Emotional intelligence: A preventive strategy to manage destructive influence of conflict in large scale projects

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ABSTRACT

Insufficient empirical and theoretical attention has been given to the influence of emotional intelligence (EI) in determining performance and the mechanisms underlying this relationship among project team members in large-scale infrastructure projects. This research explores the association between EI and project performance in the context of large-scale infrastructure projects. Specifically, it proposes a model demonstrating a positive link between EI and project performance through adverse relationships with three negative conflict types (relationship, teak, and process). Further, it hypothesises that trust plays a moderating role. To test the model, we collected data from 365 project team members in large-scale infrastructure projects. The empirical results demonstrate that EI is positively linked to performance in large-scale infrastructure projects, and that this association is facilitated by EI's negative link to three conflict modes (task, relationship, process), which are negatively connected to performance. Additionally, inter-personal trust was found to moderate the negative relationship between conflict and project performance. This paper concludes with a discussion of the research and practical implications of the study's findings, and suggestions for future research directions.

1. Introduction

Large-scale infrastructure projects can generate high social returns, change the local communities and social context, and improve private enterprise activity, recruitment, and government incomes (Buvik & Rolfsen, 2015; Rezvani, Khosravi, & Ashkanasy, 2018; Wu, Liu, Zhao, & Zuo, 2017; Zhang & Fan, 2013). Nonetheless, Maqbool, Sudong, Manzoor, and Rashid (2017) stated that 61% of all large-scale infrastructure projects either were not completed or failed to deliver satisfactory results. Comparably, Drouin and Bourgault (2013) found that most infrastructure professionals confirmed experiencing more than one project failure (see also Rezvani et al., 2018), despite governments' claims of significant investments in developing large-scale infrastructure projects worldwide.

Moreover, scholars (see Buvik & Rolfsen, 2015; Toor & Ogunlana, 2008; Mazur et al., 2014) have revealed that successful project delivery largely depends on human skills, personal attributes, and the competencies of project managers and project team members, rather than technical skills. More specifically, researchers (Clarke, 2010; Mazur et al., 2014; Rezvani et al., 2016; Stephens & Carmeli, 2016) who have

examined the effects of emotional intelligence (EI; Mayer and Salovey, 1997) maintain that this construct is a key determinant in ensuring the effective functioning of team members in large construction and defence projects. 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. For instance, a study by 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.

Although EI seems to be associated with performance and effective outcomes in project environments, evidence of its impact is, nonetheless, limited (Ashkanasy & Dorris, 2017; Maqbool et al., 2017). Previous studies have apparently failed to capture the influence of EI among project team members working on long-term projects and in complex project environments, which is likely to cause the positive influence of EI to be underestimated.

As teamwork is essential among project workers in large construction projects (Wu et al., 2017), it is necessary to offer both empirical and

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theoretical attention to the influence of EI on the performance of project team members in large-scale infrastructure projects.[1] Further, the mechanisms underlying the link between EI and project performance remain unexplored. Scholars also emphasise the need to understand the likely moderators and mediators of this relationship (e.g., see Rezvani et al., 2018). Therefore, based on principles of the competency-performance theory (CPT; Ley & Albert, 2003), the first aim was to examine the link between EI of project team members and project performance in large-scale infrastructure projects.

The second aim was to investigate the effect of conflict modes as mediators between EI and project performance, with a focus on task, relationship and process conflict, which Wu et al. (2017) characterised as the common types of conflicts among construction project teams. According to Wu et al. (2017), conflict in project teams negatively affects project performance by increasing tension and stress. Moreover, conflict can also decrease performance by distracting team members and damaging professional and personal relationships. Nevertheless, EI can potentially reduce such conflicts (Ashkanasy & Dorris, 2017). Grounded in information processing theory (IPT; Carnevale & Probst, 1998) and the principles of affective events theory (AET; Weiss & Cropanzano, 1996), this study sought to investigate the mediating effects of conflict modes on the link between EI and project performance (mediating variables).

The third aim of the present study was to assess the role of trust as a potential moderator of the conflict-performance relationship. In this regard, researchers (e.g., Rezvani et al., 2018; Wu et al., 2017) have found that, under the condition of uncertainty, high interdependencies, and ambiguity in large-scale infrastructure projects, trust stimulates open and intense communication and knowledge sharing among project team members and reduces the hazards of opportunism and conflict. High levels of trust can, therefore, diminish the destructive influence of conflicts. Thus, our assessment of the moderating role of trust enhances our understanding of how and under what conditions the negative influence of conflict on project performance diminishes in large-scale infrastructure projects.

2. Literature and theoretical background

2.1. Conflict

In infrastructure projects, conflict can result from interdependencies and inadequate communication and cooperation between project teams (Wu et al., 2017). Characteristics of the infrastructure industry, including fragmentation, inefficient production, and cost overruns, also contribute to project conflict (Jiang, Zhang, & Le, 2011; Liu, Chiang, Yang, & Klein, 2011). Indeed, conflicts have significant impacts on project performance due to the combined effects of individual attributes, communication, structure, and participants' interests. Liu et al. (2011) argued that the interests of stakeholders are conflicting and diverse, which can easily lead to confrontations and disputes. Conflicts are unavoidable in large-scale projects for several reasons, including diverse values, differing opinions, diversity of expertise, and conflicting requirements among project participants. Managing conflict is therefore essential for successful outcomes. Accordingly, Rezvani et al. (2018) contend that, because they hamper team productivity and project performance, conflicts should be addressed and managed using the soft skills and competencies of individuals.

Chen, Zhang, and Zhang (2014) defined conflict as any struggle or dispute over ideas, opinions, resources and duties (see also O'Neill, Allen, & Hastings, 2013). The present research focuses on the task, process, and relationship conflict modes.

Relationship conflict refers to disputes over interpersonal incompatibility that provoke feelings of frustration, anger, and tension (Chen et al., 2014; Jehn & Chatman, 2000; Vaux & Kirk, 2018). In

infrastructure projects, this conflict mode arises when two or more project team members enter into a dispute over opinions, ideas, tasks and interests. Relationship conflict decreases mutual understanding and hinders the success of project teams. Previous studies (see Chen, McCabe, & Hyatt, 2017; Jehn, 1995; O'Neill et al., 2013; Wu et al., 2017) have also shown that the anger and dissatisfaction associated with this type of conflict can prevent team members from accomplishing tasks.

Process conflict denotes team members' perceptions regarding the allocation of duties and resources and how various aspects of a task will be accomplished (Chen et al., 2014). Several factors contribute to process conflict, including limited public resources, and a differing understanding of project governance, priorities, and interests (O'Neill et al., 2013).

Task conflict refers to disputes over the content and outcomes of the task to be performed (Jordan & Troth, 2002). It negatively affects team performance by increasing the level of tension and stress among project team members, thereby interfering with the level of functioning needed for the continuation and success of teamwork.

2.2. Emotional intelligence (EI)

EI is acknowledged as a significant concept in the workplace owing to its notable influence on performance compared with IQ (Goleman, 1996). Mayer and Salovey (1997) defined emotional intelligence (EI) in terms of four aspects: the ability to perceive, to assimilate, to understand, and to regulate emotions in self and others. Ashkanasy and Daus (2005) classified research on EI into three different "streams." Stream 1 adopts an ability model that employs the use of the MSCEIT or Mayer-Salovey EI Test (Mayer, Caruso, & Salovey, 2000). The second stream adopts the Mayer-Salovey four-branch model and employs a self- or peer-assessment of EI. The third stream focuses on measuring EI variables not based on the Mayer-Salovey model, such as esteem, empathy, assertiveness, and independence. The present study employed a self-assessment measure based on the definition of EI by Mayer and Salovey ("Stream 2").

Although research has tended to ignore the impact of EI in specific contexts (Müller & Turner, 2007). Jordan, Dasborough, & Daus, (2010) argued that determining the influence of EI in different contexts is important. Research has demonstrated the importance and relevance of soft skills such as EI for the successful delivery of construction projects (Müller & Turner, 2007; Wu et al., 2017), which appears to be a particularly appropriate setting in which to examine issues related to relationships involving EI.

Moreover, although construction project teams tend to be temporary, its members share different team responsibilities and goals, are task-oriented, exhibit inconsistent core competencies, and experience both positive and negative emotions (Maqbool et al., 2017). For instance, whereas positive emotions enable project teams to perform better in work environments where uncertainty and ambiguity are high, negative emotions such as interpersonal tension, anger, and frustration can often obstruct real-time information sharing, resulting in poor performance (Rezvani et al., 2016; Troth, Jordan, Lawrence, & Tse, 2012). In sum, understanding EI in construction project teams should improve knowledge of how such teams can perform challenging tasks built on long-term goals (Clarke, 2010; Maqbool et al., 2017).

Existing research (e.g., Clarke, 2010; Mazur et al., 2014; Maqbool et al., 2017; Müller & Turner, 2007; Rezvani et al., 2016) has highlighted the significance of EI in achieving successful outcomes. Although EI seems to have been largely overlooked in the context of large-scale infrastructure projects, studies in non-project settings (e.g., Barczak, Lassk, & Mulki, 2010; Jordan, Ashkanasy, Härtel, & Hooper, 2002; Jordan & Troth, 2004; Rapisarda, 2002; Troth et al., 2012) have identified the contribution made by EI to creativity and problem-solving behaviour among team members. For instance, Jordan et al. (2004) and Barczak et al. (2010) found a positive relationship between EI and performance among students executing cognitive tasks. Jordan and Troth (2002) also reported that teams with high levels of EI tend to avoid confrontation and prefer to solve difficult problems. Similarly, among student teams,

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[1] In this study we interchangeably used infrastructure and large-scale projects.

Rapisarda (2002) identified a positive association between EI and performance.

Although these results seem promising, such studies are limited by the fact that data was collected from students rather than actual work teams which can significantly bias group dynamics. Moreover, none of these studies examined the direct association between EI and conflict modes in large scale projects. Hence, using variables such as conflict and trust, the present research investigates the impact of EI among infrastructure project team members on project performance.

2.3. Project performance

Defining project performance in large-scale infrastructure projects – where their size is significant and the predefined accomplishment schedule is lengthy – is challenging as several factors may impact project performance in such projects. Moreover, there is no consensus in the project management literature regarding the appropriate criteria for measuring project performance. This is because such a measure usually depends upon the viewpoints of project managers or other key stakeholders (Wu et al., 2017; Zhang & Fan, 2013). However, scholars have recently proposed alternative measures of project performance, such as customer satisfaction and the human skills and competency of project workers or stakeholders. For instance, (Chou & Ngo, 2014; Dvir, Ben-David, Sadeh, & Shenhar, 2006) proposed using stakeholder satisfaction as a measure of project performance (see also Pinto & Slevin, 1987).

Additionally, project performance can also be regarded as a subjective term contingent on project types and settings and the viewpoints of project participants (Iyer & Jha, 2006). For instance, several researchers have focused on the role played by stakeholders and long-term business success in large-scale projects (Atkinson, 1999; Beringer, Jonas, & Kock, 2013; Mir & Pinnington, 2014; Turner & Zolin, 2012). Their findings confirm the contribution stakeholder satisfaction makes to long-term business success. Thus, it is reasonable to conclude that the evaluation of large-scale project performance should be based on a combination of critical success factors (Rezvani & Khosravi, 2018; Wu, Liu, Zhao, & Zuo, 2017; Zhang & Fan, 2013; Zwikael & Meredith, 2019).

2.4. Trust

Trust has attracted considerable attention of scholars from different disciplines and theoretical backgrounds. They have primarily focused on the different forms and benefits of trust (for a comprehensive review, see Child, Faulkner, & Tallman, 2005). Most agree that trust in the context of infrastructure projects is an expectation regarding the actions and behaviour of others (Maurer, 2010; Rousseau, Sitkin, Burt, & Camerer, 1998; Wu et al., 2017).

Trust is also perceived as an organising principle that delivers specific benefits to teams that induce the desired performance and positive behavioural outcomes (Dirks & Ferrin, 2001; Maurer, 2010; McEvily, Perrone, & Zaheer, 2003; Pinjani & Palvia, 2013). It structures communication and collaboration, and mobilises project team members to contribute resources that add value (Cheung, Yiu, & Lam, 2013).

In the present research, these findings are applied to the context of large-scale infrastructure projects where there is long-term low efficiency and productivity, along with incongruities between team members and project managers that require trust (Rezvani et al., 2018). In such projects, team members often depend on a trusted team member or project manager to take the actions needed to achieve the desired outcomes.

Moreover, team members tend to be more accepting of conflicting opinions when trust is not an issue (Pinjani & Palvia, 2013). Therefore, in a trustworthy environment, they are more likely to build collaborative relationships that induce high project performance (De Jong, Dirks, & Gillespie, 2016; Khosravi, Newton, & Rezvani, 2019; Maurer, 2010; McEvily, Perrone, & Zaheer, 2003; Pinjani & Palvia, 2013). By contrast, a lack of trust in project environments can lead to defensive behaviours,

decrease cooperative behaviour, and prevent knowledge sharing (Colquitt et al., 2007). Hence, trust enhances the capacity of project team members to engage in effective communication and information sharing. In sum, trust can potentially serve to organise and facilitate horizontal working relationships and effective cooperation among project team members (Maurer, 2010; Wong & Cheung, 2004).

3. Research model and hypotheses development

Fig. 1 illustrates the research model used in the study, which incorporates EI, three conflict modes (relationship, task and process), trust, and project performance. Based on CPT (Ley & Albert, 2003), we argue that EI positively influences project performance. CPT posits that the competencies, attitudes, and behaviour of individuals and teams can impact performance outcomes in the workplace (Ley & Albert, 2003). Consequently, we contend that EI is an important competency that plays a significant role in reducing conflict among teams working on large-scale infrastructure projects thus improving project performance. We also argue that trust can reduce the effect of conflict on project performance.

To study the mediating effects of conflict modes between EI and project performance, this study draws on affective events theory (AET; Weiss & Cropanzano, 1996). This theory enhances our understanding of the effects individuals' emotional experiences have on work attitudes and behaviour, including the effect of personal variables such as EI (Ashkanasy & Dorris, 2017). Based on AET to this study hypothesises that EI decreases the counterproductive effects of conflict among project team members. Furthermore, based on information processing theory (IPT; Carnevale & Probst, 1998), we propose that each of the three conflict types negatively influences the performance of large-scale infrastructure projects. Specifically, we argue that managing and understanding emotions can act as a safety valve to mitigate negative emotions such as anger and frustration and reinforce positive emotions among project teams (cf. Rezvani et al., 2016). This, in turn, enables project team members to share appropriate information to resolve complex tasks and achieve a successful outcome (Thomas & Mengel, 2008).

3.1. EI and project performance

Based on CPT (Ley & Albert, 2003), we propose that personal competencies (such as EI) can predict project performance. According to Ley and Albert (2003), the competencies and skills of employees greatly influence work performance. The underlying assumptions of CPT have been substantiated in several studies (Lindebaum & Jordan, 2014; Maqbool et al., 2017; Mazur et al., 2014). For instance, Mazur et al. (2014) found that the success of complex projects depends on the skills and competencies of project managers.

Previous empirical research on large-scale projects (see Lindsjørn, Sjøberg, Dingsøyr, Bergersen, & Dybå, 2016) has confirmed the positive effects of EI on various outcomes, and affirmed that the capacity of team members to regulate, perceive, and understand their own feelings and emotions, as well as those of their team members, correlate with their work performance. Similarly, Maqbool et al. (2017) found that project team members with high EI promote social and emotional environments that facilitate coordination and performance (see also Rapisarda, 2002) while Rezvani et al. (2018) found that team performance is affected by the emotional skills of team members. These studies corroborate the findings of Ayoko, Callan, and Härtel (2008) which showed that higher team member EI generates perceptions of empathy and support that result in efficient team functioning and enhanced performance (see also Jordan et al., 2002).

Individuals with high EI also tend to induce positive moods and emotions in their workplace (Ashkanasy & Dorris, 2017; Urda & Loch, 2013) and reduce emotion-related problems including stress and burnout (enhancing overall team performance, see Greenidge, Devonish, & Alleyne, 2014). These results verify the significance of EI as a characteristic that can stimulate positive emotions and commonality in project teams (Urda &
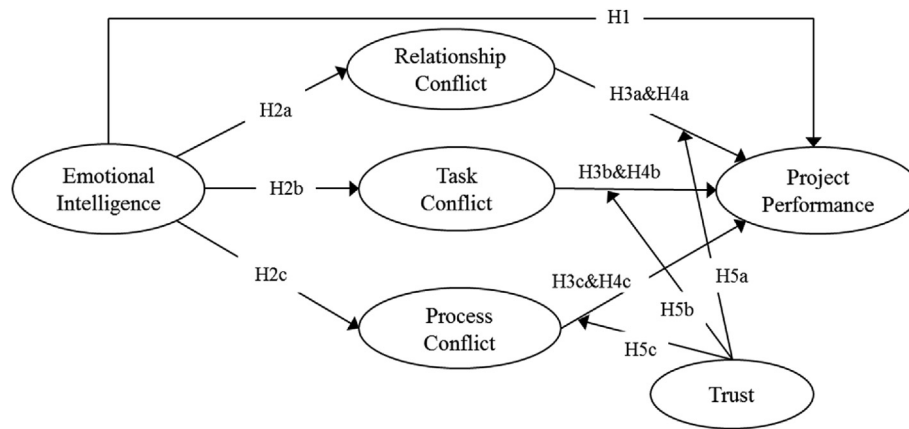
Fig. 1. Research model.

Loch, 2013
), and is an important skill teams can utilise to collect and exchange information to achieve their defined goals and enhance their performance (Barczak et al., 2010; Kaufmann & Wagner, 2017).

Conversely, a lack of EI results in high levels of team stress, conflict, unpleasant emotions, frustration, rejection, and low levels of performance (Rezvani & Khosravi, 2019a; Sheldon, Dunning, & Ames, 2014). Other scholars (Kirchoff, Omar, & Fugate, 2016; Stanczyk, Foerstl, Busse, & Blome, 2015) have shown that teams with low EI do not act in a rational way; instead, they often base their actions and decisions on emotions and intuition, which in turn leads to poor performance. Therefore, we hypothesise that:

Hypothesis 1. Emotional intelligence is positively associated with project performance.

3.2. EI and conflict

Conflict causes anger, suspicion, negativity, and irritation among team members, and can have a harmful impact on effective teamwork in large infrastructure projects (Jiang, Lu, & Le, 2016; Wu et al., 2017). Evidence concerning the link between EI and conflict in infrastructure project teams suggests that teams with high EI are mindful of and can manage their emotions and those of other team members in response to conflict events (Chan, Sit, & Lau, 2014; Rezvani, Barrett, & Khosravi, 2019; Zhang, Chen, & Sun, 2015). In this respect, emotional awareness and regulation abilities are key competencies for managing conflict and work as they create a climate in which project team members can share and discuss their hassles to promote strong bonds (Hopkins & Yonker, 2015; Jordan et al., 2002; Rapisarda, 2002).

In large-scale infrastructure projects, discussions between project teams can become intense owing to the involvement of various stakeholders and organisations, which can incite negative emotions and feelings such as hostility, anger, and tension. In such scenarios, managing and understanding emotions can potentially mitigate negative emotions and reinforcing positive emotions (Karimi, Leggat, Donohue, Farrell, & Couper, 2014). Project teams are therefore encouraged to share relevant information quickly to resolve complex tasks and achieve success. Similarly, Druskat and Wolff (2001) found that the successful regulation and understanding of emotions influence task engagement among team members. Specifically, the ability to understand and manage emotions enable project teams to reinforce their focus on more vital tasks and challenges that will increase project performance and cohesion (Jordan & Troth, 2004; Wu et al., 2017).

Numerous scholars (e.g., see Hopkins & Yonker, 2015; Jordan et al., 2002; Karimi et al., 2014; Zhang et al., 2015; Ashkanasy & Dorris, 2017) assert that the capacity to understand and manage emotions also ameliorates relationship conflict. Specifically, EI increases mutual understanding and goodwill, and thus ameliorates disagreements and tension among project team members. Jordan and Troth (2004) found that team members with high EI are motivated to resolve conflicts immediately to prevent disruption in professional and personal relationships. Overall, we therefore contend that project team members with high levels of EI experience fewer and less intense relationships, tasks, and process conflicts. Therefore, we hypothesise that.

Hypothesis 2. EI is negatively associated with (a) relationship, (b) task, and (c) process conflicts.

3.3. Conflict and project performance

Based on IPT theory (Carnevale & Probst 1998), we submit that conflict can obstruct timely decision-making and execution owing to mental overwork, which restricts information processing and the ability to make accurate decisions. According to Carnevale and Probst (1998), conflict affects the cognitive processes required to reach constructive conclusions through information processing. IPT suggests that all three conflict types cause dissatisfaction and frustration between individuals.

The results of several studies (see Jehn, 1995; Jiang et al., 2016; Liu et al., 2011; O'Neill et al., 2013; Wu et al., 2017) confirm the negative effects of relationship and process conflict on performance. In particular, Wu et al. (2017) identified a negative association between relationship conflict in project teams and performance in construction projects. They revealed that relationship conflict elevates tension and stress in project teams to negatively influence project success and effective team functioning. Jiang et al. (2016) also supported the proposition that process conflict negatively affects project value. Their findings show that conflict among project teams decreases their perception of performance in construction projects due to factors such as quitting, low satisfaction, and low productivity. They further proposed that the more project team members argue about task delegation, responsibility, and execution, the more undesirable the attitudes of individuals towards the team and the less effective the team were at accomplishing their goals.

Previous studies (e.g., see Jehn, Greer, Levine, & Szulanski, 2008) also confirm the negative influence of task conflict on performance. For instance, task conflict increases tension and stress, which then hinders team performance (De Dreu & Weingart, 2003). De Dreu and Weingart revealed that the constructive influence of task conflict is attainable only under highly specific circumstances. Hence, task conflict negatively affects the ability of a team member to work seamlessly and increases the number of work bottlenecks that hamper performance (Jehn et al., 2008). In line with these findings, we therefore hypothesise that:

Hypothesis 3. (a) Relationship, (b) task, and (c) process conflict modes are negatively associated with project performance.

3.4. Conflict as a mediator of the EI-Performance link

As discussed earlier, associations have been established between EI and conflict and between conflict and project performance. This implies that conflict among project team members acts as a mediating path for the influence of EI on project performance. The mediating path (via conflict) draws on the impact of emotionally intelligent team members on conflict. In such an environment, project team members who are capable of regulating and understanding the emotions arising from conflict events are more likely to work towards a productive outcome. This then facilitates the social resolution of complex tasks among project teams (Azmy, 2012; Rezvani et al., 2016).

Other studies (see Christie, Jordan, & Troth, 2015; Rezvani et al., 2016) have demonstrated the importance of EI as an important skill for developing superior social relations with others. As such, it promotes the de-escalation of conflict in interactions between project team members, particularly where there are ambiguities and uncertainties in a large-scale project. Rezvani et al. (2016) also found that teams with higher levels of EI possess the ability to inspire team support and confidence, which then creates a collaborative work environment and results in a high-performing team. Furthermore, emotionally intelligent teams usually express their emotions positively, thus reducing stress, tension, and frustration (Barczak et al., 2010; Christie et al., 2015). Accordingly, this is likely to inspire critical thinking and superior decision making. Hence, we hypothesise that:

Hypothesis 4. (a) Relationship, (b) task, and (c) process conflict modes in project teams mediate the positive link between EI and project performance.

3.5. Trust as a moderator of the conflict-performance link

Although relationship conflict arises among project team members with respect to opinions and information, the presence of trust reduces the negative effects of relationship conflict. By contrast, relationship conflict among project personnel regarding their different perceptions and attributions, as well as errors in communication, are likely to escalate when trust is low (Jiang et al., 2016; Rezvani & Khosravi, 2019b). If team members do not share similar norms and values, project objectives are difficult to accomplish and this may lead to the modification of project tasks and scope. Project team members with no trust and belief in their colleagues will not properly implement predefined processes, which will have an unfavourable effect on project performance (Rezvani et al., 2018). Although task conflict highlights the importance of accomplishing project goals in diverse ways, individuals are not likely to achieve these goals without sharing experiences and relying on the help of other team members (Wu et al., 2017). Even when task conflict remains unresolved among project team members, its impact on performance is reduced in the presence of trust (Chiocchio, Forgues, Paradis, & Iordanova, 2011). Furthermore, if trust is low, project personnel may lack the motivation to discuss their approaches and norms with other team members (Jiang et al., 2016; Massey & Dawes, 2007). With regard to process conflict, disagreements arise among project team members in relation to articulated procedures and rules. When trust is low, support among project managers and senior team members for the project decreases, with the result that project team members may redirect their effort and resources to other projects (Chiocchio et al., 2011; Han & Harms, 2010). The goals and values of project team members may alter due to a lack of trust and belief in their colleagues. In such circumstances, team members will find it challenging to embrace shared norms and values. It is therefore reasonable to conclude that levels of conflict can be decreased by developing trust among project team members. Thus, our final hypothesis is that:

Hypothesis 5. Trust between team members in large-scale infrastructure projects adversely moderates the negative association between (a) relationship, (b) task, and (c) process conflicts and project performance, such that substantial levels of trust weaken these relationships.

4. Method

4.1. Participants and procedure

The survey was administered to 650 team members working on transport infrastructure projects. These were classified as large and significant projects as they had a total investment value of US$56 billion.

To minimise potential common method bias, data were collected at two points in time separated by a four-week interval (cf. Podsakoff, MacKenzie, & Podsakoff, 2012). All participants received a hard copy of the survey pack which described the aim of the study and stated that participation was both voluntary and anonymous. To match participant data across the two surveys while maintaining confidentiality and anonymity, we used self-generated identification codes. Participants comprised 650 construction employees, from whom a total of 365 (56%) completed surveys were returned after two rounds of data collection. Of the 365 participants, 79.2% (n = 289) were males working in different positions (e.g. designers, site managers, engineers, architects, project managers). The demographic characteristics of the sample are listed in Table 1.

4.2. Measures[2]

Emotional intelligence: We measured EI using the Wong and Law (2002) scale (the WLEIS), which is a Stream 2 measure (cf. Ashkanasy & Daus, 2005), based on the Mayer and Salovey (1997) definition of EI and includes four dimensions: awareness of emotion in self; awareness of emotion in others; use of emotion; and emotion regulation.

Interpersonal trust within the team: We used five items of the interpersonal trust scale developed by Cook and Wall (1980) to measure interpersonal trust in the team. We employed this scale because it is the most widely used measure of interpersonal trust indicating good psychometric properties.

Conflict: We used nine items developed by Jehn and Mannix (2001) to measure relationship, task and process conflict. We used this scale because it is one of the most widely used measures of conflict modes demonstrating good psychometric properties.

Project performance: To assess project performance we asked participants' perceptions regarding quality performance and stakeholder satisfaction. Following previous studies (e.g. Aga, Noorderhaven, & Vallejo, 2016; Sheffield and Lemétayer, 2013) we used composite measures of project performance adapted from previous studies (Joslin & Müller, 2015; Turner & Zolin, 2012). Using a composite measure of project performance is validated by previous studies (Aga et al., 2016). Participants' ratings for all variables were based on a 7-point Likert-scale.

Table 1
Participant information.

Demographics	Male (N = 289)		Female (N = 76)		Total (N = 365)
	Mean	S.D.	Mean	S.D.	Mean
Age	36.41	6.83	38.31	6.63	37.36
Experience	10.29	7.88	6.57	5.61	9.53
	Frequency				Frequency (%)
	Male		Female		Total (N = 163)
Education					
Diploma	64 (22.1%)		9 (11.8%)		72 (19.8%)
College	23 (8%)		3 (3.9%)		26 (7.1%)
Undergraduate	145 (50.2%)		40 (52.6%)		185 (50.8%)
Postgraduate	57 (19.7%)		24 (31.6%)		81 (22.3%)

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[2] See Appendix A for a full list of scale items.

Table 2

Convergent validity.

	Alpha	CR	AVE
Relationship conflict	.768	.842	.517
Task conflict	.747	.840	.569
Process conflict	.848	.898	.688
EI	.874	.895	.573
Project performance	.801	.861	.557
Trust in team	.816	.857	.502

Table 4

HTMT.

		1	2	3	4	5	6
1.	EI						
2.	Process Conflict	0.163					
3.	Project Performance	0.388	0.310				
4.	Relationship Conflict	0.501	0.352	0.499			
5.	Task Conflict	0.378	0.364	0.582	0.463		
6.	Trust	0.504	0.294	0.524	0.435	0.839	

5. Data analysis

This study employed Partial Least Square – Structural Equation Modelling (PLS-SEM) to test the hypotheses. There were several reasons for this. First, the technique offers accurate estimates of the paths among constructs through a simultaneous analysis of structural and measurement models. Second, Hair, Ringle, and Sarstedt (2011) explained that, unlike SEM, which is most suitable for theory testing, PLS-SEM is an appropriate statistical method for exploratory studies as it can be used to analyse complicated relationships and test moderation effects. Sarstedt, Ringle, & Hair, (2017) also asserted that PLS-SEM is particularly suitable for a research model containing more than five latent variables. Finally, PLS-SEM has been widely used in project management research to test complicated relationships similar to those in the current research model (e.g., Bjorvatn & Wald, 2018; Cao, Li, & Wang, 2014; Hosseini, Martek, Chileshe, Zavadskas, & Arashpour, 2018; Lindner & Wald, 2011; Martens, Machado, Martens, & de Freitas, 2017; Rezvani, Khosravi, & Dong, 2017).

5.1. Measurement model

The measurement model was assessed by checking convergent and discriminant validity. For convergent validity, three indices were calculated, namely Cronbach alpha, composite reliability (CR), and average variance extracted (AVE). Table 2 presents information on the reliability and validity of our measures. It shows that both the CR and Cronbach alpha scores were above the cut off value of 0.70 and AVE was above the cut off value of 0.5 (Fornell & Larcker, 1981). Regarding discriminant validity, we ensured that the square root of AVE (SRAVE) for each construct was greater than its correlation with other constructs (Fornell & Larcker, 1981). Furthermore, the heterotrait–monotrait (HTMT) values were below the threshold of 0.85 (Henseler, Ringle, & Sarstedt, 2015). As Tables 3 and 4 indicate, our analysis therefore has discriminant validity.

6. Results

In Hypothesis 1, we proposed that EI would be positively related to project performance. In support of this hypothesis, we found a significant, positive relationship between team EI and project performance ($\beta = 0.32$, p < .01). In hypotheses 2, we proposed negative associations between EI and the three different forms of conflict. As predicted, EI was

negatively associated to relationship conflict ($\beta = -0.42$, p < .001), task conflict ($\beta = -0.31$, p < .001) and process conflict ($\beta = -0.13$, p < .05); thus, Hypotheses 2a, 2b and 2c were supported. Hypotheses 3a, b and c proposed negative associations between the three forms of conflicts and project performance. As predicted, relationship conflict was negatively associated to project performance ($\beta = -0.23$, p < .001), task conflict was negatively associated to project performance ($\beta = -0.31$, p < .001) and process conflict was negatively associated to project performance ($\beta = -0.10$, p < .05); therefore, Hypotheses 3a, 3b and 3c are supported (see Fig. 2).

To test the mediation effect for Hypothesis 4 we employed parallel multiple mediator analysis (Preacher & Hayes, 2008) and compared the results with and without the mediators included. This method reduces the possibility of parameter bias due to absent variables. We employed an extension of the simple mediation model recommended by MacKinnon and Luecken (2008) to test the multiple mediators in our study in three steps. First, we tested the relations between EI as an independent variable and project performance as a dependent variable. Second, we tested the associations between EI and three types of conflict as mediators. Third, we checked if the mediators affect the dependent variable (project performance) when EI (independent variable) is controlled. If any of the conflict forms mediate the association between dependent and independent variables, the path between them should become non-significant. We previously established the positive association between EI and project performance (without mediators); after including relationship, task and process conflict, however, the path coefficients between EI and project performance became non-significant ($\beta = .09$, p = .102). Hypothesis 4 supported for all three variables. The results of bias-corrected bootstrap analysis (see Table 5) using 5000 samples confirm this result.

Finally, to test the moderating effect of trust (Hypothesis 5), we employed the product indicator approach suggested by Henseler and Chin (2010), three steps. First, we obtained R^2 and the path coefficient between trust and project performance, $\beta = 0.27$, p < .001. Second, we included the moderator variable (trust) in the model. We then calculated the interaction effect using a bootstrap procedure with 5000 resamples.

As Table 6 shows, trust negatively moderates the effect of relationship conflict only on project performance. Therefore, our data support only Hypothesis 5a. Simple slope analysis (Fig. 3) reveals that relationship conflict relates negatively to performance only when trust is high (+1 SD), b = −0.549, se = 0.085, p < .01 (UCI = −0.382, LCI = −0.717); and

Table 3

Descriptive statistics (figures in italics on diagonal are SRAVE results).

|	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Age	37.36	6.73										
2. EI	5.49	0.70	.057	*.756*								
3. Education	2.76	1.06	−.048	−.166								
4. Gender	1.21	0.45	−.167	−.029	.130							
5. Relationship conflict	2.57	0.76	.082	−.421	.125	−.014	*.719*					
6. Project performance	4.98	1.02	.001	.335	−.120	−.001	−.418	*.746*				
7. Task conflict	2.41	0.71	.018	−.311	.058	−.079	.347	−.454	*.755*			
8. Tenure	9.53	7.68	.752	.022	.048	−.197	.103	−.003	.061			
9. Trust	5.15	1.06	.021	.418	-.066	.087	−.34	.479	−.637	−.043	*.709*	
10. Process conflict	3.32	1.42	.202	-.132	.044	−.001	.281	−.286	.292	.209	−.260	*.830*
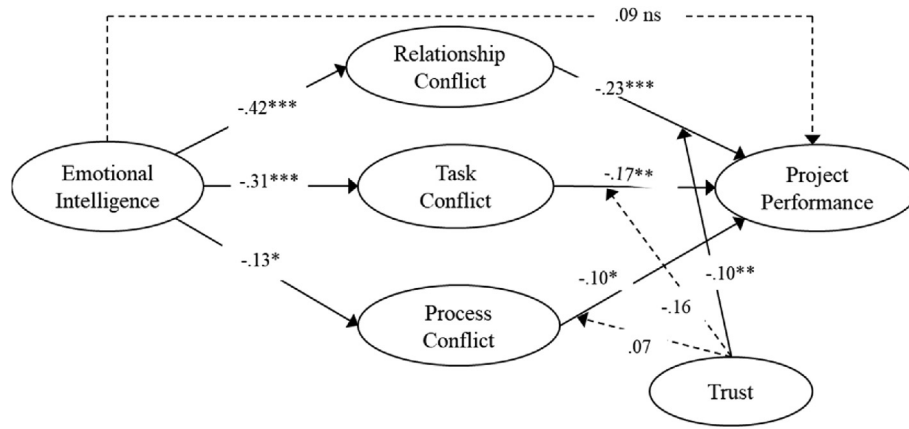
Fig. 2. Results of model testing.

Table 5
Bias-corrected bootstrap.

Row	Relationships	Bias-corrected bootstrap 95%		P-Value
		Lower	Upper	
1	EI→Project performance	−.033	.226	.102
2	EI→Relationship conflict	−.509	−.320	.000
3	EI→Task conflict	−.405	−.203	.000
4	EI→Process conflict	−.223	−.036	.01
4	Relationship conflict→Performance	−.312	−.15	.000
5	Task conflict→Performance	−.45	−.232	.000
6	Process conflict→Performance	−.155	−.096	.05

Table 6
Moderating effect of trust.

Independent variables	Dependent variable	Confidence interval
		(Lower Upper)
Trust	.28*** (t = 4.92)	(.171, .405)
Trust*Relationship conflict	−.10** (t = 2.28)	(−.129, −.023)
Trust*Task conflict	−.16 (t = 1.48)	(−.230, .161)
Trust*Process conflict	.07 (t = .98)	(−.322, .078)
R^2	.414	
ΔR^2	.095 (22%)	
Control variables		
Gender	−.02	
Age	.04	
Education	.02	

Fig. 3. Moderating effect of trust.

that the relationship is not significant when trust is low (−1 SD), b = −0.120, se = 0.087, ns (UCI = −0.052, LCI = −0.292). In other words, these results tell us that interpersonal trust ameliorates the negative effect of relationship conflict on project performance. Fig. 2 provides an overview of our findings.

7. Discussion

The present study addressed recent calls by researchers such as Wu et al. (2017) and Rezvani et al. (2018) to assess the role of human skills, personal attributes, attitudes, and individual competencies in increasing project performance in large-scale projects. According to Rezvani et al. (2018), researchers need to develop cumulative empirical research data centred on personal attributes, attitudes, and competencies that enhance performance in large-scale projects.

Our results show that EI (ability to understand and to manage emotions) among project members enhances their ability to reinforce the focus of their team on vital tasks and challenges that increase project performance and cohesion. As such, this study integrates EI and conflict literature in the context of project management to elucidate the
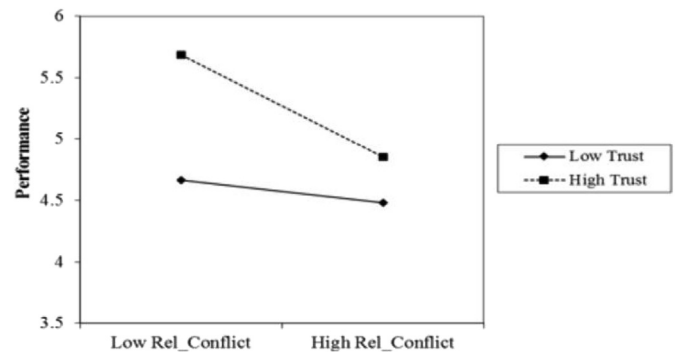
theoretical mechanisms by which EI and trust mitigate the negative influence of conflict on construction workers in large projects. Specifically, we argue that our findings make three important contributions to the project management literature.

First, by utilising CPT and IPT theory as overarching theoretical frameworks, this research offers insight into the effects of EI on conflict modes and also the role of trust as a buffering factor that reduces the adverse effects of relationship conflict on performance. Hence, this study extends EI research (as advanced by Rezvani et al., 2016 in relation to defence projects) to show how understanding, regulating, and managing negative emotions can ameliorate conflict among construction project workers and enhance their subsequent performance. The findings show that emotion regulation and management can induce project team members to control and understand their own emotions and those of other team members in response to conflict events.

Second, this study identifies the direct negative influence of conflict modes on team performance among construction workers. Previous research has overlooked construction workers' perception of task, process, and relationship conflict on team performance. This is problematic because success in large scale construction projects depends on the ability of project team members to coordinate multiple efforts in order to achieve objectives related to schedule, budget, and scope. Thus, we extend the project management literature on varied conflict management techniques by linking conflict to performance. Specifically, it was found that all conflict types decrease team performance and are thus a significant factor that compromises project performance. These findings contrast with research by Wu et al. (2017) who found a positive relationship between task conflict and the performance of construction projects in China. Although these contrary findings may be contextual, we contend that, based on IPT theory (Carnevale and Probst, 1998), conflict, whether good or bad, can cause mental overload and decrease the quality of decision making, thus reducing employees' ability to make

effective decisions. Our result also extends IPT theory by demonstrating the negative effects of conflict on project outcomes. Accordingly, it highlights a need for interventions to mitigate such effects. This result is also consistent with previous studies emphasising the negative effects of relationship, task, and process conflicts on different physiological and psychological outcomes in organisations (due to a decline in learning and productivity, individual achievements, and decision-making quality, see De Dreu & Weingart, 2003; O'Neill et al., 2013).

Third, understanding the process by which conflict influences performance helps in the identification of possible intervention points. Hence, this study further contributes to the project management literature by identifying a crucial intervention necessary for reducing the negative effect of conflict on performance. Our research shows that trust can play a fundamental role in moderating the negative effects of relationship conflict on performance. More specifically, our findings indicate that trust acts as a boundary condition between conflict and performance. Therefore, project managers and project leaders should acquire a comprehensive knowledge of the project and reduce the destructive effects of conflict among project team members by promoting the development of trust.

Moreover, the long timeframes of large-scale projects means that efforts are required to enhance trust in teams and foster long-term cooperative relationships by facilitating effective communication and the development of useful horizontal working relationships. Therefore, rather than focusing on a conflict situation that negatively affects project performance (Christie et al., 2015), high levels of trust among project team members creates an emotional attachment and a safe environment that initiates open discussion, problem-solving, and the facilitation of creative ideas in moments of crisis, This is because individuals in a trusting environment are more likely to work closely toward organisational goals and participate in collaborative strategies to meet the challenges of large-scale projects (De Jong et al., 2016; Rezvani et al., 2016). Conversely, a lack of trust among project team members provokes defensive behaviour, impedes the flow of information and knowledge sharing, escalates transaction costs, and decreases communication (Pinjani & Palvia, 2013).

7.1. Practical implications

The present study provides practical information for structuring project teams and stimulating project performance in large-scale infrastructure projects in three ways.

First, because EI positively influences project performance, the ability to understand and manage emotions effectively should be a major consideration for top managers in project organisations when employing project managers and team members. For instance, providing EI training courses at the beginning of a project can provide team members with insights into each other's personalities and help to develop relationships. This can ultimately aid effective communication and contribute to resolving complex issues. In this regard, Rezvani et al. (2016) uncovered evidence from project managers in defence projects confirming the positive impact of on-the-job training programmes on EI skills.

Second, this study confirmed the negative effect of conflict on the performance of large-scale infrastructure projects. Thus, it is imperative for top management to understand the harmful effects of all conflict modes on project performance. Managing conflict among project personnel should therefore be prioritised.

To reduce conflict among project team members, top managers need to monitor the reaction of their teams to conflict. Project team managers should also attempt to decrease the frequency and intensity of conflict among project workers. To facilitate effective conflict management, project leaders and organisations can use diverse resolution strategies to help project workers understand, manage, and regulate their emotions through. For example, Intel teaches new employees "a common method and language for decision making and conflict resolution where employees study to use variability of tools for handling discord" to address

the inevitability of disagreements in business activities (Weiss, & Hughes, 2005).

Third, because trust among team members has a critical effect on conflict, this study offers practical insight for managers employing project team members. Specifically, it highlights a need for top management to focus on the significance of trust in reducing conflict. Project team members in a trusting environment are more likely to share risks, information, and resources with their colleagues, thereby creating a sense of collaboration in highly complex projects (Rezvani et al., 2018). Hence, fostering trusting relationships within project teams (in long term large-scale infrastructure projects) requires managers to develop and encourage positive attitudes among project team members. Accordingly, promoting mutual trust among project team members should form a critical part of team development programmes. Innovative, complicated, or uncertain tasks may require project team members to share information and resources openly and to trust teammates to make valuable decisions that will enable them to meet the desired outcomes.

7.2. Limitations and future research direction

As with all research, this study is subject to several limitations that need to be addressed. We identify five such potential issues and suggest how future research can address these.

First, we examined the mediating effect of conflict on the relationship between EI and project performance. However, we recognise that other mechanisms may exist that determine this association. Future studies could therefore consider other mediator variables such as task interdependence.

Second, data was collected from large construction projects; however, the results should be interpreted with care given the nature of these types of project. Although our findings relate to a specific moderator (trust) on the conflict-project performance relationship, we recognise that other moderators such as culture, poor risk management, or other variations of trust may amplify or reduce the influence of conflict on project performance. Consequently, future researchers may wish to integrate cultural measures into the model as either moderators or mediators of the relationship between conflict and project performance.

Third, it would be useful to study the effect of separate components of EI on team outcomes. For example, Troth et al. (2012) argued that various aspects of EI may affect performance in distinct ways. Thus, future research on this association could investigate the diverse effects of the ability to understand and regulate emotions in self and others on performance among construction workers.

Fourth, although a negative relationship was found between conflict modes and performance, these findings contrast with research by Wu et al. (2017) who found a positive effect of task conflict on the performance of construction projects in China. Therefore, research should be conducted on the use of different strategies in diverse socio-economic contexts and on other types of project.

Fifth, we employed self-report measures that are subject to common method bias. The procedures recommended by Podsakoff et al. (2012) were, however, applied to ameliorate this potential problem. For example, to increase validity level and decrease method effects, the anonymity of participants was assured and data collected at two separate points in time. Moreover, Harman's single factor and marker variable technique was employed, which indicated that more than one factor accounted for the majority of covariance. PLS marker variable analysis was also used to check CMB (as suggested by Rönkkö & Ylitalo, 2011) by testing our model with and without the PLS marker variable. No significant differences were noted among coefficient paths, suggesting that CMB had no effect on our results.

Declaration of Competing Interest

There is no conflict of interest.

Appendix A. Measures

Emotional intelligence (Wong & Law, 2002).

I have a good sense of why I have certain feelings most of the time.
I have good understanding of my own emotions.
I really understand what I feel.
I always know whether or not I am happy.
I always know my team members' emotions from their behaviour.
I am a good observer of my team members' emotions.
I am sensitive to the feelings and emotions of my team members.
I have good understanding of the emotions of my team members around me.
I always set goals for myself and then try my best to achieve them.
I always tell myself I am a competent person.
I am a self-motivated person.
I would always encourage myself to try my best.
I am able to control my temper and handle difficulties rationally.
I am quite capable of controlling my own emotions.
I can always calm down quickly when I am very angry.
I have good control of my own emotions.

Interpersonal Trust (Cook & Wall, 1980).

If I got into difficulties at work I know my team would try and help me out.
I can trust my team I work with to lend me a hand if I needed it.
Have full confidence in the skills of my team.
Most of my team members can be relied upon to do as they say they will do.
I can rely on my team not to make my job more difficult by careless work.

Project performance (Joslin & Müller, 2015; Pinto & Slevin, 1988; Turner & Zolin, 2012).

Enable continuous improvement.
Achieved stakeholder satisfaction.
Achieved performance effectiveness.
Met client's requirement.
Lead to improved project team satisfaction.

Conflict (Jehn & Mannix, 2001).

How much conflict of ideas is there in your team.
How frequently do you have disagreements within your team about the task of the project you are working on.
How often do people in your team have conflicting opinion about the project you are working on.
How much relationship tension is there in your team.
How often do people get angry while working in your team.
How much emotional conflict is there in your team.
How often are there disagreements about who should do what in your team.
How much conflict is there in your team about task responsibilities.
How often do you disagree about resource allocation in your team.

References

Aga, D. A., Noorderhaven, N., & Vallejo, B. (2016). Transformational leadership and project success: The mediating role of team-building. *International Journal of Project Management, 34*(5), 806–818.

Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Organizational Behavior, 26*(4), 441–452.

Ashkanasy, N. M., & Dorris, A. D. (2017). Emotions in the workplace. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 67–90.

Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management, 17*(6), 337–342.

Ayoko, O. B., Callan, V. J., & Härtel, C. E. (2008). The influence of team emotional intelligence climate on conflict and team members' reactions to conflict. *Small Group Research, 39*(2), 121–149.

Azmy, N. (2012). *The role of team effectiveness in construction project teams and project performance*. Lowa State University.

Barczak, G., Lassk, F., & Mulki, J. (2010). Antecedents of team creativity: An examination of team emotional intelligence, team trust and collaborative culture. *Creativity and Innovation Management, 19*(4), 332–345.

Beringer, C., Jonas, D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management, 31*(6), 830–846.

Bjorvatn, T., & Wald, A. (2018). Project complexity and team-level absorptive capacity as drivers of project management performance. *International Journal of Project Management, 36*(6), 876–888.

Buvik, M. P., & Rolfsen, M. (2015). Prior ties and trust development in project teams–A case study from the construction industry. *International Journal of Project Management, 33*(7), 1484–1494.

Cao, D., Li, H., & Wang, G. (2014). Impacts of isomorphic pressures on BIM adoption in construction projects. *Journal of Construction Engineering and Management, 140*(12), 04014056. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000903.

Carnevale, P. J., & Probst, T. M. (1998). Social values and social conflict in creative problem solving and categorization. *Journal of personality and social psychology, 74*(5), 1300–1310.

Chan, J. C., Sit, E. N., & Lau, W. M. (2014). Conflict management styles, emotional intelligence and implicit theories of personality of nursing students: A cross-sectional study. *Nurse Education Today, 34*(6), 934–939.

Chen, Y., McCabe, B., & Hyatt, D. (2017). Relationship between individual resilience, interpersonal conflicts at work, and safety outcomes of construction workers. *Journal of Construction Engineering and Management, 143*(8), 04017042. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001338.

Chen, Y. Q., Zhang, Y. B., & Zhang, S. J. (2014). Impacts of different types of owner-contractor conflict on cost performance in construction projects. *Journal of Construction Engineering and Management, 140*(6), 04014017. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000852.

Cheung, S. O., Yiu, T. W., & Lam, M. C. (2013). Interweaving trust and communication with project performance. *Journal of Construction Engineering and Management, 139*(8), 941–950.

Child, J., Faulkner, D., & Tallman, S. B. (2005). *Cooperative strategy* (2nd ed.). New York: Oxford University Press.

Chiocchio, F., Forgues, D., Paradis, D., & Iordanova, I. (2011). Teamwork in integrated design projects: Understanding the effects of trust, conflict, and collaboration on performance. *Project Management Journal, 42*(6), 78–91.

Chou, J. S., & Ngo, N. T. (2014). Identifying critical project management techniques and skills for construction professionals to achieving project success. *IEEE International Conference on Industrial Engineering and Engineering Management, 4*(2), 1204–1208.

Christie, A. M., Jordan, P. J., & Troth, A. C. (2015). Trust antecedents: Emotional intelligence and perceptions of others. *International Journal of Organizational Analysis, 23*(1), 89–101.

Clarke, N. (2010). Emotional intelligence abilities and their relationships with team processes. *Team Performance Management: International Journal, 16*(1/2), 6–32.

Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfilment. *Journal of Occupational and Organizational Psychology, 53*(1), 39–52.

De Dreu, C. K., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology, 88*(4), 741.

De Jong, B. A., Dirks, K. T., & Gillespie, N. (2016). Trust and team performance: A meta-analysis of main effects, moderators, and covariates. *Journal of Applied Psychology, 101*(8), 1134–1150.

Dirks, K. T., & Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization Science, 12*(4), 450–467.

Drouin, N., & Bourgault, M. (2013). How organizations support distributed project teams: Key dimensions and their impact on decision-making and teamwork effectiveness. *The Journal of Management Development, 32*(8), 865–885.

Druskat, V. U., & Wolff, S. B. (2001). Building the emotional intelligence of groups. *Harvard Business Review, 79*(3), 80–91.

Dvir, D., Ben-David, A., Sadeh, A., & Shenhar, A. J. (2006). Critical managerial factors affecting defense projects success: A comparison between neural network and regression analysis. *ngineering Applications of Artificial Intelligence, 19*(5), 535–543.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39–50.

Goleman, D. (1996). Emotional intelligence. Why it can matter more than IQ. *Learning, 24*(6), 49–50.

Greenidge, D., Devonish, D., & Alleyne, P. (2014). The relationship between ability-based emotional intelligence and contextual performance and counterproductive work behaviors: A test of the mediating effects of job satisfaction. *Human Performance, 27*(3), 225–242.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–151.

Han, G., & Harms, P. D. (2010). Team identification, trust and conflict: A mediation model. *International Journal of Conflict Management, 21*(1), 20–43.

Henseler, J., & Chin, W. W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. *Structural Equation Modeling, 17*(1), 82–109.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Hopkins, M. M., & Yonker, R. D. (2015). Managing conflict with emotional intelligence: Abilities that make a difference. *The Journal of Management Development, 34*(2), 226–244.

Hosseini, M. R., Martek, I., Chileshe, N., Zavadskas, E. K., & Arashpour, M. (2018). Assessing the influence of virtuality on the effectiveness of engineering project Networks:"Big five theory" perspective. *Journal of Construction Engineering and Management, 144*(7), 04018059. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001494.

Iyer, K. C., & Jha, K. N. (2006). Critical factors affecting schedule performance: Evidence from Indian construction projects. *Journal of construction engineering and management, 132*(8), 871–881.

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly, 40,* 256–284.

Jehn, K. A., & Chatman, J. A. (2000). The influence of proportional and perceptual conflict composition on team performance. *International Journal of Conflict Management, 11,* 56–73.

Jehn, K. A., Greer, L., Levine, S., & Szulanski, G. (2008). The effects of conflict types, dimensions, and emergent states on group outcomes. *Group Decision and Negotiation, 17*(2), 465–495.

Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of management journal, 44*(2), 238–251.

Jiang, W., Lu, Y., & Le, Y. (2016). Trust and project success: A twofold perspective between owners and contractors. *Journal of Management in Engineering, 32*(6), 22–40.

Jiang, W. P., Zhang, Q., & Le, Y. (2011). Occurrence and influence of trust in construction projects from the view of clients. *Journal Engineering Management, 25*(2), 177–181.

Jordan, P. J., Ashkanasy, N. M., Härtel, C. E., & Hooper, G. S. (2002). Workgroup emotional intelligence: Scale development and relationship to team process effectiveness and goal focus. *Human Resource Management Review, 12*(2), 195–214.

Jordan, P. J., Dasborough, M. T., & Daus, C. S. (2010). A call to context. *Industrial and Organizational Psychology, 3*(2), 145–148.

Jordan, P. J., & Troth, A. C. (2002). Emotional intelligence and conflict resolution: Implications for human resource development. *Advances in developing human resources, 4*(1), 62–79.

Jordan, P. J., & Troth, A. C. (2004). Managing emotions during team problem solving: Emotional intelligence and conflict resolution. *Human Performance, 17*(2), 195–218.

Joslin, R., & Müller, R. (2015). Relationships between a project management methodology and project success in different project governance contexts. *International Journal of Project Management, 33*(6), 1377–1392.

Karimi, L., Leggat, S. G., Donohue, L., Farrell, G., & Couper, G. E. (2014). Emotional rescue: The role of emotional intelligence and emotional labour on well-being and job-stress among community nurses. *Journal of Advanced Nursing, 70*(1), 176–186.

Kaufmann, L., & Wagner, C. M. (2017). Affective diversity and emotional intelligence in cross-functional sourcing teams. *Journal of Purchasing and Supply Management, 23*(1), 5–16.

Khosravi, P., Newton, C., & Rezvani, A. (2019). Management innovation: A systematic review and meta-analysis of past decades of research. *European Management Journal, 37*(6), 694–707.

Kirchoff, J. F., Omar, A., & Fugate, B. S. (2016). A behavioral theory of sustainable supply chain management decision making in non-exemplar firms. *Journal of Supply Chain Management, 52*(1), 41–65.

Ley, T., & Albert, D. (2003). Identifying employee competencies in dynamic work domains: Methodological considerations and a case study. *Journl of Universal Computer Science, 9*(12), 1500–1518.

Lindner, F., & Wald, A. (2011). Success factors of knowledge management in temporary organizations. *International Journal of Project Management, 29*(7), 877–888.

Lindsjørn, Y., Sjøberg, D. I., Dingsøyr, T., Bergersen, G. R., & Dybå, T. (2016). Teamwork quality and project success in software development: A survey of agile development teams. *Journal of Systems and Software, 122,* 274–286.

Liu, J. Y. C., Chen, H. G., Chen, C. C., & Sheu, T. S. (2011). Relationships among interpersonal conflict, requirements uncertainty, and software project performance. *International Journal of Project Management, 29*(5), 547–556.

Liu, J. Y., Chiang, J. C., Yang, M. H., & Klein, G. (2011). Partnering effects on user–developer conflict and role ambiguity in information system projects. *Information and Software Technology, 53*(7), 722–729.

MacKinnon, D. P., & Luecken, L. J. (2008). How and for whom? Mediation and moderation in health psychology. *Health Psychology, 27*(2), 99–109.

Maqbool, R., Sudong, Y., Manzoor, N., & Rashid, Y. (2017). The impact of emotional intelligence, project managers' competencies, and transformational leadership on project success. *Project Management Journal, 48*(3), 58–75.

Martens, C. D. P., Machado, F. J., Martens, M. L., & de Freitas, H. M. R. (2017). Linking entrepreneurial orientation to project success. *International Journal of Project Management, 36*(2), 225–266.

Massey, G. R., & Dawes, P. L. (2007). Personal characteristics, trust, conflict, and effectiveness in marketing/sales working relationships. *European Journal of Marketing, 41*(10), 1117–1145.

Maurer, I. (2010). How to build trust in inter-organizational projects: The impact of project staffing and project rewards on the formation of trust, knowledge acquisition and product innovation. *International Journal of Project Management, 28*(7), 629–637.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2000). Selecting a measure of emotional intelligence: The case for ability scales. In R. Bar-On, & J. D. A. Parker (Eds.), *The handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (pp. 320–342). San Francisco, CA, US: Jossey-Bass.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey, & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–31). New York: Basic Books.

Mazur, A., Pisarski, A., Chang, A., & Ashkanasy, N. M. (2014). Rating defence major project success: The role of personal attributes and stakeholder relationships. *International Journal of Project Management, 32*(6), 944–957.

McEvily, B., Perrone, V., & Zaheer, A. (2003). Trust as an organizing principle. *Organization Science, 14*(1), 91–103.

Mir, F. A., & Pinnington, A. H. (2014). Exploring the value of project management: Linking project management performance and project success. *International Journal of Project Management, 32*(2), 202–217.

Müller, R., & Turner, J. R. (2007). Matching the project manager's leadership style to project type. *International Journal of Project Management, 25*(1), 21–32.

O'Neill, T. A., Allen, N. J., & Hastings, S. E. (2013). Examining the "Pros" and "cons" of team conflict: A team-level meta-analysis of task, relationship, and process conflict. *Human Performance, 26*(3), 236–260.

Pinjani, P., & Palvia, P. (2013). Trust and knowledge sharing in diverse global virtual teams. *Information & Management, 50*(4), 144–153.

Pinto, J. K., & Slevin, D. P. (1987). Critical factors in successful project implementation. *IEEE Transactions on Engineering Management, 1*(2), 22–27.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 65,* 539–569.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879–891.

Rapisarda, B. A. (2002). The impact of emotional intelligence on work team cohesiveness and performance. *International Journal of Organizational Analysis, 10*(4), 363–379.

Rezvani, A., Barrett, R., & Khosravi, P. (2019). Investigating the relationships among team emotional intelligence, trust, conflict and team performance. *Team Performance Management International Journal, 25*(1/2), 120–137.

Rezvani, A., Chang, A., Wiewiora, A., Ashkanasy, N. M., Jordan, P. J., & Zolin, R. (2016). Manager emotional intelligence and project success: The mediating role of job satisfaction and trust. *International Journal of Project Management, 34*(7), 1112–1122.

Rezvani, A., & Khosravi, P. (2018). A comprehensive assessment of project success within various large projects. *The Journal of Modern Project Management, 6*(1).

Rezvani, A., & Khosravi, P. (2019a). Emotional intelligence: The key to mitigating stress and fostering trust among software developers working on information system projects. *International Journal of Information Management, 48,* 139–150.

Rezvani, A., & Khosravi, P. (2019b). Identification of failure factors in large scale complex projects: an integrative framework and review of emerging themes. *International Journal of Project Organisation and Management, 11*(1), 1–21.

Rezvani, A., Khosravi, P., & Ashkanasy, N. M. (2018). Examining the interdependencies among emotional intelligence, trust, and performance in infrastructure projects: A multilevel study. *International Journal of Project Management, 36*(8), 1034–1046.

Rezvani, A., Khosravi, P., & Dong, L. (2017). Motivating users toward continued usage of information systems: Self-determination theory perspective. *Computers in Human Behavior, 76,* 263–275.

Rönkkö, M., & Ylitalo, J. (2011). PLS marker variable approach to diagnosing and controlling for method variance. *ICIS Proceedings.*

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review, 23*(3), 393–404.

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial Least Squares Structural Equation Modeling. In: Homburg C., Klarmann M., Vomberg A. *Handbook of Market Research.* Cham: Springer.

Sheffield, J., & Lemétayer, J. (2013). Factors associated with the software development agility of successful projects. *International Journal of Project Management, 31*(3), 459–472.

Sheldon, O. J., Dunning, D., & Ames, D. R. (2014). Emotionally unskilled, unaware, and uninterested in learning more: Reactions to feedback about deficits in emotional intelligence. *Journal of Applied Psychology, 99*(1), 125–137.

Stanczyk, A., Foerstl, K., Busse, C., & Blome, C. (2015). Global sourcing decision-making processes: Politics, intuition, and procedural rationality. *Journal of Business Logistics, 36*(2), 160–181.

Stephens, J. P., & Carmeli, A. (2016). The positive effect of expressing negative emotions on knowledge creation capability and performance of project teams. *International Journal of Project Management, 34*(5), 862–873.

Thomas, J., & Mengel, T. (2008). Preparing project managers to deal with complexity–Advanced project management education. *International Journal of Project Management, 26*(3), 304–315.

Toor, S. U. R., & Ogunlana, S. O. (2008). Problems causing delays in major construction projects in Thailand. *Construction Management & Economics, 26*(4), 395–408.

Troth, A. C., Jordan, P. J., Lawrence, S. A., & Tse, H. H. (2012). A multilevel model of emotional skills, communication performance, and task performance in teams. *Journal of Organizational Behavior, 33*(5), 700–722.

Turner, R., & Zolin, R. (2012). Forecasting success on large projects: Developing reliable scales to predict multiple perspectives by multiple stakeholders over multiple timeframes. *Project Management Journal, 43*(5), 87–99.

Urda, J., & Loch, C. H. (2013). Social preferences and emotions as regulators of behavior in processes. *Journal of Operations Management, 31*(1), 6–23.

Vaux, J. S., & Kirk, W. M. (2018). Relationship conflict in construction management: Performance and productivity problem. *Journal of Construction Engineering and Management, 144*(6), 04018032.

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior: An annual series of analytical essays and critical reviews* (Vol. 18, pp. 1–74). US: Elsevier Science/ JAI Press.

Wong, P. S.-P., & Cheung, S.-O. (2004). Trust in construction partnering: Views from parties of the partnering dance. *International Journal of Project Management, 22*(6), 437–446.

Weiss, J., & Hughes, J. (2005). Want collaboration? Accept–and actively manage–conflict. *Harvard Business Review, 83*(3), 92–101.

Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly, 13*(3), 243–274.

Wu, G., Liu, C., Zhao, X., & Zuo, J. (2017). Investigating the relationship between communication-conflict interaction and project success among construction project teams. *International Journal of Project Management, 35*(8), 1466–1482.

Zhang, S. J., Chen, Y. Q., & Sun, H. (2015). Emotional intelligence, conflict management styles, and innovation performance: An empirical study of Chinese employees. *International Journal of Conflict Management, 26*(4), 450–478.

Zhang, L., & Fan, W. (2013). Improving performance of construction projects: A project manager's emotional intelligence approach. *Engineering Construction and Architectural Management, 20*(2), 195–207.

Zwikael, O., & Meredith, J. (2019). Evaluating the success of a project and the performance of its leaders. *IEEE Transactions on Engineering Management, 47*(3), 127–134.