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INVESTIGATING THE INFLUENCE OF PROJECT PERSONNEL'S EMOTIONAL INTELLIGENCE AND TRANSFORMATIONAL LEADERSHIP ON CONSTRUCTION SITE WORKERS' HEALTH AND SAFETY PERFORMANCE

Okorie V.N. and Imafidon M.

[1,2]Department of Quantity Surveying, University of Benin, Benin City, Edo State, Nigeria

Abstract

Project personnel plays crucial roles in construction health and safety (H&S) management which requires them to have relevant competencies. Researches have shown that emotional, intelligence and transformational leadership are such capabilities that generate superior performance in today's workplace. This study seeks to investigate the influence of project personnel's emotional intelligence and transformational leadership on the effective management of construction workers' health, safety and wellbeing in Nigeria construction industry. Structural equation modelling (SEM) was used to analyse 150 valid responses received from respondents. The results show that emotional intelligence is a key factor for developing transformational leadership. Emotional intelligence also has positive influence on the effective management of construction H&S. In addition, transformational leadership style with its attributes such as communication skill, motivation, team work spirit, and conflict resolution lead to improved construction site worker H&S performance. The implication of this research is that in order to improve worker's health, safety and wellbeing, construction companies should consider the relationships among various aspects of project personnel H&S management tasks discussed in this research and incorporate them into their human resource development programme.

Keywords: Construction H&S, emotional intelligence, transformational leadership, performance

1. Introduction

Globally, statistics show that H&S performance based on numbers of site accidents and fatalities in the construction industry has remained roughly the same since the early 1990s [1;2]. It has been found that modern technology, automation and safety management system are not enough to further improve health, safety and wellbeing of construction site workers. In this case, [3; 4; 5] argued that safety improvement can only be achieved through an attention to human error mechanism. This human factor is particularly important in the construction industry due to its labour-intensive characteristic [6]. Thus, H&S research and safety management implementation need to focus on the human side of construction H & Sin order to further promote workers health, safety and wellbeing [1].

Project personnel play an important role in construction H&S management. They are responsible to perform certain H&S management tasks that could lead to overall projects performance workers' H&S inclusive [7; 4]. Additionally, [8] argue that performing these H&S management tasks proficiently is crucial for improving construction site workers' health, safety and wellbeing. Consequently. project personnel's roles in performing construction H&S management tasks and improving construction workplace H&S performance, has not been thoroughly investigated. Therefore, this study seeks to fill this research gap.

Project personnel need to have capabilities to meet their responsibilities. Research has shown that emotional intelligence and transformational leadership are essential in today's workplaces [7; 9; 10]. Emotional intelligence is "the capacity for recognising our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships with others" [9; 5]. Thus, [11] simply puts it as a part of human components that closely associated to superior performance. Undisputedly, emotional intelligence has been found to be an ingredient that influences the

Correspondence Author: Okorie V.N., Email: victor.okorie@uniben.edu, Tel: +2347064899835

efficacy of project personnel in performing their H&S management tasks. Furthermore, many of the H&S management tasks require project personnel to work with others due to the nature of construction site operations. Therefore, construction managers and supervisors need emotional intelligent skills and capabilities to interact effectively with stakeholders and site workers [5]. Lastly, managers and supervisors who have transformational leadership capabilities will create a workplace environment characterized with shared vision, promote worker involvement and participation [8; 12]. Transformational leadership is widely considered as a leadership style that produces higher levels of employees' effort and performance than the democratic and transactional styles [3; 13; 4; 10].

In sum, the objectives of this study are twofold. First, to determine the influence of emotional intelligence and transformational leadership on the implementation of H&S management tasks and the extent it positively impact on site workers' health, safety and wellbeing. The second objective is to reveal the interrelationships between emotional intelligence and transformational leadership, which can serve as guideline or an approach for improving project personnel's capabilities.

2. Research model and hypotheses

H&S performance can be described as an eye through which clients/owners of projects compare health and safety performance of different organizations to assess which organization has a better health and safety record [14; 8]. It also allows comparison of health and safety performance between projects and can also be used by organizations internally to maintain line accountability for workers' H&S and to pin point problem areas. Health and safety performance can be broadly classified into two groups which are lagging indicators like accident rates and leading indicators like measurement of health and safety of construction site [13; 7]. Construction site was chosen as a parameter for H&S performance in this study because of its many uniqueness and advantages: (1) it is a leading indicator that can identify H&S problems before they manifest into accidents and injuries, (2) it provides a mechanism to optimise investment on H&S related improvements, (3) it serves as a valuable tool to identify H&S trends and establish benchmarks, (4) construction workplace H&S survey costs less money and time to be carried out, (5) it involves employees in the process, which helps identify key issues that need to be addressed, and (6) many studies have revealed the importance of construction workers' health, safety and wellbeing in predicting or measuring H&S related outcomes [5].

Top management should be the first one who initiates H&S policies and develop sound workplace H&S and its implementation in the organization [10]. However, top management should not be the only one responsible for workplace H&S. Every employee must participate and be accountable [15]. The commitment of top management is obviously critical, but commitment alone is insufficient. There must be some clear processes or tasks to implement H&S and develop workplace H&S. Thus, [16] have identified 39 safety management tasks that project personnel should perform for this purpose. A H&S management task is a definable activity, action, or process that project personnel need to perform to provide H&S leadership. In other words, these tasks are what project personnel are required to do that could lead to improvement of construction workers' health, safety and wellbeing.

As stated earlier, emotional intelligence and transformational leadership have been considered as essential capabilities in today's workplaces, particularly construction sites that involve workers of different culture and with little or education. Therefore, this research investigates their roles on implementation of H&S management tasks and development of construction workplace H&S. The research model, as illustrated in Figure 1, integrates all the aspects discussed here. Emotional intelligence is the initiator signifying that project personnel should start inwardly by understanding and managing emotions (both self and others). Then emotional intelligence is manifested in effective interactions through the communication, motivating and creating team work. By means of effective communication, project personnel can become transformational leaders who generate superior performance from their teams [11; 8; 9:5]. It is argued that these two capabilities are required by project personnel to perform well during the implementation of construction H&S management tasks. Finally, successful implementation of H&S management tasks leads to the development and improvement of construction site workers' H&S performance which serves as the goal in this research. Based on this research model, four hypotheses were formulated as follow:

Hypothesis 1: Emotional intelligence enhances/promotes transformational leadership styles of project personnel.

Hypothesis 2: Emotional intelligence has positive influence on the implementation of H&S management tasks.

Hypothesis 3: The higher the transformational leadership of project personnel, the higher the implementation of H&S management tasks.

Hypothesis 4: Implementation of H&S management tasks by project personnel lead to improved construction site worker's H&S performance.

3. Research Methods

A quantitative research method was chosen to test the hypotheses because the main aim of the research is theory testing which involves determining the degree of relationships among the measured variables. Since a large sample of quantitative

data is required to test the theory, questionnaire survey is the most appropriate data collection method used to achieve this objective. Furthermore, questionnaire survey is easy to be conducted, inexpensive, and suitable for measuring unobservable constructs [17].

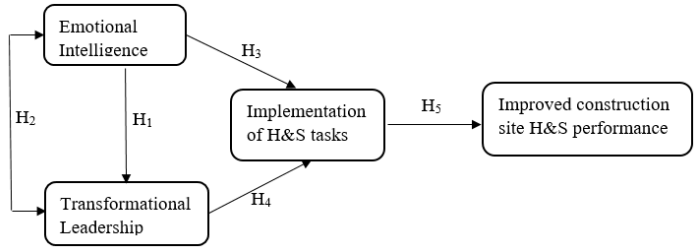

Figure 1 Theoretical research model

The questionnaire for this research was divided into four sections. The first section is the 28-item Emotional Intelligence Appraisal which has been validated across various industries and job positions. It was designed to assess four dimensions of emotional intelligence, namely, self-awareness, self-management, social awareness, and relationship management [18]. The second section is the Global Transformational Leadership (GTL) scale, which contains seven items. The GTL has been tested in Australia with satisfactory reliability and validity to measure transformational leadership (8).

The third section assesses the level of implementation of H&S management tasks. It was developed based on 39 H&S management tasks identified by [16]. The fourth section for assessing construction H&S performance developed based on the review of several previous H&S literature [19; 20; 21; 10; 12]. All questionnaires are self-assessed and use a four-point Likert scale response format for Emotional Intelligence Appraisal and five-point Likert scale response format for other sections.

Data were collected through face to face and via emailfrom randomly selected construction companies within the Lagos, Nigeria. Prior to the distribution of the questionnaires, the researchers met with the project personnel which include: site supervisors, engineers, site managers, project managers, and construction managers of the selected companies to explain the aims and benefits of the research. The project personnel were those actively involved in construction projects at the time of the survey and structured questionnaire were hand in to them for their responses.

Structural equation modelling (SEM) was the main method applied to test the hypotheses of this research. SEM is suitable because it provides a quantitative test of a theoretical model so that complex relationships among constructs or variables can be understood [26]. AMOS 18 (analysis of moment structures version 18) developed by SPSS Inc. was the SEM software package used in this research.

4. Data Analysis and Discussion

A total of two hundred and ten [120] questionnaires were distributed, one hundred and fifty -five (155) were returned and one hundred fifty (210) were found valid and analysed. Various project personnel have participated ranging from safety personnel, site supervisors, engineers, site managers, project managers, and construction managers. The result of the SEM analysis is presented in Figure 2. The probability value of the chi-square test is higher than 0.05 (P=0.260) indicating that the model fits the data. All [unstandardised regression] coefficients are statistically significant providing strong support for the hypothesised model.

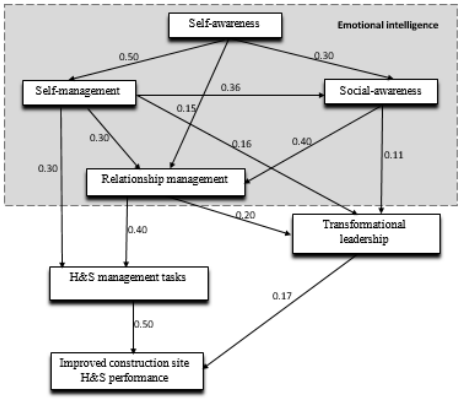

Figure 2: Final model of the SEM analysis

The interrelationships among the four dimensions of emotional intelligence

Self-awareness is a prerequisite of the other three dimensions and also the dimension that starts all relationships in the model. Research showed that people with high self-awareness understand their strengths and limitations, a competency prominent among best performing managers. Self-awareness also makes people search for feedback, learn from their mistakes, and understand when to work with others who have complementary strengths. It often leads to greater understanding of others, thus people high in self-awareness appear trustworthy and perceived as being more competent [22]. Furthermore, self-awareness leads to the development of self-confidence, which is a significant predictor of performance (Goleman, 2001). The finding of this research supports a proposition indicating that self-awareness is the core of emotional intelligence [23] as well as a key to succeed and work effectively with others [22].

Self-management is the predictor of social awareness and relationship management. The relationships are obvious since people who cannot control their emotional outbursts will have less chance to be effective in understanding others and developing relationships [11]. At a neurological level, it has been found that self-management is the foundation for social effectiveness [24]. Lastly, social awareness is also a predictor of relationship management. In addition, [25] found that understanding of ownemotions and the emotions of others is a way to create effective social interactions. People with high social awareness can understand different points of view, thus they can interact effectively with different types of people. It is easier for them to get along in organisational life, build networks, and employ influence tactics to achieve positive results [26] Thus, this attribute could helpful in construction site workers with their different cultural background.

Emotional intelligence and transformational leadership

Transformational leadership is seen as an effective leadership style by subordinates and superiors. The SEM analysis shows that relationship management and communication skill by transformational leaders will impact positively on construction site worker H&S. Transformational leaders have to exercise their communication skill to interact effectively with others. There is no leadership without communication skills for effective interactions. Consequently, people needto understand how to communicate, motivate, resolve conflicts, and build teamwork before they can be effective leaders. In this case, [11] suggested that people with high in relationship management can sense people's developmental needs which make them excellent coaches and mentors. They are influential and articulate a shared vision that arouses enthusiasm and inspires others to work together towards common goals. They are also change catalysts which bring greater efforts and better performance from their subordinates. In short, relationship management generates competencies required by transformational leaders. This finding confirms Hypothesis 2 in this research.

Emotional intelligence and safety management tasks

The model also provides support to Hypothesis 4 by indicating that two dimensions of emotional intelligence, i.e., self-management and relationship management, are required to perform H&S management tasks. Self-management is a form of self-leadership where people need to influence themselves to achieve their goals [14]. In practising self-management, project personnel should include H&S as one of their values and goals. This will influence project personnel's decisions and behaviour, thus they will be motivated in performing their H&S management tasks.

The role of relationship management dimension is also critical in the implementation of H&S management tasks. Nearly all H&S management tasks require project personnel to develop relationships with other project stakeholders. Consequently, relationship management is needed to connect with others in ways that build positive relationships [4], thus project personnel can perform and lead the implementation of H&S management tasks effectively.

H&S management tasks and construction workplace

The implementation of H&S management tasks and transformational leadership are the predictors of construction workplace H&S. The positive relationship between H&S management tasks and construction workplace was expected and consistent with the theory used to develop the original research model. Accordingly, the result supports Hypothesis 4 in this research and confirms the importance of H&S management tasks in developing construction H&S workplace.

Transformational leadership is required to develop and improve construction workplace H&S because it helps build commitment towards workers' health, safety and wellbeing. Project personnel should become role models to build this H&S commitment. They need to inspire others by articulating a clear vision and showing the moral values involved in workplace H&S implementation, thus increasing theintrinsic value of achieving workplace H&S goals. This charismatic approach should be supported by necessary training and mentoring to provide others with a sense of increased competence to carry out their H&S duties. This creates more satisfied followers, while simultaneously promotes positive perceptions and attitudes towards workers' health, safety and wellbeing which basically refer to construction workplace H&S [27].

5. Conclusion

The results of this research indicate that project personnel can use emotional intelligenceand transformational leadership, to implement H&S management tasks and develop construction workplace H&S. Emotional intelligence, particularly self-awareness, is a core factor that contributes to improvement of individual performance and development of effective

relationships with others. Project personnel can manifest their emotional intelligence in workplace through motivating building team spirit among the workgroup. Effective communication by project personnel which is one of the attributes of transformational leaders can inspire their teams to generate superior performance, H&S inclusive. This development process leads to effective implementation of H&S management tasks which will promote positive construction site H&S performance.

Construction companies should recognise the role of these capabilities in construction H&S by providing relevant training and development strategies for their project personnel. They can integrate emotional intelligence measurement in their recruitment procedures to employ the right individuals that can contribute to H&S improvement and organisational success in general. H&S management tasks should also be enforced in every construction company to promote construction site H&S performance improvement.

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