AN APPRAISAL OF HEALTH AND SAFETY TRAINING PRACTICES OF SMALL AND MEDIUM CONSTRUCTION FIRMS

BY

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ABSTRACT

Small and Medium construction firms constitute a large percentage of construction firms in developing countries, who in turn are the highest employers of construction labour. The safety of construction wokers on site is paramount to the overall success of the project as only when workers are in a sound state of mind and are physically healthy that work can go on efficiently. Safety training has been identified as one of the factors influencing safety performance in the construction industry. However, despite the emphasis on the need for effective health and safety practices, poor safety training practices in some segments of the construction industry have been observed by previous studies. This paper therefore, aims to appraise the health and safety training practices of small and medium construction firms in Nigeria. A purposive sampling technique was used to sample the study population. A quantitative research approach was adopted for this study. The tool used for data collection was a structured questionnaire which was distributed to safety managers and project managers in small and medium construction firms. Data colected was analysed using descriptive statistics whereby the mean was used as a basis to rank the factors studied. Results from analysis shows that despite these construction firms not having a written health and safety policy, they do actually engage in health and safety trainings. Furthermore, training for non-managers has been found to be given more priority in both small and medium construction firms studied as against training for managers. Training employees on the use of Personal Protective Equipment (PPE)" ranked top amongst the most practiced safety training in both small and medium constructon firms. Small firms ranked PPE training. Orientation for all new hire as well as conducting training for every new job to be executed were both ranked high by small firms but ranked low by medium firms. The paper ultimately adds to the existing body of knowledge, and provides an insight to the practices of health and safety training in small and medium construction firms in Nigeria

Introduction

All over the world, construction is regarded as one of the most hazardous industries, due to its unique nature (Jannadi & Bu-Khamsin, 2002). Construction safety is always a grave concern for both practitioners and researchers. Construction workers face different kinds of safety and health hazards while working every day. Over 60,000 fatal injuries are reported every year from construction projects around the world (Lingard, 2013). The Occupational Safety and Health Administration (OSHA), an agency under the United State Department of Labor reports that 1 in 10 construction site workers are injured every year. The American Bureau of Labor Statistics figured that roughly 150,000 injuries occur each year in the construction site. Such figures augment the construction industry as one of the most hazardous and accident-prone working environments and one of the highest risk businesses as far as its activities are concerned.

The safety of construction workers on sites is important towards the success of any project. Only when workers are in a sound state of mind and are physically healthy that work can go on efficiently (Okoye, Ezeokonkwo, & Ezeokoli, 2016). As asserted by Kolo (2015), occurrence of accidents or injury to workers tends to demoralize the workers and in some cases leads to suspension of construction activities. Okoye et al. (2016) noted the persistent health and safety challenges in Nigerian construction industry which ultimately results in different types of loss and magnitude.

A number of factors influencing safety performance in the construction industry have been identified by Hinze and Raboud (1988), this include worker's attitudes, construction company size, safety policy and training, project coordination, and economic pressure. Thus, Occupational Safety and Health Administration (OSHA), proposes the need for consistent training of artisans and managers about workplace hazards and control in order to ensure safety and productivity. Training, in this context, is to provide workers and managers with a greater understanding of health and safety policies and practices for them to work safely and ensure that that their actions and inactions do not harm any other person.

It is therefore imperative that companies of all sizes and complexities strive to equip their workers and managers with knowledge and skills necessary for them to deliver projects with the aim of ensuring zero accidents on construction sites. The training should foster awareness and understanding of workplace hazards and how to identify, report, and control them. It must also ensure

specialised focus on unique hazards expected in every project. It has been reported that large construction firms are more effective in providing safety training to workers than small and medium firms (Umar, 2018). This is with respect to components of safety training design and delivery, learning aid of safety knowledge by workers, efficient training transfer of the learned knowledge by workers in their job environments, and results on key organizational objective of health and safety. It is therefore important to carefully study the nature of training practices provided by small and medium construction firms, which dominate the construction industry in developing countries, in order to highlight key areas of improvement. The study aim was achieved through identifying key training practices found to improve health and safety in previous literature and using them as a benchmark to appraise the safety training practices of small and medium construction firms in Nigeria. More so, the frequency of safety training and availability of a health and safety policy document was also assessed.

Review of Literature

Health and Safety Training in Small and Medium Construction Firms

Despite the emphasis on the need for an effective health and safety practices, Namian, Albert, Zuluaga, and Jaselskis (2016) cited in Burke et al. (2006) observed poor safety training practices in some segments of the construction industry. This poor training practices fail to sufficiently engage workers, thereby limiting the transfer of safety knowledge. More so, Haslam et al. (2005) opined that, the adoption of ineffective and unengaging training methods can instigate negative attitudes among workers to safety issues, and can have dire consequences.

Previous studies have reported a significant difference in safety practices of large construction firms as opposed to small and medium firms (Hinze & Raboud, 1988; McVittie, Banikin, & Brocklebank, 1997). Demirkesen & Arditi (2015) reported that larger firms are more committed to safety practices than small and medium firms. For safety training to be effective, it has to be holistic in a company and there has to be a program that stipulates the nature and routine of delivering the training in organisations. Unfortunately, Cunningham et al. (2018) revealed that small firms tend to engage in training practices only as required on the job while large firm's engage in routine training for their employees.

However, Wong, Gray, and Sadiqi (2015) found that small and medium construction firms constitute a large percentage of construction firms in developing countries who in turn are the highest employers of construction labour. Furthermore, the International Labour Organization (ILO) estimates that the construction sector in industrialized countries employs between 6% to 10% of the total workforce but accounts for between 25% and 40% of work-related deaths (Lingard, 2013). Therefore, the need to investigate the barriers to an effective safety practices and training in small and medium firms cannot be over emphasized.

Methodology

A quantitative research approach was adopted for this study. The tool used for data collection was a structured questionnaire which was distributed to small and medium construction firms. The technique used was 'drop now and collect later'. A purposive sampling technique was adopted to sample the study population.Saunders, Lewis, & Thornhill (2009) recommend the use of such sampling when a researcher wish to select respondents that are particularly informative in fulfilling the research objectives. Also, Kumar (2011) recommend the use of this sampling if a research seeks to use experts in a field of inquiry. The experts in this study are 'safety managers' in the sampled construction firms who are believed to be more knowledgeable regarding the health and safety practices in their respective firms. In instances where there were no safety managers, the project managers served as respondents in such firms. The questionnaire was divided into two different sections. The First section inquired about the respondent's personal information while the second inquired about health and safety training practices in small and medium construction firms. Data was analyzed using descriptive statistics whereby the mean was used as a basis to rank the factors studied. the general suitability of this technique is informed from the works of (Carifio & Perla, 2007;Holt, 2014;Bishop & Herron, 2015; and alsoHarpe, 2015).

Results and Discussions

A total 150 questionnaires were distributed to safety managers and project managers across the country in small and medium construction firms. However, only 82 (54.6%) of the administered questionnaires were returned and analyzed, while 68 (45.4%) were not returned. Furthermore, returned questionnaires were categorized based on the size of the firm. Table 1 shows the return rate of the distributed questionnaires.

Table 1: Size of construction firms studied

Size	Frequency	Percentage
Small	59	72.0
Medium	23	28.0
TOTAL	82	100.0

While a large percentage of the returned questionnaires (72%) were from small construction firms with staff strength of 1-50, 28% of the returned questionnaires were from medium construction firms with staff strength of 50-250.

As asserted in most literature on health and safety management, it is important for every firm to have a written health and safety policy. Table 2 shows that while 36.6% of the firms have a written Health and Safety policy, 63.4% do not have a written health and safety policy.

Table 2: Health and Safety Training Policy

Training Policy	Frequency	Percentage
Yes	30	36.6
No	52	63.4
TOTAL	82	100

With respect to the health and safety practices investigated, Table 3 depicts that while 6.1% of the firms studied train their employees on health and safety less once a year, 6.1% of the firms studied also train their employees on health and safety once a year. Similarly, while 25.6% of the firms studied train their employees on health and safety more than once a year, 62.2% of the firms studied practice 'on the job' training of their employees.

Table 3: Frequency of Health & Safety Training

Frequency of Health & Safety training	Frequency	Percentage
Less than once a year	5	6.1
Once a year	5	6.1
More than once a year	21	25.6
On-the-job as required	51	62.2
TOTAL	82	100

Table 4 depicts the results of the ten Health and Safety training practices of the studied construction firms covered in this study. "Training employees on the use of Personal Protective Equipment (PPE)" ranked top amongst the most practiced safety training in both small and medium constructon firms. Small firms ranked PPE training 1st with a mean of 3.27 while ranked 2nd by medium firms with mean value of 3.43. However, "orientation for all new hire" as well as "conducting training for every new job to be executed" were both ranked high by small firms but ranked low by medium firms with respective ranks of 2nd and 3rd in small firms, 6th and 8th by large construction firms. Conducting orientation to apprentice ranked first by medium construction firms with mean value of 3.53, and ranked 4th by small firms with mean value of 3.07. Training practices such as "Organizing training on First Aid" and "Educating employees on stress management" were ranked amongst the top practices in medium firms and relatively low in small firms.

Whereas, "Conducting job hazard recognition training" was ranked least in small firms and 5th in medium firms with respective mean values of 2.75 and 3.29. "Carrying out job-specific training" ranked 7th in both and small and medium firms with respective mean values of 2.88 and 3.17. Furthermore, "Conducting orientation to apprentices" as well as "Carrying out on site-specific safety orientation for employees (non-managers)" were ranked with respective ranks of 4th and 5th by small firms and 1st and 3rd by medium construction firms.

Table 4: Health and Safety Training Practices of the studied construction firms

S/N	Health and Safety Training Practices	Small Firms		Medium Firms	
		Mean	Rank	Mean	Rank
1.	Training employees on the use of personal protective equipment (PPE)	3.27	1st	3.43	2nd
2.	Carrying out company-specific orientation for all new hire	3.20	2nd	3.26	6th
3.	Conducting training for every new job to be executed	3.14	3rd	3.05	8th
4.	Conducting orientation to apprentices	3.07	4th	3.53	1st
5.	Carrying out on site-specific safety orientation for employees (non-managers)	3.03	5th	3.38	3rd
6.	Carrying out site-specific safety orientation for managers	3.02	6th	2.61	9th
7.	Carrying out job-specific training	2.88	7th	3.17	7th
8.	Organizing training on First Aid	2.78	8th	3.38	3rd
9.	Educating our employees on stress management	2.76	9th	3.33	4th
10.	Conducting job hazard recognition training	2.75	10th	3.29	5th

Conclusion and recommendations

Although more than half of the firms studied do not have a Health and Safety Policy (as shown in Table 2), these firms still engage in Health and safety training (as informed from Table 3 and Table 4). Also, out of the 10 Health and Safety practices studied, there is equal ranking (both ranked 7th) in 'carrying out job-specific training' for both small and medium firms. The ranking of all other Health and Safety practices varies. Health and Safety training for non-managers was found to be given more priority in both small and medium construction firms studied as against Health and Safety training for managers. More efforts need to be put by small and medium firms in training employees on psychological issues on Health and safety practices such as stress management, hazard recognition among others in order to boost self-motivation on health and safety practices of construction firms. While the Health and Safety practices studied in this work are in-exhaustive, other studies can cover other Health and Safety practices particularly those that have individual psychological and cultural underpinnings that makes Health and Safety practices a norm and way of life not only for organisations but also employees.

References

Basaga, B. H., Temel, A. B., Atasoy, M., & Yildirim, I. (2018). A Study on the Effectiveness of Occupational Health and Safety Trainings of Construction Workers in Turkey. Journal of Safety Science, 110(June), 344354.

Bishop, P.A. & Herron, R.L., 2015. Use and Misuse of the Likert Item Responses and Other Ordinal Measures. International Journal of Exercise Science, 8(3), pp.297302.

Burke, M. J., Sarpy, S. A., Smith-crowe, K., Chan-serafin, S., Salvador, R. O., & Islam, G. (2006). Relative Effectiveness of Worker Safety and Health Training Methods. In Research and Practice (Vol. 96, pp. 315324).

Carifio, J. & Perla, J.R., 2007. Ten Common Misunderstandings , Misconceptions , Persistent Myths and Urban Legends about Likert Scales and Likert Response Formats and their Antidotes. Journal of Social Sciences, 3(3), pp.106116.

Cunningham, T. R., Guerin, R. J., Keller, B. M., Flynn, M. A., Salgado, C., & Hudson, D. (2018). Differences in Safety Training Among Smaller and Larger Construction Firms with Non-Native Workers : Evidence of Overlapping Vulnerabilities. Safety Science, 103(April 2017), 6269.Demirkesen, S., & Arditi, D. (2015).

Construction Safety Personnels Perceptions of Safety Training Practices. International Journal of Project Management, 33(5), 11601169.Harpe, S.E., 2015. How to Analyze Likert and other Rating Scale Data. Currents in Pharmacy Teaching and Learning, 7, pp.836850.Haslam, R. A., Hide, S. A., Gibb, A. G. F., Gyi, D. E., Pavitt, T., Atkinson, S., & Duff, A. R. (2005). Contributing Factors in Construction Accidents. Applied Ergonomics, 36, 401415.Hinze, J., & Raboud, P. (1988). Safety on Large Building Construction Projects.

Journal of Construction Engineering and Management, 114(2), 286293.Holt, D.G., 2014. Asking Questions , Analysing Answers : Relative Importance Revisited. Construction Innovation, 14(1), pp.216.Jannadi, O. A., & Bu-Khamsin, M. S. (2002).

Safety Factors Considered by Industrial Contractors in Saudi Arabia. Building and Environment, 37(5), 539547.Kolo, D. N. (2015).

Safety Issues Involving Workers on Building Construction Sites in Nigeria : An Abuja Study. Eastern Mediterranean University.Kumar, R., 2011. Research Methodology: A Step by Step Guide 3rd ed., London: SAGE Publications Inc.Lingard, H. (2013). Occupational Health and Safety in the Construction Industry Occupational Health and Safety in the Construction Industry. Construction Management and Economics, 31(6).McVittie, D., Banikin, H., & Brocklebank, W. (1997).

The Effects of Firm Size on Injury Frequency in Construction. Safety Science, 27(1), 1923.

Namian, M., Albert, A., Zuluaga, C. M., & Jaselskis, E. J. (2016). Improving Hazard-Recognition Performance and Safety Training Outcomes: Integrating Strategies for Training Transfer. Journal of Construction Engineering and Management, 142(10).

Oconnor, T., Loomis, D., Runyan, C., Abboud Dal Santo, J., & Schulman, M. (2005). Adequacy of Health and Safety Training Among Young Latino Construction Workers. Journal of Occupational and Environmental Medicine, 47(3), 272277.

Okoye, P. U., Ezeokonkwo, J. U., & Ezeokoli, F. O. (2016). Building Construction Workers Health and Safety Knowledge and Compliance on Site. Journal of Safety Engineering, 5(1), 1726.

Saunders, M., Lewis, P. & Thornhill, A., 2009. Research Methods for Business Students 5th ed., England: Pearson Education Limited.

Wong, J. Y. Y., Gray, J., & Sadiqi, Z. (2015). Barriers to Good Occupational Health & Safety (OHS) Practices by Small 1 Introduction. Journal of Construction Engineering and Management, 119(March).