
PERCEPTION OF CONSTRUCTION WORKERS ON WORK MOTIVATION TOWARDS SAFETY PRACTICES AT BUILDING CONSTRUCTION SITE: A CASE STUDY IN OLUVIL

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ABSTRACT

The construction industry has been known as one of the menacing industries. Although there is an improvement of the safety performance and upturn in safety awareness in the industry, the accident rate is still one of the highest compared to other sectors. Besides causing human tragedy and economic losses, construction accidents also affect the productivity and character of the construction industry. But organizational characteristics and worker perceptions are among the main factors affecting the safety climate in construction sites. Work Motivation is one of the factors affecting worker perception. It is a process which triggers productivity of the works and construction site safety. The aim of this study is to assess perception of construction workers on work motivation towards safety practices at a building construction site in Oluvil and propose successful approaches to guarantee safe work sites for workers. The data was collected from the validated questionnaires which was adopted from a previous research of similar nature. The study concluded that work motivation at the site was of poor status though there were some positive aspects identified. The workers representing sub – contractors were found to be in a better condition than that of main contractors with respect to work motivation. The skilled work force was also in a better position as compared to unskilled work force.

Key words: Safety, worker perception, work motivation, Construction.

1. Introduction

Safety is the state of being "safe", the state of being endangered from destruction or other non-desirable effects. It is an essential need for the people and environment. In safety management, it encompasses the productivity, the cost of managing each, and also coordinating policies and operations with industry standards and practices as well as with national and international regulations.

Compared to other trades, construction industry is reported to be one of the most hazardous work environments. In recent years, the Sri Lankan construction industry has reported a higher number of fatalities and injury rate, which is ranked as the 3rd worst among industry groups in Sri Lanka (R.U.HalwaturaL & T.L.Jayatunga, n.d.). Every accident leads to calamities such as injury or death to persons, damage to property and the environment and associated direct and indirect costs and effort. In the perspective of national economy, it is very important to mitigate safety related disasters as it leads to delays in the construction process. The consequences, in terms of delays and total expenses following an accident, are usually much higher than the original cost of establishing and maintaining safety criterions (Risath, et al., 2016).

Employments in construction site can be categorized into three groups; "Management and technical" work force, "Skilled" work force and "Semi-skilled and Unskilled" work force. In general, all skilled, semi-skilled and unskilled workers are at risk of being injured, death or various illnesses in a construction site, even if the level of risk varies with activities they are tied up in (Vitharana, et al., 2015). Labour perception is a major factor in affecting the climate of safety. Poot; & Carcano (2014) demarcated perception as a cognitive process of inferential and constructive character, by which a subject can make an interior representation of what happens in the exterior, from information collected by the senses and information from memory.

Organizational characteristics of safety practices and worker perceptions are among the major factors affecting the safety climate in construction sites. Construction workers' behavior is an enormously significant factor in worksite safety as many accidents are often occasioned by apprehensive behaviors of construction workers. Thus consequently there is a necessity for construction professionals to look the matter from construction workers' point of view, aiming to give safe workplace for them. The available literature related construction safety in Sri Lanka are basically aligned towards assessing safety issues, finding safety level and safety mitigation measures. The available researches in Sri Lanka on this domain have hardly focused on workers' perception towards safety while the more prominence has been given to perceptions of construction professionals on the matter. Therefore this study, almost certainly the first study of its nature in Sri Lanka, has focused on assessing the perception of construction workers on work motivation towards safety practices at building construction sites.

2. Literature Review

According to the available information at the Labour Department, as mentioned by A.K. Somasundaraswaran, et al., (2004), the statistics of fatal and non-fatal accident reports are shown below Table 01. Every year 2500 to 3000 accidents were reported to Industrial Safety Division of Labour Department. Out of those accidents 40 % to 60 % were fatal and around 30% were due to constructions methods (Risath, et al., 2016).

Table 01: Construction site accidents in Sri Lanka

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Fatal Accidents	12	12	16	3	4	8	10	16	19	13	13	12	14	15	19
Non-fatal	280	218	61	54	110	130	103	138	123	121	86	45	50	89	113

2.1 Safety Climate and Labour Perception

Safety climate, as defined in the literature, refers to a comprehensible set of perceptions and expectations that workers have about safety in their organization. In effect, it signifies the shared perceptions about safety principles, values, norms, beliefs, and practices of workers in their work atmospheres (Gyekye, 2006). The factors affecting a climate of safety in work centres have been identified, and the most important ones include: organizational characteristics, individual behaviour and workers' perceptions. Poot; & Carcano (2014) studied construction workers' perceptions of safety practices as a case study in Maxico. The study had focused on six different dimensions, namely Education and training, Work motivation, Family and socialintegration, Work place integration, Safety awarness integration, and Accidents. The study concluded that workers have received very little education and training oppurtunities and possesses a limited culture of safety awarness, leading them to face more safety related threats in construction site. The following Table 02 depicts the summary of literature review on the factors affecting the workers' perception.

The existing literature shows that the factor 'work motivation' is not much studied and less focused by the researchers as it is compared to the other factors which determine the safety climate. Only Romel G.Soils-Carcano (2014) has considered work motivation in their study. Therefore the gap in the literature need to be addressed and this factor should be further explored.

Table 02: Summary of literature survey on the factors affecting the worker perception

Worker Perception Factors	Researches				
	(Gyekye, 2006)	(Andi , 2008)	(Mohamed, 2002)	(Moheeb, et al., 2012)	(Poot; & Carcano, 2014)

Top management commitment		√	√	√	
Safety rules and procedures		√	√	√	√
Communications,		√			
Workers competency	√	√	√	√	√
Work environment,		√	√		√
Workers involvement		√			
Work motivation					√
Accidents.	√		√		√
Job satisfaction	√				
Worker profile	√		√	√	√

3. Methodology

This exploratory type research study has chosen case study method. The case study methods captures the real picture of the study area and it provides the researcher an opportunity to highlight a project's success or to pay attention to a particular trouble in a project. For assessing the workers' perception on work motivation, a structured questionnaire was adopted from the survey instrument used by Romel G. Soils-Carcano (2014).

Initially, the prepared questionnaire was produced to three construction based experts, who are working as senior level project managers, for checking its validity to assess whether it could be used in Sri Lankan context. The feedback and modifications proposed by the experts were then included before the survey instrument was really tested.

The questionnaire included closed-ended questions and comprised of 2 main sections: general information and the work motivation elements. Based on the literature survey, the most operative approach is to develop a survey instrument, comprising list of simple closed-ended statements that can be responded with a "YES" or a "NO."

The data collection process was conducted during working hours. The instrument was applied by reading the questions and asking the worker to give their answers verbally. On average, it was taken from 20 to 30 minutes to complete one sample.

All of the construction workers, 68 in total, who worked in the ongoing project at South Eastern University of Sri Lanka, Oluvil, had participated in the study. This project was to construct a four story hostel building for girls.

The workers participated in the study had been engaged in the following 7 common activities: scaffolding work, reinforced steel fixing, plastering, painting, cleaning, machine operating, and electrical installation. The comparison between company type and skill level was processed using the Microsoft Access software.

4. Results and Discussion

4.1 Worker profile

The Table 03 presents the distributions of the construction workers took part in the study. During the data collection process all the structural works were fully completed at the site. The plastering and painting works were the major ongoing tasks. Therefore the study had more masons, 52 % in total.

Table 03: Labour category in the site

Occupation	Percentage (%)
Mason	53
Carpenter	1
Bar binder	6
Electrician	6
Plumber	5
Welder	1
Scaffolders	9
Painter	6
Labour	12
Water proofing	1

Table 04 illustrates the distributions of the main characteristics of the workers participated in the study.

Table 04: Labour characteristics

Characteristics	Description	Percentage %
Age	Below 18 years	3
	18 to less than 25 years	28
	25 to less than 30 years	25
	30 to less than 35 years	23
	35 years or more	21
Marital status	Single	25
	Married	75
Skill level	Skilled	53
	Unskilled	47
Employee type	Contractors	34
	Sub-contractors	66
Experience in construction industry	1 – 5 years	29
	5 – 10 years	38
	10 - 15 years	21
	More than 15 years	12
Experience in the current company	Less than 1 year	47
	1 - 3 years	37
	3 - 6 years	12
	More than 6 years	4

4.2 Education and training

Forty one percent of the workers reported having completed, at least, primary education (Grade - 05); 52% had completed ordinary level (Grade -11); and 7% had completed Advance level (Grade - 13). It was also observed that the workers were not provided enough training exposure. One of the supervisors remarked that, on occasions, the company has provided training for the workers. From the survey 44% received a preliminary safety training from the company.

4.3 Accident level

Twenty one per cent of the workers reported having had at least one accident during their working life in construction. Mainly there were three types of major accident causes. Falling from heights or scaffolding (43%), Falling debris, materials or objects (21%), Struck by moving objects (36%). It was also known that smoking was

completely prohibited during the working time. The below Table 05, shows the number of leaves taken for the particular accidents.

4.4 Work Motivation

According to the survey, workers motivation at the construction site is very low. Among the questions considered in the studies, the lowest percentage of the approvals were the following: “Individuals are recognized and rewarded for respecting safety and health responsibilities (18% of the workers said Yes)”, “Are they giving any compliment for following the safety (18% of the workers said YES)”, “Is there any safety gain sharing programme happened at site? (25% of the workers said YES)”, “Is there any motivational speech happened in the site frequently about safety (29% of the workers said YES)” and the questions that obtained highest percentages of approval were related to their satisfaction about the income, appreciation from supervisors, and feeling importance of the connected work. Table 06 shows the summary details of the study analysis on work motivation.

Table 06: Analysis of Work Motivation

No.	Questions	Percentage of YES (%)	Percentage of NO (%)
1.	The work I do is important.	98.53	1.47
2.	Is there any motivational speech happened in a site frequently about safety?	29.41	70.59
3.	Are there enough safety slogans, posters and signs?	77.94	22.06
4.	Is there any experience sharing programme happened in site?	25.00	75.00
5.	Individuals are recognized and rewarded for respecting safety and health responsibilities	17.65	82.35
6.	Are they giving any compliment for following the safety?	17.65	82.35
7.	I would like my Foreman/Supervisor/Engineer to appreciate me that I work well.	79.41	20.59
8.	I am paid well.	88.24	11.76

4.5 Comparison of Work Motivation with Contractors and Sub-contractors

All the percentage values mentioned in Table 07 is answers given as YES. Here, most of the YES approvals were given by Sub-Contractors when it is compared to Contractors.

Table 07: Comparison between Contractor and Sub-contractors

No	Questions	Contractor (%)	Sub-Contractor (%)
01	The work I do is important.	33.82	64.71
02	Is there any motivational speech happened in a site frequently about safety?	7.35	22.06
03	Are there any safety slogans, posters and signs?	23.53	54.41
04	Is there any gain sharing programme happened in site?	7.35	17.65
05	Individuals are recognized and rewarded for respecting safety and health responsibilities	5.88	11.76
06	Are they giving any compliment for following the safety?	5.88	11.76
07	I would like my Foreman/Supervisor/Engineer to appreciate me that I work well.	26.47	52.94
08	I am paid well.	29.41	58.82

4.6 Comparison of Work Motivation with skill level

All the percentage values mentioned in Table 08 is answers given as YES. Here, most of the YES approvals are given by workers than semi-skilled. The following are the questions which were obtained low percentage approved as YES. Is there any motivational speech happened in a site frequently about safety? (17.65%); Is there any experience sharing programme happened in site? (14.71%); Individuals are recognized and rewarded for respecting safety and health responsibilities (11.76%); Are they giving any compliment for following the safety?(11.76%).

Table 08: Comparison with skill level of workers

No	Questions	Skilled (%)	Semi-Skilled (%)
01	The work I do is important.	52.94	45.59
02	Is there any motivational speech happened in a site frequently about safety?	17.65	11.76
03	Are there any safety slogans, posters and signs?	39.71	38.24
04	Is there any experience sharing programme happened in site?	14.71	10.29
05	Individuals are recognized and rewarded for respecting safety and health responsibilities	11.76	5.88
06	Are they giving any compliment for following the safety?	11.76	5.88
07	I would like my Foreman/Supervisor/Engineer to appreciate me that I work well.	44.12	35.29
08	I am paid well.	48.53	39.71

5. Conclusion

The study established that construction workers have shown positive attitude in certain aspects of work motivation. In general, the workers feel interested with the work they do. But the external motivation towards the workers was found to be too low while the workers are eager to be appreciated by the supervisors upon they are found to be working well. According to the feedback obtained from the workers, the construction site has enough slogans, posters, and signs to alert the workers to be safer in their works. It is also found that the construction workers at this site are satisfied about what they earn out of their job.

In the intervening time, the study has generated the other side of story whereas construction sites need to address many issues associated with safety practices with regard to work motivation. The rewarding system for the workers upon their positive outcomes is hardly practiced which causes negative consequences in long run. The top management and the concerned parties at sites are not much caring the workers about the needful motivation and talks to be given to workers at regular basis and on special occasions. The sub - contractors are motivated more than the contractors because of the extra surveillance coming from the concerned parties at site. The same pattern has been observed in the Skilled and Unskilled workers too.

In this background, this study has concluded that an important need in the construction sites is to further enhance construction professionals' motivation and enthusiasm in safety management. Construction workers should be trained and educated by contractors about their role and precaution measures they have to make while doing various activities at site. Therefore, labour unions should be more spirited when demanding safe working conditions. Construction clients should stimulate the safety of workers by adding extra clauses which ensure the safety in practice. When construction workers are given the chance to get actively involved in the enhancement process, then it becomes an incredible source of motivation.

6. References

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