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Examining the Relationships among Conflict Types and Performance, with Emotional Intelligence as Mediating Variable in Software Projects: A Multilevel Study

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الإهداء

الى الهادي الى سواء السبيل .. الله سبحانه وتعالى

الى ارض الانبياء .. وطني فلسطين

الى من قال فيهما الله سبحانه وتعالى:" واخفض لهما جناح الذل من الرحمة وقل رب ارحمهما كما ربياني صغيرا" صدق الله العظيم

الى من علمتني فك الحروف.. ومن تغنيني عن الجميع ..أمي الغالية

الى سندي وقوتي .. ومن مهد لي الطريق للوصول الى ما أنا عليه .. أبي الغالي

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الى اساتذتي الكرام في كل المراحل التعليمية ..

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الاقْرار

أنا الموقع ادناه، مقدم الرسالة التي تحمل العنوان :

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Examining the Relationships among Conflict Types and Performance, with Emotional Intelligence as Mediating Variable in Software Projects: A Multilevel Study

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أقر بأن ما اشتملت عليه هذه الأُطروحة إنما هو نتاج جهدي الخاص، باستثناء ما تمت الاشارة اليه حيثما ورد. وأن هذه الرسالة كاملة، أو أي جزء منها لم يقدم من قبل لنيل أي درجة او لقب علمي او بحثي لدى أي مؤسسة تعليمية او بحثية أخرى.

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Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work and has not been submitted elsewhere for other degree or qualification.

Student's Name: **اسم الطالب:**

Signature: **التوقيع:**

Date: **التاريخ:**

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List of Abbreviations

RC: Relationship Conflict

TC: Task Conflict

TEI: Team Emotional Intelligence

IEI: Individual Emotional Intelligence

PTP: Project Team Performance

IP: Individual Performance

IT: Information Technology

ERP: Enterprise Resource Planning

PIPA: Palestinian Investment Promotion Agency

AWR: Awareness of Own Emotions

AWRO: Awareness of Others' Emotions

MGT: Management of their Own Emotions

MGTO: Management of Others' Emotions

HTMT: The Heterotrait-Monotrait Ratio of Correlations

PLS-SEM: Partial Least Squares Structural Equation Modeling

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Abstract

The software industry is an industry with high stress. Many conflicts may occur in the workplace. These conflicts may arise between individuals in the same team due to different views or misunderstandings or the inability to separate personal, work relationships, etc. Moreover, conflicts may occur during the completion of tasks, such that there are differences in the nature of the work performed, its quantity, and how to accomplish it. This research has studied the indirect relationship between conflict and performance in the software industry at the individual and team levels. The study focused on relationship conflict and task conflict. Moreover, emotional intelligence was taken as a mediating variable on these relationships on both levels as well. A deductive approach has used, and a questionnaire has designed to collect data from software firms located in West Bank and Gaza. The collected data are analyzed using smart-PLS, version 3.3.2. The findings revealed a significant indirect relationship between relationship conflict and team performance, which confirmed that team emotional intelligence mediates this relationship. Still, no significant indirect relationship between task conflict and performance at both levels

has found, determining that individual emotional intelligence didn't mediate these relationships. The findings also indicate a significant relationship between emotional intelligence on team level and performance at both levels. It also evidenced a significant relationship between emotional intelligence and performance at the individual level. And finally, the finding evidenced a significant relationship between individual performance and team performance (cross-level relationship). As far as the researcher's knowledge goes, no similar work explores the relationship between conflict types and performance with the mediating roles of emotional intelligence in the software industry. Also, no work explores the performance-performance relationship between multilevel (individual and team). Additionally, no similar work explores the dark side of individual emotional intelligence and team performance in the Palestinian software industry.

Keywords: Relationship Conflict, Task Conflict, Team Emotional Intelligence, Individual Emotional Intelligence, Project Team Performance, Individual Performance.

CHAPTER ONE

INTRODUCTION

1.1. Chapter Overview:

This chapter provides an introduction to the study by considering software companies in Palestine as a research context. Also, it shows the problem statement, research questions, research objective, the development of the theoretical framework, and the significance of the study. Besides, an overview of the information technology and software industry in Palestine, then the chapter presents the thesis's organization, and final it concludes with the chapter summary.

1.2. Background of the Study:

With the evolution of technologies in all fields, many companies have come to light and then disappeared for several reasons. Other companies were sustained, distinguished, and shined in their sector. Approximately 90% of startups failed because of self-demolition instead of competition, which indicates the lack of skills in business creation (Edison et al., 2015; Marmer et al., 2011). Such failure could also be attributed to miss-coordination and unbalance between the new business's main five dimensions, including clients, products, group work, business model, and financial management (Marmer et al., 2011). In addition, Sutton (2000), Giardino, Wang, and Abrahamsson (2014) denoted that lack of experience, limited resources, internal and external influences, and dynamic technologies and markets are challenges for any startup. Niazi et al. (2016)

reviewed 101 studies and identified 19 relevant challenges faced by global software projects. These include lack of cultural understanding in teams, lack of communication, lack of management of time differences, lack of knowledge management and transfer among groups, lack of coordination, lack of trust, geographical distance, requirement engineering activities, lack of control, lack of team awareness, change management activities, lack of a uniform process among different development sites, allocation of tasks, conflict management, cost and effort estimation, integration activities, risk management, lack of proper IT infrastructure, and protection of intellectual property.

Another line of research has focused on effective communication between firms and their partners, customers, suppliers, and employees as the basis of business success and failure in many business sectors (Chittithaworn et al., 2011). This indicates that firms should pay attention to their relationship with business partners and study their behavior to understand their emotions and employ them optimally to achieve goals and objectives.

Besides, software development projects are known for their high failure rate. Only one in eight information technology (IT) projects was delivered on time, within the defined budget, and meet client requirements (McManus & Wood-Harper, 2007). The failure of large-scale projects (i.e., projects related to enterprise resource planning (ERP) systems) has been catastrophic to many organizations. An estimate of the cost of IT project failures across the United States between $50 billion to $150 billion per year (between 5% to 15%) (Hardy-Vallee, 2012). Therefore, measuring

factors that affect software projects' success, failure, and team/individual performance is an important topic.

In particular, project-based firms depend on the formation of teams. These projects' success had conditioned by combining emotional intelligence, social astuteness, credibility, and team members' honesty (Zaman et al., 2019).

Given the above introduction, it becomes critical to examine the impact of conflict types on teams/individuals' performance, considering emotional intelligence as a mediating variable. This study also explores individual and team emotional intelligence's effect on project team performance and measuring the relationship between individual performance and team performance.

In this study, software projects in Palestine had selected as the study population. The data had collected from primary sources (i.e., using questionnaires) and secondary sources (i.e., using previous research and books) to examine the multilevel relationships.

The study population is selected because the information technology (IT) sector contains project-based companies with a highly team-based structure. There is a high risk of problem occurrences among team members, leader/project manager, and clients. Previous studies pointed to the importance of conducting performance studies in the software industry (Samarasinghe & Samarasinghe, 2019). As for requirements changes in the software industry, it depends on crucial causes such as customer needs,

changes in market demands, developers' understanding of the products, and changes in the organizational policy (Akbar, 2019). These emergency changes (unplanned) often occur in the final stages of the project life cycle. Each step in iterative projects is characterized by stress and tension because it is the period of scrutiny and completion of works. These changes require a rapid response by the work team/individuals responsible for these amendments to eliminate the project duration increase; therefore, this stage involves the intelligence in dealing with the team members. Also, unlimited iterations lead to budgeting issues and increase the level of conflict in the working environment. So that telling the story from client to project developer is very critical.

1.3. **Problem Statement:**

The software industry is considered one of the most attractive areas in the information technology sector. This industry can change (Joshi, 2018; Verma, 2013) and may double the growth rate of any country's economy (Sultana et al., 2014). This indicates strong competition among firms that are striving to has aggressive strategies for competition, i.e., establishing the plan in an evident way, for this moment and the future, clear definition of the strategies and objectives (Sultana et al., 2014), to ensure its position at the top of the competitors. In addition, the development team's training is an important issue to get a better comprehension of knowledge-sharing barriers and variation in perceptions (Ghobadi & Mathiassen, 2016).

As we know, the software industry is highly team-based. There is a high risk of problem occurrence among team members due to the lack of visibility of employees' communication process (van der Lippe & Lippényi, 2020), leading to conflicts. This may badly affect the team and individual performance if they can't use their intelligence to control their emotions in such a situation.

Recent studies such as, Batool (2020), Hendon et al. (2017), and Butt et al. (2017) have pointed that software projects lack emotional intelligence, in addition to the lack of cooperation between employees, which has led to the necessity of studies concerned with emotional intelligence and its impact on various aspects within the software sector.

Many research studies such as Jiménez-Jiménez & Sanz-Valle (2011), Shooshtarian et al. (2013), Platis et al. (2015), and Rezvani et al. (2019) indicated that different variables affect individuals and teams' performance in other firms and sectors, such as innovation, job satisfaction, conflict, organizational learning, etc. Still, few studies examined how emotional intelligence influences employees, managers, and teams' performance (Bhoir & Suri, 2019; Chiniara & Bentein, 2016).

According to the great interest in emotions, many studies appeared to explore the role of intelligence in dealing with these emotions and their impact on firm's individuals and the firm, and this indicates the importance of addressing emotional intelligence in research studies (as cited in Moon

& Hur, 2011). In contrast, no study explores the mediating role of this variable on conflict-performance relationships.

This study comes to support the result of the previous literature. It further explores and measures the indirect link between task conflict, relationship conflict, and performance in teams and individuals stages. The study also fills the previous research studies gaps by exploring emotional intelligence's mediating effect in conflict-performance relationships. Moreover, the study explores the cross-level relationship between performance on the individual level with performance on the team level, which had tested in the entertainment industry, specifically for football teams (Enrique & Del, 2019; Thomas et al., 2018). Besides, it comes to understand the effect of the negative side of individual emotional intelligence and the project teams' performance, as Rezvani et al. (2018) recommended to fill the gap between the studies conducted on the negative and positive side of emotional intelligence.

1.4. Research Questions:

This research shall attempt to answer the four research questions listed below:

1) How does conflict types affect performance in software projects on the team and individual levels?

2) What is emotional intelligence's influence on project team/Individuals' performance in software projects on the team and individual levels?

3) Does emotional intelligence mediate the relationship between conflict types and performance in software projects on the team and individual levels?

4) What is the effect of Individual performance on project team performance in software projects?

1.5. Research Objectives:

Research questions in section 1.4. can be answered by accomplishing the main objective: Explore and understand the impact of conflict types (relationship and task), emotional intelligence of teams and individuals on performance at multi-stages, and via four sub-objectives:

1) Determine the effect of conflict types on performance on the team and individual levels.

2) Determine the impact of emotional intelligence on performance on the team and individual levels.

3) Determine whether emotional intelligence can represent as a mediating variable.

4) Determine the effect of individual performance on project team performance.

1.6. The Development of the Theoretical Model:

At this stage, it is possible to define the research variables divided into three types and two levels, as shown below in Figure 1.1. At the team level, the model has three variables: Relationship conflict as an independent variable, Project team performance as a dependent variable, and Team

emotional intelligence as a mediating variable. On the other level (individual level), the model has three variables: Task conflict as an independent variable, Individual performance as a dependent variable, and Individual emotional intelligence as a mediating variable.

Based on the research questions and variables defined, the research hypotheses have formulated:
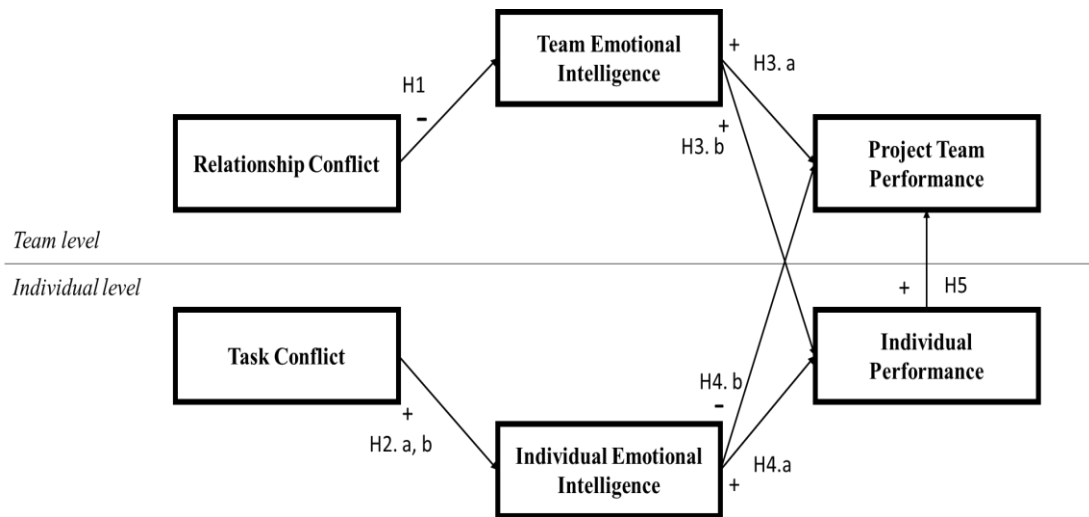
Figure 1.1: Theoretical framework.

Hypothesis 1: Relationship conflict has a significant indirect **negative** effect on project team performance in software projects, where team emotional intelligence plays a mediating role.

Hypothesis 2, a: Task conflict has a significant indirect **positive** effect on individual performance in software projects, where individual emotional intelligence plays a mediating role.

Hypothesis 2, b: Task conflict has a significant indirect **positive** effect on project team performance in software projects, where individual emotional intelligence plays a mediating role.

Hypothesis 3, a: Team EI has a significant direct **positive** effect on project team performance in software projects.

Hypothesis 3, b: Team EI has a significant **positive** effect on Individual performance in software projects.

Hypothesis 4, a: Individual EI has a significant **positive** effect on Individual performance in software projects.

Hypothesis 4, b: Individual EI has a significant **negative** effect on project team performance in software projects.

Hypothesis 5: Individual performance has a significant **positive** effect on project team performance in software projects.

1.7. Significance of the Study

After looking at previous research, we found many researchers considering performance in various fields such as the construction industry, infrastructure industry, petrochemical industry, technological services, and software industry (Chen & Lin, 2018; X. Liu & Batt, 2010; Lyons & Schneider, 2005; Moon & Hur, 2011; Rezvani et al., 2018, 2019; Zaman et al., 2019).

In a globalized world, the concept of outsourcing in the information technology field has become increasingly widespread (Han & Mithas,

2013). The software industry is a part of this field. Many companies resort to others in the same country or others, such as developing countries to develop, and maintain their software programs and websites. Palestine is one of the distinguished countries in the software industry.

This study helps the top management, project manager or team leader, and individuals in the software projects. With regards to the top management, this study describes the interdependence of team members, the level of altruism of individuals and their desire to help each other, to do their job to the fullest, to achieve the three sides of the iron triangle, which is: quality, time and cost.

For a project manager or leader, it helps them to know how their intelligence in managing and controlling their emotions and resolving conflicts can improve the performance of their team and each individual. And for individuals, the study helps them understand their emotional health better and contribute to enhancing their performance to achieve their desires and ambitions in their career. Furthermore, they accomplish the primary purpose they are working for in the company, namely, achieve the company's strategic objectives.

1.8. Information Technology Sector and Software Industry in Palestine:

Despite political and economic conditions in Palestine and the modern infrastructure for the information technology sector, the Palestinian people were able to forge ahead in the development of this sector by preparing

qualified human resources who were able to benefit from the increasing information revolution to enter the information society (PECDAR, 2008).

Notwithstanding political pressures to hinder the development of the information technology sector, including the software industry, it is at the forefront of the initiatives that support the Palestinian economy. It plays a significant role in developing the future of Palestine economically at the local and global levels through maintaining the sustainability of IT projects' by using strategies like outsourcing (PIPA, 2010).

According to the Palestinian investment promotion agency (PIPA), the information technology sector is one of the fastest-growing economic fields in Palestine. Where its growth rate in 2016 was about 25%, as indicated by the statistics of the Palestinian Trade Center (Radee, 2017), due to the presence of a large group of educated human resources and proximity of Palestine experts to centers of advanced technology, which had a significant impact on the expansion of this sector.

Furthermore, the statistics for 2017 showed that 698 firms are specializing in the information technology sector, where 163 had registered as an active member in the Palestinian Information Systems Association (Beta) (PPIPA, 2018) and contribute 3.1% of the Gross domestic product (GDP) (PCBS, 2019). This sector's real importance is the Palestinian universities 'interest in offering new and varied programs that serve the information technology and software industry. According to 2017 statistics, at least ten Palestinian universities provide bachelor's programs in IT, engineering, and computer

science, in addition to a group of master's and doctoral programs (PPIPA, 2018), where the number of graduates from engineering and technology programs was about 1844 in 2018 (PPIPA, 2018). Palestinian universities and An-Najah National University seek to integrate technology and engineering fields with the private sector. In 2014, the NNU started the project of "Linking with the private sector, IT faculty curriculum reform." It lasted for four academic years, during which experts from the private sector shared their experiences and knowledge with students. After the project's success, a computer science apprenticeship program was introduced, which relies mainly on joint work between the university and private sector companies.

And because the information technology and software industry sector is the key to the Palestinian economy, it is crucial to conduct a study concerned with its employees' performance and study what affects their performance and outputs, positively or negatively.

1.9. Organization of the Thesis:

The current master thesis follows the standard thesis chapters and has five chapters. The first chapter includes a background of conflicts, emotional intelligence, and performance in the software industry; the chapter also presents a problem statement and gaps, research questions and objectives, the development of the theoretical framework, and an overview about the information technology sector and software industry in the Palestinian market. The second chapter covers reviewed literature about two conflict

types, relationship and task, emotional intelligence definitions in the team and individual levels, and performance in both levels. It also reveals the formulated hypotheses. The third chapter expresses the study methodology and approach used to answer the research questions to obtain the research objective. It also includes measurements of the six constructs, survey instrument, pre-test of the questionnaire, population, sample of the study, data collection technique, data analysis techniques, and analysis methodology. The fourth chapter presents the study's research results, where the collected data collected go through the analysis phase using a Partial Least Squares (Smart PLS) to find relationships. Finally, the fifth chapter highlights the discussions and conclusions of the previous chapter's results (Chapter 4) and managerial implications, contributions, limitations, and future research.

1.10. Chapter Summary:

The introduction chapter reviews and summarized some studies that show the importance of conducting research related to a performance issue in software project environments. After that, the chapter continues with research gaps that need to fill, questions that need answers, objectives that need to obtain. It also presents the theoretical framework, an overview of the software industry in Palestine, and finally, the chapter displays the organization of the thesis that followed in this study.

CHAPTER TWO

LITERATURE REVIEW

2.1. Chapter Overview:

This chapter aims to provide an overview of the two types of conflicts: relationship conflict and task conflict in software projects. Also, it describes the emotional intelligence for teams and individuals, specifically, the current picture of this construct in the software industry. Moreover, it presents a brief description of emotional intelligence and its impact on human resources performance as teams and individuals in software firms. Besides, it reviews the mediating effect of emotional intelligence on performance relations. And finally, the chapter aims to describe the study hypotheses.

2.2. Conflict :

Conflict term emerged since antiquity, and then it has been expanded and clarified over time. According to Olu and Adesubomi (2014, p.127), "conflict is based on the incompatibility of goals and arises from opposing behaviors. It has viewed at the individual, group or organizational level". Hendel et al. (2005) define conflict as the internal disagreement that results from the variation in ideas, values, or feelings among two or more individuals.

The conflict has either positive or negative consequences examined and used in many research studies (Aqqad et al., 2019). Jehn (1995) and Jehn et al. (1999) explain three conflicts: relationship conflict, task conflict, and

process conflict. Consequently, many researchers have uses these types of conflicts in their research studies (De Wit et al., 2012; O'Neill et al., 2013; Rezvani et al., 2019).

Relationship conflicts focus on oppositions between team members about interpersonal issues within the relationship, such as personality differences or variations in norms and values. Task conflicts include disagreements between team members about the content and outcomes of the activity implemented, also focus on finance, money, and property issues (Jehn & Bendersky, 2003; O'Neill et al., 2013). While process conflicts determined as a unique form of task conflict, it is concerned with the level of consciousness about getting things done (Martínez-Moreno et al., 2009). In practice, relationship and process conflict are often interrelated while tasks implemented involve disagreements among project team members about the logistics of task fulfillment, the authority of duties, accountability, and responsibility (O'Neill et al., 2013).

Research classified **conflict factors** into three main types include (1) conflict factors related to behavioral problems (such as ill communication between the project team, multicultural teams problem and reluctant to check for implementation, clarity, and completeness of the project); (2) contractual issue (such as unclear contractual terms, statement of work and requirements are ambiguous, an error of pricing or costing, and late instructions from the supervisor), and (3) technical issue (Jaffar et al., 2011).

This research focuses on two types of conflicts: relationship conflict and task conflict.

2.2.1. Relationship/ Affective Conflict

Generally, relationship conflict or social-emotional conflict has used to describe negative conflicts (Priem & Price, 1991). Relationship conflict refers to a wide range of negative emotions, such as hostility, anger, annoyance, anxiety, jealousy (Barki & Hartwick, 2006), and more negative emotions among employees in the work environment. Jehn & Mannix (2001) defined relationship conflict as an awareness of interpersonal incompatibilities. As for De Wit et al. (2012) and Kammerhoff et al. (2019), relationship conflicts include interpersonal clashes within the team due to norms, values, and cultural differences. Relationship conflicts could be a reason for the lack of respect between team members and dissatisfaction with the team's general atmosphere and the work environment (Rousseau et al., 2018). It also reduces understanding, good relations, and goodwill among team members, reflecting negatively on work quality and performance (Rousseau et al., 2018). Kammerhoff et al. (2019) conclude that relationship conflict may break relationships in work through its negative impact on individuals and work itself. Indeed, individuals who experience relationship conflict seek to spend much time dealing with their coworkers instead of focusing on achieving the goals, which is not true (Yang, 2020).

The differences between clients and developers or between team members in software development projects lead to problems in the teamwork (T. P. Liang et al., 2010) that could hinder the process of effectively accomplishing tasks due to the transformation of the work environment into full of pressure and negativity one, which reflected in the project, and in the best case leads to failure or delay in its.

2.2.2. Task/ Cognitive Conflict

Task conflict is the most popular and beneficial conflict. Some literature examined it, for instance, Lu and Wang (2017) and De Clercq et al. (2015). Task conflict refers to disagreements among team members about their differences in perspectives, ideas, and opinions about the specific task (De Clercq et al., 2015; De Wit et al., 2012; Jungst & Blumberg, 2016; J. C. Lee et al., 2020). De Dreu and Weingart (2003) and Kanadlı et al. (2020) determine task conflict as a critical role to reveal personal viewpoints on presented issues, as it also shows information processed individually. Sometimes in the workplace, task conflict may lead to another type of conflict, which is relationship conflict (either individual or teams). This can be a source of deviation in individuals' behaviors, which leads to negative individuals with lousy performance (Shahzad et al., 2019; L. Wu et al., 2015). Task conflicts among team members had classified as functional and dysfunctional (Crawford et al., 2014). From a dysfunctional viewpoint, task conflict may command to minimize dissatisfaction, coordination between individuals and obligations, or to unnecessarily increased costs (Humphrey et al., 2017; Karn & Cowling, 2008; Puck & Pregernig, 2014). On the other

hand, teams can benefit from task conflict through differing views about specific issues or ideas in work. This differentiation may encourage innovation and creativity in the team members (Crawford et al., 2014).

In software development projects, the great diversity of positions and roles cause task conflict (T. P. Liang et al., 2010), leads to ineffective outcomes at the teams and individuals. Besides. It may negatively affect the organization's employees' satisfaction (Karn & Cowling, 2008), resulting in a lack of commitment to perform the assigned tasks with the required time and quality. Task conflict in software development projects may cause increased costs (Karn & Cowling, 2008), leading to exceeding the project or task budget. For instance, software developers and testers must complete designated tasks depend on their specific responsibilities. While developers generally expect to accomplish tasks with minimal effort to seek maximal "efficiency" (J. C. Lee et al., 2020), so that they are far from the causes of the task conflict issue.

2.3. Emotional Intelligence:

Before over 2300 years ago, Aristotle implies that self and emotion control is not a straightforward thing. A set of five dimensions represents it: right person, degree, time, purpose, and way (Harburg et al., 1991). The emotional intelligence of every individual lies in correctly dealing with these dimensions.

The term emotional intelligence (EI) is not new. Previous studies that describe the link between intelligence and emotion revealed that Darwin

(1872/1965) is the founding father of emotional intelligence research. In 1966, Luner started using this concept, followed by other researchers (Mvududu, 2020). After that, in 1990, Mayer, DiPaolo, and Salovey put EI as a tentative proposal to define and improve the measurement of emotional intelligence (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990 as cited in Mayer et al., 2008). In 1995, Daniel Goleman attracted the business world's attention to the emotional intelligence concept (as cited in Fernández-Berrocal & Extremera, 2006) by highlighting self-stimulating abilities, controlling the impulse, and delaying rapid reactions that have the significance in workplace productivity (Mvududu, 2020). After that, emotional intelligence becomes a new distinct form of intelligence (Luong et al., 2019) and one of the most critical factors affecting employee performance.

To understand EI's concept entirely and clearly, we can divide it into two parts, emotions and intelligence, and then understand the meaning of these parts, each separately. As for emotions, it is something like glue and gunpowder, links external events and other people to internal concerns. Because of this, emotions could be a reason for establishing glad cooperation and threaten to break ties in case of conflicts (Oatley & Johnson-Laird, 2014). That's why it becomes a prime research topic in the past three decades (Luong et al., 2019). Previous offered research over 90 meanings and theories about emotions(Cambria et al., 2012). Minsky, in 2006 defines emotions as the different methods to think that our mind

triggers to deal with usual and unusual cases we face in our careers and life at all (Minsky, M. as cited in Cambria et al., 2012).

Emotions play a significant role in all business sectors, as their effects are evident in communication between all parts of the organization and outside. These effects (behavioral and attitudinal) have significance and consequences for the individual and groups (Makkar & Basu, 2019), where all the emotions that a person goes through in the workplace affect his personality, psychological and physical health as well (Moon & Hur, 2011). According to Rogala (2019), negative and positive emotions have a complementary effect. Positive emotions can help people get great results, including accomplishment, work enhancement, and a more excellent social setting. While negative emotions, such as dread, outrage, stress, lousy vibe, trouble, and blame, will probably expand the consistency of working environment deviance and how the outside world perspectives the firm (Makkar & Basu, 2019).

And for intelligence, there are various definitions; for instance, Gottfredson (1976) defines it as a too general mental capability that includes the capacity to reason, plan, troubleshoot, think uniquely, understand complex thoughts, take in rapidly, and acquire knowledge from fact and experience. It isn't only book learning, a thin scholarly aptitude, or test-taking smarts. To some extent, it mirrors a more extensive and more profound capacity for comprehending our environments- "getting on," and "making sense" of things or what to do. Nakashima (1999) defines intelligence as an individual's ability to process information properly within a complex

environment. Also, Mayer's (2004) definition of intelligence is the ability to carry out final thoughts and understand and adapt to the environment.

Combining these two terms (emotions and intelligence) led to the introduction of the emotional intelligence construct. After that, numerous studies appeared on that topic. One of these studies discusses emotional intelligence in the banking sector in the Kingdom of Jordan. On the one hand, it found a statistically significant relationship between EI and job performance (Aqqad et al., 2019). Another research conducted in Istanbul concludes that EI has a significant positive correlation with job performance in the public sector (Yozgat et al., 2013).

2.3.1. Emotional Intelligence Definitions

Generally, emotional intelligence is associated with intellectual intelligence (IQ), but each intelligence operates separately. The IQ is fixed for each individual, whereas emotional intelligence is more flexible and possible to learned and improved (Farmer et al., 2020). Furthermore, all employees within a firm must have emotional intelligence skills, allowing them to adjust relationships among employees. Emotional intelligence facilitates the implementation and completion of tasks effectively and organized manner (Al-Tarawneh & Battah, 2018).

Through reviewing studies and literature on emotional intelligence, there are numerous definitions; Mayer & Salovey (1989) defined it as the individual's ability to monitor one's own and others' feelings, distinguish among them, and utilize this information to manage one's reasoning and

behavior. Furthermore, emotional intelligence includes four abilities: the ability to see precisely, assess, and express emotion. Also, the ability to get and/or additionally create feelings when they simplify thought. And the ability to comprehend emotion and emotional knowledge. Besides, the ability to control and regulate feelings reinforces emotional and intellectual development (Rezvani & Khosravi, 2019b).

On the other hand, in 2000, Goleman (as cited in Rezvani & Khosravi, 2019a) assigned emotional intelligence a wide range of abilities that involve personality-related items that may have no immediate connection with emotional intelligence, for example, social responsibility. After that, Sala (2001) suggests that emotional intelligence and cognitive intelligence are not separate but rather complementary. Then, Furnham and Petrides (2003) proposed that emotional intelligence points to one's ability to recognize his own emotions and responses and manage them accurately to influence others emotionally. Furthermore, Al-Elaimat et al. (2020) describe emotional intelligence as a part of social intelligence, which includes some abilities: the ability to control self-emotions, the ability to control others emotions, the ability to distinguish among different emotions, and the ability to use appropriate information to guide a person's thinking and behavior.

Verma (2013) defined engineers' and experts' emotional intelligence as the right balance between the software industry's technical and emotional sides when solving various problems. This industry's focus should be on outsourcing in some places and continuous re-engineering. The high speed

of development and innovation in the software market ignites competition. It increases customer requirements and expectations, which indicates the need for creative technologies and human resources with extraordinary skills that fall under the name of emotional skills to keep pace with what happens daily in this industry.

Notably, after reviewing various definitions of emotional intelligence from different sources, a considerable overlap has been found in the abilities presented by this concept, with some differences in its theoretical bases. Consequently, emotional intelligence in the software industry determines the potential to learn and understand our way of thinking mixed with technical skills that one's has, to have the needed capabilities to analyze what we feel, to reflect it on the way of dealing with others and situations in the workplace.

2.3.1.1. Team Emotional Intelligence

Team emotional intelligence has been considered a cure for difficult and troublesome interpersonal problems (Ahmad, 2017). It interacts at more levels than individual emotional intelligence; that's why it had assigned as complicated emotional intelligence (Sinha, 2018). Thus, Troth et al. (2012) argue that team emotional intelligence is a sum of parts approach (bottom-up approach) starting from daily interaction between members, representing input factors, towards team goals representing performance outcomes. This intelligence is more complicated than individual emotional intelligence since team emotional intelligence may reinforce team

performance through utilizing its synergistic emotional processes at three-levels including individual, team, and beyond the boundaries of that team, to be more emotionally intelligent as a collective (Druskat & Wolff, 2001; Jordan & Troth, 2004). In addition, team emotional intelligence can improve the ability of each member to be more efficient in communication with other ones, to sharing ideas, and refuting differences, which lead to an increase in the capability of a team to make effective and proper decisions and increase team performance (Paul & Carmeli, 2016).

Researchers define team emotional intelligence in different manners (Jordan & Lawrence, 2009). Team emotional intelligence is the ability to increase the awareness and management of a team member's behaviors to give positive outcomes. While (Barczak et al., 2010) defined emotional intelligence in a team as team members' capability to evolve and improve a set of criteria that manage and control emotional procedures, these criteria facilitate team member collaboration and cohesiveness, attitudes essential to team effectiveness. Where social interactions between team members with different cultures while doing tasks will develop their emotional intelligence (Jamshed & Majeed, 2019). Meanwhile, team emotional intelligence facilitates the development of nurture relationships and collaboration of a team, where it refers to the thought of the collective spirit owned by members; that relates to team awareness and understanding of their objective and its relationship with other systems, also with the external environment (Ghuman, 2011).

As for emotional intelligence in software teams, the concept has not been used significantly in the software sector's literature. It could define similarly to the definitions mentioned earlier. Rezvani & Khosravi (2019b) determined that team emotional intelligence increases team members' ability to invent effective solutions to unexpected problems or sudden obstacles through the software development cycle (in the process itself) or among team members.

2.3.1.2. Individual Emotional Intelligence

In different business sectors, many employees meet and share the workplace and behave differently; these behaviors have implications and consequences for their co-workers and the entire organization (Makkar et al, 2019). An individual's intelligence is being in the ways of dealing with its own/others' emotions and draw meaning relative to soft skills required to reinforce creativity (Mvududu, 2020). Simultaneously, there is a variation in awareness of emotions and expressions (verbal and non-verbal) between individuals. Since individuals with a high level of realizing and understanding of their emotions are understood better by others (George, 2000), individuals with a high level of emotional intelligence may have a strong and positive social influence on others. As a result, they had assigned as persons with leadership capabilities and skills (Wasielewski, 1958). In other words, individuals with high emotional intelligence can perceive, understand, and handle their emotions more effectively under different circumstances (Laborde et al., 2014; Zysberg & Raz, 2019).

As for the software industry, the individuals and engineers working in software projects represent the most crucial component: the human capital responsible for the intensive activity in these projects (Sinha, 2018). Since human emotions have become one of the main issues in human behavior, from this point, the importance of managing individuals 'emotions in software projects becomes evident (Colomo-palacios et al., 2011).

2.4. Performance:

This research measure two types of performance, which are project team performance and individual performance.

2.4.1. Project Team Performance

Generally, a team is a complicated system, where system performance can't be analyzed by separating individuals' performance. Where complex system needs to include diverse and associated team members to consolidate their contributions in the right ways to achieve the desired goals (Bergey, 2012). And because of the importance of studying team performance in organizations, such as strong sustainability, competitive advantage, high productivity, and increased profits and market share (Lin et al., 2020), many researchers had a viewpoint on team performance. Lippe and Lippényi (2020) pointed out that the team's overall performance arises from mutual interaction between team members and organizational processes, including coordination, monitoring, and control. Further to this, Dionne et al. (2004) conclude that team performance is a teamwork process-based construct combined with some of the interpersonally features

that are probably present in all teams, such as conflict resolutions and interactions between members (Aziz et al., 2019). Choi et al. (2010) found that team performance has driven by socio-cognitive structures where the professional knowledge in a team has unevenly distributed among individuals. Troth et al. (2012), in their multilevel study, define team performance as a function of the level of individuals' emotional skills in a team. Moreover, team performance is a multifaceted zone, for which identify critical factors related to team performance is essential (Ekström et al., 2019). And many researchers measure the project team performance on their models, as is defined as the scope to which a project team can achieve established objectives of quality, cost, and time (Okoronkwo, 2017).

Liang & Liu (2015) indicate that team performance measurement is not easy for the software industry; it is complex, multi-dimensional, and task-related. Gottschalk and Solli-Sather (2007) pointed out that teamwork in software projects is crucial for effective and successful design and deployment. Moreover, in the software industry full of complex processes, all team members must stay on track to achieve their assigned goals to increase team performance (Dingsøyr et al., 2016). Which makes measures project team performance in this industry is essential to know what can happen in the workplace and how it can improve; this makes it a tool, not an end (Al-heyasi, 2018).

2.4.2. Individual Performance

Various individuals are working alongside any project or team, so assessing employees' performance is significant. Each of them has a different contribution to the project completion, relying on its performance and skills (Niesten et al., 2017). The individual performance had greatly influenced by the inspiration level, motivating level, and emotional intelligence (Aziz et al., 2019). The process of assessing performance helps organizations define performance gaps among employees to develop their competencies. It used to motivate them to do their best and to become more productive. That's why it is a cyclic, not an annual process (Al-heyasi, 2018). Most employees have a different perspective since they find that the performance appraisal process is frustrating and inappropriate for their jobs (Adler et al., 2016). Nagle (1953) defined individual performance as a unique global measure that includes associated norms reflecting professional success. While identified performance in this manner, present the concept as a "black box" because of focusing just on outcomes (Charbonnier-Voirin & Roussel, 2012). Carboni & Ehrlich (2013) identify individual performance as a function of work, which is predicted by experience that drives the growth of knowledge, skills, and abilities associated with work. Indeed, individual performance appraisal is an indispensable component for organizations. It is a measure of organizational success. That's means if the individuals within the organization perform well, then the goal of an organization to perform well is achieved (Adler et al., 2016).

When it comes to the software industry, measuring individual performance is challenging (Ehrlich & Cataldo, 2012) because the overall team performance and outcomes can hide individual contributions (Gamble & Hale, 2013). Meanwhile, the software industry's performance measurement differs between individuals because of their roles and background differences. For instance, when the 'good' expression has used, it may have various meanings, as for the developer, 'good' means a well-designed working software, were for the project manager, 'good' means that the work is done on time and within budget (Al-heyasi, 2018).

2.5. The Development of the Hypotheses :

The theoretical model of the study has shown in Chapter.1. The model proposed eight hypotheses that described in the following sections:

2.5.1. The Mediating Role of Emotional Intelligence

The previous research studies were investigating the relationship between conflicts and performance, concerned with the mediating variable. Ye et al. (2019) considered job satisfaction a mediating variable on the relationship between conflicts (task and relationship) and job performance, where (Shaukat et al., 2017) thought exhaustion, cynicism, interpersonal strain at work mediates the relationship between relationship conflict and two types of performance (task and contextual). Besides, (Nesterkin et al., 2016) found that the effect of team collaboration on team goal setting mediates the relationship between conflict and team performance. Also, (Celik, 2013) found that depersonalization mediates the relationship between

conflict and job performance. Additionally (Ul Haq, 2011) concludes that perception of organizational politics mediates the relationship between interpersonal conflict and outcomes. Although no study in the literature investigates the mediating role of emotional intelligence in the relationship between conflict and performance, some studies investigate this role in different relationships. Callea et al. (2019) conclude that there was a mediating role of emotional intelligence in the relationship between the need for relatedness and outcomes (i.e., flourishing and happiness). Hendrawijaya et al. (2018) found that emotional intelligence significantly mediates the relationship between work motivation, compensation, work satisfaction, work climate, and employee performance. And Yan et al. (2018) indicate that emotional intelligence mediates the association between Core Self Evaluation and job satisfaction. Accordingly, this study aims to test the mediating role of emotional intelligence in multi-levels, as shown in the following sections:

2.5.1.1. Relationship Conflict, Project Team Performance, and Team Emotional Intelligence

According to the new literature on this topic, relationship conflict is a common issue on a team (Boone et al., 2019). It has a detrimental effect on performance (Jehn et al., 2008). Steffens et al. (2012) observed that this type of conflict is prevalent in new project teams, where team members are in a new environment with differ in their attitudes, behaviors, outlook for work, and methods of solving problems, which may lead to negative consequences (Klotz et al., 2014), such as team cooperation weaken, that

reduces the ability to face obstacles and gaps in the project and likely to increases employee turnover intentions (De Wit et al., 2012). The effect of relationship conflict is not limited to project teams but also affects broader top management teams' performance (Boone et al., 2019). Meanwhile, relationship conflict is not only related to human resources, but its impact also extends to firm sales, profits, entrepreneurial ideas, and new projects (Ensley & Pearce, 2001).

Moreover, relationship conflict can cause negative emotions like tension and anger, which leads to ineffective communication between members of the same team that will be limiting team performance (Thiel et al., 2019; Zhang & Huo, 2015). Furthermore, Liu et al. (2011) mentioned that the differences between team members in anticipations, thoughts, interest, and decision-making don't only lead to poor performance. It also leads to low morale and team disintegration. This indicates that relationship conflict in the work environment between team members will be consumed time by interpersonal matters rather than task decisions (Huang, 2012). Hence, previous research has focused on the negative impact of relationship conflict on team performance, i.e., Klotz et al. (2014), Rezvani et al. (2019), Ye et al. (2019), and Neumeyer & Santos (2020). This study proposes that relationship conflict negatively relates to team performance.

Thus, top-management can't ignore the importance of having emotional intelligence in the project environment. The group with emotional intelligence can deal positively with emotions that lead to maintaining their interpersonal relations in the workplace. Where conflicts also determine as

a type of emotional phenomenon that can't control without emotional intelligence. Simultaneously, a little conflict is substantial for team missions' positive effect (Gheorghe et al., 2020). Accordingly, the following hypothesis has concluded:

*Hypothesis 1: Relationship conflict has a significant indirect **negative** effect on project team performance in software projects, where team emotional intelligence plays a mediating role.*

2.5.1.2. Task Conflict, Individual Performance, Project Team Performance, and Individual Emotional Intelligence

Indeed, some research denoted that cognitive conflict, such as task conflict, has a beneficial impact on performance (Boone et al., 2019; De Wit et al., 2012; Jehn et al., 2008; Klotz et al., 2014). The relationship between task conflict and team performance is affected by some contingencies like conflict management behavior (Behfar et al., 2008), team personality (Bradley et al., 2013). In contrast, Carnevale & Probst (1998) conclude that task conflict negatively influences team outcomes such as team performance. It also considered that task conflict caused a waste of time and a drain on resources (De Wit et al., 2012). Besides, De Dreu & Weingart (2003) also found a negative relationship between task conflict and team performance. Whereas (Behfar et al., 2008; O'Neill et al., 2013) determine that high-performing teams deal with task conflicts positively, low-performing teams deal with task conflicts negatively. Recent studies indicate that the influence of task conflict can be both negative and positive

(Neumeyer & Santos, 2020; O'Neill & McLarnon, 2018). As for Gheorghe et al. (2020), team emotional intelligence decreases task conflict's negative impact on its effectiveness. This study followed a positive viewpoint and proposes that task conflict negatively relates to an individual and team performance.

Besides, (Gheorghe et al., 2020) denoted that teams with high emotional intelligence can tolerate more task conflict, where (Troth et al., 2012) indicate that emotional skills such as awareness of own and others' emotions, and management of own and others' emotion are predicting individual-level communication performance. Accordingly, this research seeks to examine task conflict's effect on individual performance and project team performance. Therefore the following hypotheses are concluded:

*Hypothesis 2, a: Task conflict has a significant indirect **positive** effect on individual performance in software projects, where individual emotional intelligence plays a mediating role.*

*Hypothesis 2, b: Task conflict has a significant indirect **positive** effect on project team performance in software projects, where individual emotional intelligence plays a mediating role.*

2.5.2. Team Emotional Intelligence, Project Team Performance, and Individual Performance

Moreover, in the workplace, team members interact with each other to get things done. Everyone on the team has a cultural background, emotions,

feelings, moods, and emotional intelligence as the workplace becomes a combination of them, which improves the emotional intelligence of a project team, which in turn affects performance (Jamshed et al., 2018; Jamshed & Majeed, 2019). The team with high emotional intelligence provides a friendly and emotional environment beneficial for performance (Maqbool et al., 2017). Barczak et al. (2010) have found a relationship between emotional intelligence and performance on the team level's cognitive task, and this relationship didn't seem evident at the individual level. Besides, (Rezvani et al., 2018) denote a significant positive association between team emotional intelligence and team performance. Accordingly, the following hypothesis is concluded:

Hypothesis 3, a: *Team EI has a significant direct **positive** effect on project team performance in software projects.*

Furthermore, some researchers concluded that a team's ability to practice emotional intelligence skills through troubleshooting and goal-setting facilitates collaboration and effective communication among individual group members (Mazur et al., 2014). A previous research study by Rezvani et al. (2018) found that individual performance is affected positively by team emotional intelligence. Accordingly, the following hypothesis has concluded:

Hypothesis 3, b: *Team EI has a significant **positive** effect on Individual performance in software projects.*

2.5.3. Individual Emotional Intelligence, Individual Performance and Project Team Performance

Notably, some research, for instance, Lam & Kirby (2002), found a positive correlation between emotional intelligence and performance at the individuals level. These individuals are in touch with feelings and feel positive and satisfied with what they are performing in their lives. They're also capable of expressing their emotion, and they are independent and free, healthy, and confident in moving their thoughts, convictions, and beliefs (Bhoir & Suri, 2019). Conversely, some other research that tests the relationship between emotional intelligence and performance at the individual-level denotes that there are no expected advantages of the individual use of emotional intelligence at the workplace (Naseer et al., 2011). Substantially, the relationship between emotional intelligence and performance looks inconsistent (Joseph & Newman, 2010; Román-calderón et al., 2020). That's why the importance of conducting this study lies to explain the lack of inconsistency in the relationship between emotional intelligence and performance and the apparent confusion in previous studies. Accordingly, the following hypothesis has concluded:

Hypothesis 4, a: *Individual EI has a significant positive effect on Individual performance in software projects.*

In contrast, Kilduff et al. (2010) denoted that few studies have conducted to investigate the dark side of emotional intelligence, where argued that balance between the positive side of emotional intelligence and the

negative side should repair by being aware of the dark side of emotional intelligence in all fields. This concept is not monopolized on the positive social aspects as is expected. Rezvani et al. (2018) emphasized again when they indicated that there is still a gap between the studies conducted on the positive and negative aspects of emotional intelligence.

Koman & Wolff (2008) mentioned the effect of individual emotional intelligence on team performance without explaining the nature of this effect. This study comes to test the negative relation between individual emotional intelligence and project team performance. In some cases, the high emotional intelligence of team member may lead to a negative impact on the overall performance of the team by putting other members in stressful situations by evading the completion of tasks and delegating it to other individuals, which may lead to a decline in the work quality and performance, on the other cases, its impact can be positive through facilitating other members works. Accordingly, the following hypothesis has concluded:

Hypothesis 4, b: *Individual EI has a significant **negative** effect on project team performance in software projects*

2.5.4. Individual Performance and Project Team Performance

Mostly, project teams are composed to accomplish tasks that a single individual can't accomplish. There should be a designer, developer, software engineer, quality engineer, software tester, and others in software projects, where tasks are distributed based on their knowledge and

experience. It is difficult for one person to perform all tasks because no one can have experience in all fields. So, the team effectiveness concept had demonstrated when a group of individuals works interdependently within a team to successfully achieve the goals they are working for (Marks et al., 2001). Furthermore, other researchers found that an individual's experience level has a significant role in team performance, especially those who work in critical roles (Bonner et al., 2016). Besides, (Turnquest, 2018) indicates that team members' contributions greatly influence team performance, where a team is referred to as effective if the team members are competent. Also, Turnquest (2018) study concludes that the correlation between individual performance and team performance is significant. Accordingly, the following hypothesis has concluded:

Hypothesis 5: *Individual performance has a significant **positive** effect on project team performance in software projects.*

2.6. Chapter Summary:

Based on a literature review about the relationship between conflict types and performance in the multilevel, the previous research doesn't contribute the emotional intelligence as a mediator in these relations. Literature's focus was more on construction teams and individuals than on software teams and individuals. This research revealed the significance of emotional intelligence in the relationship between conflict and performance in teams and individual software industry levels.

CHAPTER THREE

METHODOLOGY

3.1. Chapter Overview:

This chapter aims to present the method used by this study and determine the research philosophy and approach. It also defines the construct measurements, survey instruments, pilot study results, and survey respondents' analyses. Besides, it shows the population and sample of the study, then the analysis techniques, and final chapter summary.

3.2. Research Philosophies:

Indeed, research philosophy has significant connections. For instance, research philosophy helps the researcher determine the research strategy and understand collected data (Iovino & Tsitsianis, 2020). Saunders et al. (2009) define the research onion that shown four main research philosophies: positivism, realism, interpretivism, and pragmatism.

3.2.1. Positivism Philosophy

Positivism or traditional philosophy uses a deductive or theory-testing methodology (Raddon, 2010), it was "developed during the enlightenment in the eighteenth century when rational thought and reason replaced religion and faith to explain phenomena" (Petty et al., 2012 p. 270). The ontological-stance for positivism describe by objective ontology (Assalahi, 2015). Positivism assumptions are also called positivist/post-positivist research, empirical science, post-positivism, scientific research, and scientific research. These assumptions hold more for quantitative than

qualitative research (Creswell & Creswell, 2018). That's why positivism researchers consider objective reality and knowledge as observable and measurable (Abu-Alhaija, 2019). Based on the existing theory, the hypotheses were developed, which will be tested and take advantage of its results to contribute theory that can be tested and generate new research on the topic (Iovino & Tsitsianis, 2020; Saunders et al., 2009).

3.2.2. Realism Philosophy

Realism or Factualism is another type of research philosophy associated with scientific inquiry (Saunders et al., 2009). This philosophy is analogous to positivism philosophy in terms of creating new knowledge depend on the actual theory. Realism philosophy doesn't hold any assumptions; it depends on the real and actual rule (Iovino & Tsitsianis, 2020). It has two forms, direct realism, and critical realism. In the view of the direct realist, the word is relatively unchanging. Still, from the critical realist view, the researcher's comprehension of the being conducted study may change at every study level (Iovino & Tsitsianis, 2020).

3.2.3. Interpretivism Philosophy

Interpretivism or subjective philosophy is determined by Saunders et al. (2009) as a theory of knowledge that supports the researcher's need to realize differences between us as humans and our roles as social actors. It has also called anti-positivism because it is the definitive opposite view of the positivism paradigm (Iovino & Tsitsianis, 2020). Interpretivism underpins qualitative studies that use inductive thinking strategies (Abu-

Alhaija, 2019). In interpretivism, researchers may use their own or their participants' data such as stories, experiences, and thoughts to build theories (Petty et al., 2012).

3.2.4. Pragmatism Philosophy

Pragmatism or Actionism is the last one of philosophy types that do not recognize a single way of interpreting and undertaking research but argues that there are many ways for this. That's true because it is hard to know the truth and see the full picture by relying on one perspective rather than all views (Iovino & Tsitsianis, 2020). This philosophy determines a worldview that emerges from situations, actions, and consequences instead of preceding conditions (Creswell & Creswell, 2018). Pragmatism considers the research question the most crucial determinant of the research philosophy (Saunders et al., 2009). It also focuses on the research problem by analyzed and comprehend it using all available approaches (Creswell & Creswell, 2018).

Hence, this study uses the positivism philosophy to examining performance in two levels, project teams, and individuals, through quantitative methods because this method fits best with the research questions that have classified as explanatory research questions

3.3. Research Approaches:

Three research approaches are advanced by (Creswell & Creswell, 2018), include a quantitative approach, a qualitative approach, and a mixed approach.

3.3.1. Quantitative Approach

The quantitative approach has used to test hypotheses and examine the relationships between variables through statistical techniques (Creswell & Creswell, 2018). This approach uses a quantitative method for collecting data, for instance, questionnaires. It also used quantitative data analysis techniques, for example, graphs, figures, and statistical tables with numerical data using statistical and hypothesis testing software (Saunders et al., 2009). The quantitative approach supports the deduction methodology style that moves from general to practical, starting at first from theory, then deriving hypotheses from it, testing those hypotheses, and revising it (Woiceshyn & Daellenbach, 2018).

3.3.2. Qualitative Approach

This approach is associated with social or human research and supports the induction methodology style moving from particular to general (Woiceshyn & Daellenbach, 2018). The qualitative approach is beneficial in the case of not knowing the main variables to examine. Meanwhile, it had used when the research topic was new and never studied with a specific sample (Creswell & Creswell, 2018). This approach used a qualitative data collection technique and data analysis methods, such as interviews and categorizing data, using numerical data (Saunders et al., 2009).

3.3.3. Mixed Approach

The mixed approach critical assumption integrates induction and deduction styles (abductive style) (Woiceshyn & Daellenbach, 2018). It had

determined as a method that may both test theories and generate them. Therefore, it involves collecting both quantitative and qualitative data. That's why it displays additional insight from quantitative or qualitative approaches alone (Creswell & Creswell, 2018).

Hence, this study follows the quantitative approach to examining performance in two levels, project teams and individuals, through testing hypotheses and examining the relationships between variables using the deductive method. This method fits best with the research questions classified as explanatory research questions.

3.4.   Measurement of the Model Constructs:

As mentioned in chapter 2 and the theoretical model in chapter 1, this study aims to measures six constructs include: relationship conflict, task conflict, team emotional intelligence, individual emotional intelligence, project team performance, and individual performance. This section describes the measures used.

3.4.1. Measurements of Relationship Conflicts

To measure the relationship conflict, Yang (2020) and Rousseau et al. (2018) used the four-item scale developed by Jehn (1995) to measure the degree of relationship conflict between team members. This study followed previous research and used Jehn's (1995) four-item scale, including personal friction, personality conflicts, tension, and emotional conflict.

3.4.2. Measurements of Task Conflict

Previous research, such as Kammerhoff et al. (2019), used Jehn's (1995) scale to measure the degree of task conflict. Also, You et al. (2019) used four items depending on the studies of Schaeffner et al. (2015) and G. Wu et al. (2017) to measure task conflicts. This study also used Jehn's (1995) measure to include disagreements about how doing work, ideas, individuals' work, proposed solutions, and differences of opinion (G. Lee et al., 2017; You et al., 2019).

3.4.3. Measurements of Team Emotional Intelligence

Figure 3.1 shows Jordan & Lawrence's (2009) measures of team emotional intelligence used in this study, include First, awareness of own emotions (AWR), which means the ability to discuss and discover feelings. Second, awareness of others' emotions (AWRO) reflects the capability to read faces and body language. Third, the management of their own emotions (MGT) refers to the ability to delay or withhold intense emotional reactions. And finally, management of others' emotions (MGTO) involves the ability to influence others' emotions positively (Dunaway, 2013).

4

Dimensions of team
emotional intelligence

- AWR
- AWRO
- MGT
- MGTO
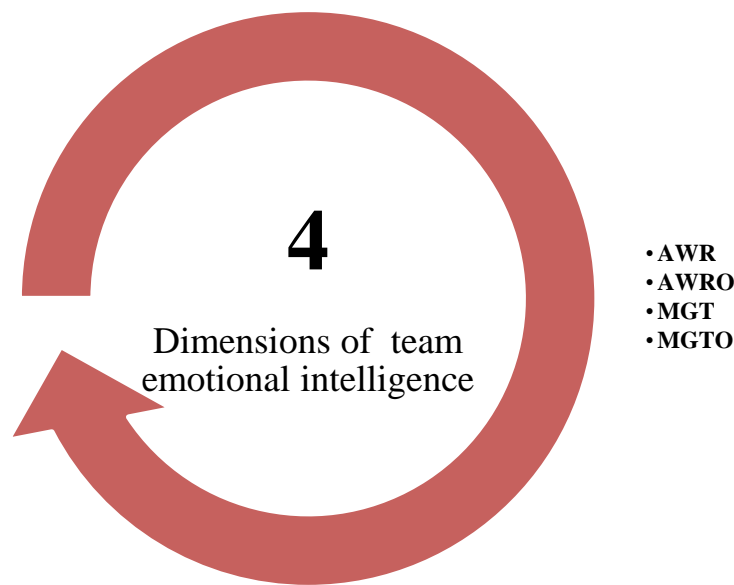
Figure 3.1: Dimensions of project team emotional intelligence**.**

First Dimension: Awareness of Own Emotions (AWR)

Awareness of our own emotions refers to the ability to be in touch with our
momentary feelings (Pennebaker & Martha, 1996). Awareness of own
emotions can be measured by asking a person to think of the ability to
handle, explain, and reveal his feelings (Jordan & Lawrence, 2009). Where
people with high emotional self-awareness may have moderate emotional
reactions in response to acute emotional situations. Thus, their
communication with other team colleagues has done effectively (Wolff et
al., 2002).

Second Dimension: Awareness of Others' Emotions (AWRO)

Awareness of others' emotions refers to the ability to detect emotions
forged through the ability to understand others' body language (Meijer,
1989) and facial expression (Ekman, 1971), which provides accurate

information to evaluate their emotions (Jordan & Lawrence, 2009). Literature finds that a team's ability to realize the members' feelings significantly influenced team performance and cohesiveness (Elfenbein et al., 2007).

Third Dimension: Management of Own Emotions (MGT)

Management of own emotions (self-regulation of emotions) determines a key predictor for team performance for a short-term problem-solving situation (Jordan & Troth, 2004). It refers to the ability to show or hide an emotion that relies on its advantages in a given situation. In other words, the ability to control your reactions means that you must think before act in any situation (Jordan & Lawrence, 2009).

Fourth Dimension: Management of Others' Emotions (MGTO)

Management of others' emotions determines a controversial project team performance (Jordan & Lawrence, 2009). It refers to the ability to utilize emotional contagion to promote the teams with whom they work (Kelly & Barsade, 2001)and maintain a healthy and positive work environment and relationships. So, the emotions of team members should be managed optimally (Jordan & Lawrence, 2009).

3.4.4. Measurements of Individual Emotional Intelligence

After the Goleman model appears (Cherniss & Goleman, 2001), some researchers utilize the model to assess individual emotional intelligence through two groups of factors. The first group is personal competence, including self-awareness and self-management, and the second group is

social competence, including social awareness and relationship management (Ahmad, 2017; Basu & Mermillod, 2011; Njoroge & Yazdanifard, 2014; Shooshtarian et al., 2013). Moreover, as mentioned by (Prentice, 2019), Brackett and Mayer (2003) developed a self-report emotional intelligence scale (WEIS), which is a similar measure that has been cross-validated with high reliability and validity. This measure has four dimensions: self-emotion appraisal, other-emotion appraisal, utilization of emotion, and emotion regulation. Furthermore, this study used four dimensions mixed from the two mentioned models, as shown in Figure 3.2, where each dimension has four items.
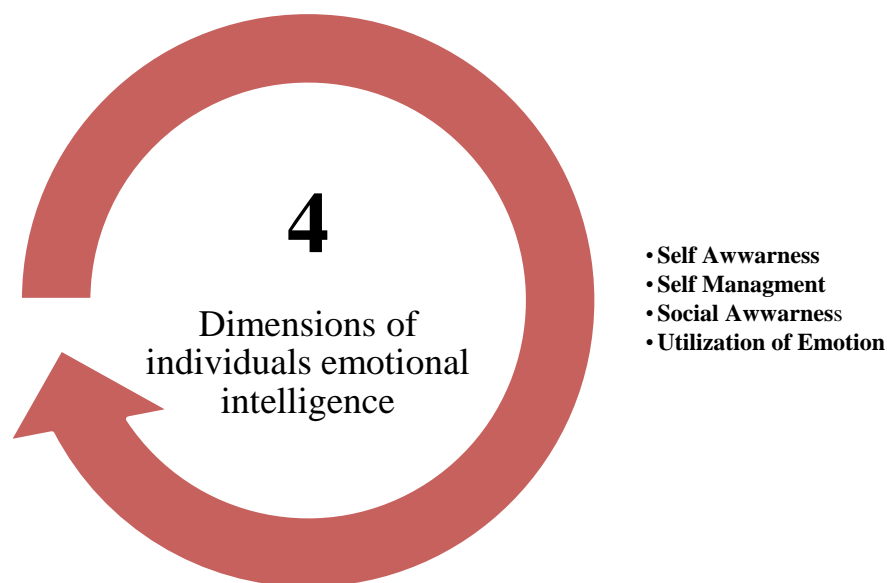
Figure 3.2: Dimensions of individuals' emotional intelligence.

First Dimension: Self-Awareness

Self- Awareness represents the key to realizing one's strengths and weaknesses. It consists of three components: emotional self-awareness, accurate self-assessment, and self-confidence (Cherniss & Goleman, 2001).

Second Dimension: Self-Management

Self- Management represents understanding and regulating one's own emotions (Siu, 2009), leading to a high ability to deal with minimum stress problems (Dhingra & Punia, 2016). It consists of six components: emotional self-control, trustworthiness, conscientiousness, adaptability, achievement drive, and initiative (Cherniss & Goleman, 2001).

Third Dimension: Social-Awareness

Social awareness points to having the ability to understand and sensitive to the thoughts, feelings, and status of others around us (Lunenburg, 2011). It consists of three components: empathy, service orientation, and organizational awareness (Cherniss & Goleman, 2001).

Fourth Dimension: Utilization of Emotion

The utilization of emotion points to the measures of the self-perceived tendency to motivate self to reinforce and increase performance (Kafetsios et al., 2011; Psilopanagioti et al., 2012)

3.4.5. Measurements of Project Team Performance

The literature reviewed that there are different ways and factors used to measure team performance. For instance, Johnson et al. (2011) measure

team outcomes by team characteristics, communication, barriers, trust, shared leadership, team leaders, style diversity, self-assessment, roles, social skills, untangling a team, common mistakes, managing stress, listening skills, establishing an encouraging environment, team problem solving, and dealing with issues. Where Sudhakar et al. (2011) found that software development team performance affects by team climate, team diversity, team innovation, team member competencies and characteristics, top management support, and team leader behavior. Indeed, there is a lot of other factors affecting project team performance. Figure 3.3 below represents the metrics that were used in this study to measure project team performance.

Figure 3.3: Project team performance measures.

3.4.6. Measurements of Individual Performance

The literature reviewed the different ways and factors used to measure individual performance. A few popular forms of assessing individual performance metrics outlined by the Houston Chronicle include regular evaluations, productivity tests, 360-degree feedback, and management by objectives. That's a lot to consider, but there are options out there that can help along. e.g., tools like WIRL and 7Geese aim to extend feedback and associate team members to get their goals (CMI, 2009). For instance, Chiniara & Bentein (2016) measure individual performance in terms of six items: quality of work, quantity of work, problem-solving speed, initiatives, the capability to complete work on time, and overall performance. Also, attendance, helpfulness, efficiency, initiative, and quality can measure individual performance (CMI, 2009; Pinter et al., 2017; Pinter & Čisar, 2018). Figure 3.4 represents the metrics that were used in this study to measure an individual's performance.
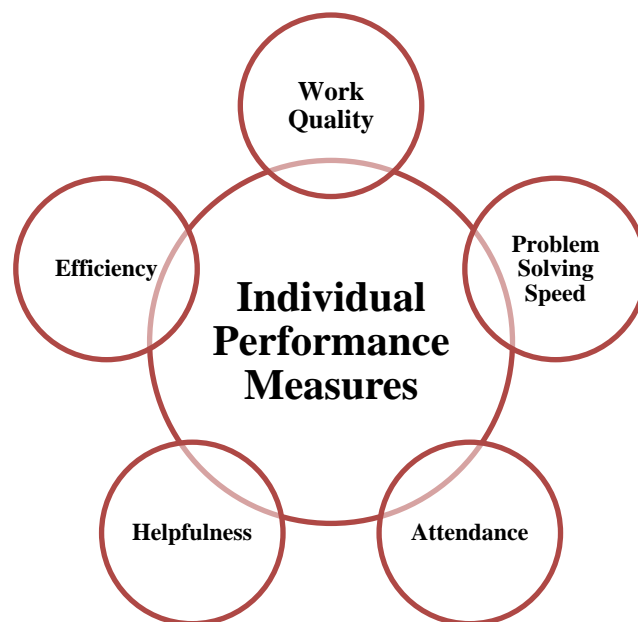
Figure 3.4: Individual performance measures.

3.4.7. The Model Operationalization

Table.3.1 shows the operationalization of the six constructs and theoretical framework determined by researchers, include: relationship conflict (four indicators), task conflict (five indicators), team emotional intelligence (four dimensions with four indicators for each), individual emotional intelligence (four dimensions with four, three, four, and three indicators, respectively.), team performance (seven indicators) and individual performance (six indicators).

Table.3.1. Operationalization Model

Constructs	Indicators	References
Relationship conflict	RC_1	(Jehn, 1995; Li et al., 2019; Rousseau et al., 2018; Yang, 2020; You et al., 2019)
	RC_2	(Jehn, 1995; Kammerhoff et al., 2019; Li et al., 2019; Rousseau et al., 2018; Yang, 2020; You et al., 2019)
	RC_3	(Jehn, 1995; Kammerhoff et al., 2019; Li et al., 2019; Rousseau et al., 2018; Yang, 2020; You et al., 2019)
	RC_4	(Jehn, 1995; Li et al., 2019; Rousseau et al., 2018; Yang, 2020; You et al., 2019)
Task conflicts	TC_1	(Jehn, 1995; Kammerhoff et al., 2019; Kollmann et al., 2019; You et al., 2019)
	TC_2	(Jehn, 1995; Kollmann et al., 2019; Li et al., 2019; Mitchell et al., 2019)
	TC_3	(Jehn, 1995; Kollmann et al., 2019; You et al., 2019)
	TC_4	(Jehn, 1995; Kollmann et al., 2019; G. Lee et al., 2017; Li et al., 2019; Mitchell et al., 2019)
	TC_5	(G. Lee et al., 2017; You et al., 2019)

| Team EI	**AWR**	(Barczak et al., 2010; Dunaway, 2013; Jordan & Lawrence, 2009)
	TEI_1	
	TEI_2	
	TEI_3	
	TEI_4	
	AWRO	(Barczak et al., 2010; Dunaway, 2013; Jordan & Lawrence, 2009)
	TEI_5	
	TEI_6	
	TEI_7	
	TEI_8	
	MGT	(Barczak et al., 2010; Dunaway, 2013; Jordan & Lawrence, 2009)
	TEI_9	
	TEI_10	
	TEI_11	
	TEI_12	
	MGTO	(Barczak et al., 2010; Dunaway, 2013; Jordan & Lawrence, 2009)
	TEI_13	
	TEI_14	
	TEI_15	
	TEI_16	
Individual EI	**Self-awareness**	(Ahmad, 2017; Basu & Mermillod, 2011; Njoroge & Yazdanifard, 2014; Prentice, 2019; Shooshtarian et al., 2013)
	IEI_1	
	IEI_2	

	IEI_3	
	IEI_4	
	Self-management	(Ahmad, 2017; Basu & Mermillod, 2011; Njoroge & Yazdanifard, 2014; Prentice, 2019; Shooshtarian et al., 2013)
	IEI_5	
	IEI_6	
	IEI_7	
	Social awareness	(Ahmad, 2017; Basu & Mermillod, 2011; Njoroge & Yazdanifard, 2014; Prentice, 2019; Shooshtarian et al., 2013)
	IEI_8	
	IEI_9	
	IEI_10	
	IEI_11	
	Utilization of emotions	(Prentice, 2019)
	IEI_12	
	IEI_13	
	IEI14	
Project team performance	PTP_1	(Acuña et al., 2008; Ganesh & Gupta, 2006; Sudhakar et al., 2011)
	PTP_2	(Acuña et al., 2008; Sudhakar et al., 2011)
	PTP_3	(Sawyer, 2001; Sudhakar et al., 2011)
	PTP_4	(Sawyer, 2001; Sudhakar et al., 2011)
	PTP_5	(Acuña et al., 2008; Assaf et al., 2014; Johnson et al., 2011; Sudhakar et al., 2011)
	PTP_6	(Ong et al., 2005; Sudhakar et al., 2011)

	PTP_7	(Sridhar et al., 2008; Sudhakar et al., 2011)
Individual performance	IP_1	(Chiniara & Bentein, 2016; Pinter et al., 2017; Pinter & Čisar, 2018)
	IP_2	(Chiniara & Bentein, 2016)
	IP_3	(Chiniara & Bentein, 2016; Pinter et al., 2017; Pinter & Čisar, 2018)
	IP_4	(Pinter et al., 2017; Pinter & Čisar, 2018)
	IP_5	(Pinter et al., 2017; Pinter & Čisar, 2018)
	IP_6	(Chiniara & Bentein, 2016; Pinter et al., 2017; Pinter & Čisar, 2018)

3.5. Survey Instrument:

This study depended on a closed and structured questionnaire divided into seven sections with 60 questions, as shown in Figure 3.5. The first section concerned respondents' demographic information includes gender, age, academic degree, educational background, position, years of experience, project size, and team size. This section allows the respondent to answer the questions by choosing one of the suggested options. The other six sections took the six variables presented in the model: relationship conflict, task conflict, team emotional intelligence, individual emotional intelligence, team performance, and individual performance. The six sections allow the respondent to answer by choosing one choice from a five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) to assess the variables. The respondent's answer depends on taking a finished project that the respondent recently worked on it. The questionnaire has designed after reviewing other surveys from the literature

related to the study topic, then displaying it on experts and taking feedback. The final version of the questionnaire consists of the following:
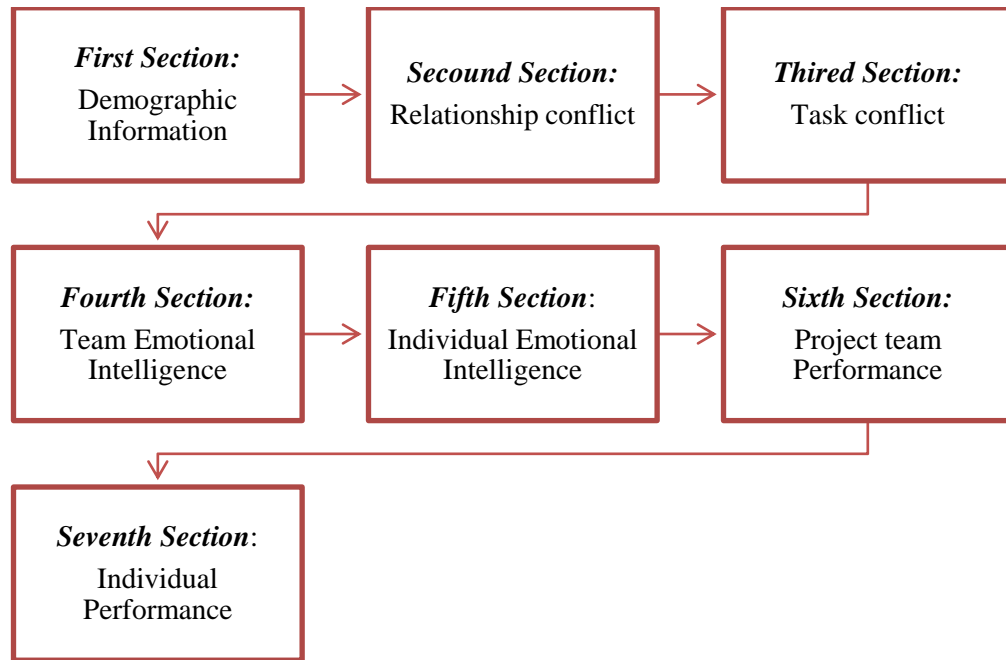
Figure 3.5: Questionnaire outline.

The first section is demographic information, consisting of eight questions that aim to collect general information about software projects and employees. The collected data includes gender, age, academic degree, educational background, position, years of experience, projects, and team size. The collected data consists of the software project's size and the team's size responsible for this project. While the second section is relationship conflict, which aims to measure the level of relations frictions in the same team, this section consists of four items in the questionnaire. The third section is task conflict, which aims to measure the level of disagreements about the task done by someone in the team; this section

consists of five items in the questionnaire. The fourth section is project team emotional intelligence, which aims to measure the team's level of emotional intelligence through the interaction between team members, the communication between them, and how they deal with problems; this section consists of four parts with four-item for each in the questionnaire. Moreover, the fourth section is individual emotional intelligence, which aims to measure the level of emotional intelligence for an individual on the team by evaluating the person's behaviors, how to deal with colleagues in different situations, and with own feelings and tasks. This section consists of four parts in the questionnaire, with three items for two and five items for others. Besides, the fifth section is a project team performance, which aims to measure the team's overall performance by assessing top management support of this team, supporting creative ideas for others, and trust between team members so that it has not been considered a disintegrating team. So, this section consists of seven items in the questionnaire. The final section is individual performance, which aims to measure a certain individual's performance by evaluating the capability to finish the work on time, quality of the work done, and sharing experiences and helping others, which avoid selfishly monopolizing expertise and experience. This section consists of six items in the questionnaire. Furthermore, at the end of the questionnaire, space has left to provide us with an email if the respondent wanted to obtain the study results. The final revision of the questionnaire has prepared in English (see Appendix A). In the next stage, the questionnaire was distributed online by organizations' e-

mails. As an electronic questionnaire established by Google form, the researcher attached an introductory letter to explain the research purpose and not publish the respondents' information. The process of collecting the data from the respondents spent one month.

3.6. The Population of the Study:

This study has conducted in the information technology sector in Palestine; the population of the study is software project firms in the West Bank licensed by the Palestinian central bureau of statistics (2017) as firms with computer programming activities. There were about 957 employees (N=957), where the unit of analysis in this study is the employees who worked on the software project.

3.7. Sample Design and Size:

In this part, the research determines how many participants are really required (and can feasibly obtain). This sample needs to represent the target population that had planned to examine. Nowadays, researchers use various software programs and websites to calculate the sample size, such as the G*Power, survey system, and survey monkeys.

Firstly, this study used the published table by (Cohen, 1992) to determine the minimum statistically appropriate sample size for Smart Pls in line with the study model (see Appendix B). The maximum number of independent variables in the model is seven, include one arrow on relationship conflict, one on task conflict, two on team emotional intelligence, two on individual emotional intelligence, and one on individual performance. These variables

need at least **137** responses to achieve a statistical power of 80% for detecting R2 values of at least 0.10 (with a 5% probability of error), as shown in table.3.2.

Secondly, this study used Thompson's formula (2012) to ensure that the study sample was representative of the study population, the statistical approach.

$$n = \frac{N * P(1 - P)}{\left[(N - 1) * \left(\frac{d^2}{z^2}\right)\right] + P(1 - P)}$$

Where:

n= sample size.

N= population size (957 firms).

P= proportion of the property offers and neutral (50%).

d= error proportion (0.05).

z= confidence level at 95% (1.96).

The result from the Thompson equation shows that more than 274 responses need to complete the survey.

In this study, the random sampling method was ineffective in collecting data from the study sample due to the inability to obtain all employees' names or codes to give an identification number for each of them and then choose the random sample through a tool such as excel. Therefore, this study used the comprehensive census approach to overcome the random

sample problem by corresponding with all firms within the software industry via e-mail, which in turn distributed the online questionnaire to its employees. Although the response rate through e-mail was low (Saleh & Bista, 2017; Van Mol, 2017), it exceeded the minimum sample size and thus was suitable for this study. Two hundred seventy-five (275) questionnaires had obtained, and all of them are valid.

3.8. Data Collection:

This study used a combination of primary and secondary data sources used. The primary data source was the questionnaire, where respondents were restricted to answer options provided by the researcher. Otherwise, the secondary data source was books, literature, brochures, and PIPA.

3.9. Internal Reliability and Validity of the Questionnaire:

There are two measures to evaluate the quality of the study result: internal reliability and internal validity.

The reliability test is the first measure used to evaluate the quality of the study. It relates to the extent of measurement provides a stable and consistent result. This test is also concerned with repeatability, which means that test is reliable if repeat measurement under constant conditions will give the same result (Taherdoost, 2016). Where the internal validity determines as the second measure used to evaluate the quality of the study results (J. Hair et al., 2016), it refers to the explanation of how well the collected data meet the actual area of investigation and to which extent measure what intended to be measured (Taherdoost, 2016).

3.9.1. The Results of the Pre-Test

The pre-test had determined as a significant point of the development of the questionnaire. It aims to confirm that the target population understands the researcher's questions and response options. The research recommended that the default sample size in the pre-test of questionnaires be 30 respondents (Perneger et al., 2015).

This study's questionnaire was presented to academic experts to identify the problems, such as incomprehensible words, unclear questions, etc. The researcher took the experts' feedback regarding the questionnaire and made adjustments based on their comments. After that, a pilot test conducted on a sample of 30 employees working in the software industry in Palestine, where the results showed that the Cronbach's alpha value for all contracts was exceeding 0.85 (accepted value should be above 0.070) (J. Hair et al., 2016) , which explains that the validity of the questionnaire was confirmed and measured the proposed model.

3.9.2. Analysis of Survey Response

After completing the distributing of online questionnaires and collecting data from Palestinian software industry employees. The final data set of 275 respondents, where the effective response rate was 28.7%, the respondents' profile illustrated in Table 3.3., indicating their gender, age, academic degree, educational background, and position. This study's respondents include that 76% (n=209) of study respondents were males, while 24% (n=66) were females; this indicates that the number of

respondents males in this study almost three times the number of females. In the term of age classification, the profile of the study respondents divided the study sample into five categories according to their age, 29.5% (n=81) are between 20 and 25 years old, 42.2% (n=116) are between 25 and 30 years old, 17.1% (n=47) are between 30 and 35 years old, 7.3% (n=20) are between 35 and 40 years old, and 4% (n=11) are more than 40 years old. Most of the study respondents, about 71.7% (n=197), are between 20 and 30 years old, which indicates the software and information technology sector in Palestine was seriously concerned with recruiting youth. Moreover, in terms of academic degree, the majority of the study respondents, 88.7% (n= 244), hold a bachelor's degree, 10.9% (n=30) have a master's degree, and less than 0.4% (n=1) have a Ph.D. degree. In term of educational background, it is evident that 47.6% (n=131) of respondents have academic qualifications in computer engineering, 28% (n=77) have academic qualifications in computer science, 13.8% (n=38) have academic qualifications in software engineering, 5.5% (n=15) have academic qualifications in the computer information system, and the other 5.1% (n=14) distributed to different academic qualifications such as sound engineering, industrial engineering, electrical engineering, mechatronics engineering, telecommunications engineering, mechanical engineering, business administration, management information system, web and multimedia technology, architecture, and mathematics and teaching methods.

Furthermore, this study includes employees working in 33 various positions and levels in software projects, where 4% (n=11) are engineering project manager/ engineering manager, 12.4% (n=34) are technical/ engineering/ team lead, 23.3% (n=64) are senior software engineer, 13.7% (n=37) are senior software developer, 16% (n=44) are junior software engineer, 11.6% (n=32) are junior software developer, 5.1% (n=14) are quality testing officer, 1.8% (n=5) and 1.8% (n=5) for each intern software developer and software testing officer, and the final 10.3% (n=29) are distributed between 24 others positions listed in Table 3.2. Out of 275 respondents, about 8.4% (n=23) of the respondents are fresh graduates, 26.9% (n=74) have one to less than three years of experience, a majority of the study respondents, about 32% (n=88) have three to less than six years of experience, 14.9% (n=41) have six to less than nine years of experience, and 17.8 (n=49) have more than nine years of experience.

Table 3.2: Other positions held by study respondents.

#	Positions	#	Positions	#	Positions
1.	Programmer Analyst	9.	Junior System Administrator	17.	RMA Service Controller
2.	Web Developer	10.	Data Engineer	18.	Mid-Level Software Engineer
3.	Data Science & AI Engineer	11.	Project Manager Team Lead	19.	Design Verification Engineer
4.	Middle Integration Development	12.	Senior CRM Specialist	20.	DevOps Engineer
5.	Media Production	13.	Quality Assurance Engineer	21.	It Consultant And Systems Engineer

6.	Managing Director	14.	UI/UX Designer	22.	Android Developer
7.	Principal Lead Software Engineer	15.	It Audit Associate Manager	23.	Front End Engineer
8.	Senior Data Center Admin	16.	Full-Stack Developer		

In terms of project size, it also evident that most of the respondents in this study, about 48% and 43.3% (n=132, 119), answered the questionnaire based on medium-sized and large-sized projects; in comparison, 8.7% (n=24) answered the questionnaire based on small-sized projects. On the other hand, most of the respondents in this study, about 52% (n=143), worked with medium teams (five to ten) employees, while 30.5% (n=84) worked with small teams (two to four), and 17.5% (n=48) worked with large teams (11 to ∞).

Table 3.3: The profile of the study respondents.

Item	Options	N	Percentage (%)
Gender	Male	209	76%
	Female	66	24%
	Total	**275**	**100%**
Age	20 to less than 25	81	29.5%
	25 to less than 30	116	42.2%
	30 to less than 35	47	17.1%
	35 to less than 40	20	7.3%
	More than 40	11	4%
	Total	**275**	**100%**
Academic Degree	Bachelor's degree	244	88.7%

	Master's degree	30	10.9%
	Ph.D. degree	1	.4%
	Total	**275**	**100%**
Educational Background	Computer engineering	131	47.6%
	Computer science	77	28%
	Software engineering	38	13.8%
	Computer information system	15	5.5%
	Others	14	5.1%
	Total	**275**	**100%**
Positions	Engineering project manager/engineering manager	11	4%
	Technical/engineering/team lead	34	12.4%
	Senior software engineer	64	23.3%
	Senior software developer	37	13.7%
	Junior software engineer	44	16%
	Junior software developer	32	11.6%
	Quality testing officer	14	5.1%
	Intern software developer	5	1.8%
	Software testing officer	5	1.8%
	Others positions	29	10.3%
	Total	**275**	**100%**
Years of experience	Fresh graduate	23	8.4%
	One to less than three	74	26.9%
	Three to less than six	88	32%
	Six to less than nine	41	14.9%
	More than nine	49	17.8%
	Total	**275**	**100%**
Project size	Small	24	8.7%
	Medium	119	43.3%
	Large	132	48%

	Total	275	100%
Team size	Small	84	30.5%
	Medium	143	52%
	Large	48	17.5%
	Total	**275**	**100%**

3.10. Methodology of Analysis:

The statistical technique of partial least squares (PLS) has extensively used in the software development literature, for example, Açıkgöz & Günsel (2016), Campanelli et al., (2018), Lee & Chen (2019), and Lee et al. (2020). The study used Smart-PLS 3, version 3.3.2, using the PLS-SEM equation as a statistical tool to analyze quantitative data generated by the questionnaire as the primary method of data collection in the study and explore the relationships between constructs in the model. Analyses process using this tool include *assessment of the measurement model* that competent for the outer model by using two methods of validity: convergent and discriminant validity, and the *assessment of the structural model* that competent for the inner model by using four types of tests: the coefficient of determination (R^2), the blindfolding and predictive relevance (Q^2) the path coefficient (β values), and the path significant (p-value).

Moreover, this study used smart-PLS because of its capability to analyze up-normal distribution data, a sequence of relationships, complex models, and more effective to analyze mediating variables and indirect relationships so that it does not affect the estimation results (J. Hair et al., 2016; J. Hair, Sarstedt, et al., 2019; J. C. Lee & Chen, 2019).

3.11. Chapter Summary:

This chapter discussed the study's methodology and introduced the research philosophy, approaches, constructs measurements, survey instrument, the technique's validity, and study respondents profile. The chapter also displayed a way of collecting quantitative data from the study sample and showed the statistical techniques used for analyzing data.

CHAPTER FOUR

RESEARCH RESULTS AND ANALYSES

4.1. Chapter Overview:

This chapter aims to show the results of data analysis generated from the quantitative approach. The assessment of the study model by PLS-SEM had presented by reporting the key findings from the evaluation of the measurement model and the structural model.

4.2. Questionnaires Analysis

To validate our measures and test hypotheses, we used the quantitative data collected from the questionnaire. We used smart-PLS for the analysis of the questionnaire and the theoretical model, which consist of two main methodological elements, (1) assessment of the measurement model (outer model), and (2) assessment of structural model (inner model) (J. Hair et al., 2016).
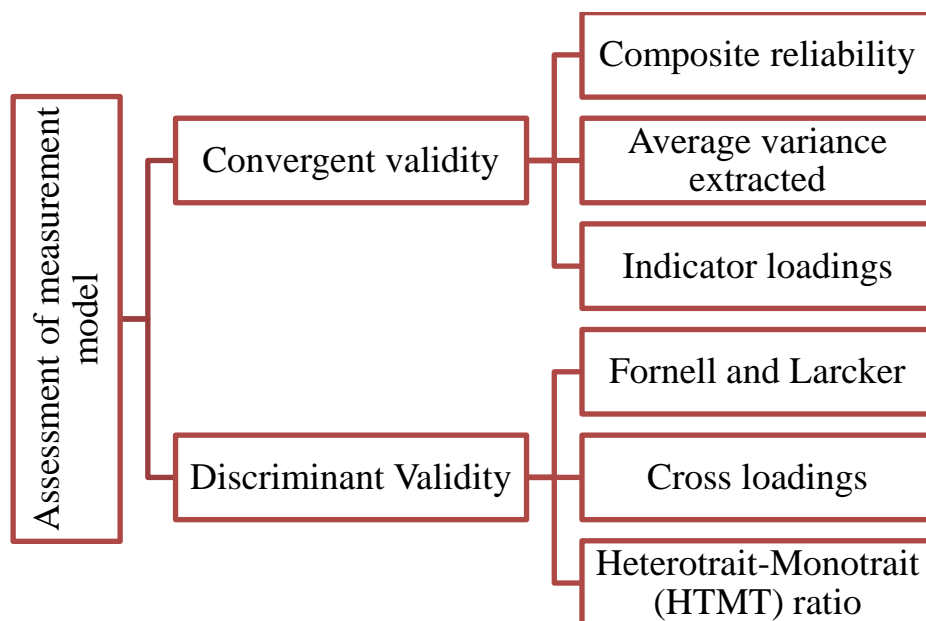
Figure 4.1. Assessment of measurement model

4.2.1. Assessment of Measurement Model

The systematic evaluation of the reflective measurement model can't be the same as the formative measurement model. Implementing the reflective measurement principle has two steps to empower the researcher to assess the construct measures' validity and reliability. The first validity analysis is convergent validity, which assigns the outer loading degree to measure the same contract. The second validity analysis is discriminant validity, which assigns the differentiation degree of contract items or measures if the contracts vary from each other. Figure 4.1. shows the measurement model tests.

4.2.1.1. Convergent Validity

Convergent validity has defined as the extent to which the measure converges positively with alternative measures (indicators) of the same variable (J. Hair, Risher, et al., 2019). Nonetheless, convergent validity has been as a method for demonstrating construct validity (Blau, 2001).

According to (J. Hair, Black, et al., 2019), the assessment of convergent validity in the reflective measurement model includes the conduction of three tests, composite reliability (CR) that indicates the internal consistency reliability, average variance extracted (AVE), and indicator loadings. Where internal consistency reliability and convergent validity concepts have a meaningful indication when used in the reflective model (J. F. Hair et al., 2011). All mentioned measurements to assess convergent validity are described as follows:

4.2.1.1.1. Internal Consistency Reliability Test

Reliability and validity are the main characteristics of all research, especially quantitative research, that persuasively used these two concepts (Cypress, 2017). Reliability determines the constructs' consistency in the model by testing the internal consistency reliability (J. Hair, Black, et al., 2019). In Smart-PLS, two reliability coefficients measured internal consistency reliability: Cronbach's alpha and composite reliability (J. F. Hair et al., 2017). The first method, Cronbach's alpha, is the traditional measure of internal consistency reliability (Kimberlin & Winterstein, 2008). Cronbach's alpha defines as a function of the average inter-correlations of indicator and the number of indicators in the construct (J. Hair et al., 2016). Researchers have criticized Cronbach's alpha due to underestimating the construct's true reliability (Dijkstra & Henseler, 2015; Peterson & Kim, 2013). While composite reliability is the other method of the internal consistency reliability (Dijkstra & Henseler, 2015), this measure is more adequate than Cronbach's alpha because of some reasons; composite reliability takes the indicators' differential weights into considerations, which in contrast to Cronbach's alpha that gives equal weights for the indicators (unweighted) (J. F. Hair et al., 2011), however, composite reliability value are little greater than Cronbach's alpha which overestimates the reliability of the construct (Dijkstra & Henseler, 2015; Peterson & Kim, 2013).

The recommended value of Cronbach's alpha and composite reliability is above 0.7 to less than 0.95 (J. Hair, Black, et al., 2019). As shown in Table

4.1, the Cronbach's alpha and composite reliability values for all constructs exceeded the minimum level of accepted value 0.7. Hence, this indicates that the results of the internal consistency of all constructs are confirmed. The reliability of the constructs in the model is consistent since the value of each construct is project team performance (0.756), (0835), individual performance (0.843), (0.885), relationship conflict (0.830), (0.886), task conflict (0.806), (0.842), team emotional intelligence (0.758), (0.832), and Individual emotional intelligence (0.819), (0.868), respectively.

Table 4.1: Results of reliability and validity analysis.

	R2	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Project team performance	0.512	0.756	0.835	0.506
Individual performance	0.298	0.843	0.885	0.565
Team emotional intelligence	0.110	0.758	0.832	0.454
Individual emotional intelligence	0.031	0.819	0.868	0.523
Relationship conflict		0.830	0.886	0.663
Task conflict		0.806	0.842	0.521

4.2.1.1.2. Average Variance Extracted (AVE) Test

The average variance extracted is one of the convergent validity measures, which refers to the average of the squared loadings of all indicators related to the construct. AVE implies the construct's degree to explain its indicators' variance (J. Hair, Black, et al., 2019). AVE's accepted value should be 0.50 and higher, which means that the construct explains 50% of this construct's indicators variance (J. F. Hair et al., 2011).

As shown in Table 4.1, the AVE for five out of six constructs exceeds the minimum level of accepted value 0.5. Hence, this indicates that AVE confirmed convergent validity for project team performance (0.506), individual performance (0.565), Individual emotional intelligence (0.523), relationship conflict (0.663), task conflict (0.521), and not confirms for team emotional intelligence (0.454) because AVE value is below the minimum value of an acceptable level.

4.2.1.1.3. Indicator Loadings Test

The indicator outer loading test is one of the convergent validity measures, which refers to the correlations between each indicator and its construct (J. Hair, Black, et al., 2019). The rule of thumb is that the indicator loading should be above 0.708. Where outer loading that lies between 0.4 and 0.7 should be eliminated from the construct only if removal will increase composite reliability or AVE to the accepted level. Also, all indicators with outer loadings less than 0.4 should be eliminated from the construct (J. Hair et al., 2016).

Tabachnick and Fidell (2014) pointed that the indicator loadings exceed 0.71 classified as excellent indicators, which indicate that the contract of these indicators explains 50% of its indicators variance, indicator loadings exceed 0.63 classified as very good indicators, which indicate that the contract of these indicators explains 40% of its indicators variance, indicator loadings exceed 0.55 classified as good indicators which indicate that the contract of these indicators explain 30% of its indicators variance, also indicator loadings that exceed 0.45 classified as fair indicators which indicate that the contract of these indicators explain 20% of its indicators variance, and finally indicator loadings that exceed 0.32 classified as poor indicators which indicate that the contract of these indicators explains 10% of its indicators variance. This approach left the choice of the cutoff for researcher preference. Table 4.2 shows the 32 indicators loadings for all contracts in the model after go ahead with Hair et al., (2016) technique and deletes all indicators with point estimation less than 0.4.

Table 4.2: Estimation of the outer model (i.e., Factor Loading)

	Outer loadings		
Questions	**Indicators**	**Point estimation**	**T-value**
Team members support each other for new ideas and new ways of working	PTP_1	0.762	24.516
There is a diversity of team member competencies and characteristics	PTP_2	0.562	7.002
Top management support employees to get the best performance, new ideas, and new ways of working	PTP_3	0.712	16.303

There is a mutual trust between team members and with top management	PTP_4	0.794	34.932
There is effective communication between team members	PTP_5	0.704	16.717
The team member does the work with a high level of quality	IP_1	0.708	11.892
The team member has the ability to solve problems fast	IP_2	0.788	25.438
The team member in your department has a spirit of initiative (ex: Ask what's needed and where they can help)	IP_3	0.742	20.105
The team member is accurate in appointments and is keen to be showing up and leave on time	IP_4	0.805	35.860
The team member tries to help others to do their work properly	IP_5	0.587	11.088
The team member has the ability to handle the limitations provided by the time and resources available	IP_6	0.851	54.781
There is a lot of personal friction among employees in my department	RC_1	0.856	34.703
There are a lot of personality conflicts/ clashes in my department	RC_2	0.814	20.775
There is a lot of tension/anger among employees in my department	RC_3	0.677	11.824
There is a lot of emotional conflict among department employees	RC_4	0.893	48.452
There are many disagreements/ conflict about how the work should be done	TC_1	0.568	3.226

There are frequently conflicts about ideas among department employees	TC_2	0.753	5.219
There is much conflict about the work that I do in my department	TC_3	0.743	4.888
There are a lot of differences of opinions among department employees	TC_4	0.613	3.542
There are many disagreements about the proposed solutions to the issue at hand	TC_5	0.889	4.459
I respect the opinion of team members, even if I think they are wrong.	TEI_1	0.649	10.162
When deciding on a dispute, I try to see all sides of a disagreement before I conclude.	TEI_2	0.701	14.616
I give a fair hearing to fellow team members' ideas.	TEI_3	0.755	24.785
I am able to cheer team members up when they are feeling down.	TEI_4	0.642	10.570
I can get fellow team members to share my keenness for a project.	TEI_5	0.623	10.751
I can provide the 'spark' to get fellow team members enthusiastic	TEI_6	0.664	13.723
I have a good understanding of my own emotions.	IEI_1	0.669	11.472
I really understand what I feel.	IEI_2	0.766	23.815
I have a good understanding of the emotions of the people around me.	IEI_3	0.671	10.978
I am a good observer of others' emotions.	IEI_4	0.715	13.714

I would always encourage myself to try my best.	IEI_5	0.701	10.240
I am a self-motivated person.	IEI_6	0.806	28.003

4.2.1.2. Discriminant Validity

Discriminant validity is an accepted prerequisite for determining the constructs' relationships (Jörg Henseler et al., 2015). It refers to the degree that the construct is extremely different from others in the model, while the construct is unique when it has high discriminant validity (J. Hair, Black, et al., 2019). Literature determines various measures for discriminant validity (J. Hair et al., 2016), such as the Fornell and Larcker criterion (Fornell & Larcker, 1981; J. Hair et al., 2016; J. F. Hair et al., 2017), cross-loadings (J. Hair et al., 2016), and the heterotrait-monotrait ratio of correlations (HTMT) (J. Hair et al., 2016; Jörg Henseler et al., 2015). All mentioned measurements to assess discriminant validity are used in this study and described as follows:

4.2.1.2.1. Fornell and Larcker Criterion

Fornell and Larcker criterion (1981) is the most commonly used test for evaluating discriminant validity (Ab Hamid et al., 2017; J. F. Hair et al., 2017) that compares the square root of the average variance extracted with the correlation of constructs in the model. Where the square root of AVE for each construct should exceed the correlations with other constructs in the model (Ab Hamid et al., 2017), which means that the construct should explain more of the variance of its indicator than the variance of other constructs (Hilkenmeier et al., 2020).

As shown in Table 4.3, the Fornell and Larcker test results indicate that the model constructs' discriminant validity is confirmed.

Table 4.3: Discriminant validity check Using Latent Variables Correlations

	IEI	IP	PTP	RC	TC	TEI
Individual EI	**0.723**					
Individual Performance	0.423	**0.752**				
Project Team Performance	0.429	0.670	**0.711**			
Relationship Conflict	-0.136	-0.439	-0.380	**0.814**		
Task Conflict	-0.175	-0.322	-0.289	0.596	**0.722**	
Team EI	0.492	0.508	0.546	-0.332	-0.292	**0.674**

4.2.1.2.2. Cross Loadings of Indicators

The second method for evaluating discriminant validity is indicators cross-loadings. It implies that the indicators loading on the associated construct should exceed its cross-loadings on other constructs in the model (J. Hair et al., 2016), which means that the correlation between indicators and its associated construct should be higher than its correlations with others in the model.

As shown in Table 4.4, the results indicate that cross loading values for all indicators on their associated construct greater than its correlations with others in the model mean that each construct's discriminant validity is acceptable.

Table 4.4: Discriminant validity - Cross Loading.

		IEI	IP	PTP	RC	TC	TEI
Individual Emotional Intelligence	IEI_1	**0.669**	0.301	0.256	-0.100	-0.172	0.331
	IEI_2	**0.766**	0.324	0.379	-0.169	-0.154	0.416
	IEI_3	**0.671**	0.256	0.295	-0.036	-0.100	0.319
	IEI_4	**0.715**	0.290	0.311	-0.099	-0.099	0.295
	IEI_5	**0.701**	0.237	0.212	-0.019	-0.052	0.258
	IEI_6	**0.806**	0.390	0.366	-0.124	-0.152	0.461
Individual Performance	IP_1	0.274	**0.708**	0.503	-0.337	-0.228	0.327
	IP_2	0.290	**0.788**	0.523	-0.353	-0.276	0.387
	IP_3	0.290	**0.742**	0.475	-0.240	-0.189	0.291
	IP_4	0.365	**0.805**	0.530	-0.338	-0.179	0.401
	IP_5	0.262	**0.587**	0.335	-0.224	-0.259	0.347
	IP_6	0.401	**0.851**	0.612	-0.442	-0.318	0.508
Project Team Performance	PTP_1	0.277	0.574	**0.762**	-0.293	-0.192	0.438
	PTP_2	0.355	0.318	**0.562**	-0.164	-0.112	0.351
	PTP_3	0.253	0.406	**0.712**	-0.311	-0.248	0.287

	PTP_4	0.380	0.611	**0.794**	-0.368	-0.287	0.477
	PTP_5	0.258	0.386	**0.704**	-0.169	-0.158	0.345
Relationship Conflict	**RC_1**	-0.074	-0.396	-0.311	**0.856**	0.493	-0.294
	RC_2	-0.146	-0.351	-0.291	**0.814**	0.515	-0.226
	RC_3	-0.012	-0.264	-0.208	**0.677**	0.331	-0.182
	RC_4	-0.177	-0.395	-0.390	**0.893**	0.565	-0.340
Task Conflict	**TC_1**	-0.025	-0.160	-0.132	0.413	**0.568**	-0.095
	TC_2	-0.088	-0.298	-0.190	0.493	**0.753**	-0.221
	TC_3	-0.085	-0.314	-0.263	0.462	**0.743**	-0.222
	TC_4	-0.054	-0.128	-0.140	0.368	**0.613**	-0.072
	TC_5	-0.213	-0.253	-0.261	0.494	**0.889**	-0.293
Team Emotional intelligence	**TEI_1**	0.316	0.340	0.354	-0.234	-0.209	**0.649**
	TEI_2	0.302	0.339	0.358	-0.232	-0.181	**0.701**
	TEI_3	0.407	0.374	0.467	-0.128	-0.199	**0.755**
	TEI_4	0.350	0.292	0.302	-0.255	-0.197	**0.642**
	TEI_5	0.307	0.368	0.415	-0.241	-0.191	**0.623**
	TEI_6	0.301	0.330	0.280	-0.266	-0.206	**0.664**

4.2.1.2.3. Heterotrait-Monotrait (HTMT) Ratio of Correlation

The heterotrait-monotrait ratio (Jörg Henseler et al., 2015) is a new method for evaluating discriminant validity. Besides, the HTMT measure can obtain higher specificity and sensitivity rates (97% to 99%) while cross-loadings criterion measure (0.00%) and Fornell-Lacker measure (20.82%) (Ab Hamid et al., 2017). It is defined the average value of the indicator correlations across constructs comparative to the average correlations for the indicators within the same construct (i.e., the heterotrait-heteromethod correlations relative to the monotrait-heteromethod correlations) (J. Hair, Risher, et al., 2019). The accepted value of HTMT should be less than 0.85 (Kline, 2011) or less than 0.90 (Ab Hamid et al., 2017). If the value exceeds this threshold, this will indicate a lack of discriminant validity. Table 4.5 shows all HTMT values greater than 0 and less than (0.85 and 0.90). Hence, this indicates that there is discriminant validity.

Table 4.5: Heterotrait-Monotrait Ratio of Correlations (HTMT)

	IEI	IP	PTP	RC	TC	TEI
Individual EI						
Individual Performance	0.495					
Project Team Performance	0.532	0.802				
Relationship Conflict	0.174	0.507	0.449			
Task Conflict	0.150	0.377	0.331	0.718		
Team EI	0.606	0.627	0.696	0.409	0.308	

After explaining all results of evaluating the measurement model, Figure 4.2 shows the conducted research model.
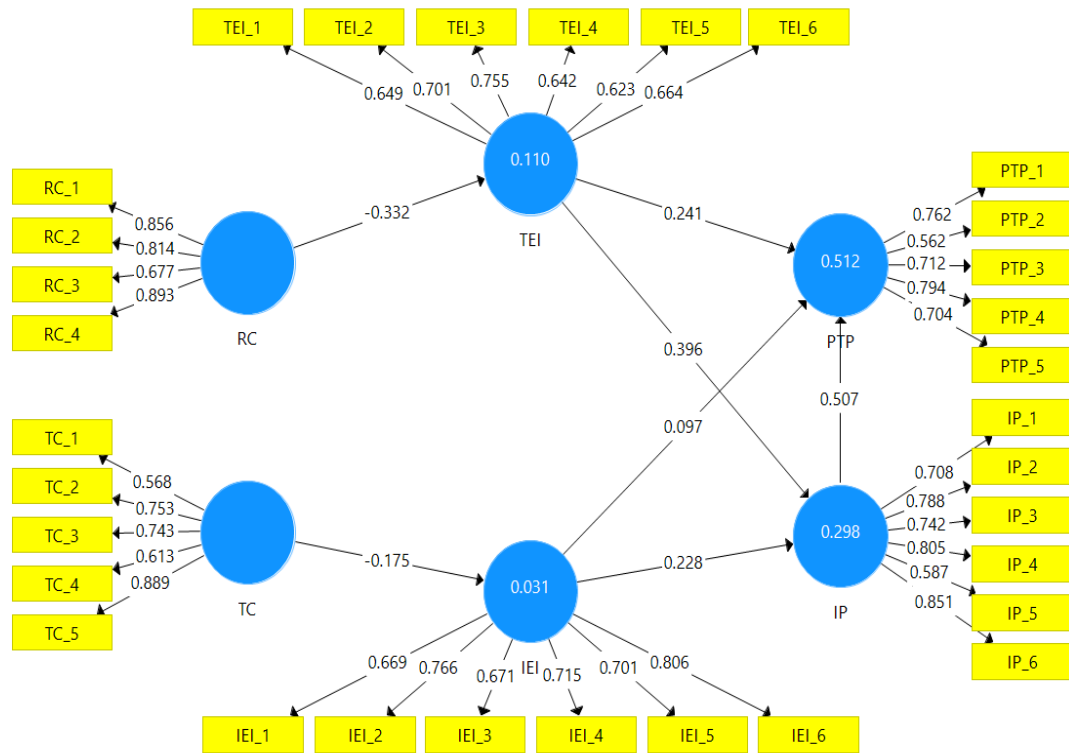
Figure 4.2. PLS path modeling estimation of the research model.

4.2.2. Assessment of Structural Models

After we have ensured the reliability and validity of the measurement model, we move to the next step: assessing the structural model. This step includes testing the model's predictive capabilities and the relationships between the model's constructs (J. Hair et al., 2016). Meanwhile, to evaluate the structural model, four tests are conducted in this study, including the coefficient of determination (R^2), the blindfolding and predictive relevance (Q^2), the path coefficient (β values), and the path significance (p-value).

4.2.2.1. Coefficient of Determination (R^2 Value)

The coefficient of determination or the multiple correlation coefficient (R^2) (Nagelkerke, 1991), is a widely used measure to assess the structural model. The coefficient of determination refers to the variance in the endogenous construct (actual) explained by the predictor constructs. It is used to predict the accuracy of the model. The accepted value of the coefficient of determination ranges from zero to one, where the higher levels of Coefficient R^2 indicate higher levels of predictive accuracy (J. Hair et al., 2016). Some researchers classify the accepted value of coefficient R^2 as substantial (0.67), moderate (0.33), and weak (0.19) (Jorg Henseler et al., 2009). And some latest research used similar classification with different coefficient R^2 values for each as high (0.75), moderate (0.50), and weak (0.25) (J. Hair, Black, et al., 2019; J. F. Hair et al., 2011).

Table 4.1 and Figure 4.2 implies the medium coefficient of determination R^2 equal to (0.512) on project team performance, which means that 51.2% of the variance in the project team performance can be explained by predictor constructs in the model (relationship conflict, task conflict, team emotional intelligence, individual emotional intelligence, and individual performance), that determined as a significant degree of explained variance of project team performance by latent constructs, (0.298) on Individual performance, which means that 29.8% of the variance in the Individual performance can be explained by (relationship conflict, task conflict, team emotional intelligence, and individual emotional intelligence), also (0.110) on team emotional intelligence, which means that 11% of the variance in team emotional intelligence can be explained by relationship conflict, and finally (0.031) on Individual emotional intelligence, which means that 3%

of the variance in Individual emotional intelligence can be explained by task conflict.

4.2.2.2. Blindfolding and Predictive Relevance (Q^2)

Additionally, to assess the magnitude of the R^2 values as a measure of predictive accuracy, researchers should also examine Stone-Geisser (Q^2) value. This measure is based on the blindfolding criteria that eliminate single points in the data matrix, imputes the eliminated points with the mean, and estimates the model parameters (Rigdon, 2014). The accepted value of Q^2 should exceed zero to indicate that the endogenous construct has predictive accuracy of the structural model for that construct (J. Hair, Risher, et al., 2019).

As shown in Table 4.6, the construct cross-validated redundancy value Q^2 for individual emotional intelligence (0.013), individual performance (0.160), project team performance (0.244), and team emotional intelligence (0.046) exceeds zero. Hence, this indicates that the model has sufficient predictive quality.

Table 4.6: Redundancy (Q^2 value)

	SSO	SSE	Q^2 (=1-SSE/SSO)
Individual EI	1650.000	1628.857	0.013
Individual Performance	1650.000	1386.522	0.160
Project Team Performance	1375.000	1038.910	0.244
Relationship Conflict	1100.000	1100.000	
Task Conflict	1375.000	1375.000	
Team EI	1650.000	1573.845	0.046

4.2.2.3. Path Coefficients - Hypotheses Test (β values) and Statistical Significance (t-values)

The final step of evaluating the structural model was to test the hypotheses relationships between constructs using the path coefficient test (β value). Notably, the path coefficient values should be ranging from -1 to +1. The value near +1 indicates a strong positive relationship where the value near -1 indicates a strong negative relationship, and the value zero or near zero indicates a not significant relationship (J. Hair et al., 2016). Also, the t-value should exceed 1.96 (J. Hair et al., 2016).

After bootstrapping in smart-PLS, the outcome of hypotheses testing (Direct effect) appeared, the result presented in Table 4.7. and Figure 4.3. The table shows the beta value, the standard error, t value, and P-value. Table 4.9, note that there is a highly significant relationship between team emotional intelligence and performance in team level (β = 0.241, t-value = 4.289, and P-value = 0.000), and individual level (β = 0.396, t-value = 6.289, and P-value = 0.000), hence supporting H3.a and H3.b, respectively. Also, there is a highly significant relationship between emotional intelligence and performance in individual level (β = 0.228, t-value = 3.493, and P-value = 0.001), where the cross-levels relationship between individual emotional intelligence and project team performance is not significant (β = 0.097, t-value = 1.697, and P-value = 0.090), hence supporting H4.a and not supporting H4.b. And finally, the result from Table 4.9 shows that there is a highly significant cross-levels relationship

between individual performance and team performance (β = 0.507, t-value = 8.439, and P-value = 0.000), hence supporting H5.

Table 4.7: Path coefficient results

	(β) value	Sample Mean (M)	Standard Error	T Statistics	P Values	Conclusion
H1: RC => TEI => PTP	-0.080	-0.083	0.024	3.300	0.001	**Supported**
H2.a:TC => IEI => IP	-0.040	-0.045	0.023	1.723	0.085	**Not Supported**
H2.b: TC => IEI => PTP	-0.017	-0.019	0.015	1.150	0.251	**Not Supported**
H3.a: TEI => PTP	0.241	0.245	0.056	4.289	0.000	**Supported**
H3.b: TEI => IP	0.396	0.404	0.063	6.289	0.000	**Supported**
H4.a: IEI => IP	0.228	0.225	0.065	3.493	0.001	**Supported**
H4.b: IEI => PTP	0.097	0.095	0.057	1.697	0.090	**Not Supported**
H5: IP => PTP	0.507	0.505	0.060	8.439	0.000	**Supported**

As for the indirect effect, the result has shown in Table 4.9. and Figure 4.3 indicates a highly significant indirect effect between relationship conflict and performance at the team level, considering team emotional intelligence as a mediator on this relation (β = -0.147, t-value = 4.128, and P-value = 0.000), hence supporting H1. The results also show that there is no

significant impact between task conflict and performance in individual level (β = -0.040, t-value = 1.723, and P-value = 0.085), where the cross-levels relationship between task conflict and project team performance also has no significant impact (β = 0.037, t-value = 1.647, and P-value = 0.100) , hence not supporting H2.a and H2.b.
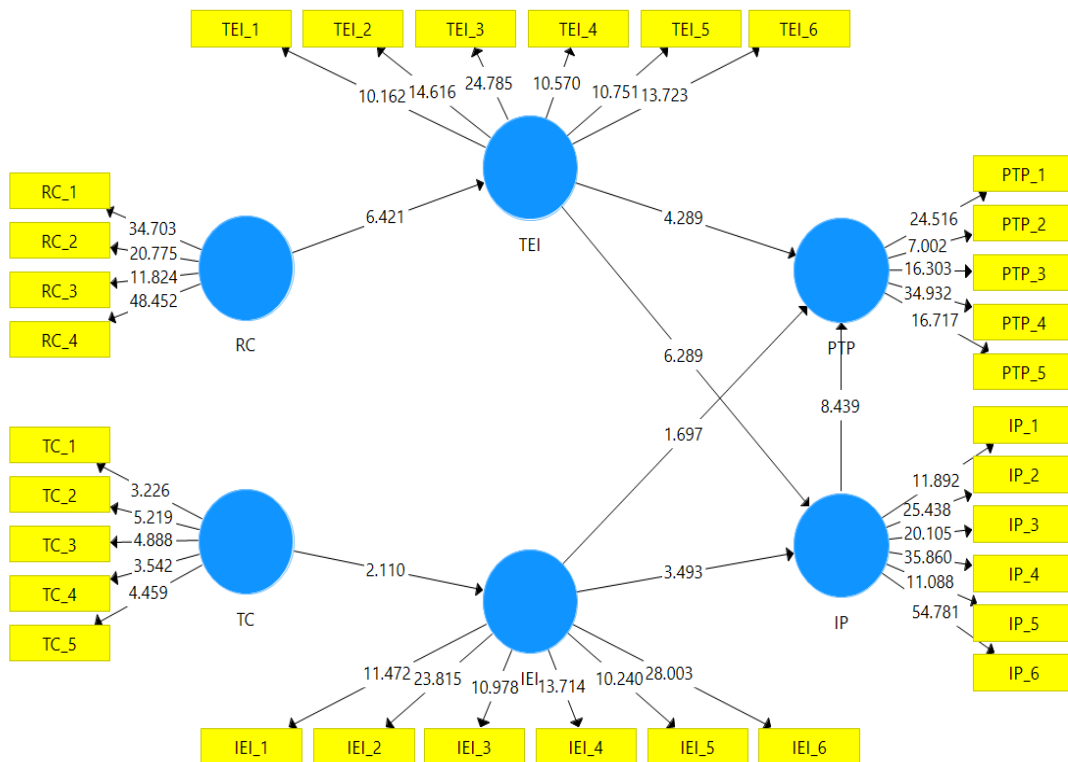
Figure 4.3. Model fit estimation using the bootstrapping procedure.

4.3. Chapter Summary:

This chapter has documented the study results, including quantitative analyses and assessing the validity and reliability of the collected data. Meanwhile, this chapter presents the PLS analysis of the measurement model and the structural model.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

5.1. Chapter Overview:

This chapter presents a discussion of the main results and findings of the study. The chapter also highlights the contributions, managerial implications, limitations and offers suggestions for future research.

5.2. Discussion and Conclusions:

This research assesses the effect of conflict type, especially relationship conflict and task conflict, on performance at team and individual levels. It also evaluates the mediating role of emotional intelligence on conflict and performance relationships. Besides, the study assesses the impact of emotional intelligence on performance. Finally, the study examines the effect of individual performance on team performance in terms of the software industry in Palestine.

In answering the first RQ and achieving the first objective, the results of data analyses indicate that relationship conflict has a statistically negative relationship with project team performance in software projects in Palestine. This result is in line with previous studies from different industries, e.g. (Klotz et al., 2014; Rezvani et al., 2019; Zhang & Huo, 2015), and (Wickramasinghe & Nandula, 2015) in the context of the software industry. This means that Palestinian software firms still didn't consider the negative side of conflict when taking a look at their project team performance, where the existence of a major conflict in the

relationships in software projects can consider an actual reason for the decline in the performance of the software teams, because the relationship conflict increases the tension and stress on employees, in addition to the epidemiological conditions that constitute pressure that can't be ignored in this time. In contrast with most research studies, the results show that task conflict does not have a statistically significant relationship with performance on the two levels. This result indicates that the differences between employees in a project environment, such as how they accomplish work, their ideas and opinions, troubleshooting, and dealing with gaps that appear during work, not have a significant effect on the performance of the project teams in terms of creative ideas support, effective communication, and trust and bonding within the group. As for individuals working in teams separately, despite task conflict, their impact on the quality of their work, and the ability to think about problems they face have not touched.

In answering the second RQ and achieving the second objective, the finding evidenced that team emotional intelligence has a statistically positive relationship with team performance in terms of software projects in Palestine, where a team with high emotional intelligence can effectively able to manage their emotions and utilize them optimally, and deal with the conflict between team members that enhances performance for the project team, which is in line with previous studies (Maqbool et al., 2017; Rezvani et al., 2018), also the finding evidenced that there is a statistically positive relationship between team emotional intelligence and performance on the individual level, which is in line with Rezvani et al. (2018). This result is

because the team members worked like one body to achieve one common goal away from selfishness and love of monopolizing knowledge, lack of help, and sharing experience, and brightness at the expense of extinguishing others. Also, emotionally intelligent teams, in addition to mental intelligence, can overcome the obstacles they face in the project environment, with people, or in the developing process. The finding also shows that individual emotional intelligence has a statistically positive relationship with individual performance in terms of software projects in Palestine, consistent with Joseph & Newman (2010) and Román-calderón et al. (2020). The high ability of an individual to understand and realize his feelings enhances the ability to control and adapt these feelings to complete the work properly and advance him on the career ladder. Meanwhile, the finding evidenced that the black side of the individual emotional intelligence (the negative side which may lead to bad consequences) has not a significant relationship with project team performance, where negative emotions, trying to bully, annoying colleagues, and evading tasks by relying on others to accomplish. Similar behaviors do not significantly appear in the software projects environment and thus do not show a significant impact on the performance of the team, and this indicates the team leader's ability to control the emotions of the team members and effectively employ them to achieve the goals of the project and the firm.

In answering the third RQ and achieving the third objective, the finding indicates that team emotional intelligence mediates the relationship between relationship conflict and performance, enhancing the link between

relationship conflict and performance at the team level. Where the finding also shows that the individual emotional intelligence not assigned as a mediator in task conflict and performance on the individual level and team level, which means that the negative impact of task conflict in the software industry cannot be controlled and improved through the level of emotional intelligence that employees have in the work environment.

Finally, In answering the fourth RQ and achieving the fourth objective, the finding evidenced that individual performance has a statistically positive relationship with project team performance in terms of software projects in Palestine, which is consistent with Thomas et al. (2018), and Enrique & Del (2019) studies that conducted in football teams, where such studies in industry, manufacturing, production, telecommunication, IT, healthcare, and other sectors still does not take aware of the importance of study this relation. This means that the team member's high performance and the high ability to accomplish the tasks assigned on time, and with the required quality, will lead to got project outcomes in the required time and quality, without incurring additional costs resulting from loss of time or bad quality. It will also increase the life of the provided service and will not incur high periodic maintenance costs for the firm. Additionally, this will lead to customer satisfaction and not looking for an alternative.

5.3. Managerial Implications:

Relying on the study results showed the importance of emotional intelligence in the team and emotional intelligence as a skill that can be

acquired. We recommend senior management to adopt awareness sessions about the importance of emotional awareness and optimally exploiting them. This would increase employees' loyalty due to the interest of senior management in mutual feelings In the work environment, which may be marginalized or forgotten in many firms. Besides, it changes the employee perception of the employer-employee relationship, which may become more friendly, contributing to a healthy and comfortable environment more suitable for work and production. This benefit is not limited to a specific category in the firm. It extends to project managers and team leaders. The more they can control how they feel about the team members' performance, the more they lead to enhance their ability to a direct and professional direction without causing negative vibes. The acquired intelligence will also enable team members to leave their personal and family problems and disputes when they enter the workplace. To achieve this, these sessions may include training in avoidance strategies (such as use the count to 10 technique before replying), self-confidence, focus techniques, meditation, and relaxation. Also, the use of motivation techniques, complementing the special people of the week, congratulating an employee on their birthdays, and the role of material rewards from time to time cannot be ignored.

5.4.   Contributions:

The current thesis contributes to the body of knowledge by responding to the lack of research that studies the dark side of emotional intelligence. This study focuses on this gap, especially in a multilevel manner, in the software industry in Palestine as one of the developing countries. Also, as

far as the researcher's knowledge goes, very few studies consider emotional intelligence a mediator of performance relations. This study evaluated this topic on two levels in firms. In addition to that, this study investigated this cross-level relationship because of the lack of studies on individual performance and team performance relationship.

5.5. Research Limitations:

This thesis has faced some limitations. The first and foremost limitation is conducting the study in light of the Covid-19 crisis that slowed down the work due to the preoccupation of business owners and human resources managers in converting their work into remote work, leading to delay in helping and responding to some of our questions. Whereas this study took an indirect path to communicate with employees working in the software industry through e-mailing the human resource department or general manager, it took more time and effort. The second limitation is the lack of human resource awareness in some firms of the importance of such studies that focus on the gaps between employees and teams in the firm to reduce them, which may be reflected in the firm's overall performance.

5.6. Future Research:

This thesis provides opportunities for future studies to considered by other researchers such as:

1) Future research might focus on the dark side of emotional intelligence in the software industry and other industries or cultures.

2) More studies should be done about the top management level performance so that it is not limited to individuals and teams' level.

3) Future studies should focus on the performance relationships, as individuals with team performance, and consider a mediating role of different variables such as emotional intelligence, job stress, job satisfaction.

4) Considering the value from conducting these types of research from a firm perceptive, since the employees are the most valuable assets a firm has.

5.7. Chapter Summary:

This chapter summarized the conclusions presented in this study. It has also offered recommendations to the managers in the Information technology sector, particularly the software industry, to show the importance of considering their emotions and being intelligent in dealing with them to get the best from their teams and improve performance. Also, each individual should take care of his feeling and manage them intelligently, even the chapter presents limitations, and finally, future research opportunities.

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APPENDIXES

Appendixes A

An-Najah National University

Faculty of Graduate Studies

Engineering Management Program

Research Questionnaire

Examining the Relationships among Conflict Types and Performance, with Emotional Intelligence as Mediating Variable in Software Projects: A Multilevel Study

Dear Participant,

I am a graduate student from An-Najah National University, my research aims to examine the relationships among conflict types (relationship and task), team/individual performance, and emotional intelligence as a

mediating variable in software projects, and I need a little of your time to complete this questionnaire, based on your experience in a specific project.

This questionnaire has divided into seven sections:

First Section: aims to collect general information about the respondents.

Second Section: aims to evaluate the relationship conflict

Third Section: aims to evaluate the task conflict

Fourth Section: aims to evaluate team emotional intelligence

Fifth Section: aims to evaluate individual emotional intelligence

Sixth Section: aims to identify the impact of the previous variables on project team performance

Seventh Section: aims to identify the impact of the previous variables on individual performance

The researcher undertakes not to reveal any individual information in this questionnaire so that all information will be treated as confidential.

Regards, Layalee Qtaishat

Researcher, Master of Engineering Management

Email: Layalee.qtaishat@gmail.com

Mobile: +972-569224077

First section: Personal Information

1. **Gender**

   o Female

   o Male

2. **Age**

   o 20 to less than 25

   o 25 to less than 30

   o 30 to less than 35

   o 35 to less than 40

   o More than 40

3. **Academic Degree**

   o B.S Degree

   o Master Degree

   o Ph.D. Degree

4. **Educational Background**

   o Computer Engineering

   o Software Engineering

   o Computer Science

   o Computerized Information System

   o Other:_____

5. **Position**

   o Engineering Project Manager/Engineering Manager

   o Technical Lead/Team Lead

   o Senior Software Engineer

- Senior Software Developer

- Junior Software Engineer

- Junior Software Developer

- Intern Software Developer

- Software Testing Officer

- Quality Testing Officer

- Other:_____

6. **Years of experiences**

- Fresh Graduate

- One to Less Than Three

- Three to Less Than Six

- Six to Less Than Nine

- More Than Nine

7. **Project Size**

- Small

- Medium

- Large

8. **Team Size**

- Small

- Medium

- Large

Second Section: Relationship Conflict

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Relationship conflict					
RC_1	There is a lot of personal friction among employees in my department					
RC_2	There are a lot of personality conflicts/ clashes in my department					
RC_3	There is a lot of tension/anger among employees in my department					
RC_4	There is a lot of emotional conflict among department employees					

Third Section: Task Conflict

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Task conflict					
TC_1	There are many disagreements/ conflict about how the work should be done					
TC_2	There are frequently conflicts about ideas among department					

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	employees					
TC_3	There is much conflict about the work that I do in my department					
TC_4	There are a lot of differences of opinions among department employees					
TC_5	There are many disagreements about the proposed solutions to the issue at hand					

Furth Section: Team Emotional Intelligence

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Awareness of own emotions					
TEI_1	I can explain the emotions I feel to team members					
TEI_2	I can discuss the emotions I feel with team members.					
TEI_3	If I feel down, I can tell team members what will make me feel better.					
TEI_4	I can talk to other members of the team about the emotions I experience.					
	Awareness of others' emotions					

TEI_5	I can read fellow team members 'true' feelings, even if they try to hide them.					
TEI_6	I am able to describe accurately the way others in the team are feeling.					
TEI_7	When I talk to a team member I can gauge their true feelings from their body language.					
TEI_8	I can tell when team members don't mean what they say					
	Management of own emotions					
TEI_9	I respect the opinion of team members, even if I think they are wrong.					
TEI_10	When I am frustrated with fellow team members, I can overcome my frustration.					
TEI_11	When deciding on a dispute, I try to see all sides of a disagreement before I conclude.					
TEI_12	I give a fair hearing to fellow team members' ideas.					
	Management of others' emotions					
TEI_13	My enthusiasm can be contagious for members of a team.					
TEI_14	I am able to cheer team members up when they are feeling down.					

| TEI_15 | I can get fellow team members to share my keenness for a project. | | | | | |
| TEI_16 | I can provide the 'spark' to get fellow team members enthusiastic | | | | | |

Fifth: Individual Emotional Intelligence

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Self-awareness					
IEI_1	I have a good sense of why I have certain feelings most of the time					
IEI_2	I have a good understanding of my own emotions.					
IEI_3	I really understand what I feel.					
IEI_4	I always know whether or not I am happy.					
	Self-management					
IEI_5	I am able to control my temper and handle difficulties rationally.					
IEI_6	I am quite capable of controlling my own emotions.					
IEI_7	I can always calm down quickly when I am very angry.					
	Social awareness					

IEI_8	I always know my friends 'emotions from their behavior.					
IEI_9	I am sensitive to the feelings and emotions of others.					
IEI_10	I have a good understanding of the emotions of the people around me.					
IEI_11	I am a good observer of others' emotions.					
	Utilization of emotions					
IEI_12	I always tell myself I am a competent person.					
IEI_13	I would always encourage myself to try my best.					
IEI_14	I am a self-motivated person.					

Sixth: Project team Performance

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Project team performance					
PTP_1	Team members support each other for new ideas and new ways of working					
PTP_2	Conflicts between team members rarely occur					
PTP_3	There is a diversity of team member					

	competencies and characteristics					
PTP_4	Team leader behavior and support affect team members productivity					
PTP_5	Top management support employees to get the best performance, new ideas, and new ways of working					
PTP_6	There is a mutual trust between team members and with top management					
PTP_7	There is effective communication between team members					

Seventh: Individual Performance

	Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	Individual performance					
IP_1	The team member does the work with a high level of quality					
IP_2	The team member has the ability to solve problems fast					
IP_3	The team member in your department has a spirit of initiative (ex: Ask what's needed and where they can help)					
IP_4	The team member is accurate in appointments and is keen to be showing up and leave on time					

IP_5	The team member tries to help others to do their work properly					
IP_6	The team member has the ability to handle the limitations provided by the time and resources available					

If you interest in knowing the results, please write down your e-mail address.

_____

_____

Appendixes B

Sample size recommendation in PLS-SEM for a statistical Power of 80%

Maximum Number of Arrows Pointing at a Construct	Significance level											
	10%				5%				1%			
	Minimum R2				Minimum R2				Minimum R2			
	0.10	0.25	0.50	0.75	0.10	0.25	0.50	0.75	0.10	0.25	0.50	0.75
2	72	26	11	7	90	33	14	8	130	47	19	10
3	83	30	13	8	103	37	16	9	145	53	22	12
4	92	34	15	9	113	41	18	11	158	58	24	14
5	99	37	17	10	122	45	20	12	169	62	26	15
6	106	40	18	12	130	48	21	13	179	66	28	16
7	112	42	20	13	137	51	23	14	188	69	30	18
8	118	45	21	14	144	54	24	15	196	73	32	19
9	124	47	22	15	150	56	26	16	204	76	34	20
10	129	49	24	16	156	59	27	18	212	79	35	21

* (as cited in J. Hair et al., 2016 p.48)

جامعة النجاح الوطنية

كلية الدراسات العليا

دراسة العلاقات بين انواع الصراع والاداء، مع الذكاء العاطفي كمتغير وسيط في مشاريع البرمجيات

دراسة متعددة المستويات

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الملخص

تعتبر صناعة البرمجيات من الصناعات ذات الضغط الكبير في بيئة العمل، فقد يحدث العديد من الصراعات أثناء انجاز المهام، و قد تكون هذه الصراعات بين الافراد في الفريق الواحد بسبب اختلاف وجهات النظر او سوء الفهم او بسبب عدم القدرة على الفصل بين العلاقات الشخصية وعلاقات العمل وغيرها. وقد تحدث النزاعات خلال انجاز المهام، بحيث يكون هناك اختلافات حول طبيعة العمل المنجز كميته وكيفية انجازه. تم دراسة العلاقة بين الصراعات والاداء بالتحديد في صناعة البرمجيات، حيث تمت دراسة هذه العلاقة على مستويين مستوى الافراد ومستوى الفرق. بينما تم التركيز على صراع العلاقات وصراع المهام. علاوة على ذلك، تم اخذ الذكاء العاطفي كمتغير وسيط على هذه العلاقات على المستويين ايضا. تستخدم الدراسة الطريقة الكمية من خلال استبيان يحتوي على قياس الأداء على مستويين (فردي وفرق) لجمع البيانات من شركات البرمجيات في الضفة الغربية وقطاع غزة. يتم تحليل البيانات المجمعة باستخدام نمذجة المعادلات الهيكلية للمربعات الصغرى الجزئية من خلال الإصدار 3.3.2 من smart-PLS. أثبتت النتائج وجود علاقة مهمة بين الصراع في العلاقات وأداء الفريق ، لكنها أظهرت عدم وجود علاقة مهمة بين صراعات المهام والأداء على كلا المستويين. إلى جانب ذلك ، أثبتت النتيجة وجود علاقة مهمة بين الذكاء العاطفي على مستوى الفريق والأداء في كلا المستويين. كما توجد علاقة ذات دلالة إحصائية بين الذكاء العاطفي والأداء على المستوى الفردي. وأخيرًا ، أثبتت النتيجة وجود علاقة مهمة بين الأداء الفردي وأداء الفريق (العلاقة عبر المستويات). وفقًا للأدبيات التي تم اجراؤها في صناعة البرمجيات ، لا يوجد دراسات تستكشف العلاقة بين أنواع الصراع والأداء مع

الاخذ بعين الاعتبار الذكاء العاطفي كمتغير وسيط. علاوة على ذلك ، لا توجد أيضًا دراسات لاستكشاف علاقة الأداء الفردي بأداء الفريق ، وأيضا علاقة الجانب المظلم من الذكاء العاطفي الفردي وأداء الفريق.