



Risk-taking behaviors of Hong Kong construction workers – A thematic study



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ABSTRACT

A qualitative approach was employed to explore the attitudes and experiences of construction workers toward risk-taking behaviors and to identify the underlying reasons that may explain why construction workers take or do not take risks at work. Forty face-to-face individual interviews with construction workers were conducted. NVivo software was utilized to analyze the qualitative data. The data were categorized using grounded theory techniques and a three-stage coding approach. The grounded theory model that was established shows that risk-taking behavior was affected by factors in three contexts, namely, personal, behavioral, and environmental contexts. The findings of this study provide useful recommendations to reduce the risk-taking behaviors of construction workers, which include meeting the expectations of construction workers and optimizing benefits, such as convenience, work effectiveness, physical comfort, safety training that emphasizes on the unfavorable consequences of risk-taking behaviors, close safety supervision, safety fines, safety incentives, and time-sufficient work schedule.

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1. Introduction

From 2006 to 2015, the concerted effort of various stakeholders to improve occupational safety has contributed to steadily reducing the number of industrial injuries and the injury rate in Hong Kong (Labour Department, 2016b). Despite these improvements, the construction industry has the highest number of fatalities and accidents among all industrial sectors over the past decade. In 2015, 32.38% of industrial accidents and 79.17% of industrial fatalities occurred in the construction industry. The fatality rate in the construction industry is five times higher than that in other industrial sectors, while the accident rate is two times higher.

Darshi De Saram and Tang (2005) estimated that the compensation for non-material damages (e.g., pain, suffering, and loss of enjoyment of life) was approximately 30% of the average of compensation for material damages (e.g., loss of earnings, medical, and traveling expenses). The Occupational Safety Health Council (2014) assessed that the material damages for the three major types of construction accidents in Hong Kong amounted to USD 20.99 million in 2013. These accidents included lifting or moving of objects, striking against or being struck by moving objects, and slipping, tripping, or falling on the same level. Thus, the estimated non-material damages in Hong Kong as a result of construction

accidents in 2013 amounted to about USD 6.30 million. The huge direct and indirect costs from construction accidents captured the attention of researchers toward examining the construction industry in Hong Kong.

The construction industry in Hong Kong thrived significantly in recent years because many large-scale infrastructure projects were launched. The remarkable growth of the construction industry increased the demand for construction workers to satisfy the needs of the industry. The data of Construction Workers Registration Board (2016) revealed that the total number of valid registered construction workers increased from 225,625 in late 2007 to 393,558 at the end of June 2016. The scale and complexity of construction projects increased. Considering the increased costs and the pressing need in the industry for a large number of workers, innovative management strategies regarding construction safety and better approaches are urgently needed to prevent construction accidents.

Industrial accidents can stem from a combination of various contributing factors, which are traditionally categorized into two domains: unsafe conditions (e.g., hazards, an unsafe mechanical or physical environment) and unsafe behaviors (e.g., the behavior or activity of a person that deviates from acceptable safety procedures) (Choudhry and Fang, 2008; Haslam et al., 2005; Shin et al., 2014). Eliminating unsafe behaviors (acts) or conditions was assumed to prevent accidents and injuries (Chi et al., 2005). Efforts made over the last two decades focused on eliminating unsafe

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conditions by providing protective clothing and tools and by developing managerial systems and policies, legislations, and trainings (Development Bureau, 2014; Labour Department, 2013). These strategies successfully decreased the accident rates and fatalities. However, along with the growth of the construction industry, the number of industrial accidents and fatalities also increased in the past five years. These outcomes strongly suggest that aside from the removal of unsafe conditions, effort needs to be made in other areas as well. Unsafe human behaviors were considered as the cause of 80% of accidents (Fleming and Lardner, 2002). Thus, the need for safety management to focus on understanding and reducing or eliminating the unsafe behaviors of construction workers seems to be urgent.

Various studies examined factors that affect the unsafe behaviors of construction workers such as psychological strains (Siu et al., 2004), safety climate (Fang et al., 2006; Glendon and Litherland, 2001), and risk perception (Bohm and Harris, 2010). Current studies mainly used large-scale surveys to identify statistical relationships among variables. However, their results are not able to provide an in-depth understanding of the underlying causes and motivations that contribute to risk-taking behaviors, which deviate from safety rules or requirements. The answer to questions such as “What do you think of risk taking?”, “What are the facilitators that encourage construction workers to act unsafely?”, and “What are the reasons for taking or not taking a risk?” are still unknown.

A few studies attempted to examine the reasons why construction workers engage in unsafe work behaviors. Choudhry and Fang (2008) identified a number of reasons for unsafe behaviors, which include the lack of safety awareness, the need to project a “tough guy” appearance, work pressure, co-worker attitudes, and other psychological, organizational, and economic factors. Other studies simply provided limited explanations and elaborations (Hinze and Harrison, 1981) or used statistical analysis (Sawacha et al., 1999) to study these behaviors instead of conducting empirical and longitudinal investigations to explore why and how these behaviors occur and how these behaviors vary under different conditions. A previous study on construction safety focused on risk-taking behaviors (Garrett and Teizer, 2009). However, research on non-risk-taking behaviors has not been conducted. Considering the perilous nature of construction work and the high injury and fatality rates, understanding the risk-taking and non-risk-taking behaviors of construction workers is crucial to develop effective interventions to further reduce construction-related accidents in Hong Kong. In order to show how this study differs from and further advances previous similar work in this area, a comprehensive survey of published studies on construction safety was conducted and the results are summarized in Appendix A, using an adapted form of the presentation used by Laryea and Hughes (2008).

2. Purpose of the study

The current research aims to examine the attitudes and experiences of construction workers with risk-taking behaviors at construction sites and to identify the underlying reasons behind these risk-taking and non-risk-taking behaviors. Three major areas of interests were explored, namely, the attitudes of construction workers toward risk-taking behaviors, the reasons for risk-taking and non-risk-taking behaviors, and the personal, environmental, and organizational facilitators that influence risk-taking behaviors. In this paper, “risk-taking behaviors” is interchangeable with the term “unsafe behaviors,” which refers to behaviors that deviate from safety rules and regulations and have the potential to cause injury to oneself and others as well as damage to property. In this study, the types of risk-taking behaviors were not defined, but various unsafe behaviors were considered. The findings of this study

will be employed to develop a theory that explains the risk-taking and non-risk-taking behaviors of construction workers at work. The results will be used to provide recommendations to reduce the risk-taking behaviors of construction workers.

3. Method and procedures

3.1. Research method

The qualitative approach has been used to allow researchers to understand the range of perspectives held by construction workers about management safety practices (Gillen et al., 2004). Insights into the way people interpret a piece of the world can be developed and the opinions, attitudes, experiences, processes, behaviors, or predictions of people can be elicited by conducting qualitative studies (Bogdan and Biklen, 2007; Rowley, 2012). Face-to-face individual interview was a method to collect qualitative data; this approach was widely adopted in various research fields, such as gerontechnology (Chen and Chan, 2013), medicine (Avila et al., 2012), and construction safety (Biggs et al., 2013). Accordingly, qualitative methodology with face-to-face individual interview was employed in the current study to obtain various individual attitudes and ideas on risk-taking behaviors and to identify the reasons for risk-taking or non-risk-taking behaviors, as well as the facilitators and barriers that influence the risk-taking behaviors of construction workers. A combination of top-down/concept-driven approach and grounded theory approach (bottom-up/data-driven approach) was employed for data analysis to construct the coding scheme. Grounded theory approach was used to develop concepts (theories) from research that are grounded in qualitative data instead of deducting testable hypotheses from existing theories (Glaser and Strauss, 1967). A previous study adopted a top-down/concept-driven approach to develop various concepts (Chen and Chan, 2013). Grounded theory has been successfully employed to gain insight into diverse phenomena of interest in different research areas, such as family life cycle (Berge et al., 2012) and construction safety (Choudhry and Fang, 2008).

3.2. Interview questions

The interview questions were designed to develop a comprehensive framework that can provide better understanding of the phenomenon and the reasons for risk-taking behaviors of construction workers in Hong Kong. The questions were compiled based on a literature review on recent and related publications, including construction safety behaviors (Seo et al., 2015; Shin et al., 2014), safety climate (Meliá et al., 2008), risk perception (Hallowell, 2010), and construction injury incidents (Rowlinson and Jia, 2015). Aside from demographic data, responses were collected from the participants in four main categories: (a) general information on work and risk-taking behaviors, (b) causes of risk-taking behaviors at work: personal factors, (c) causes of risk-taking behaviors at work: job-related and organizational factors, and (d) consequences of risk-taking behaviors. A semi-structured interview guide was prepared by the interviewers to conduct face-to-face individual interviews to ensure that all information that are relevant to risk taking are obtained. A pilot study with five participants was conducted to ensure that the interview questions were understandable to construction workers. The questions were modified to improve precision and conciseness. The detailed interview guide is shown in Appendix B.

Some examples of questions are:

- (a) General information on work and risk-taking behaviors:
 - In your opinion, what is risk?

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