

Conference Paper

Influence of Leadership Communication in Fostering Employees' Safety Commitment in Oil and Gas Industry

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Abstract.

Over the span of decades, sustained research efforts have been dedicated to the realm of occupational safety and health practices within high-hazard work environments. This focus stems from the alarming frequency of accidents and injuries occurring within these settings. Recent research findings have consistently underscored the pivotal role of human factors – encompassing individual perspectives, communication, attitudes, and behaviors – as the chief catalysts behind such unfortunate incidents in high-risk workplaces. Nevertheless, the trajectory of these accidents and injuries can be altered, and the toll mitigated, by scrutinizing the safety commitment of employees. This commitment, crucial for ensuring safer work environments, can be cultivated through consistent interaction and communication with leaders. This interaction serves to enhance employees' knowledge and awareness concerning safety practices. In this context, the current article delves into the profound impact of leadership communication on employees' safety commitment within the oil and gas industry. Employing a quantitative approach, the study relied on survey-type questionnaires to fulfill its objectives. From maintenance and operation departments, a random selection of 260 technical employees participated as respondents. The findings convincingly establish that leadership communication exerts a substantial and significant influence on employees' safety commitment.

Keywords: OSH, leadership, communication, safety commitment, oil and gas

1. Introduction

Over the decades, there has been sustained research activity in occupational safety and health practices in high-hazard work environments due to the frequent number of accidents and injuries that have occurred there. For instance, in Malaysia, about 4265 workplace incidents were recorded in August 2021 involving 123 death, 155 permanent disability, and 3987 non-permanent disability cases by the Department of Occupational Safety and Health (*International Policy and Research Development Division, 2021*). In

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general, occupational accidents and incidents which lead to serious injuries, fatalities, and lost work time continues to be a major issue for national economy, employers, and employees as well as societies [1, 2]. Recently, multiple research findings highlighted human factors such as individual perspective, communication, attitude, and behavior as the main cause for accidents and injuries at the high-risk workplace [3-6].

Organizations have implemented and established safety policies and regulations as a guideline for the members to work safely. Besides, the organization also establish Health, Safety and Environment (HSE) departments and assign several HSE experts in improving safety and health in the work environment. In doing so, the management had put in the effort and full commitment toward ensuring safety and health of the employees in their work environment. Commitment towards safety is one of the safety practices that could prevent fatal injuries and is strongly associated with safety outcomes such as attitude, behavior, and safety performance [7]. Commitment towards safety is not one-sided but integrated on two parties (i.e., manager/supervisor and subordinates).

Furthermore, a manager or supervisor as a leader is capable of influencing his subordinates through interaction and communication which could contribute to the safety outcomes namely motivation, work satisfaction, and performance [8]. Therefore, there is a need for further investigation on how far leaders could influence employees in fostering safety commitment in oil and gas industry. Thus, this study aims to examine the influence of leadership communication on employees' safety commitment.

The objectives of the study are to measure the level of leadership communication, to measure the level of employees' safety commitment, and to examine the relationship between leadership communication with employees' safety commitment.

2. Literature Review

2.1. Occupational Safety and Health (OSH)

Occupational safety and health are of paramount importance and relevant to all divisions in the industry, business, and commerce as it affects all facets of work especially pertaining to accidents and injuries of the people. It is stated that "Safety is, without doubt, the most crucial investment we can make, and the question is not what it costs us, but what it saves" [9]. In general, the role of safety and health is pertinent and required in ensuring that there are satisfactory safety and health standards within the organization. Furthermore, the role of safety and health is not only used to prevent

accidents and injuries but also (i) to control occupational health problems; (ii) to create working environments which is safe and foolproof; (iii) to control human causes responsible for accidents; (iv) to create a conducive atmosphere when working; and (v) to design machines, equipment, and work situations that suit the capabilities and limitation of man which involve both physical and mental [10].

As mentioned, commitment toward safety is not as one-sided and unable to achieve safety goals without participation from both sides. Nonetheless, in such a work environment, the role of a leader should be considered for maximizing individuals' commitment towards safety practices specifically in terms of communication and interaction in delivering safety information and awareness.

2.2. Safety Leadership and Communication

In the concept of leadership, leaders and subordinates are connected. This is because, without subordinates, nobody could be leaders and supervisors to carry the task related to their jobs and without a leader, there is nobody that could be followed and nobody to monitor the task-related job carried out by the subordinates. In other words, leaders and subordinates need each other as there should be two sides giving and receiving the instructions and information in carrying out the daily task related to each other respectively.

In this context, the supervisor as a leader is a key person in centralizing the communication process between management and subordinates when it comes to task-related jobs. Finding [8] also found out that communication and feedback between supervisors and subordinates were directly correlated with safety knowledge and was indirectly correlated with safety compliance and participation. As a result, leadership communication has a significant role in influencing safe work outcomes at the workplace. Therefore, further investigation on this component should be explored especially with safety commitment as suggested by previous studies.

2.3. Safety commitment of the employees

Safety commitment studies are focused on personal commitment towards safety in the workplace environment that is exposed to risk and hazards during work. It is revealed that employees' commitment concept at the place of work is widely developed and has received a lot of attention in occupational studies [11]. According to [12], employees' safety commitment is crucial as the strength of the commitment can determine an

individual's willingness in accepting company safety initiatives and his involvement with safety at the workplace. Besides, commitment towards safety is strongly associated with safety outcomes, such as workers' attitudes and behavior, as well as safety performance. Furthermore, commitment towards safety is one of the safety practices that could prevent accidents and injuries at the workplace.

Arguments on the safety commitment nonetheless are still rotating within a loop. Some researchers (e.g. [13, 14]) viewed and used the safety commitment as one of the components of safety climate and predictor towards safety performance, meanwhile, the other researchers (e.g. [7, 11, 14]) viewed and used the safety commitment as a measured variable that is influenced by independent variables, such as safety communication. The difference and contradiction can be seen through an individual's commitment to safety. For example, management commitment towards safety is viewed from the perspective of management that is committed to improving safety at the workplace by implementing safety initiatives, such as through communication, by providing training to employees, building safety committee, and providing safety guidelines to all employees in the organization. In contrast, employees' commitment towards safety is viewed from the perspective of the subordinates that could be evaluated from their attitudes and behavior towards safety such as through their compliance with safety rules and procedures, participation in safety programs, and reporting the risk and hazard to the management. However, safety commitment, either from management or subordinates' perspective is related to each other, as [14] suggested, only strong support and commitment from each level of management on safety would drive employees to reciprocate the deeds by demonstrating safe behavior at the workplace.

In conclusion, commitment in the context of safety is an involvement with the willingness of all levels of the employees in the organization in exerting the effort towards preventing accidents and injuries from occurring and hence improving safety in the work environment.

3. Methodology

3.1. Survey Instrument

Questionnaire has been adapted from several studies [7, 8] for leadership (supervisor) communication and safety commitment dimensions. The questionnaire consists of three main sections which are demography, supervisor communication and safety commitment. To ensure the validity of the instrument and improve the content of

the questionnaire that is supposed to be fit with the organization, the researcher approached four experts consisting of two lecturers from relevant disciplines to this study, a manager and an engineer from oil and gas company to provide feedback and comments for the questionnaire.

The questionnaire. The questionnaire was translated into Malay by an expert language translator. The questionnaire was then reviewed by the researcher and her supervisors, for any anomalies that might be found due to the limited exposure of this translator concerning the standard use of business and management terms. Once the questionnaire was edited for these anomalies, it was then sent back to another translator and was translated back into English to assure consistency in language to the possible extent.

3.2. Data Collection Process

The study collected data from 300 respondents throughout two main plants gas processing in Malaysia. 300 questionnaires were administered to ensure and prevent unresponsive answers from the respondents. The number of respondents is sufficient based on Krejcie and Morgan (1970). Figure ??.5 shows the distributions of respected gas processing plants. The organization was first contacted to set up an appointment. Then, the researcher personally distributed the questionnaire to the respondents. However, to avoid biases during the data collection process, the respondents answered the questionnaire forms themselves. Then, the forms were collected on the same day or a week later. Out of 300 questionnaires distributed, 275 of them were collected and 15 non-response forms were identified. Thus, the final questionnaire that could be used for statistical analysis is 260. All the instruments used were answered completely by the respected respondents making all of them viable for statistical analysis.

3.3. Reliability Test

The reliability or internal consistency of the measurement (questionnaire) could be measured by determining the value of Cronbach's Alpha coefficient. A correlation coefficient measures the degree of relationship between two sets of scores and can vary between -1.00 and +1.00. The stronger the relationship between the variables, the closer the coefficient value to ± 1.00 , while the weaker the relationship between the variables, the closer the coefficient value to 0. Besides, the Cronbach's Alpha value that achieves 0.7 and above is good and acceptable which means that the items are

reliable, meanwhile, the value that is below 0.6 is poor and unacceptable [15]. Thus, the overall internal reliability coefficient is computed as follows: supervisor communication (0.785) and safety commitment (0.900) and show high consistency.

4. Result and Discussion

Among 260 respondents, the majority were males (95%) and only 5% were female. As for age, the study indicated that the first group of age within 20-29 was 18.8%, the second group within 30-39 was 38.5%, the third group within 40-49 was 34.2% and the fourth group within the '50s and above was 8.5%. In terms of academic qualification, the findings indicated that more than half of the respondents were certificate holders (56.9%), 23.1% were diploma holders, 17.3% of them were degree holders and only 2.7% of the respondents were master/Ph.D. holders. The result reveals that almost 50% of the respondents have served for more than 15 years of service in O&G (45.5%). Then 26.2% of them have served for 6-10 years. The rest of the respondents have served for 11-15 years (14.6%), for 2-5 years is 9.6% and less than 2 years is 4.2%. In short, the years of service category seems to correspond to the age of the respondents. 45% of the respondents that have served for 15 years belonged to the veteran of this industry (age from 40 to above), 14.6% of the respondents that have served for 11-15 years belonged to young workers (age 30-39) and meanwhile, the rest is from age of 20-29 years.

4.1. Level of Supervisor Communication

As shown in Table 1, the finding suggests that overall, the respondents were satisfied with supervisor communication (mean=4.03, SD=0.507). The respondents are comfortable discussing safety issues with their supervisor (mean score = 4.13). In addition, they are free to discuss safety-related issues with their supervisors (mean score = 4.07) and stated that their supervisor openly accepts ideas for improving safety at the workplace (mean score = 4.03). On the other hand, even though they are free to discuss safety-related issues with their supervisor; most of the respondents do not often discuss safety issues with their supervisor (mean score = 3.87).

4.2. Level of Safety Commitment

The average mean score for the dimension of safety commitment is 4.15 and the standard deviation is 0.407. This study found that respondents agreed that it was very

TABLE 1: Supervisor Communication.

Items	Mean	SD
I feel comfortable discussing safety issues with my supervisor.	4.13	.575
I try to avoid talking about safety-related issues with my supervisor. ®	4.08	.892
I am free to discuss safety-related issues with my supervisor.	4.07	.615
My supervisor encourages open communication about safety.	3.97	.724
My supervisor openly accepts ideas for improving safety.	4.03	.666
I am reluctant to discuss safety-related problems with my supervisor. ®	4.04	.876
I often discuss safety issues with my supervisor.	3.87	.705
Total Average Mean Score	4.03	.507

important to work in a safe environment (mean score = 4.54). They were very cooperative with their supervisor/manager about safety issues (mean score = 4.45). Besides, the respondents cared about the safety rules and regulations at the workplace (mean score = 4.26) and would like to obey the regulation to keep their workplace safe (mean score = 4.35). On the other hand, only some of the respondents would be extremely glad to be a member of safety committee at their workplace (mean score = 3.79) and willing to do extra jobs to improve the safety performance at their workplace (mean score = 3.85). The detailed findings for each item are shown in Table 2.

4.3. Correlation Analysis

From the analysis, this study found that there was a significant positive (strong) relationship between supervisor communication and safety commitment of the employees at oil and gas company $r = 0.580$, $p < .000$ as presented in Table 3.

5. Conclusion

Based on the above result, this study found that there was a high level of supervisor communication and a strong level of employees' commitment towards safety. Open interaction and full support from the leader/supervisor will assist employees to be more open and more willing to share more safety information. This study also revealed that supervisor communication strongly correlated with employees' safety commitment. This finding consistently proved the past research that a supervisor could give a greater impact on employees' commitment since the supervisor tends to be closer with his/her employees due to his/her direct role in supervising the employees. In this case, the

TABLE 2: Safety Commitment.

Items	Mean	SD
I would not be worried about the hazard and risk at the workplace. ®	4.03	.978
I am willing to do extra jobs in order to improve the safety performance at my workplace.	3.85	.771
Employees here are not happy to wear the personal protective equipment. ®	3.97	.998
I really care about the safety procedures and regulations at my workplace.	4.26	.602
I am willing to put in great effort to achieve safety goals.	4.24	.589
Near miss accidents are not important in safety records. ®	4.25	.890
I never give cooperation with my supervisor/manager about safety issues. ®	4.45	.704
I would like to obey the safety regulations in order to keep my workplace safe.	4.35	.707
All employees should actively involved in safety promotion activities.	4.27	.645
I am willing to put great effort beyond that normally expected in order to be a competent worker.	4.20	.643
I would be extremely glad to be a member of safety committee at my workplace.	3.79	.784
I would like to get be involved in safety discussion at my workplace.	3.95	.667
I am ready to involve myself in the organization safety activities.	3.97	.651
It is very important to work in a safe environment.	4.54	.604
I would not feel guilty if I used a “shortcut” while completing my work. ®	4.15	.865
I really would like to take part in occupational safety rules/procedures/reviews.	3.93	.714
Safety procedures and regulations reflect the safest technique of doing a job.	4.23	.614
I think putting more effort into understanding all safety rules is a waste of time. ®	4.24	.933
It is an employee’s duty and responsibility to support and encourage colleagues to obey the safety rules/procedures/regulations.	4.19	.680
I would like to be involved in the safety goals planning at workplace.	3.94	.670
I will ensure the risks are assessed before starting my work.	4.24	.580
I always ensure that the safety equipment is working properly before I start a job.	4.37	.577
Total Average Mean Score	4.15	.407

leader should increase his relationship and exchange more information with employees so that employees feel happy and unreluctantly to share their opinion and feeling related to safety issues and practices at the workplace.

TABLE 3: Correlation Table.

	Supervisor Communication	Safety Commitment
Supervisor Communication	1	.580**
Safety Commitment	.580**	1
	.000	.000

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