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A study on the effectiveness of occupational health and safety trainings of construction workers in Turkey

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ABSTRACT

In this study, profiles of the employees working in construction sector and who are to be educated in Occupational Health and Safety (OHS) have been investigated and the perspectives of the employees on OHS have been presented in order for the OHS trainings to be provided effectively. In accordance with this purpose, a face-to-face survey was carried out practically with the employees in the construction sector in Turkey. It has been researched whether the age, educational level, knowledge, etc. characteristics of the employees that work in the constructions sites, defined as very hazardous occupations, vary. The level of employees' knowledge about OHS and how to provide OHS trainings to the employees accordingly have been studied.

These findings may be valid for other developing countries with a similar working climate or may be regarded as a preliminary study. In this context, general findings may be a different benchmark not only for international but also for academic and practical comparisons.

1. Introduction

The construction sector is one of the most major occupational branches playing a role in the economies of countries. It is a sector that deals with a large number of people, since it addresses a wide audience in terms of work areas. Since both the public institutions and the private sector are stakeholders, it is the business gateway for a variety of people. The fact that the boundaries of the sector are so wide also brings some problems along. At the top of these are concerns about Occupational Health and Safety (OHS). In order to build a safe working area in Turkey, the Law on Occupational Health and Safety No. 6331 entered into force in 2013. This law and accompanying regulations and statements have brought many innovations to the business world. It is very important to educate workers in the occupational health safety related issues and many regulations are focused on these issues. Moreover, a Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees providing detailed information about these trainings has been issued.

A significant amount of literature exists on literacy and lack of overall literacy existing in the construction industry. The problem presents a major handicap for trainers. Crowley and Lutz (1997) found that 27% of those surveyed performed at the lowest level of 'document literacy' and 20% performed at the lowest level of 'quantitative literacy' (Wilkins, 2011).

Construction is quite different from other industries because of several unique characteristics, including complicated construction processes, temporary organizational structure, changing work locations, complex work environments (Fung and Tam, 2013), and the characteristics of worker behaviors, which are not as standardized as those in manufacturing factories (Geller, 2001; Li et al., 2015).

The International Labour Organization (ILO) estimated that at least 60,000 fatal accidents occur each year on construction sites around the world, representing one fatal accident every 10 min. Construction accounts for one in every six fatal accidents recorded at work annually (International Labour Organization, 2005). Further, the ILO estimates that the construction sector in industrialized countries employs between 6% and 10% of the workforce but accounts for between 25% and 40% of work-related deaths (Lingard, 2013). With rapid economic development and industrialization, the construction industry continues to rank among the most hazardous industries in the world. Within the construction industry, the risk of a fatality is 5 times higher than in manufacturing, whilst the risk of a major injury is 2.5 times higher. Occupational injuries and fatalities within the construction industry have also been associated with considerable financial costs. It has been

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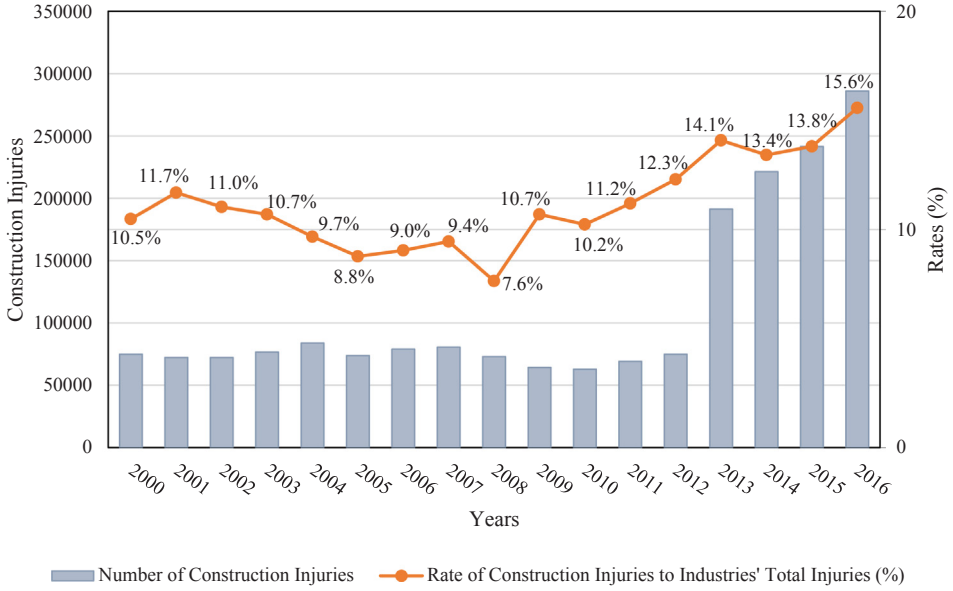

Fig. 1. The number of occupational accidents occurred in the construction sector in Turkey by year and the total number of occupational accident rate.

estimated that such injuries cost over 10 billion USD per year (Khosravi et al., 2014).

The occupational accidents in the construction industry may result in numerous damages and losses. That is, the cost associated with construction accidents is immense (Fung and Tam, 2013). Workers' compensation is an important source for estimating the costs of construction accidents (Friedman and Forst, 2009). A study using workers' compensation data from the United States evaluated that the direct workers' compensation costs (medical treatment and indemnity) in the construction industry was four times higher than most other industries on average (Waehrer et al., 2007; Liao and Chiang, 2015). The fatal accident rate in the construction industry tends to be higher than that of other industries (Yim et al., 2005).

In Turkey, the construction sector is one of the sectors where work accidents occur the most; and it is generally placed on the top in terms of the number of fatal work accidents. Every year a number of employees either die or get injured. Figs. 1 and 2 show the data of the work accidents occurred in the construction sector in Turkey between 2000 and 2016 and the number of deaths with the total number of the OHS Law came into effect. This shows that the OHS Law is not fully occupational accidents related to the ratio of the number of deaths. Besides, in Fig. 3 the incidence and weight rates are given for Turkey. (Social Security Institution of Turkey, 2016). As can be seen from Fig. 3, both incidence and weight rates per 1.000.000 working hours increased continuously after 2012, when adapted in the business sectors.

In recent years, in addition to the triangle of time, cost, and quality, occupational health and safety issues are increasingly being emphasized as an indicator for construction project success. For these reasons, construction companies need an appropriate tool to continuously assess and improve their conditions with respect to occupational health and safety (Mahmoudi et al., 2014). Nuntasunti and Bernold (2006) suggested the use of the wireless Internet for safety management. Live videos can be used to identify potential safety hazards in a project, as well as providing the training.

In summary, the aforementioned experience suggests the need to increase the efficiency of training. Improvements in health and safety

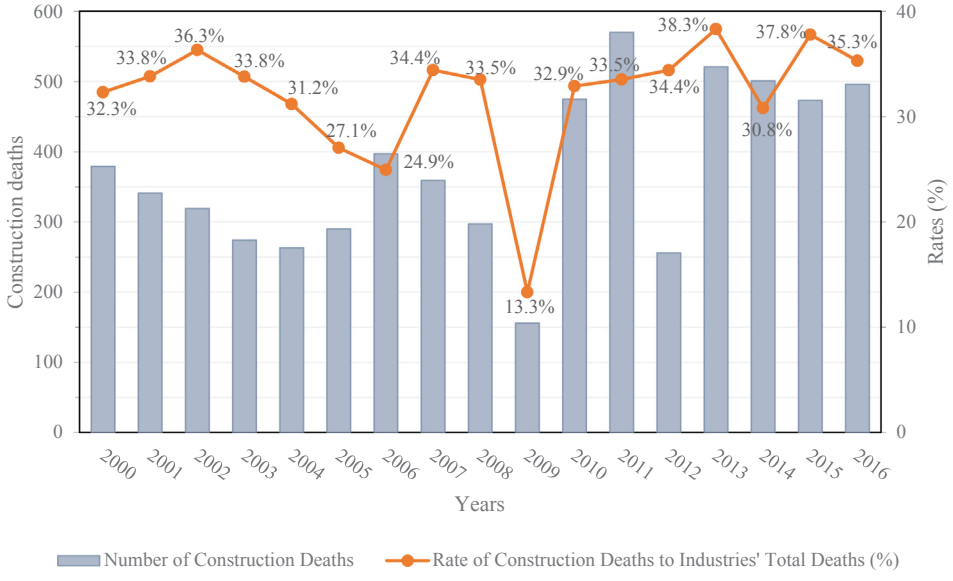

Fig. 2. The number of deaths occurred in the construction sector in Turkey by year and the total number of deaths rate.