as accidents, vulnerability to diseases, and emergencies, has been recognized in the publications described above, limited work has examined the effect of safety procedures on the safety performance of Malaysian oil and gas workers especially as regards the priority of the oil and gas workers during the outbreak of Covid-19.

Employees' Engagement in Safety

A concerned worker is one who is attentive to others. According to studies, once employees think they have a role in safety standards and that their advice is valued. Basically, such employees will be more productive, take fewer risks, and the fatality rate is very low. Involving employees increase their knowledge of occupational dangers, emphasizes the value of safety, and improves a company's culture of safety. Furthermore, worker participation is required for businesses seeking or maintaining VPP accreditation with the Occupational Safety and Health Administration. Employee engagement in the organization's needs is included in its Voluntary Protection Program, which protects employees from supervised learning.

Not only that, but employees bring a genuine grasp of the profession and its hazards. They also lend credibility to any solutions that are discovered (DuPont

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Sustainable Solutions, n.d.,). Fernandez-Muniz et al. (2007) developed a model for an effective Health and Safety culture that included management commitment, employee involvement, and a safety management system (SMS). The SMS included a health and safety program, incentives, training, communication, planning, and control. The findings revealed that when managers and staff were active in these activities, as well as the proper deployment of SMS, there were other benefits.

Employees have empathy and an obligation to establish a safe and healthy workplace to the greatest extent possible, considering particular steps to limit the transmission of viruses like Covid-19 through proper environmental cleanliness and appropriate indoor ventilation. The International Labor Organization (2020) recommended employees notify their employers if they become conscious of any disease or physical or psychological disability that interferes with the execution of their job activities or that may jeopardize the safety, health, and wellbeing of others at work. Employees have a duty to protect themself, which is especially important in the present pandemic situation.

Employees' Communication

Equally important, one of the best ways to enhance safety culture and reduce accidents, according to William (2003), is to utilize safety-related interaction across an organization where their boards give people a designated area to openly air grievances and encourage interaction and can discern companies with low accident statistics from those with rising accident rates. As a result, one often work behaviors that have a beneficial influence on occupational safety is information sharing and communication. Employers and workers should talk with one another to be motivated to maintain and periodically update the risk assessment for task contact to Covid-19, ideally with the assistance of activities.

Employers' Leadership

According to Wu, ethical leadership is the route through which leaders motivate their employees to accomplish safety goals depending on organizational and individual characteristics (2005). According to Hoffmeister et al. (2014), such leadership relates to how supervisors influence and promote safety to their subordinates at work. Meanwhile, a safety leader is someone who engages in safety-related matters with zeal and

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inspiration and is completely focused on overseeing their followers (Conchie et al., 2013). In this study, safety leadership is defined as the relationship between leaders and followers in which the former influence the latter in order to accomplish organizational safety goals. The Safety Leadership Scale (SLS) created by Wu et al. (2008b) will be used to assess safety leadership, which includes characteristics such as safety coaching, safety caring, and safety regulating.

According to Krause (2005), seven important safety leadership attributes and related behaviors can affect safety culture, including credibility, action orientation, vision, responsibility, communication, cooperation, feedback, and recognition. The best method for a leader to deliver that commitment is thru the employment of a capable, competent, and driven force that systematically executes operational activities designed upon sound engineering and technical practices designed to alter safe, secure, and environmentally accountable outcomes (International Association of Oil & Gas Producers, 2016). When a crisis strikes, especially during a pandemic, executives must swiftly assess what the employee or organization needs to survive and lead their firms beyond the catastrophe, while also presenting unanswerable questions about their purpose for existing and foundation for differentiation. In the meanwhile, victors may accept the crisis for what it really is: an opportunity to shape their own long-term perspectives and direct them to seize new chances. Leaders can use customized proven methods just within everyone's particular environment and supply chains, as well as the abilities people, develop (such as small demand, regional-gas or downstream-oil market position, intrinsic worth integration, and specialized strengths such as retail, trading, and distribution) (Barbosa et al., 2020).

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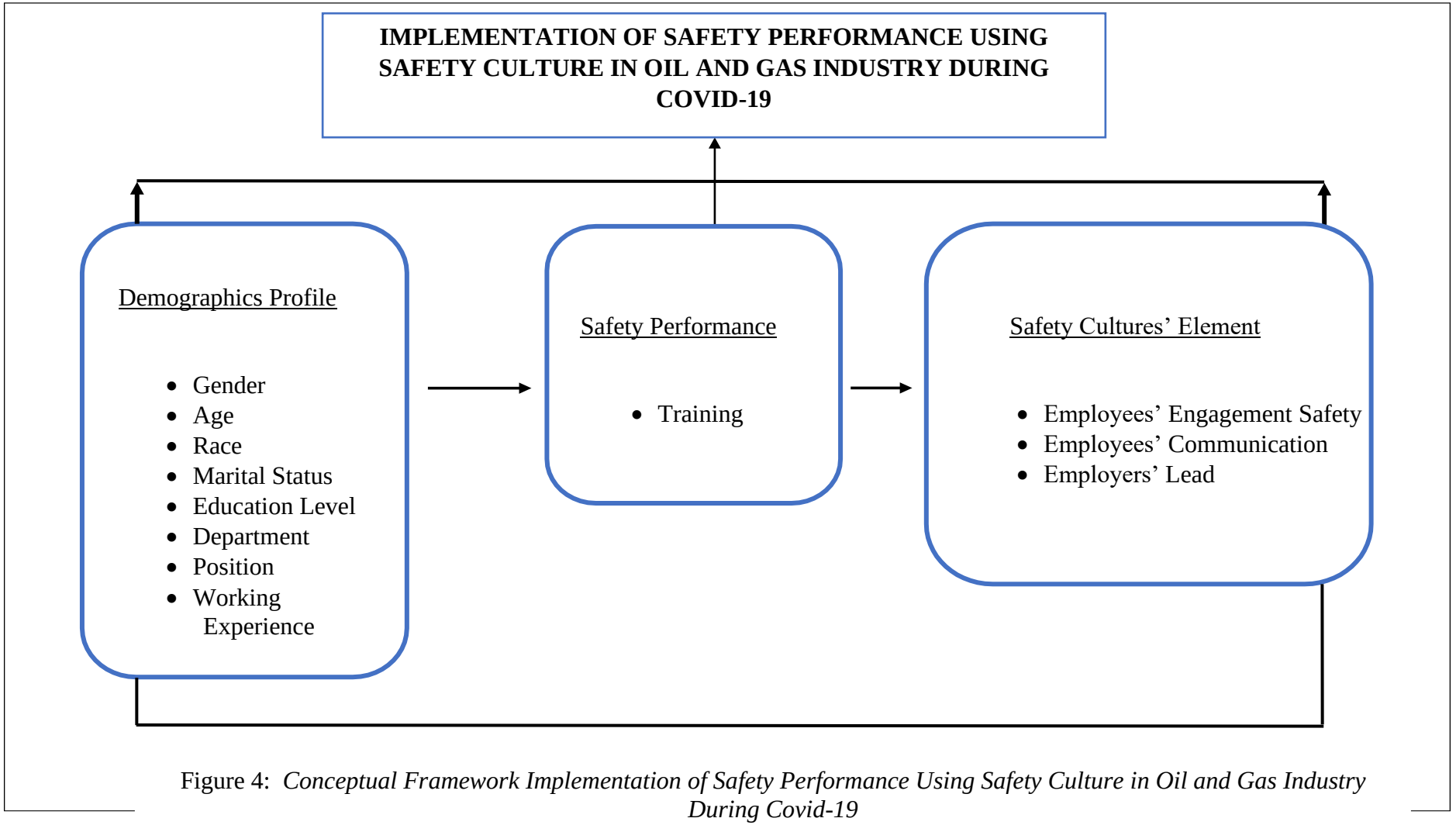

Figure 4: *Conceptual Framework Implementation of Safety Performance Using Safety Culture in Oil and Gas Industry During Covid-19*

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METHODOLOGY

The nature of the analysis is a quantitative methodology. The purpose of this analysis is to explore the impact of independent variables in the independent variables, namely, to investigate the influence of safety culture on safety performance through the recurring pandemic among the oil and gas worker, to analyze the impact of the motivation level of oil and gas workers during Covid-19 pandemic and to determine the effectiveness of elements of safety culture towards the workers as the dependent variable.

Sukamolson's survey research (2007) employs a scientific sampling strategy with a questionnaire designed to analyze the reference of a specific group using scientific analysis. Because this is a quantitative investigation, a set of questionnaires was utilized. Sukamolson (2007) defined the research analysis as a quantitative analytic approach that comprises poll data questionnaires, questionnaire design, questionnaire delivery to gather information from the group/population under investigation, and then analyses that help clarify their patterns of behavior.

Research Sampling

The population for this analysis will be among the oil and gas workers in Solar Gas Sdn Bhd, Klang, Selangor, Malaysia. The subject is chosen as specified by the parameters and guidelines used to assess the inclusion of subjects for the study protocol. According to Neuman (2003), this study used probability sampling methods to pick respondents. Probability sampling is a sampling process in which subjects of the population are given a fair chance to be chosen as a representative sample.

Simple Random Sampling

Moreover, researchers used basic random sampling in this analysis. The most basic sampling approach is simple random sampling, from which a set of participants (a sample) is selected for research from a larger group (a population). Each participant will be chosen at random, and every individual in the population will have a fair probability of being included in the study. Any possible sample of a given size has the same probability of being picked (Easton and McColl, 2002).

Sample Size

With ever need for a standardized sample population in scientific studies has contributed to a need for an efficient means of assessing sample size. In order to fix the current void, Krejcie & Morgan (1970) produced a table (see Appendix) for the calculation of sample size for a given population for easy comparison. The table is built using the appropriate formula to determine the size of the sample:

$$\boldsymbol{n = \frac{X^2 NP(1-P)}{E2(N-1) + X^2 P(1-P)}}$$

n = Sample size
N+ Population size
E = Margin of error (P-value = 0.05).
X² = Chi square of degree of freedom 1 and confidence 95% = 3.841.
P = Proportion of population (If unknown = 0.5).

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At the given conditions, the population size of the study is 50, using the Morgan and Krejcie formula and table, the sample size of this study is 44. Thus, 44 random workers from Solar Gas Sdn Bhd will be picked as a respondent for this research.

Company Background

This study was conducted in Solar Gas Sdn Bhd. located in Klang city. Solar Gas Sdn Bhd, previously named KUB Gaz Sdn Bhd, is a conglomerate that engages in the Agriculture, Information and, Communication Technology (ICT), Oil, Property, and Power Industries and is registered on the main market of Bursa Malaysia. Its multicultural-oriented product range offers a comprehensive combination of recession-proof products and services primarily designed to cater to household government and consumer markets, stable industries that were already expected to benefit from monetary stimulus bundles, and healthy domestic consumption in the context of public turbulence.

KUB Gaz Sdn Bhd was founded in 1969 and engaged in the bottling, promotion, and sale of LPG for domestic use as cooking gas and for industrial use under the brand name SOLAR GAS. Major markets are in northern, central, and southern Malaysia. The filling plants are situated at Westport Pulau Indah in the Central, Pray in the North, and Johor Bahru in the South. KUB Gaz has its own ocean terminal plant in Westport, Pulau Indah. Commissioned in May 1999, it has some of the most modern and new equipment for LPG filling. Solar Gas Sdn Bhd plans to extend the range of liquefied petroleum gas (LPG) bottling in the Malaysian market as demand grows steadily. Apart from that, they are also committed to pushing competitively beyond cultural and regional borders in order to help our multinational clients with the latest technologies, reliable goods, and production facilities for many households and workplaces in Malaysia.

DATA ANALYSIS AND FINDINGS

Online questionnaires were made and distributed to respondent who employed at Solar Gas Sdn. Bhd. The sample profile of the questionnaire survey is shown in Table 2. Although 48 surveys were circulated, there are more than an unexpected number participate in the survey. The acquired data was then recorded and analyzed with SPSS statistical program.

Table 1 : *Summary of Demographic Profile*

Profile	Category	Frequency	Percentage (%)
Gender	Female	17	35.4%
	Male	31	64.6%
Age	18 – 21 years old	NIL	NIL
	22 – 31 years old	25	52.1%
	32 – 41 years old	14	29.3%
	42 years old and above	9	18.8%
Race	Malay	29	60.4%
	Chinese	11	22.9%
	Indian	7	14.6%

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This research was based on 48 respondents who are working at Solar Gas Sdn Bhd and have the potential to perform the safety performance of safety training. There have a total of 31 or 64.6% male respondents and 17 female respondents which is 35.4%. The questionnaire was distributed randomly within the organization and the result shows that the male respondents are more than female respondents. This situation happened due to males are more dominant in this industry as well as willing and patient to participate in the research and answer the question. Most respondents participating in this research are respondents from the 22 – 31 years old and 32 – 41 years old categories, which contributed 52.1% and 29.3%, respectively. Out of 48 respondents, 29 of them (60.4) of them are Malay participants, followed by Chinese 11 respondents (22.9%), meanwhile Indian and Iban are 7 (14.6%) and 1 (2.1%), respectively.

Profile	**Category**	**Frequency**	**Percentage (%)**
	Iban	1	2.1%
Marital Status	Single	20	41.7%
	Married	26	54.2%
	Other	2	4.2%
Education Level	SPM	2	4.2%
	STPM / Diploma	14	29.2%
	Bachelor's degree	25	52.1%
	Master / PhD	7	14.6%
Department	Supply Chain	12	25%
	Business and Customer Relation	7	14.6%
	Strategic Sales and Business Transformation	9	18.8%
	Sales and Marketing	4	8.3%
	Human Resources	6	12.5%
	Finance and Account	6	12.5%
	ICT	4	8.3%
Position	Non-executive	14	29.2%
	Executive	18	37.5%
	Manager	9	18.8%
	Senior Management	7	14.6%
Working Experience	Less than 1 year	6	12.5%
	2 years	11	22.9%
	3 years	9	18.8%
	4 years	8	16.7%
	More than 5 years	14	29.2%

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The marital status of the respondents shows that 26 (54.2%) of them are married while 20 (41.7%) and 2 (4.2%) of them are single and other in status. Next, 25 of the respondents have bachelor's degrees, followed by STPM / Diploma and Master / PhD of 14 and 7, respectively. SPM holders are the least by only got 2 respondents. Out of 48 respondents, 12 (25%) of them are from Supply Chain Department, Strategic Sales and Business Transformation have 9 (18.8%) while Business and Customer Relations have 7 (14.6%) respondents. Respondents from Human Resources and Finance and Account departments have the same number of respondents of 6 (12.5%), the same for ICT and Sales and Marketing where they have 4 (8.3%) respondents. Furthermore, most of the respondents hold an executive position at the organization (37.5%). Non-executive, manager and senior management all have 14 (29.2%), 9 (18.8%) and 7 (14.6%), respectively. Lastly, 14 (29.2%) respondents have more than 5 years of working experience, while 11 (22.9%) have 2 years of working experience. 3 years and 4 years of working experience have (18.8%) and 8 (16.7%) of the respondents while the rest of the respondents are with less than a year of working experience.

Safety Training (ST)

Table 2 displays the central tendency summary for Safety Training. The mean score for the statement ranges from 1.083 to 4.77. Question 5 had the greatest mean score of 4.77, while questions 1 and 2 had the lowest mean scores of 1.083. Furthermore, in this study, the majority of respondents answered 'Agree' to the question in the Safety Training factors. This is demonstrated by the fact that the mean score in Safety Training (ST) is 4. Question 5 had the largest standard deviation value of 0.592, whereas questions 1 and 2 had the lowest standard deviation values.

Table 2: *Central Frequencies for Safety Training*

No.	Questions	Mean	Mode	Standard Deviation
1	I have undergone safety training since I joined the organization	1.083	1.00	0.27931
2	How is Covid-19 changing the safety learning and training needs of your organization?	1.083	1.00	0.2793
3	My organization enrolled its employees in the safety training courses (either online or face-to-face) since the outbreak of Covid-19.	1.1667	1.00	0.37662
4	I have undergone safety training due to Covid-19.	1.1458	1.00	0.35667
5	My organization considers safety training such as social distancing compulsory for every employee, especially during the Covid-19 pandemic. Do you agree with this statement?	4.77	5	0.592
6	My organization provides an efficient safety training program in order to comply with Covid-19's Standard Operation Procedures (SOP).	4.38	5	0.761
7	Safety training such as hygiene and health in check, is a must every day in order to enhance productivity and performance	4.52	5	0.743
8	Even though I work from home (WFH), I am still obliged by my organization to undergo safety training (either online or face-to-face).	4.27	5	0.869
9	How relevant you think the safety training for Covid-19's SOP you received to your work?	4.25	5	0.887
10	In your opinion, do you think safety training has helped improve your safety performance, especially during a pandemic outbreaks?	1.396	1.0	0.7646

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Employees' Engagement in Safety (EE)

Table 3 shows a summary of the central pattern of workers' involvement in safety (EE). The average score for the statement ranges from 4.13 to 4.75. The greatest mean score was obtained by question 1 of 4.75, while the lowest mean score was obtained by question 3. Furthermore, in this survey, the majority of respondents were 'Strongly Agree' with the question under the variable of workers' participation in safety. This is demonstrated by the fact that the modal score in employees' engagement in safety (EE) is generally in the 5 range. Question 3 had the largest standard deviation value, whereas question 1 recorded the lowest standard deviation value.

Table 3*: Central Tendency for Employees' Engagement in Safety*

No.	Questions	Mean	Mode	Standard Deviation
1	Everyone in my department/unit feels that safety is their own responsibility, especially during Covid-19 as there is proactive participation by all employees in safety initiatives.	4.75	5	0.438
2	During safety meetings, I am allowed to voice out my opinion regarding safety matters mainly related to Covid-19.	4.29	4	0.713
3	The organization makes changes based on my opinion and suggestion related to Covid-19.	4.13	5	0.981
4	All incidents of Covid-19 are investigated quickly in order to improve safety at the workplace as soon as possible.	4.40	5	0.844
5	There is a regular exchange about safety related to Covid-19 between employees and the organization.	4.35	5	0.785
6	If I notice a workplace hazard, I will point it out to the organization quickly.	4.44	5	0.681
7	Are you agree with the way your organization has managed both its organization and employees during Covid-19?	4.44	5	0.796
8	How dedicated do you perceive your organization to be committed toward employee safety during Covid-19?	4.44	5	0.681
9	Considering everything, how satisfied are you with the amount of engagement/involvement of the employees related to safety in the organization?	4.48	5	0.652

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Employees' Communication (EC)

Table 4 shows a summary of the primary trend of employee communication (EC). The average score for the statement ranges from 4.21 to 4.63. The greatest mean score of 4.63 was earned by question 1, while the lowest mean score was obtained by question 6 of 4.21. Furthermore, in this study, the majority of respondents 'Strongly Agreed' with the question on the workers' communication factors. This is demonstrated by the fact that the most common mode score in employee communication is 5. Question 7 has the largest standard deviation value, whereas question 1 has the lowest standard deviation value.

Table 4: *Central Tendency for Employees' Communication*

No.	Questions	Mean	Mode	Standard Deviation
1	During Covid-19 outbreak, I am kept-well informed about the organization's plan and progress with regards to safety.	4.63	5	0.672
2	During the Covid-19 outbreak, I am kept- well informed by upper management on what is going on in the organization.	4.23	4	0.722
3	There is good communication between employees in different departments of the company especially related to the Covid-19 pandemic.	4.23	5	0.831
4	Even though I work from home (WFH), I can easily communicate with all levels of this organization.	4.29	5	0.798
5	I am informed about possible safety hazards during the Covid-19 outbreak although I work from home (WFH).	4.33	5	0.808
6	My organization has a safe channel (WhatsApp/Telegram/etc.) to share any concerns regarding Covid-19 or its impact on employees.	4.21	5	0.849
7	I notify management of the death or in-patient hospitalization of an employee who has a confirmed, work-related case of Covid-19.	4.31	5	0.854
8	Is the organization providing safety procedure clear and concise so that it can be read and understood by those who may be at pandemic risk?	4.38	5	0.761
9	Communication about workplace health and safety procedures during outbreak pandemics is done in a way that I can understand.	4.33	5	0.834
10	Considering everything, how satisfied are you with the amount of quality of communication-related to safety in the organization?	4.38	5	0.733

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Employers' Leadership (EL)

Table 5 shows a summary of the employers' leadership (EL) central tendency. The average score for the statement ranges from 3.71 to 4.58. Question 1 had the greatest mean score of 4.58, while question 4 had the lowest at 3.71. Furthermore, in this study, the majority of respondents 'Strongly Agreed' with the question about the employers' leadership factors. This is demonstrated by the fact that the mode score is almost always a 5. Question 4 had the largest standard deviation value, while question 1 had the lowest standard deviation value.

Table 5: *Central Tendency for Employers' Leadership*

No.	Questions	Mean	Mode	Standard Deviation
1	My employer frequently encourages employees to be safe in their working behavior either before or during pandemic Covid-19.	4.58	5	0.613
2	My employer often says that employee participation in workplace safety is important.	4.33	5	0.724
3	My employer frequently gives work safety guidance on Covid-19's SOP to employees.	4.19	5	0.842
4	During a pandemic, my employer personally chairs meetings of the health and safety committee.	3.71	5	1.336
5	During a pandemic, my employer ensures that every employee is in a safe environment.	4.38	5	0.733
6	Even during a pandemic, my employer uses its authority to require employees to hit safety targets.	4.27	5	0.736
7	My employer participates in health and safety activities such as morning assembly to remind employees about safety (either online or face-to-face) during pandemic.	4.17	5	0.883
8	My employer frequently discusses health and safety issues with the employees, especially during the Covid-19 pandemic.	4.17	4	0.859
9	If I work from the office (WFO), my employer frequently monitors employees' work safety.	4.23	5	0.857
10	Considering everything, how satisfied are you with the amount of leadership given by your employer / organization related to safety in the organization?	4.33	5	0.781

FUTURE RESEARCH RECOMMENDATIONS

The first recommendation for future researchers is to provide more survey forms to all branches of the organization, even if they are in different states. Another approach is to undertake a multi-organization comparison to have a better knowledge of how safety performance is implemented in a safety culture. Incorporating various Malaysian industry organizations, for example, into the study guarantees that the findings are more comprehensive and credible.

The second research recommendation for the future is to extend the research model utilized in this study in order to obtain a better understanding of the factors that impact safety performance in safety cultures. Furthermore, it is suggested that future research include research on the desire to continue using the product. Last but not least, it is recommended that the government also plays an

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important role in the field of research and development, especially those related to the pandemic crisis to be a reference and source for future research. The government should encourage researchers to seize the opportunity to study this topic related to Covid-19 because it is a new issue that is happening, and the study will be true.

Next, the recommendation for weaknesses of quantitative study is that researchers must focus more on collecting the data to avoid any mistakes. As we know that this research was conducted through the distribution of questionnaires which is only done after respondents fulfill all the questions without knowing about their voices, actions, and so forth. The quantitative method, on the other hand, solely seeks to quantify the phenomenon of interest (Evelyn Lanka, 2021). This is because of the researchers' emphasis on quantity rather than the quality of data. When researchers concentrate on both types of data, the results will be more accurate.

CONCLUSION

As a result, the independent variables in this study, which are workers' safety engagement, have a substantial association with the safety training, however, workers' communication and employers' leadership are not substantially associated with the safety training. The outcomes of this study are useful in ensuring that the safety performance of the organization's safety culture is constantly up to date.

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