Engineering Sciences
ISSN: 1308-7231
Article ID: 1A0483

Status : Research Article
Received: 23.09.2022
Accepted: 25.01.2023

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DOI	http://dx.doi.org/10.12739/NWSA.2023.18.1.1A0483	
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EMOTIONAL INTELLIGENCE TRAINING IN CONSTRUCTION PROJECTS

ABSTRACT

Recent research recognizes the importance of Emotional Intelligence (EI) in the construction industry. Research on EI in construction are predominantly quantitative to measure the relationship between EI and work-related factors. EI has suggested as underpinning a number of behaviors considered important for project management however, few studies have conducted to date examining whether training can improve EI. Insufficient empirical and theoretical attention has given to the influence of EI in determining performance and the mechanisms underlying this relationship among project team members in construction projects. This research explores the association between EI and construction project manager skills in the context of construction projects. To test the model, we collected data from 119-project manager in a construction project. The empirical results demonstrate that EI positively linked to construction manager skills. This paper concludes with a discussion of the research and practical implications of the study's findings, and suggestions for future research directions.

Keywords: Emotional Intelligence, Construction Project Management, Construction Industry, Project Manager Skills, Traditional Project Management

1. INTRODUCTION

Over the past two decades the "human side" of project management has increasingly been identified as a critical component of the project manager's role associated with project management success [5]. Researchers have found that challenges in construction projects are largely associated with human skill and competencies, rather than technical issues. Human skill and competency are a critical part of managing large scale projects, influencing on successful delivery of projects. Researchers such as Mazur, et al., (2014), Müller and Turner, (2010) and Rezvani, et al., (2016) have revealed that behavioural skills and competencies, more specifically emotional intelligence (EI), defined by Mayer, et al., (2008) as the ability to be aware of, to manage, and to understand emotions in self and others, can affect the outcomes of major projects. Rezvani, et al., (2016) and Mazur, et al., (2014), for instance, found that managers with high levels of EI are more motivated to become involved in effective communications and are more creative regarding complex tasks, resulting in increased chances of project success in major projects [15, 17, 20 and 31].

Past research has shown the importance of EI to the achievement of successful outcomes, the project management literature is replete with unsubstantiated generalizations, with much of the existing

How to Cite:
Afshari, A.R. and Ghamkhar, N., (2023). Emotional Intelligence Training in Construction Projects. Engineering Sciences, 18(1):1-10, DOI: 10.12739/NWSA.2023.18.1.1A0483.

evidence bearing on the role of EI for project managers [4, 15 and 17]. Therefore, our first goal is to extend research in the field of EI to research in construction projects [20 and 29]. Our focus in this research lies in construction project environments due to their major influence on our society by supporting its foundation. In addition, prior research has indicated the relevance of EI to construction projects and project performance [15, 17 and 20].

2. RESEARCH SIGNIFICANCE

This research explores the association between EI and construction project manager skills in the context of construction projects. To test the model, we collected data from 119-project manager in a construction project. The empirical results demonstrate that EI positively linked to construction manager skills. This paper concludes with a discussion of the research and practical implications of the study's findings, and suggestions for future research directions.

The overarching research question for this study is as: Does training in Emotional Intelligence concepts improve an individual's Emotional Intelligence scores?

Highlights:

- The importance of Emotional Intelligence (EI) in the construction industry.
- EI positively linked to construction manager skills.
- Effects on EI project managers.

3. LITERATURE REVIEW

In recent years, a number of researchers have studied the dimensions of emotional intelligence associated to behaviours at work. Some of these studies show a significant association between emotional intelligence and behaviours related to construction project management. The level of emotional intelligence of the project manager directly related to the success of construction projects. The success of the project, however, is not something easy to define. Behavioural skills, including interpersonal competencies, is one of the three pillars of project management capable of enabling the project manager, a clearer picture of the situation to be treated. Research has demonstrated the importance and relevance of soft skills such as EI for the successful of construction projects, which appears to be a particularly appropriate setting in which to examine issues related to relationships involving EI [32]. Existing research has highlighted the significance of EI in achieving successful outcomes [13, 14 and 15]. More recently, the number of studies about interpersonal competencies to project management has grown significantly, mostly out of the works relating positively the interpersonal competencies with the success of projects, suggesting a direct relationship between these two factors [34]. Allied to this, Turner and Müller (2005) and Sunindijo, et al., (2007a) indicate emotional intelligence as an important component to influence the leadership style of construction project managers, contributing positively to interpersonal skills. In other words, there would be also a direct relationship between emotional intelligence and skills of the manager [23 and 30].

Goleman (1998) has proposed that individuals who possess a high degree of EI can positively influence both team and organizational performance [8]. Some preliminary research within construction has revealed this to be the case [22]. Often, EI is considered to be mistakably synonymous with simply having good social skills such as good interpersonal and communication skills [26]. As noted above, such

skills have identified as being fundamental for construction managers, as they deal with an array of people at various levels such as clients, consultants, subcontractors and suppliers on a daily basis. EI, however, extends beyond simply possessing social skills. Being emotionally intelligent involves being actively able to identify, understand, process and influence one's own emotions and those of others to guide feeling, thinking and action. Individuals who possess a high degree of EI are able to make informed decisions, better cope with environmental demands and pressures, handle conflict in an effective manner, communicate in interesting and assertive ways and make others feel better in their work environment.

For construction project managers' who constantly confronted with solving disputes and general problems during pre and post construction, an ability to formulate satisfactory solutions is essential. Construction managers who have a positive mood toward problem solving will invariably evaluate things more positively than those who have a negative mood. Negotiations, for example, between a contractor and a client's representative with respect to a claim can be highly emotional charged situations for both parties, especially when substantial financial investments are at stake. The negotiation process is fraught with emotion, and emotional relationships and contingent interactions can all affect upon the outcome. Thus, when entering negotiations or solving problems on-site with team members or subcontractors it is important that construction project managers are cognizant that their emotional standing can influence their mood and those around them [12].

Among the first to work with the concept of emotional intelligence linked to the project environment, Turner and Müller (2005) present in their work a discussion of the project manager's leadership style including emotional intelligence, as one of the success factors of the project itself. They indicate emotional intelligence as an important component to influence the leadership style of project managers. Butler and Chinowsky (2006) have found a significant relationship between EI and transformational leadership behaviour among construction executives [2]. Mount (2006) assessed the skills related to the success of project managers in 74 international petroleum corporations, and found that, of all the skills that contributed to project managers' success, 69% were the emotional competencies [16]. Barry and Plessis (2007), emotional intelligence is portrayed as a critical element for project managers, an issue validated through research in which the managers themselves recognise this importance [1]. Sunindijo, et al., (2007a) conducted a survey with the project managers of the construction sector and found that emotional intelligence contributes positively to the considered key competences in the project management activities, such as communication and conflict management [23]. Pant and Baroudi (2008) asserted that the tacit knowledge, such as subjective, cognitive, and experiential learning, was closely linked to emotional intelligence. Turner and Lloyd-Walker (2008) reported that emotional intelligence capabilities greatly contribute to project success. Another study by Geoghegan and Dulewicz (2008) was carried out to identify whether a significant relationship existed among emotional quotient dimensions (self-awareness, sensitivity, influencing, and motivation) and project success [7, 18 and 24]. Having analysed the data gathered from 52 project managers in the United Kingdom, the researchers found a significant relationship between EQ dimensions and project success.

Davis (2011) relates the communication skills, conflict management, motivation ability, and problem solving to emotional intelligence [6 and 25]. Clarke (2010) also points out a strong

relationship between emotional intelligence and a project manager's interpersonal skills [4]. Yang, et al., (2011) found that teamwork exhibited significant influence on project performance, whereas teamwork is an emotional intelligence competency included in the emotional intelligence competency model [33]. Mazur, et al., (2014) examined the relationship between EI and project success from the perspective of project managers. The researchers argue that emotionally intelligent project managers are more likely to communicate effectively and participate in problem-solving activities with stakeholders. Zhang, et al., (2013) found that Chinese construction project managers considered eight emotional intelligence competencies to be important for the successful management of their projects. These included empathy, inspirational leadership, teamwork and collaboration, conflict management, influence, change catalyst, service orientation, and organizational awareness. Sunindijo and Hadikusumo (2014) in their study of project manager's emotional intelligence and its effect on conflict resolution discovered that project managers with high levels of emotional intelligence verses project managers with lower levels, were able to more readily adjust their conflict resolution style when conflict was present in order to appropriately diffuse potentially damaging situations. This field study of emotional intelligence as a moderator of conflict in construction is a good example of the benefits of emotional intelligence for mitigating the effects of relationship conflict. Trejo (2014) works with the relationship between emotional intelligence and results of term, cost, and project scope finding positive contributions of emotional intelligence in these components. Sunindijo (2015) reported that emotional intelligence has a significant influence on project cost performance and project quality performance [28]. Stephens and Carmeli (2016) argue that individuals with high levels of EI expand their knowledge and skill bases to improve their ability to communicate and cooperate effectively for successful project outcomes [21]. Rezvani, et al., (2016) conducted their study on the Australian defence industry and reported the significant relationship between project managers' emotional intelligence and project success with the mediation role of job satisfaction and trust.

4. METHODS

The research documents the impact of integrating an emotional intelligence curriculum and its influence on intrapersonal and interpersonal skills to improve leadership and team performance effectiveness in construction managers. Both the experimental group and the control group completed the EI pre-assessment. A two-week intervention was scheduled and delivered to the experimental group while the control group received the standard curriculum.

The variables in the study included four dimensions with a combined 13 emotional intelligence skills from the Emotional Skills Assessment Process. However, the study only focused on Intrapersonal Dimension, Interpersonal Dimension and Leadership Dimension as the dependent variables. The variables from the Team Member Effectiveness instruments were team satisfaction, team cohesiveness, team effectiveness as dependent variables. Emotional intelligence served as the independent for the study. The purpose of the research was to explore the impact of emotional intelligence on leader behavior and team effectiveness. The purpose of the EI treatment intervention was to assist managers with developing strategies to discover the value and importance of using emotions intelligently to achieve success in all areas of construction project.

The research participants were composed of 53% male and 41% female managers (6% missing data). The mean age of the participants was 33. Participants divided into an experimental group and a control group. The experimental group received the EI intervention while the control group received the traditional project management curriculum. The data collection based on archival data collected from an assurance of learning pilot program in fall 2019. The focus of the pilot was to explore ways to enhance managers' skills by integrating an emotional intelligence intervention into the Project Management Concepts course. The researchers created the pilot design and concepts of the pilot program. An experimental design implemented to collect the data and test if an in-course intervention would improve individual manager skills. The researcher was an active participant in the program by administering the pre and post assessments.

5. RESULTS

5.1. Numerical Results

The purpose of the quantitative experimental study was to investigate the influence of the EI intervention to improve construction manager's intrapersonal and interpersonal skills to impact leader behavior. The goal of the research was to increase construction managers' post EI scores in specific skill areas of intrapersonal skills and interpersonal skills to their ability to lead and work effectively in a team environment. The statistical analyses based on 119 construction managers enrolled in four sections of the project management concepts course to measure the impact of the EI intervention on three of the five dimensions prescribed in the EI Post-test. Table 1 shows the mean EI score of construction managers in the experimental group who completed the Intrapersonal Dimension, the Interpersonal Dimension, and the Leadership Dimension of the EI Post-test. The results revealed that total EI scores average 327.12 with a standard deviation 37.03. Interpersonal Dimension average scores of 84.92 with the standard deviation of 12.6 were the highest of the three dimensions. The Leadership Dimension average score of 81.69 with the standard deviation of 9.4 indicating the mid-range of the three dimensions. Construction managers scored on average of 78.86 with a standard 85 deviation of 14 for the Intrapersonal Dimension indicating the lowest of the three dimensions listed.

Table 1. Descriptive statistics EI Skills Post-test (Experimental Group)

Skills	Means	Standard Deviation
Total Leadership	76.05	11.4
Total Intrapersonal	76.23	12.6
Total Interpersonal	79.55	12.0
Total EI Score	309.30	39.03
Team Cohesiveness	11.99	2.15
Individual Satisfaction	12.08	2.96
Total Team Satisfaction	47.41	8.45

Hypothesis 1 suggested that the mean EI scores would increase from the pre-test to post-test for the experimental group but not for the control group. As shown in Table 2, results of a dependent samples t-test revealed that the control group's Total EI scores did not significantly increase from pre-test (M=317.06, SD=28.66) to post-test (M=317.28, SD=27.53), t(17)=-.04, p=.97. In contrast, the experimental group's scores increased significantly from pre-test (M=310.03, SD=39.436) to post-test (M=331.81, SD=38.15), t(73)=-6.33, p=.000. Thus, Hypothesis 1 supported.

5.2. Finding

The research designed to investigate the influence of Emotional Intelligence Management Concepts Curriculum to improve construction manager's intrapersonal and interpersonal skills to impact leader behavior and team performance effectiveness. The purpose of the research was to explore the significant of emotional intelligence and its impact on leader behavior and team effectiveness through intrapersonal and interpersonal skills, so construction managers would embrace the emotional mind as well as the cognitive mind to minimize conflict, increase project success, and establish healthier relationships. The study utilized the quantitative research method with an emphasis on quasi-experimental non-equivalent groups to collect and analyze data to examine the research questions for this study. Hypothesis 1 supported that the mean EI scores would increase from the pre-test to post-test for the experimental group but not for the control group. The mean for the EI post-test assessment indicated that the emotional intelligence level of the participants in the experimental group did increase significantly. This significant increase suggested participants in the experimental group made a positive change and connection between emotional intelligence skills and their emotional mind. The participants appeared to be more self-aware and comfortable with themselves and others around them. Participants seem to have discovered that they do have control over their emotions. The experimental group also appeared to have understood the value of self-directing their emotions from reflecting on past emotions and outcomes to create a better present interaction. The group was able to visualize and process the emotional learning system to understand the difference between a thought and a feeling. The results also explained the participants' growth and development in their personal exchange from the beginning of the EI intervention to the end. In contrast, the control group scores did not change from pre-test to post-test indicating that the participants in the control group might benefit from the EI intervention.

6. DISCUSSION

This study analysed the effects of emotional intelligence skills of construction managers participated in four sections of the Management Concepts course to investigate the impact of the EI intervention to increase construction manager's intrapersonal and interpersonal skills to improve their leader behaviour skills and team effectiveness. The EI intervention was successful. The intervention designed to enable construction managers to recognize, understand, and manage their emotions by utilizing the emotional learning system. EI made a significant difference between the EI pre and post scores with a 21-point increase.

The findings suggested team members in the experimental group displayed evident of incorporating emotional intelligence into their interaction with each other and it proved to be vital to their team success. The EI intervention proved that the experimental group was able to connect with their team members and had a better team experience than the control group. Construction managers will be more emotionally in tone with learning and will perform better in their projects and on team projects [12]. In support of these results, Kang, et al., (2018), Castañeda, et al., (2005), Torres-Machí, et al., (2013), and Harris, et al., (2020) revealed the significance of identifying, understanding and managing emotions through some type of skills training program [3, 9, 10 and 27].

This research showed that specific skills such as assertion, comfort, empathy, decision-making, leadership, drive strength, time

management, commitment ethics, self-esteem, and stress management could develop in a training setting. The second phase of the research divided the participants into teams to form both the experimental and control groups. The results revealed that there was a statistically significant between total EI scores and team effectiveness. Individuals high in emotional intelligence performed better on a team [19].

Members who were more social aware and comfortable with their teammate bonded better than those who were not. Team members that create cohesive relationships had positive results [11]. The results also indicated that teams with more cohesive relationship and individuals connecting to their cognitive and emotional skills had less stress and conflicts.

7. CONCLUSION

The research designed to investigate the influence of Emotional Intelligence Management Concepts Curriculum to improve construction manager's intrapersonal and interpersonal skills to impact leader behavior. The purpose of the research was to explore the significant of emotional intelligence and its impact on leader behavior through intrapersonal and interpersonal skills, so construction managers would embrace the emotional mind as well as the cognitive mind to minimize conflict, increase project success, and establish healthier relationships.

The data generated from the research study provides a unique collection of data that resulted from the integration of the EI intervention into the Construction Management Concepts that did not previously exist. The research revealed that the EI intervention could integrated into a PBO curriculum to develop and improve the emotional learning process through a transformative education and skill-based approach to increase awareness and promote emotional self-control and healthy relationships. Introducing EI, skills offer positive advantages to project and career success.

The findings suggest that teaching construction managers to use both the emotional and cognitive learning attributes are important for authentic learning to happen. The study charts an opportunity for improving both the cognitive and the emotional mind to increase project performance and enhance personal and social interactions. The EI intervention could serve as a direct link to team effectiveness.

This research is a preliminary study, which may improve in a number of ways. Based on the investigation of the research to identify the effects of the EI intervention to improve construction managers' intrapersonal and interpersonal skills, the results of the hypotheses testing strongly supported the effectiveness of the EI intervention. This study can replicate in other project and disciplines, and countries. Regarding to hypothesis 5 that not supported that there would be a positive relationship between EI leader behavior scores and individual team satisfaction, more research needed to clarify the empathy scale relative to leadership to address the potential curvilinear rather than a linear construct.

NOTICE

This study was presented and restructured as an oral presentation at the 5th International Science Symposium September 01-03, 2022 held in Sarajevo/Bosnia and Herzegovina.

CONFLICT OF INTEREST

The authors have no conflicts of interest to be disclosed.

FINANCIAL DISCLOSURE

The authors declare that this study has received no financial support.

DECLARATION OF ETHICAL STANDARDS

The authors of this article declare that the materials and methods used in this study do not require an ethical committee.

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