



Relational approach in managing construction project safety: A social capital perspective

Tas Yong Koh*, Steve Rowlinson

Room 501, Department of Real Estate and Construction, University of Hong Kong, Pokfulam Road, Hong Kong, China

ARTICLE INFO

Article history:

Received 17 November 2010

Received in revised form 20 March 2011

Accepted 22 March 2011

Keywords:

Construction project safety

Social capital

Cooperation

Adaptation

Mediation

ABSTRACT

Existing initiatives in the management of construction project safety are largely based on normative compliance and error prevention, a risk management approach. Although advantageous, these approaches are not wholly successful in further lowering accident rates. A major limitation lies with the approaches' lack of emphasis on the social and team processes inherent in construction project settings. We advance the enquiry by invoking the concept of social capital and project organisational processes, and their impacts on project safety performance. Because social capital is a primordial concept and affects project participants' interactions, its impact on project safety performance is hypothesised to be indirect, i.e. the impact of social capital on safety performance is mediated by organisational processes in adaptation and cooperation. A questionnaire survey was conducted within Hong Kong construction industry to test the hypotheses. 376 usable responses were received and used for analyses. The results reveal that, while the structural dimension is not significant, the mediational thesis is generally supported with the cognitive and relational dimensions affecting project participants' adaptation and cooperation, and the latter two processes affect safety performance. However, the cognitive dimension also directly affects safety performance. The implications of these results for project safety management are discussed.

© 2011 Elsevier Ltd. All rights reserved.

1. Introduction

Existing initiatives and interventions in managing construction project safety are largely based on normative compliance and error detection and prevention. The former approach aims at controlling project participants' behaviours through compliance with safe conduct and prescriptive punishment upon violation of safety rules (Mitropoulos et al., 2009; Rasmussen, 1997). The latter focuses on error management with the aim of guiding behaviours with the removal of the causes of errors (Mitropoulos et al., 2009). While the two approaches have contributed to the improvement of safety performance in construction projects, they also have significant limitations. The downward trend in accident rates has plateaued in recent years and this appears to be symptomatic of such assertions in some developed regions – e.g. the Hong Kong construction industry. In these regions, a myriad of safety initiatives based on the two regimes have been introduced into construction industry.

However, measures associated with the two regimes are less effective in the face of dynamic and complex construction operations. This ineffectiveness can be traced back to the paradigmatic

predilection of the two approaches in managing safety. In the normative approach, the focus is on task design and the prescription of safety rules in the performance of the task (Rasmussen, 1997). The aims are both to control the behaviours and to invoke voluntary compliance to safety rules on the part of project participants. In a somewhat related way, the error management approach focuses on the study of work behaviours that deviate from the “best” way of working. Deviation, in this line of thought, is conceptualised as error. The aim of the approach is then to control participants' behaviours by the removal of causes of errors (Mitropoulos et al., 2009). While the main tenet of both approaches is the creation and control of work behaviours, they are inevitably internally focused. They focus on the internal and static aspects of the production (construction) system – internal as in the characteristics of the participants (e.g. competence level) and static as in the nature of task (e.g. task design, the provision of protective equipment). As such, from the perspective of a total production system, the approaches lack emphasis on the dynamics and interactions among the production elements – the human operators, the tasks, and the contexts by which these elements interact and the effects of the interaction. That is, the approaches tend to disregard the characteristics of the production system and team dynamics that may potentially influence the participants' behaviours and the possibility of errors and accidents. They do not cater for factors that shape the work situations which participants must face (e.g. the tensions

* Corresponding author. Tel.: +852 22194378; fax: +852 25599457.
E-mail addresses: tasykoh@hku.hk, koolfern@gmail.com (T.Y. Koh),
steverowlinson@hku.hk (S. Rowlinson).