EMOTIONAL INTELLIGENCE COMPETENCIES RELEVANT TO CONSTRUCTION WORKERS' SAFETY MANAGEMENT IN THE GHANAIAN CONSTRUCTION INDUSTRY. A CASE STUDY OF ABUAKWA SOUTH MUNICIPALITY

ABSTRACT

The construction industry arises as a high-pressure environment involving coordinating complex technical tasks across multiple stakeholders from different organisations over short durations. Emotions certainly arise in this high-pressure environment. Hence, emotional intelligence (EI) plays a major role in fostering positive relationships and managing conflicts and frustration effectively critical to project success by building the basis of trust and psychological safety needed for project teams. Studies show a relationship between project managers' emotional intelligence (EI) and project success. However, less is known about how the emotional intelligence of construction workers (internal stakeholders) may affect safety on construction sites. The study sought to investigate the effect of construction workers' emotional intelligence on safety in the Ghanaian construction industry within the Abuakwa south municipality. The study adopted the quantitative research method and sampled total of 143 respondents with 74% respondent rate. Data was analysed using SPSS by computing for the Cronbach alpha, descriptive statistics and Pearson's correlation of the variables. It was concluded that self-awareness, self-regulation/ management, social awareness/ empathy, social skills/ relationship management, motivation, and job satisfaction are the key components of emotional intelligence vital for construction workers' effectiveness in their safety management on sites, and also recommends for further research into the effect of construction workers' emotional intelligence on safety management in the Ghanaian construction industry since emotions play a critical role in safety.

1 INTRODUCTION

The construction industry is known for being risky and accident-prone, with potential hazards from heavy machinery, work at heights, noise, dust, etc. (Dong et al., 2015). Higher death rates for construction workers around the world have been observed, highlighting the industrial crises caused by accidents (Hamalainen et al. 2006). Construction was responsible for 27% of fatalities and 10% of catastrophic injuries in the United Kingdom over the last two decades (HSE 2015). According to Ankrah et al. (2009), Atkinson and Westall (2010), and Cheng et al. (2012), larger projects are safer for personnel.

In developing countries with a substantial building sector, such as Saudi Arabia, workplace accidents and mortality among construction workers continue to be a serious concern. Studies reveal a substantial link between construction workers' stress and their sensitivity to accidents, as stress can impair focus and safety practices (Lyu et al. 2018).

In Ghana, the construction industry accounts for 4.7% of national occupational injury indices. The construction business has an accident frequency rate of 65, which is 151% more than the national average of 43 (Ghana Statistics Service, 2016). Furthermore, research conducted by Osei-Asibey et al., (2021) on the state of health and safety management on building sites in Wa Municipality discovered that the Ghanaian construction industry lacks health and safety management at all levels of the construction chain

Research by Leitão and Greiner, (2016) revealed that human factors play a major role in construction site safety, with a lack of safety compliance linked to accidents and injuries Emotional intelligence (EI) is emerging as a key concept to understanding construction workers' safety behaviours, attitudes, and risk management. Emotional intelligence involves perceiving, understanding, and regulating emotions in oneself and others (Mayer and Salovey, 1993). Studies show emotional intelligence can help reduce occupational stress, improve well-being, and influence site safety climate (Kukah et al., 2021; Zou and Sunindijo, 2013).

Despite the growth in research on emotional intelligence in construction project management, there is limited research on the specific emotional intelligence (EI) competencies most relevant in the construction context (Kukah et al., 2021; Montenegro et al., 2021). Hence, the rapid growth in the infrastructure development in the Abuakwa South Municipality, calls for a critical investigation into the emotional intelligence competencies relevant to construction workers concerning their safety management on the various construction sites within the municipality.

2. PREVIOUS RESEARCH

2.1 Emotional Intelligence: A Concise History

Edward Thorndike's depiction of 'social intelligence' in 1920 marks the first origins of emotional intelligence (EI). Thorndike (1920) described social intelligence as the capacity to comprehend and control individuals and behave wisely in human interactions. In 1940, David Wechsler noticed that non-cognitive characteristics including emotive, personal, and social factors play a role in how people employ their cognitive ability for success in life (Wechsler, 1940). In the 1950s, humanistic psychologists like Abraham Maslow began writing about the emotional growth and maturity of individuals (Maslow, 1954). By the 1960s, researchers were actively exploring social intelligence and developing tools to assess one's capacity to understand the emotions, motivations, and behaviours of others (Mayer, Salovey & Caruso, 2000).

The phrase 'emotional intelligence' initially emerged in a PhD thesis titled "A Study of emotion: Developing Emotional Intelligence" by Wayne Payne in 1985 (Payne, 1986). In the thesis, Payne addressed the significance of controlling emotions to constructively deal with hardship. The first peer-reviewed scholarly study on EI titled "Emotional intelligence" was published in 1990 by psychologists Peter Salovey and John Mayer. They described EI as "the subset of social intelligence that involves the ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990).

Emotional intelligence (EI) has gained significant attention in recent decades. Emotional Intelligence (EI) is the capacity to recognize, comprehend, manage, and utilize emotions in oneself and others, as described by Mayer, Salovey, and Caruso in 2004. It includes understanding emotions, controlling emotions, self-motivation, identifying emotions in others, and managing relationships. While the term 'emotional intelligence' is recent, the concept of non-cognitive intelligence components has existed since the 1900s.

2.2 Components of Emotional Intelligence

Emotional intelligence is a multi-dimensional construct that incorporates an array of socio-emotional competencies. There is unanimity amongst academics that EI includes the following fundamental components: self-awareness, self-management, social awareness, and relationship management (Goleman, Boyatzis & McKee, 2013; Mayer, Salovey & Caruso, 2004).

2.2.1 Self-Awareness

Self-awareness refers to the ability to perceive and understand one's own feelings, strengths, shortcomings, values, motives, and aspirations (Bradberry & Greaves, 2009; Goleman, 1995). It is the cornerstone skill for developing EI, as knowing oneself is vital before one can control oneself or relate to others. As Goleman (1995) notes, "The ability to monitor feelings from moment to moment is fundamental to psychological insight and self-understanding".

People with high self-awareness have an accurate self-assessment of their emotions, traits, capabilities, and thought processes (Mayer, Salovey & Caruso, 2004). They exhibit strong introspective abilities and can honestly articulate their strengths, limitations, values, and drivers (Goleman, 1998). Self-awareness enables people to know their emotions and have conviction in their self-worth (Bradberry & Greaves, 2009). It helps them understand how their feelings impact their work performance, relationships, and overall well-being.

2.2.2 Self-Management

Self-management refers to the ability to regulate one's emotions and impulses (Ramachandran, 2021; Goleman, Boyatzis & McKee, 2013). It involves effectively managing stress, controlling anger and frustration, thinking before acting, avoiding impulsive behaviours, and persevering through challenges to achieve goals (Stein & Book, 2011).

People with high self-management can harness their emotions for constructive purposes rather than being driven by them (Bradberry & Greaves, 2009). They can delay gratification, balance their drives with self-control, and recover well from emotional distress (Goleman, 1995). Self-management enables productivity and accountability by allowing people to manage their reactions, persist through difficulties, adapt to changing circumstances, and avoid unethical choices (Ramachandran, 2021).

2.2.3 Social Awareness

Social awareness involves the ability to understand other people's emotions, perspectives, and concerns (Goleman, Boyatzis & McKee, 2013; Stein & Book, 2011). It is the skill of sensing what others feel and think by reading their verbal and nonverbal cues with care and accuracy (Bradberry & Greaves, 2009). Social awareness allows people to tune into unspoken issues, understand different viewpoints, and show sensitivity toward others' needs (Goleman, 1995).

Socially aware people are characterized by their empathy, organizational awareness, and orientation to help others (Goleman, 1998). They can grasp interpersonal dynamics and group feelings well, which helps them relate better (Mayer, Salovey & Caruso, 2004). Social awareness helps build rapport, understanding, and cooperation with others. It enables positive responses to social dilemmas and conflicts (Boyatzis, Goleman & Rhee, 1999).

2.2.4 Relationship Management

Relationship management involves the ability to develop, influence, inspire, and connect with others while managing conflict (Goleman, Boyatzis & McKee, 2013). It combines interpersonal skills with the effective use of emotions in interactions and groups (Mayer, Salovey & Caruso, 2004). Relationship management enables collaborative goal achievement through teamwork, leadership abilities, persuasion skills, and expertise in building networks (Goleman, 1995).

People adept at relationship management can communicate, build bonds, facilitate cooperation, and steer through disagreements smoothly (Bradberry & Greaves, 2009). They balance their concern for others with assertiveness about their own needs (Stein & Book, 2011). Relationship management allows groups to collaborate harmoniously and teams to perform optimally for shared objectives (Goleman, 1998). It helps in dealing with the emotions involved in disagreements and negotiations.

In essence, these four core components include the wide breadth of emotional and social competencies that constitute emotional intelligence. Together, they determine how adeptly individuals can manage themselves and their relationships with others (Goleman, Boyatzis & McKee, 2002). Most EI theories include various components of self-awareness, self-management, social awareness, and relationship management in their framework.

2.3 Benefits of Emotional Intelligence for Construction Project Managers

The project-based, fast-paced, and multidisciplinary nature of construction demands a high level of emotional intelligence (EI) amongst project teams (Mo et al., 2006; Love et al., 2004). Emotional intelligence has been connected to many skills considered foundational for effective construction

project management, including leadership, communication, negotiation, problem-solving, and relationship management (Edum-Fotwe & McCaffer, 2000).

2.3.1 Leadership

Emotional intelligence is considered very relevant for leadership effectiveness. Managers strong in emotional intelligence (EI) may better encourage teams, handle stress, and role model positive behaviours, leading to improved outcomes (Goleman, 1998).

In construction, EI has been linked specifically to transformational leadership behaviours like inspiring vision and modelling ethical conduct (Butler & Chinowsky, 2006). Transformational leadership supports innovation, responsiveness to change, and intrinsic motivation – helping project teams adapt to a dynamic project environment (Krog & Govender, 2015).

Meanwhile, low EI impairs the ability to role model ethical conduct or face difficulties forcefully - leading to distrust. Overall, research demonstrates EI predicts significant variation in leadership and team effectiveness (Clarke, 2010).

Thus, EI seemingly correlates positively to a manager's capacity to lead construction teams through difficult, risky projects demanding high collaboration, inventiveness, and resilience.

2.3.2 Relationship Building

By efficiently identifying and managing emotional cues, managers strong in EI can allow open communication and develop trust amongst varied construction project stakeholders (Rezvani et al., 2016; Fernández-Berrocal et al., 2012).

Trust increases information sharing, innovative problem solving, and coordination - enabling the collaborative behaviours construction projects rely significantly on. On the other hand, low trust from poor emotional management produces defensive behaviours and prevents cooperation (Colquitt et al., 2007).

Conversely, when project leaders lack emotional awareness or regulation, communication degrades and strains both internal team cohesion and external stakeholder relationships (Mo et al., 2007).

2.3.3 Managing Stress

Construction projects inherently involve high uncertainty, risk, and overload. Emotionally intelligent project managers are better able to manage frustration, adapt to changing demands, and recover from stress (Clarke, 2010; Thomas & Mengel, 2008; Rezvani et al., 2018). By role modeling resilience, they support their teams in maintaining positive mindsets and constructive behaviours amidst project challenges.

In contexts with high potential for misunderstandings and conflict like construction, EI seemingly helps prevent project stress from devolving into counterproductive or aggressive responses that harm performance

3 RESEARCH METHODS

The quantitative research method was adopted by this research through the use of a closed-ended questionnaire due to its ability to enable quantitative data to be collected in a systematic method so that the data are internally consistent and coherent for analysis (Naoum 2007). The study was made up of architects, quantity surveyors, site supervisors, civil engineers, project managers, and contractors within permitted construction sites within the Abuakwa South Municipality.

The study adopted accidental sampling techniques to select the respondents. According to Scott (2007), accidental sampling can also be called availability sampling and is sometimes referred to as convenient sampling. The quantitative research was adopted by this study through the use of closed-ended research was adopted as a result of its convenience in making use of the respondents available at a time for quick response (Scott, 2007).

A total of 143 closed-ended questionnaires were self-administered to respondents and 106 were retrieved representing a response rate of 74%. The Statistical Product for Service Solution (SPSS) was applied to process and analyze the data by computing the Cronbach alpha, descriptive statistics of the variables.

Research settings: This study was conducted at five (5) large construction project sites within the Abuakwa South Municipality. A sports hotel, Ghana Fire Service Training school, Ghana Health Insurance Office, a 200-bedroom hotel, and an ultra-modern market. These projects were selected due to their sizes in nature, involving well experienced construction experts who are entrusted to give a well enlightened responses to positively impact the study.

4 RESULTS AND DISCUSSION

4.1 Respondent Rate

Occupationally, the results from Table 1 indicated that civil engineers make up the largest group (29.2%), followed by site supervisors (16%) and project managers (15.1%). This diversity in occupations highlights the varied roles within the construction industry and the potential for emotional intelligence to impact different areas of work.

Table 1 Respondents Occupation

OCCUPATION	FREQUENCY	PERCENT (%)
Architect	15	14.2
Quantity surveyor	16	15.1
Civil engineer	31	29.2

Project manager	16	15.1
Contractor	11	10.4
Site supervisor	17	16
TOTAL	**106**	**100**

Source; Field Survey, 2024

4.2 The Key Components of Emotional Intelligence Relevant to Construction Workers

According to the literature, self-awareness, self-regulation, social awareness, and relationship management are essential components of emotional intelligence (Ramachandran, 2021; Goleman, Boyatzis, & McKee, 2013; Stein & Book, 2011; Goleman, 1995). To validate or disprove these findings from the literature in the context of the construction business, respondents were given many statements and asked to indicate their level of agreement or disagreement. The findings are provided in Tables 2, 3, and 4.

Table 2 Descriptive Statistics of the EI Components

Item	Mean	Std. Deviation	N
1	4.92	0.312	106
2	4.56	0.744	106
3	4.48	0.784	106
4	4.60	0.739	106
5	4.85	0.385	106
6	4.53	0.897	106

(N= number of respondents)

Source; Field Survey, 2024

Table 3 Reliability Statistics of EI Components

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.759	0.767	6

The reliability analysis shows a Cronbach's Alpha of 0.759, indicating acceptable internal consistency among the emotional intelligence components

Table 4 EI Components Relevant to Construction Workers

No	Key Components of Emotional Intelligence	SCALE (%)

	Relevant to Construction Workers	SA	A	N	D	SD
1.	Self-Awareness	92.5	6.6	0.9	-	-
2.	Self-Regulation/ Management	67.0	24.5	6.6	0.9	0.9
3.	Social Awareness/ Empathy	62.3	26.4	9.4	0.9	0.9
4.	Social Skills/ Relationship Management	72.6	17.0	9.4	-	0.9
5.	Motivation	85.8	13.2	0.9	-	-
6.	Job Satisfaction	72.6	13.2	10.4	1.9	1.9

(SA= strongly agree; A= agree; N= neutral; D= disagree; SD= strongly disagree)
Source: Field Survey, 2024

The analysis revealed high mean scores across numerous dimensions, with self-awareness getting the highest mean of 4.92 and almost 93% of respondents strongly agreeing with the statement. This shows that construction workers have a good knowledge of their emotions and how they influence their work. Motivation was ranked second highest with a mean score of 4.85, with 85.5% of the respondents strongly agreeing with the statement, reflecting a strong drive among workers, followed by Social Skills/Relationship Management, which scored the third highest mean of 4.60, with 72.6% strongly agreeing to the statement and 0.9% of the respondents strongly disagreeing with the statement, indicating effective interpersonal skills, which are essential for collaboration.

Accordingly, the statement Self-Regulation had a mean score of 4.56 and was ranked 4th with a respondent strongly agreement percentage rate of 67 and a strongly disagreement rate of 0.9%, while 6.6% of the respondents were uncertain with the statement. This indicates that while workers are generally good at managing their emotions, there is room for improvement. However, Job Satisfaction attained the 5th position and Social Awareness/Empathy attained the 6th position scoring mean scores of 4.56 and 4.53 respectively. 72.6% of the respondents strongly agreed to the statement job satisfaction as a key component of emotional relevant to construction workers while 1.9% of the respondents strongly disagree. This indicates generally positive work environment. With a percentage rate of 62.3, respondents strongly agreed to the statement social awareness component of emotional relevant to construction workers, and 0.9% strongly disagree while 9.4% of the respondents were unfamiliar with the statement.

5 CONCLUSIONS

The study concludes that the personnel of the construction sites within the municipality are relatively well-read, this improves their capacity to comprehend and implement emotional intelligence principles in their safety practices on the construction site. Also, the study revealed that the Key components of emotional intelligence such as self-awareness, self-regulation/ management, social awareness/ empathy, social skills/ relationship management, motivation, and job satisfaction are vital for

construction workers' effectiveness in their safety management on sites. The study recommends for further research into the effect of construction workers' emotional intelligence on safety management in the Ghanaian construction industry since emotions play a critical role in safety.

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