

Educational status and organizational safety climate: Does educational attainment influence workers' perceptions of workplace safety?

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Abstract

From a practical perspective, understanding the impact of education on perceptions of workplace safety would benefit management's decisions regarding workers' adaptability, general work effectiveness, accident frequency, implementation of safety management policies, and handling of education-related accident characteristics. The current study thus examined the relationship between educational attainment and (i) safety perception, (ii) job satisfaction, (iii) compliance with safety management policies, and (iv) accident frequency. Participants were Ghanaian industrial workers ($N = 320$) categorized into four educational groups based on their responses: basic education 50% ($n = 159$); secondary education, $n = 98$ (30%); vocational/professional education, 17% ($n = 56$); and university education, 3% ($n = 7$). Workplace safety perception was assessed with Hayes et al.'s 50-item Work Safety Scale (WSS): a scale that effectively captures the dimensions identified by safety experts to influence perceptions of workplace safety. Multivariate analysis (MANOVA) was used to test for differences of statistical significance. Posterior comparison with t -test consistently revealed significant differences between the two higher-educated cohorts and their lower-educated counterparts. The results indicated a positive association between education and safety perception. Higher-educated workers recorded the best perceptions on safety, indicated the highest level of job satisfaction, were the most compliant with safety procedures and recorded the lowest accident involvement rate.

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1. Introduction

Research on perception of workplace safety began in the early 1980s with Zohar's (1980) ubiquitous study and has since received considerable attention in organizational and psychological literature. These shared perceptions about safety values, norms, beliefs, practices, and principles of workers in their work environments have been technically termed safety climate (Cooper and Phillips, 2003; Silva et al., 2004). The importance of safety perception sur-

veys can be gleaned from the literature (e.g., Cooper and Phillips, 2003; Silva et al., 2004). First, as leading indicators of safety performance, they have helped in the identification of precursors to accident occurrence, and by so doing, effectively decreased accident occurrence. Second, by providing proactive information about safety problems before they develop into accidents and injuries, safety perception analyses have provided guidance to management in developing specific safety programs. Third, compared to other proactive means of accident prevention, safety perception analyses are relatively inexpensive. Finally, they have provided information about safety management from employees' perspectives. With specific reference to the current study, exploring the impact of educational attainment in

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a safety climate analysis could provide a potent proactive safety management tool, as they could indicate a need for special safety programs for a particular group.

Given the critical importance of safety climate in the work environment, the extent to which safety perceptions differ in different work groups, companies and institutions have been meticulously examined for the past 30 years. Examples of such studies include DeJoy et al.'s (1995) analyses in health care settings, Diaz and Cabrera's (1997) analyses on airport ground handling operations, and Niskanen's study (1994) in road administration. Additionally, comparative analyses between managers' and employees' perceptions (Prussia et al., 2003), high- and low-accident organizations (Zohar, 2000), individual-level and organizational-level climate perceptions (Hofmann and Stetze, 1998; Zohar and Luria, 2003) and between *blue-collar workers* and *white-collar workers* (Morris et al., 1999) have been carried out. Basically, what most of these studies revealed is that workers differ in their attitudes to safety issues and in their perceptions of workplace hazards.

A body of evidence thus exist which links safety perception to safety performances (Cooper and Phillips, 2003; Hofmann and Stetze, 1998), accident frequency (Guastello, 1999), job satisfaction (Gyekye, 2005), compliance with safety management policies (Gyekye, 2005; Probst, 2002; Probst and Brubaker, 2001), and work environment (DeJoy et al., 2004; Gyekye, 2006). The assumption that workers' demographical variables, particularly cognitive ability (education), job experience and age are major determinants of accident risk and safety permeates the accident and safety literature (e.g., Carder and Ragan, 2003; Hansen, 1989). While much attention has been given to employee age and job experience, the impact of formal education on accident involvement is neither straightforward nor well documented. Besides, there is lack of research regarding the relationship between workers' educational attainment and safety perception. This study was thus designed to address the paucity. Accordingly, it compared the safety perceptions of workers with four levels of educational attainment (basic, secondary, professional/vocational, and university education). Additional comparative analyses examined the relationship between these educational levels with (ii) job satisfaction, (iii) compliance with safety management policies, and (iv) accident frequency. The dearth in research on organizational behaviour in Africa constitutes another reason for these analyses.

1.1. Educational attainment, accident frequencies and safety management

In the literature, education is usually characterized as a learning process through which people acquire knowledge and information, the development of cognitive capacities, and the transfer of norms, values and modes of behaviour. It increases attention management, information processing capabilities, and enhances the cognitive abilities necessary for the successful analysis of otherwise sophisticated prob-

lems. In effect, it provides insight into complex and multifaceted problems and thereby makes handling otherwise complicated issues manageable. A higher level of education will therefore promote strategic thinking, develop workers' perspectives to enable them systematically analyze, store, and rightly use information that is relevant for their job performances. From a cognitive-behavioural perspective, people have a set of cognitive resources which they use when engaged in a task (e.g., Döös et al., 2004; Kanfer and Ackerman, 1989). It is reasonable to assume therefore that workers' level of education would have important implications on the successful execution of their job assignments.

Numerous studies that have investigated the role of cognitive-intellectual abilities in predicting individual differences in job performance have found a substantial positive relationship between cognitive abilities and job performance (e.g., Dunnette, 1976; Ghiselli, 1966; Hunter, 1986). In an excellent review, Hunter (1986) reported that general cognitive ability predicts job performance in all jobs. With support from path analysis, he demonstrated that much of this predictive power stems from the fact that general cognitive ability predicts job knowledge ($r = .80$) and job knowledge predicts job performance ($r = .80$). Going by this reasoning, peoples' levels of education would be positively correlated with their safety and preventive behaviours, and inversely related to their accident involvement rate. However, a range of studies investigating the relationship between various cognitive abilities and accident frequency have produced conflicting results.

Accident and safety research has traditionally been done separately in three main sectors of safety, namely work, traffic, and home and leisure. Research findings regarding the relationship between educational attainment and accident frequency is limited and equivocal. Some researchers have found a positive relationship between education and accident frequency (e.g., Hansen, 1989; Iverson and Erwin, 1997). According to these experts, the higher-educated workers tend to possess greater skills which broaden their work responsibilities, and thereby increase their accident potential. By contrast, several high-ranking studies have reported the contrary. Others have noted that education does not by itself guarantee competency and effectiveness (e.g., Lourens et al., 1999; Owsley et al., 2004), and that there is no relationship between level of education and accident involvement. In a study among military recruits, O'Toole (1990) found the risk of mortality among lower-educated army recruits relatively higher than their higher-educated counterparts. Lourens et al. (1999) did not find any relationship between level of education and accident frequency. No study was found on the link between educational attainment and compliance with safety management policies.

The relationship between educational level and job satisfaction, even though extensively researched and well documented, yet remains equivocal and contradictory. While some studies have documented a positive association between educational attainment and job satisfaction (e.g.,

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