Safety Behavior in the Manufacturing Industry in Malaysia: The Role of Personality Traits

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Abstract

The purpose of this paper is to provide a conceptual analysis of personality traits and safety behavior in the manufacturing industry. This paper applies trait theory and five-factor theory to examine the relationship between personality traits and safety behavior. Our conceptual analysis suggests that individuals who possess openness to experience, conscientiousness, extraversion and agreeableness are more likely to demonstrate safety behavior whereas those who possess neuroticism are less likely to demonstrate safety behavior. Given that safety behavior is the most effective element in preventing workplace accidents, this paper provides a theoretical framework which has theoretical implications for future research and offers suggestions to the manufacturing managers to enhance their employees’ safety behavior.

Keywords: safety behavior, personality traits, manufacturing industry

1. Introduction

The concept of safety in the workplace in Malaysia has evolved long time ago. It started when the Factory and Machinery Act (FMA) was enacted in 1967. Owing to the rapid movement of industrialization in 1960s, the government has enforced FMA 1967 to manage the safety and health issues associated with manufacturing industries. The FMA 1967 served as the cornerstone for industry occupational, safety and health until the introduction of the Occupational, Safety and Health Act (OSHA) in 1994. By then, the OSHA 1994 takes charge of safety and health issues as it is more comprehensive in terms of wider coverage for hazards introduced in the workplace. It emphasizes on self-regulation, duties of employer and duties of employee. The duties of employer cover the provision of a safe work environment in a practicable manner whereas the duties of employee include participating in safety and health activities and assisting peers with regard to safety and health issues. However, according to SOCSO Annual Report 2010, industrial accidents still dominating the number of accidents in Malaysia from 2002 (77.5%) until 2009 (62.3%). Although the accident statistics were in the declining trend, manufacturing industry is still recording the highest number of accident cases among other industries as reported until August 2013 by the Department of Safety and Health, Malaysia (DOSH). Referring to the report as shown in Figure 1, manufacturing sector has topped the accident statistic of permanent disability (PD) category with 93 cases and non permanent disability (NPD) category with 1007 cases. By the same token, manufacturing industry again has the highest number of fatality at 47 among other sectors in Malaysia. One of the factors which constitute the accident statistics is the increasing number of workers in the manufacturing industry apart from the inherent hazards in the industry itself. Normally, accidents were due to unsafe acts and unsafe acts were caused by unsafe behaviors. Mullen (2004) in his study reported that majority of the workplace accidents were due to unsafe behaviors of the workers rather than unsafe work environment. McKenna (1983) in his study suggested that 90% of accidents can be attributed to human error. However, until recently, relatively little attention has been paid to safety behavior within the organizational context. Although there were past literatures focused on the conceptualization of safety climate, safety culture...
(Flin, Mearns, O’Conner & Bryden, 2000; Hale, 2000) and safety performance (Arezes & Miguel, 2003; Yang, Wang, Chang, Guo & Huang, 2009), less progress has been made in understanding safety behavior specifically in the manufacturing industry. According to Neal and Griffin (1999), individual factors such as ability and personality are known to affect work behavior in the workplace. Therefore, this paper attempts to provide a theoretical framework to explain safety behavior in the manufacturing industry by using personality traits.

![Figure 1: Occupational Accidents by Sector until August 2013 (Investigated) by Department of Occupational Safety and Health, Malaysia (www.dosh.gov.my)](image)

2. Literature Review

2.1. Safety Behavior in the Manufacturing Industry

The evolution of industrialization in 1960s has resulted in the mushrooming of various types of manufacturing industry. Since then, it has caused the increasing demand of manpower to fulfill the rapid expansion of the industry. Today, manufacturing industries still accommodating most of the workers in Malaysia. Some manufacturing companies even outsource for manpower owing to the shortage of direct labor. This scenario has caused the manufacturing industry to hire foreign workers with different nationalities, cultures and languages. However, regardless of the personal differences, personality traits are still regarded as the unique characteristics of individuals and it can apply to anyone across various nations and cultures. More specifically, personality traits are able to explain individual’s behavior globally.

Safety behavior in the manufacturing industry is referring to a person’s conduct and acting in a safe manner when dealing with their job in the workplace. Griffin and Neal (2000) explained that there are two dimensions of safety behavior, namely safety compliance and safety participation. Safety compliance describes safety practices such as performing standard work procedures and wearing personal protective equipment to conform to the workplace safety standard. Safety participation refers...
to behaviors that support workplace safety. For example, reminding coworkers about safety practices, helping coworkers with safety issues and participating in safety meetings and trainings.

Safety compliance behavior in the workplace can be inculcated through trainings, toolbox meetings, safety audits and safety system implementation. Enforcement and strict adherence of procedures are necessary steps to create safety awareness among the workers. Short term rewards for successful safety compliance may motivate the workers to actively demonstrate safety compliance behavior. Comparatively, safety participation behavior is a voluntary behavior where the workers engage to show their willingness in participating safety activities. This behavior is similar to citizenship behavior.

In the Malaysia Industrial Development Authority (MIDA) list of industry, there are a number of industries which are classified as manufacturing industry. Among the industries are electronics, automotive, textiles, wood based, petrochemicals, plastics and etc. As these industries perform various types of activities, they also generate various forms of hazards and risks. The tendency of performing unsafe acts is high if the workers do not demonstrate safety behavior in the workplace. As reported by Shimmin, Leather and Wood (1981), two-thirds of a sample of accident victims claimed that the accidents should have been avoided if not because of inappropriate work behavior. On the same note, Heinrich (1959) also stated that 85% of accidents can be attributed to unsafe acts. According to Zohar and Luria (2003), careless behavior prevails during daily routine works and often outweighs safety behavior, resulting safety behavior an ongoing challenge for managers. However, Geller (2001) emphasized that safety behavior is the most effective element to prevent workplace accidents and reduce injuries. Therefore, there is a need to focus on how to enhance safety behavior that can overcome careless behavior and unsafe acts.

Safety behavior is able to encourage workers to develop an implicit obligation to carry out safety practices that can benefit both individual and the organization. It is believed that safety behavior will lead to valued outcomes such as performing citizenship activities in the organization (Tsui, Pearce, Porter & Tripoli, 1997). In the present study, safety behavior is explained in such a way that it consists of two constructs namely safety compliance and safety participation (Griffin & Neal, 2000). Both safety compliance and safety participation were referred as task and contextual performance by Borman and Motowidlo (1993). Safety compliance and safety participation are complementary and have a common definition that is the degree to which workers help the organization to achieve its safety objectives (Campbell, 1990).

Although safety behavior has been emphasized by past researchers (Neal & Griffin, 2006; Zohar & Luria, 2003; March, Robertson, Duff, Phillips, Cooper & Weyman, 1995) on reducing near miss and accident, little has been done to investigate the antecedents of safety behavior in the workplace. Many questions about what actually influences safety behavior of the workers remain unanswered especially in the manufacturing industry. Therefore, this study attempts to provide a theoretical framework which can assist managers to improve their employees’ safety behavior.

2.2. The Role of Personality Traits

Over the years, personality trait theories have sought to identify and describe the underlying traits that explain people’s behavior. For example, Trait Theory and Five-Factor Theory have formulated a number of different perspectives on the conceptual status of personality traits and the Big Five dimensions. They have provided researchers with insights that assist them to describe and explain human actions and behaviors. Allport’s (1961) Trait Theory explained that a trait is something that actually exists but is invisible. However, traits are central in assisting us to understand the uniqueness of the individual’s style, expressiveness and behavior. Traits initiate and direct the individuals’ behavior in unique ways (Ryckman, 2004).
According to Five-Factor Theory (FFT) by McCrae and Costa (1996), the personality system comprises of components that represent the definitions of FFT. The major components of the personality system are designated as basic tendencies, characteristic adaptations and self-concept which are a subcomponent of characteristic adaptations. What FFT does focus on is the distinction between basic tendencies and characteristic adaptations. The FFT has made full use of the empirical outcomes of the last two decades that constitutes the Five-Factor Model (FFM) in the wider sense (Ryckman, 2004). Feist and Feist (2002) gave evident explanations that trait theories provide a clear description of personality that can be used to depict and classify people into specific categories in particular common traits and personal disposition. Common traits are categories for classifying groups of people on a particular dimension (Allport, 1961). Comparatively, in contrast to the common traits, personal disposition is a unique characteristic of the person, a trait not shared with others (Allport, 1961).

Personality traits have been shown to be so interesting to personality psychologists because they explain much of what defines an individual person (John, Robins & Pervin, 2008). The trait perspective is referred to a set of assumptions about what a personality theory ought to do and what people are like. Therefore, personality traits are defined as the comparatively enduring patterns of feelings, thoughts behaviors that differentiate individuals from one another. During the process of defining personality, Mayer (1998) argued that personality may be perceived as a specification of its components, a system, a model of an organization and interaction and an account of the system’s development. This is also reflected in the Five-Factor Theory (FFT) which represents an effort to construct a system that is consistent with current knowledge of personality.

The role of personality traits is imperative in shaping safety behavior. As the Trait Theory explains that the underlying traits of a person describe much of his or her behavior. The inherent personality traits that individuals possess are able to predict the possible outcome of their safety behavior in the workplace. For instance, an individual who has the characteristic of agreeableness believes in cooperation and willing to defer to others during interpersonal conflict. On the contrary, a neurotic individual has a tendency to experience hopelessness and demonstrates pessimistic attitudes (McCrae & Costa, 1996). Hence, personality traits are regarded as initial indicator of an individual’s willingness to demonstrate safety behavior in the workplace.

To date, human factors are still being recognized as the significant contributors of an organization safety performance. As manufacturing accident statistics in Malaysia have been found to plateau at a consistent level, attention began to move to individual’s safety behavior in the workplace. Among the individual differences that could affect safety behavior, personality traits have been considered to be one of the most potential predictors by Hansen (1988) and Wallace and Vodanovich (2003). Given the above rational, it is postulated that personality traits can influence the intended safety behavior in the manufacturing workplace.

2.3. Theoretical Framework and Research Proposition

The Five-Factor Model (FFM) or the Big Five is based on the dimensional approach to personality study. It is an empirical generalization about the co-variation of personality traits. The five factors, frequently encompassed openness to experience, conscientiousness, extraversion, agreeableness and neuroticism have been found in self-reports on trait descriptive adjectives (Saucier, 1997). In the present study, the Big Five personality traits have been selected as the predicting variable of safety behavior because it has provided a significant degree of convergence in the trait-factor analytic psychology (Robertson & Callinan, 1998). The Big Five is sufficient to describe the structure of human personality globally (Mount, Barrick & Stewart, 1998). Thus, manufacturing industry should use individual’s personality traits to enhance safety behavior in the sense that it provides information and
Individuals who possess openness to experience have multiplicity of interests, flexibility of thought and receptivity of new ideas. They have inquiring intellect and willing to generate new ideas to provide solution (Digman, 1990). It is believed that those who are high in openness to experience will go beyond tradition and ready to accept new information. As technology advances from time to time, new safety practices are being introduced to replace the previous ones. Thus, the receptivity of new information will certainly assist in demonstrating safety behavior in terms of compliance and participation. On this basis, it is proposed that:

Preposition 1a: Individuals who possess openness to experience are more likely to demonstrate safety compliance behavior.

Preposition 1b: Individuals who possess openness to experience are more likely to demonstrate safety participation behavior.

Individuals who possess conscientiousness are careful, thorough, organized and motivated. They are hardworking and highly committed in achieving individual and organization goals. They behave safely and performing their job in a dutiful manner. Previous study has also indicated that conscientiousness is negatively related to unsafe behavior (Wallace & Vodanovich, 2003). Therefore, based on the above rational, we propose that:

Preposition 2a: Individuals who possess conscientiousness are more likely to demonstrate safety compliance behavior.

Preposition 2b: Individuals who possess conscientiousness are more likely to demonstrate safety participation behavior.

Extraverted individuals are friendly, outspoken, confident and active (Ehrhart, 2006; Lin, Chiu & Hsieh, 2001). These characteristics are related to safety behavior as they are essential elements to encourage safety participation. Nevertheless, extraverted individuals also possess good communication and interaction skills. This in turn will assist in disseminating safety information among coworkers and enhance safety compliance behavior. Therefore, it is proposed that:

Preposition 3a: Individuals who possess extraversion are more likely to demonstrate safety compliance behavior.

Preposition 3b: Individuals who possess extraversion are more likely to demonstrate safety participation behavior.

Agreeable individuals can be described as likeability and compliance. They have the propensity to do more than is required and generally appreciate for their actions (Ehrhart, 2006; Lin et al., 2001). As agreeable individuals are friendly, altruistic and emphatic in carrying out their duties and polite in handling their peers (Salgado, 1997), they tend to be successful in team safety activities. Hence, we propose that:

Preposition 4a: Individuals who possess agreeableness are more likely to demonstrate safety compliance behavior.

Preposition 4b: Individuals who possess agreeableness are more likely to demonstrate safety participation behavior.
Neuroticism is referring to tension, irritability and anxiety. It is a negative trait. Individuals who are neurotic are being seen as moody and discontented (John & Srivastava, 1999). They lack positive psychological adjustment and emotional stability. They are associated with tense, indecisive, insecure and pay more attention to negative events. Those who possess neuroticism have the tendency to experience distress that will influence their behavior actions (McCrae & John, 1992). Therefore, it is proposed that:

Preposition 5a: Individuals who possess neuroticism are less likely to demonstrate safety compliance behavior.

Preposition 5b: Individuals who possess neuroticism are less likely to demonstrate safety participation behavior.

3. Research Implications

3.1. Theoretical Implications

This study attempts to propose a theoretical framework to explain the influence of personality traits on safety behavior. Past studies have examined the relationship between personality traits and human behavior in several contexts, namely high-maintenance employee behaviors (Burke & Witt, 2004), sales person’s organizational citizenship behaviors (O’Connell, Doverspike, Norris-Watts & Hattrup, 2001), customer-oriented selling behaviors (Brown, Mowen, Donavan & Licata, 2002), voice and cooperative behaviors (LePine & Dyne, 2001) and nurses’ customer-oriented behavior (Michinda & Patterson, 2011). However, safety behavior is seldom tested with personality traits in the manufacturing context. As safety behavior has become an important topic in reducing unsafe acts and accidents, this study attempts to develop a theoretical framework for safety behavior underpinned by Trait Theory (Allport, 1961) and the Five-Factor Theory (McCrae & Costa, 1996). The outcome of this study is expected to add to the literature of safety behavior and guides similar empirical research in future.

3.2. Practical Implications

In terms of practical implications, this study offers suggestions to the managers to improve their employees’ safety behavior. The present study also suggests that personality traits can be used as indicator for employees’ willingness to demonstrate safety behavior. Additionally, it also guides managers in recruiting safety-oriented personnel. By using personality traits as a basis for recruitment, it can identify safety-oriented candidates and this in turn will enhance safety behavior and reduce unsafe acts and accidents in the workplace.

4. Conclusion

Safety behavior has received much attention in recent years and considered a specific domain of organizational performance. It has become a mainstream organizational behavior research because it constitutes effective performance in organizations (Neal & Griffin, 1999). The proposed framework in this study may be of help to managers to create a safe work environment that can reduce lost time injuries. A safe work environment will certainly increase employees’ confidence in dealing with their daily job in the workplace. In addition, the prepositions in this study also offer to identify safety-oriented personnel in the manufacturing industry.

5. References


Figure 2: Proposed Theoretical Framework

Personality Traits
- Openness to Experience
- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism

Safety Behavior
- Safety Compliance
- Safety Participation

Annexure