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Examining the interdependencies among emotional intelligence, trust, and performance in infrastructure projects: A multilevel study

Azadeh Rezvani [a,*], Pouria Khosravi [b], Neal M. Ashkanasy [a]

[a] The University of Queensland, Brisbane, Queensland 4072, Australia
[b] Queensland University of Technology, 2 George Street, Brisbane, Queensland 4000, Australia

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Abstract

Regardless of the calls for a distinction between individual and team levels of analysis, studies regarding the multiple-level analysis of emotional intelligence are lacking in the project management literature. This research aims to address this shortcoming by examining the relationships between emotional intelligence, trust, and performance through multilevel analysis. Data were derived from 408 participants from 89 project teams in the large scale projects through three different surveys. We used hierarchical linear modeling and we found that emotional intelligence relates positively to performance and to trust at different levels of analysis. We also found that, at the team level, trust does not mediate the relationship between emotional intelligence and project team performance. This research offers a more realistic and comprehensive picture of the management and recognition of emotional intelligence in teams and individuals concurrently and addresses the implications for project leaders of inspiring individuals and teams.

Keywords: Trust; Team emotional intelligence; Performance; Multilevel study; Construction project

1. Introduction

Uncertainties, unpredictability, interdependency, and complexities are prevalent in large scale infrastructure construction projects (Jiang et al., 2016; Mazur et al., 2014). The uniqueness and the dynamic nature of the internal and external business environments of large scale infrastructure projects, such as the construction of a railway network, airport or tunnel, often come from their distinctive social and environmental requirements (Wu et al., 2017). High levels of complexities (Rezvani et al., 2016), lack of human skill and competency (Mazur et al., 2014), along with stakeholders with opposing requirements (Turner & Zolin, 2012) can increase time and cost overruns in these projects. There are prominent cases that evidently demonstrate this problem within large scale infrastructure projects. For example, the Berlin Brandenburg Airport budget has arisen from the originally estimated €2.5 billion to €6.9 billion and the opening date had been pushed back to 2017 and now to October 2019. Another example is the Marmaray Tunnel under the Bosporus Sea, which today serves as a rail link between Asia and Europe. The project managers, a Japanese–Turkish consortium led by Taisei Corporation, scheduled completion for 2009 but did not actually complete the job until 2013, with a cost overrun of $500 million dollars. Disappointing outcomes such as this suggest that there is a need for further investigation into the best practices for success within large scale projects (Toor and Ogunlana, 2008; Zhang & Fan, 2013).

* Corresponding author.
E-mail addresses: a.rezvani@uq.edu.au (A. Rezvani), pouria.khosravi@hdr.qut.edu.au (P. Khosravi), n.ashkanasy@uq.edu.au (N.M. Ashkanasy).

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Researchers have found that challenges in large scale projects are largely associated with human skill and competencies, rather than technical issues. Human skill and competency is a critical part of managing large scale projects, influencing on successful delivery of projects (Müller and Turner, 2010; Rezvani et al., 2016). Researchers such as Mazur et al. (2014), Müller and Turner (2007, 2010) and Rezvani et al. (2016) have revealed that behavioral 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.

Although past research (e.g., Clarke, 2010; Mazur et al., 2014; Müller & Turner, 2007; Rezvani et al., 2016) 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 evidence bearing on the role of EI for project managers. As such, this literature appears to have overlooked the assessment of EI for project team members. Research on non-project based organization has shown further that team EI can enhance team members' ability to communicate with one another, to be open to opposing views, ideas, and to use emotion to increase team decision-making and performance (e.g. Frye et al., 2006; Rapisarda, 2002; Troth et al., 2012). Moreover, this research was based on artificially created students' teams instead of real work teams, which can strongly bias the groups' dynamics and limited the generalizability of the findings (Quoidbach & Hansenne, 2009). In addition, no attention to date has been devoted to explaining how EI influences performance at multiple levels in project-based organizations. We argue that these represent important omissions and deserve to be addressed. Studying EI only on one level eventually leads to a disjointed and an incomplete view of the way in which EI influences performance (Ashkanasy and Dorris, 2017). Multilevel research has shown in particular that a variable examined at a lower level of analysis, such as the individual level, is often not comparable to the same variable theorized at higher levels of analysis or the team level (see Ashkanasy and Dorris, 2017; Hofman, 1999; Kozlowski & Bell, 2003; Morgeson and Hofmann, 1999). For instance, a project organization may wish to recognize the advantage of effective communication and coordination with internal and external stakeholders. Individual-level studies, on the one hand, may find that staff coordinate and communicate effectively with external and internal stakeholders and claim that the project a success. At the team level, on the other hand, researchers may find that no ongoing coordination and communication occur, and evaluate the project a failure. More specifically, the effect of EI at the individual level cannot be expected to interpret the higher level of analysis or the team level (Ashkanasy and Dorris, 2017). In other words, the motivation to conduct a multilevel study is therefore to avoid the, "atomistic and ecological fallacies" (Burton-Jones & Gallivan, 2007; Rousseau, 1985) that involves the incorrect assumption that a relationship found at a lower level (e.g., individual EI positively affects individual performance) exists in the same way at a higher level (e.g., team EI positively affects team performance).

Therefore, our first goal is to extend research in the field of EI (e.g. Rezvani et al., 2016; Troth et al., 2012) to multi-level research in infrastructure projects. Accordingly, our objective is to provide a link between EI and performance, reflecting the top-down influence of team level variables on individual level functioning (Hitt et al., 2007). Our focus in this research lies in large 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 large scale projects and project performance (Mazur et al., 2014; Müller & Turner, 2007, 2010; Rezvani et al., 2016).

Our second goal is to examine the underlying mechanisms between EI and performance at the individual and team levels. Built on the philosophies of affective events theory (AET) (Weiss & Cropanzano, 1996), we argue that trust, as a result of EI, could act as a mediator between EI and performance. In particular, we argue that individuals and teams with a high level of EI are more likely to trust in their colleagues (Sy et al., 2006). Consequently, higher levels of trust should lead to higher levels of performance (Rezvani et al., 2016). Thus, we empirically test a set of theoretically derived differential hypotheses regarding trust as a mediator between EI and performance.

Finally, we extend research on the EI, trust, and performance relationships (Rezvani et al., 2016; Mazur et al., 2014) in the multilevel analysis by integrating individual and team-level variables and investigating the cross-level interactions among these variables. Overall, investigating these associations through multilevel analysis is practically and theoretically important because it offers a more realistic and comprehensive view of the management and recognition of EI in teams and individuals in infrastructure projects.

2. Theoretical background

2.1. Emotional intelligence

While, there are various definitions of EI in the literature, Salovey, and Mayer et al. (1995) definition is the most widely recognized and accepted definition (Ashkanasy & Daus, 2005). Mayer and Salovey (1997) defined EI as "the ability to monitor one's own and others' emotions, to discriminate between them, and to use the information to guide one's thinking and actions". Ashkanasy and Daus (2005) subsequently recognized three "streams" of EI research. Stream 1 involves the use of the Mayer-Salovey EI Test using MSCEIT measures (Mayer et al., 2003). Stream 2 employs self-report measures based on the Mayer and Salovey (1997) definition of EI (e.g. Schutte et al., 1998; Wong & Law, 2002). Stream 3 involves other measures of EI not based on the Mayer and Salovey definition. The third stream was best characterized by Goleman's (2000) description of EI as a wide array of competencies and skills such as