CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Impact Of Teamwork Quality on Team Performance with Mediating Role of Team Reflexivity and Task Conflict as Moderator

by

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CERTIFICATE OF APPROVAL

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Abstract

The purpose of this research was to examine the impact of teamwork quality on team performance with a mediating role of team reflexivity and moderating role of task conflict on the relationship between teamwork quality and team performance. This study is making contribution to literature by associating the relationship of variables with social exchange theory. This research determined that there is significant and positive relationship between teamwork quality and team performance. Furthermore, this study demonstrates that teamwork quality is positivity related to team reflexivity and team reflexivity has significant and positive impact on team performance. These results are aligned with orchestrated literature review. The total of 650 questionnaires were distributed and data was collected from 390 (60% of total distribution) personnel through convenience sampling technique using self-administrated questionnaires containing demographics and assessing each variable on five-point Likert scales. Quantitative research was done on the collected sample. Questionnaires survey method was used, and this survey was conducted on employees working in construction industries in Peshawar. Descriptive statistics test, correlation, regression, mediation and moderation tests were run for the data analysis. Results of this research demonstrated that team reflexivity has significant positive mediating role between teamwork quality and team performance. Furthermore, this study shows that there is moderating impact of task conflict on the relationship between teamwork quality and team performance. The moderation of task conflict weakened the said association.

Keywords: Team Work, Team Work Quality, Team Performance, Team Reflexivity, Team, Task Conflict, Conflicts, Project, Team Conflicts.

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Abbreviations

SD	Standard Deviation
TC	Task Conflict
TP	Team Performance
TR	Team Reflexivity
TWQ	Teamwork Quality

Chapter 1

Introduction

1.1 Theoretical Background

Team performance is really important for the success of any project which is defined as the outcome of team's collaboration in term of team effectiveness and efficiency (Lindsjørn, Sjøberg, Dingsøyr, Bergersen, & Dybå, 2016). Team performance is influenced by many factors which are tested by many researchers and research field has got much about this variable. According to Hoegl and Gemuenden (2001), effectiveness is all about outcomes, like it's the comparison between actual and intended outcomes where efficiency is the comparison of actual versus intended inputs. In order to have effective and efficient team there must be team work quality which is then defined by the collaboration of team's input. Furthermore, based on Hoegl and Gemuenden (2001), teamwork quality has significant positive influence on team performance and personal success. However his research work he has not checked moderation and mediation of other success factors and variables; he has captured teamwork quality with six facets such as mutual support, communication, balance of team collaboration, effort, cohesion and coordination. A team's output is like a sophisticated higher-order structure. This framework is founded on the assumption that effective teams and employees demonstrate characteristics across all six dimensions of team work quality. When combined, these six factors create the team work quality construct since they are

indicative of the team's collaborative work process. The following are characteristics of a well-functioning team (Hoegl & Gemuenden, 2001).

- Communication: is there sufficiently frequent, direct, informal and effective communication?
- Mutual support: Do workers or team members support and help each other doing tasks or working out conflicts?
- Effort: Do team workers or members exert huge efforts to the team's tasks and conflicts?
- Cohesion: is there team spirit? Are they enough motivated to carry the team?
- Coordination: are efforts synchronized and well-shaped with in the team?
- Balance of member contribution: are workers or team members able to bring in their experience or expertise to their full potential?

Communication: The term "communication" refers to the exchange of ideas, thoughts, and information between individuals, communities, and organisations. This is the single most critical aspect of teamwork in any group or company. The quality and clarity of internal organisation communication may be characterised in terms of its degree of formalisation, structure, openness, and frequency of information sharing (Hoegl & Gemuenden, 2001). Formal communication necessitates advance planning and preparation, whereas informal communication requires little in the way of advance planning and preparation and can be crucial to the work of team members. Frequency refers to the extent to which team workers communicate with one another; formalisation describes the degree to which team workers are able to spontaneously converse with one another. According to Pinto and Winch (2016) project can be led to failure when there is no effective communication between teams.

Mutual Support: It is necessary for team members to assist one another in order to produce high-quality work as a team. Because competitive behaviours in teams can lead to outdoing each other, frustration, and distrust, mutual support

fosters the integration and development of team members, and is thus an essential aspect of the quality of collaboration in teams, it is essential that team members show mutual respect, develop other team members, grant assistance if needed, contribution, and ideas in order to ensure the success of the project (Hoegl & Gemuenden, 2001).

Effort: For effective team work quality, effort is very important component. The effort of team members brings enough good team performance which leads the project into success. Team members' dedication to a job or activity may be gauged by how they divide up the work and how they prioritise it relative to their other responsibilities (Pinto & Winch, 2016). According to Hoegl and Gemuenden (2001) the success of any cooperative endeavour depends first and foremost on everyone involved giving 100% of their attention and energy to the task at hand. As a result, it is crucial that all employees understand and adhere to the rules of conduct about appropriate levels of effort if high-quality teamwork is to be achieved.

Cohesion: Annette (2021) has defined team cohesion in the following keys:

1. For teams to be effective, they need to be cohesive.
2. Team cohesion is the shared bond that drives team members to stay.
3. Team cohesion occurs when members demonstrate mutual commitment to goals.
4. Team cohesion is dynamic.
5. It is important to acknowledge the temporal nature of teams in measurement.
6. Team cohesion is a positive predictor of performance.
7. The relationship between team cohesion and performance grows stronger over time.

Team cohesiveness may also be understood in terms of an individual's commitment to remaining a part of the group or company. Without unity among team members, it would be very difficult to improve the quality of the work produced as a group. If people on the team don't have a sense of community and don't want to stick

around, then productive cooperation isn't likely to happen. In order to keep a team together and improve the quality of their work, they need to become more cohesive.

Coordination: According to Gupta (2020), coordination is the process through which separate elements are brought together to form a unified whole. Coordination necessitates the creation and acceptance of a shared set of task-related objectives by all teams, with no ambiguity or overlap between members' responsibilities (Hoegl & Gemuenden, 2001).

Balance of Member Contribution: When it comes to teamwork quality, it's also crucial that every team member contributes their own unique set of skills and knowledge to the table. Because different team members may have expertise in different areas, and it would be counterproductive if some workers or team members didn't contribute their ideas because of the dominance of others. Thus, it is crucial to team performance that the members' skills and expertise be evenly distributed (Weimar et al., 2017).

One component that may contribute to a team's success on the job is what's known as "team reflexivity," or how often and how deeply teams examine and adjust their own performance (Schippers & Koopman, 2007). While determining Team Reflexivity, strong teams are crucial to every business but they are more crucial for companies that operate in uncertain situations. A key factor in West's theory of team performance is team members' capacity for reflexivity (West, 1996). When members collaboratively reflect on the manner they operate and environment they work in, plan to alter these factors and make changes appropriately, then teams will be more effective (West, 1996). Team reflexivity is described as the amount to which group members explicitly reflect about task, communicate about the group's aims, tactics (e.g., decision-making) and procedures (e.g., communication), and adjust them to present or predicted situations (Widmer, Schippers, & West, 2009). Teams that don't practise self-reflection aren't paying attention to where they're going or what they're doing, or how their actions affect the world around them. Teams with this mentality are less likely to be proactive and more likely to take a defensive stance in the face of environmental danger. Reflexive teams demonstrate more sophisticated planning, pay more attention to long-term

repercussions and have a greater inventory of environmental stimuli to which they react (West, 1997). According to De Dreu and Weingart (2003), Only when the degree of team reflexivity was high did high levels of minority disagreement lead to more inventions and improved team effectiveness. Team reflection is the process through which members of a group discuss and openly analyse problems that arise in the workplace. According to West (2000) "reflection involves activities such as questioning, planning, exploratory learning, analysis, divertive investigation, making use of information openly, playfulness, learning at a meta-level, examining previous occurrences with self-consciousness, and coming to terms over time with a new awareness." By pausing for thought, we may see how recent changes in our environment have rendered some of our current practises outmoded (Tjosvold, 1991). Short-term and long-term reflection may happen at any point before, during, or after the team's execution of a job (West, 2000). Prior to carrying out a job, it is common practice for a team to pause and discuss its objectives, plan of attack, and methodology. This involves considering the nature of the challenge the group is facing (Levine & Moreland, 1992). During the course of completing a job as a team, it's important to pause and assess whether or not you're on the right track, whether or not you're solving the appropriate issue, and whether or not you're doing everything properly. After completing a job, it's common practise to take a few moments to think about it and assess how well it was completed. The depth of one's reflection may also change (Egbe, Ladipo, Nwoboshi, & Swift, 1998). In the first stage of awareness, known as "shallow reflection," one focuses on more immediate concerns, such as how to divide up work among team members. Single-loop learning, like that which occurs during shallow introspection (Argyris, 1992). An increased level of scepticism against one's own efforts, objectives, methods, and procedures is indicative of moderate introspection. There are parallels to be seen with double-loop learning (Argyris, 1992). The norms and values of the team or organisation are examined and debated in terms of their impact on the team's or organization's performance during this phase of introspection. This phase is similar to what is called generative (Senage, 2006) or triple loop learning. For certain teams, in-depth consideration may be more crucial than usual. For instance, it may be more important for management to pause and consider the influence of the company's culture on the organisation as a whole than it is for production

teams. Most teams will likely take culture for granted and will not often address cultural norms and values, both of which lead to less frequent opportunities for deep reflection (Allen & Meyer, 1990).

While studies of intragroup conflict Jehn (1992) have demonstrated that task conflict may increase group outcomes and efficiencies, they have not explored how groups might assure that the former is achieved. It's only natural that communities would try to resolve disagreements the same way that people would. The degree to which an emerging conflict hinders or aids the effectiveness of a team may depend on how the group handles the disagreement (DeChurch & Marks, 2001). Studies of teams and groups in a range of contexts, from the lab to the factory to the executive suite, have shown that intragroup conflict is correlated with worse performance or outcomes. It has not been simple to ascertain how task conflict affects team performance (DeChurch & Marks, 2001). Task conflict was shown to be helpful for groups working on non-routine activities, but detrimental to those working on regular tasks, indicating that the link between team performance and task conflict is mediated by the task type Jehn (1992). Consistent with his results, teams doing complicated tasks in the lab and in the boardroom both improved their decision-making when there was more internal dispute between members (Jehn & Mannix, 2001). However, teams performing motor tasks, task conflict was harmful to outcome (Shah & Jehn, 1993). The findings of research carried by DeChurch and Marks (2001) have shown that the connection between task conflicts and team output is moderated by conflict management. In isolation, the level of task conflict within a team was not correlated with their overall productivity. But when they looked at task conflict in combination with the behaviours employed to manage it, they found that task conflict may be either destructive or helpful; in particular, the link between task conflict and team performance was altered by the group's use of active conflict management. Together, in groups that actively controlled the fighting. Performance and teams that passively handled task conflict fared better than those whose members actively worked to resolve the issue. According to the results of this study Todorova, Bear, and Weingart (2014) task conflict may be invigorating, depending on the degree and context of the conflict. Simply said, task conflict is more beneficial

when it is communicated in subdued rather than extreme ways. Furthermore, in settings defined by cross-functional collaboration and greater levels of learning activities, knowledge gained via modest task conflict manifestations is positively connected with increased energy and excitement. Additionally, minor task conflict expression may promote motivation and engagement, which in turn can boost work satisfaction. Examining key impacts, we see that task conflict reduces satisfaction with results and weakens team cohesion (Lira, Ripoll, Peiró, & González, 2007), they found that task conflict had a negative effect on work results, but that this effect was not statistically significant. Previous studies suggest that task conflict has negative impact on team performance (De Dreu & Weingart, 2003). Further, their findings are particularly pertinent since the usual source bias identified in previous conflict studies is eliminated in their evaluation of group efficacy. In light of this, the findings of their research do not lend credence to Jehn's theoretical framework, which postulates that task conflict may actually improve group outcomes. As De Dreu and Weingart (2003) has been pointed out, there seems to be a discrepancy between theory and fact in studies of team conflict. Different stages of a team's success may place a greater or lesser emphasis on task conflict (Costa, Passos, & Bakker, 2015). According to Marks et al. (2001), Team take part in recursive performance episodes. There are climactic moments and quieter moments in every performance episode. The former refers to the labour that must be done to complete the goal at hand, such as creating the goods or developing the new marketing props, while the later includes times when members pause to think about the work they've done and where they want to go from here (e.g., defining the new targets for a product, analyzing the monthly sales). An interpersonal team procedure, conflict management is essential throughout both the doing and the changing stages (Marks et al., 2001). When it comes to relational conflict, however, it's possible that the impact of conflict during transition stages is even more destructive to the team's performance (Jehn, 1992). Innovating at work has been connected to being in a state of high positivity and activity (Madrid, Patterson, Birdi, Leiva, & Kausel, 2014), and happy feelings are linked to taking in more of one's surroundings and coming up with novel approaches to problems (Fredrickson, 2001). By definition, conflict is a state of heightened arousal, yet it is also related with negative emotions (Wall Jr & Callister, 1995). This might

restrict team members from seeing things from one other are points of view, which could stifle their ability to think creatively and solve problems when evaluating and planning. In contrast, teams may benefit from task conflict during action phases because they are more likely to be focused on the work at hand and less on their interpersonal dynamics, in which case they may welcome tough task-related events. Some studies have shown that task conflict may have both positive and negative effects on the connection between cooperation quality and performance. Task conflict may be useful since it helps team members learn more about one another's viewpoints and values (Pelled, Eisenhardt, & Xin, 1999). Task-based conflicts are most likely to hinder innovation and productivity in the workplace (Farh, Lee, & Farh, 2010). Therefore, the authors of this study examines how task conflict and team reflexivity influence the connection between TWQ and team performance.

This study uses the quality of a team's work as a measure of success. The efficacy and efficiency with which a team accomplishes its goals are two measures by which to assess its performance. To be effective, a team need only provide results that are on par with what was promised (Lindsjørn et al., 2016). To what extent the project's objectives and standards were realised is one example of what this term refers to. The term "efficiency" is used to describe the extent to which the team was able to achieve its goals in terms of both time and money. (Hoegl & Gemuenden, 2001). Thus, efficiency relates to the evaluation of the real inputs in relation to the targeted inputs, whereas effectiveness is concerned with the comparison of the actual output to the targeted goal.

1.2 Gap Analysis

According to Singh, Horvat, Škec, and Becattini (2022), there is a beneficial relationship between high-quality cooperation and results, as shown by a longitudinal research. Future studies, they agree, need to take into account a wide range of factors, including specialists, team size, and the complexity of the project at hand. According to Hoegl and Gemuenden (2001) and Weimar et al. (2017), According to their research, TWQ explains about 80% of the variance of team performance

as rated by team member and about 60% as rated by other stakeholders, making it an important factor for team leaders to consider if they want to have high quality teamwork or high performance teams in the software industry and other Innovative projects. But this variation is never fixed; rather, it might be dynamic and may take on a completely different shape in other sectors. Previous studies have mostly ignored the complexity of teams and instead looked at the correlation between teamwork and productivity in the workplace. Hoegl and Gemuenden (2001) researched the link between TWQ (teamwork quality) and the completion of creative endeavours by looking at the following six factors: communication, coordination, balance of member contribution, mutual support, effort, and cohesiveness. The key concept around which their model was built was that team performance is directly proportional to the level of cooperation between team members. Previous studies have shown that high-quality teams tend to perform better, therefore it stands to reason that team reflexivity would be an effective way to examine the relationship between teamwork quality and team performance. Hoegl and Gemuenden (2001), they have stated that collaboration quality is not the sole driver for project success and have suggested that management, organisational characteristics, and communication between the team and external sources may also play a role in predicting project success in order to account for the variety. s Based on Lindsjørn et al. (2016), Teamwork quality was evaluated similarly in both the conventional and agile surveys, as were its implications on team performance and the success of individual team members. However, they claim in their research that there is fewer consensuses among raters when it comes to assessing the success of agile teams than there was when using the more conventional survey method. Therefore Lindsjørn et al. (2016) have been proposed for future study to further enhance, and maybe simplify, some of the survey's structures. They believe that there isn't always a direct correlation between how well a team works together and how well they function as a unit. For instance, if team members are constantly in touch with one another, it may have no positive effect on performance (Weimar et al., 2017). A further issue is that the quality of the final product and the final project are used to judge the success of a team. In a trade-off function, these two factors often have inverse relationships, meaning that one may improve quality at the expense of time investment, or vice versa. Nonetheless, future efforts

where team performance is operationalized should take into consideration that the highest-performing teams will produce both higher-quality products and projects. However, only two of these factors—communication and coordination—have ever been investigated in any significant depth in the construction sector, Lindsjørn et al. (2016) despite recommendations to the contrary.

1.3 Problem Statement

Construction projects are complex and risky projects. Where they need knowledge to reduce the impact of risk and increase team performance. Teamwork quality is normally neglected in same industry which is disturbing team reflexivity because of which construction projects are behind the schedule and ahead of cost. As construction projects are complex where task conflict is a common issue. Task conflicts if an opportunity, can be good but If threat, then it can be detrimental to construction industry. Managers on construction sites normally do not have knowledge related to task conflicts due to which workers and their ideas are not negotiated leading the work into failure. Most of the times in construction project's teams do not have effective communication due to which teams do not perform effectively as well as efficiently because effective communication is of the important basic of real team. Team reflexivity is a recent concept which effects (maybe positively or negatively) the team performance as they communicate project's objectives and strategies to think what needs to be done next. To best of our knowledge there is small amount of research work on this concept to identify both positive and negative impacts on team efficiency and effectiveness. There is lack of coordination in the industry of construction due to which workers do not agree upon common task and fail to work together. Working together is much beneficial for project success. A task conflict, sometimes called a content conflict, arises when coworkers disagree over how to do a given job or how to apply the company's rules and procedures. Recent research has shown that if task conflicts are not resolved quickly, they have a negative impact on team output, introspection, and the bottom line. When employees waste time debating over who is responsible for what and how things should be done, productivity suffers. When employees begin

to blame their coworkers instead than the job itself for the escalation in tension, the workplace environment becomes tenser. Although several studies have looked at the topic of task conflict, no one has yet studied the effects that this phenomenon has on the correlation between team work quality and performance. It is clear from studies that more research is needed to identify associated outcomes and consequences through team reflexivity and on task conflicts. There has been a lot of focus on how teamwork quality affects team performance and project success, but not as much on checking the impacts of other factors on this relationship. Researching these voids may help project managers resolve disagreements and encourage introspection among team members, resulting in a more cohesive and effective unit.

1.4 Research Questions

To answer the problems of industry, researchers conduct different studies in different contexts. Research questions are written to provide the solution to problems faced in the corporate sector. To resolve the problems of the practical world both qualitative and quantitative studies required research questions. The problem statement of the current study provides the basis, to develop the following questions. Based on the analysis, using software, the current study effort to answer the subsequent questions: The intention of this research/study is to learn the answers to the following research questions:

Research Question 1:

What is the relationship between teamwork quality and team performance in construction industry?

Research Question 2:

Does teamwork quality bring team reflexivity?

Research Question 3:

Is team performance affected by team reflexivity?

Research Question 4:

Does team reflexivity mediate the relationship of TWQ and Team performance in the industry of construction?

Research Question 5:

What is the impact of task conflict on the relationship between teamwork quality and team performance?

1.5 Research Objectives

Our primary goal is to analyse the correlation between teamwork quality and efficiency. In addition, we want to investigate how task conflict acts as a moderator between collaboration quality and performance. The study's results illustrate the interplay of the study's independent, mediated, and moderated factors. The following are some of the goals that this study hopes to accomplish:

1. To explore the impact of teamwork quality on team performance in the construction industry of Pakistan.
2. To figure out the effect of team work quality on team reflexivity in the industry of construction in Pakistan.
3. To explore the influence of team reflexivity on team performance in Pakistani construction industry.
4. To examine the influence of team reflexivity on the relationship between teamwork quality and team performance.
5. To Determine the role of task conflict upon the relationship between teamwork quality and team performance.

1.6 Significance of the Study

One way to grasp the importance of this research is to This study will contribute to the existing body of knowledge in the field of project management by delving into the practical application of team dynamics, which is crucial to both team

performance and project success. Our nation is in the midst of a number of diverse projects, each of which has its own individual characteristics, setting, scope, schedule, etc., as well as its own distinctive reaction to its immediate surroundings. Therefore, the definition of novelty centers on undertakings that are itself innovative and distinctive. The findings of this study will be useful because they will shed light on the underlying reasons for or against the importance of team coordination and team communication (teamwork quality) to team performance and project success. The new study adds to the body of knowledge in many ways that were not previously present. The first aim of the study is to investigate how high-quality cooperation influences team output in business settings. Researchers have previously looked into the consequences of collaboration quality on employee or team performance, so you know it's a good thing. Without any interference from other duties. Therefore, it would be a valuable contribution to study its impact on team performance in companies with task conflict as a moderator. Second, the study will investigate the processes of team reflexivity that mediate the connection between TWQ and team performance. Finally, this research will investigate the moderating effect of task conflict on the connection between collaboration quality and team performance. Since disagreements over tasks are more common in the workplace, this guide will help managers and team leaders find solutions. The current study would thus add to the body of knowledge in both a contextual and theoretical sense.

1.7 Supporting Theory

1.7.1 Social Exchange Theory

According to Cherry et al. (2022) The idea that "social behaviour is commerce" was first proposed by an American sociologist (Homans, 1958). His tenures as president of the American Sociological Association (1963–1964) and head of the Department of Sociology at Harvard University are only two examples of Homans' numerous achievements in the field of sociology (1970 to 1975). According to the social exchange theory, in order to determine the worth of a link, we need first

tally the benefits of the connection and then subtract the costs associated with maintaining the connection (Tulane, 2018).

Social exchange theory, derivatized from economic exchange theory is focused on social behavior. Social exchange is known as a combined activity of two or more persons in which each person has something the other values. It is the most prevailing concept for understanding workplace behavior. Homans (1958) gave the concept of social behavior exchange and argued that exchanges are not limited to entity goods but also includes non-entity material that holds emblematic value like reward of prestige and gratitude. According to Cropanzano, Prehar, and Chen (2002), the notion of social exchange theory states that organizations are medium for cost benefit and social exchanges. The difference between social and economic exchanges is that 'social exchanges involve undetermined obligations and they are seen as inter-reliant upon the activities of another person (Blau, 2017).

Blau (2017) and Fiore and Salas (2004) asserted that a competent team is likely to execute to an extent that is greater than the totality of performance of the individual. The focus of social exchange is understanding and establishing communication channel to exchange relations, views and arguments that effects the members leading towards the positive result (Henderson & Lee, 1992). Interpersonal communication may also relieve decision anxiety and competent individual gains confidence from its prior experience (Blau, 2017). Trust and good communication are considered as organizational actors translates into more operative behavior that supports the team members achieve well through team cohesion (Mach, Dolan, & Tzafrir, 2010). Social exchange theory states that team effectiveness can be enhanced through coordination, collaboration, interaction and communication between the team members (Hackman & Morris, 1975). According to the communication theory of social exchange, when individuals talk to one another, they anticipate receiving the same amount of attention in return. If you introduce yourself to someone at a networking event, you may think they'll be just as eager to strike up a conversation with you (Cherry et al., 2022). In addition, social exchange theory describes the process of social transformation as a series of bargains struck between various groups. According to Cook and Emerson (1987) the central concern of the theoretical framework known as "exchange theory" is

the transfer of goods and services among people. The essential premise of the theory of exchange is that the continuation of a flow of resources is conditional on some kind of value gain or return. Companies serve as platforms for delivering both social and economic messages (Rupp & Cropanzano, 2002). The rule of reciprocity in social exchange theory suggests that when members of a group or team show appreciation for one another's efforts, it strengthens the group's cohesiveness and encourages everyone to give their all to the endeavour (Gouldner, 1960). As a result of these and other considerations based on the norms of reciprocity, social exchange acts as a moderating element to improve project outcomes by encouraging proactive work behavior and constructive attitudes among staff members (Rupp & Cropanzano, 2002).

According to Cropanzano, Anthony, Daniels, and Hall (2017), the process of exchange theory works the same as when the actor provides benefit to target, then it will result in high quality social exchange relationship resulting in benefit to actor. Or if the actor does harm to target will cause low quality of exchange relationship resulting in harm to actor. By looking into the current research model and the norms of social exchange we have concluded that the current study is in line with exchange theory because team reflexivity (high quality relation) is caused by the actor (Teamwork quality) resulting in team performance (benefit to Actor).

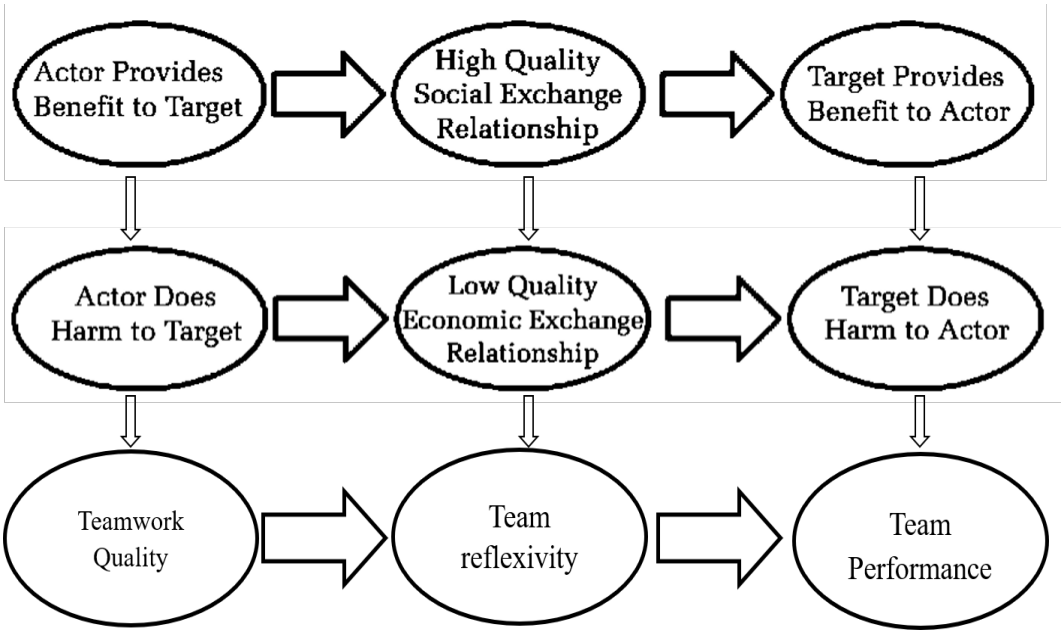

FIGURE 1.1: Research Model and Social Exchange Theory (Hoegl & Gemuenden, 2001)

Chapter 2

Literature Review

Team performance is the focus of this study, and it is predicted to be influenced by one independent variable (Communication and Coordination) in the presence of a mediating variable (Team reflexivity). The impact of task conflict as a moderator of the correlation between high-quality collaboration and effective team performance is examined. Despite the paucity of literature on the topic, the conceptual definitions of the variables of interest to this study, as defined by several academics, are as follows.

2.1 Teamwork Quality and Team Performance

Quality of team work may be thought of as an all-encompassing idea of the quality of people's interactions inside teams. It's an indication of how successfully team members communicate and work together Global Publisher of timely knowledge. Quality, as defined by (Holladay & Services, n.d.), is reliable, is based on individual experience rather than objective standards, represents both value and a state of mind. The more efficient a team is, the higher the quality of their work and the greater their productivity (Hoegl & Gemuenden, 2001). A successful team has the following key traits.

- Mission sense/vision sharing: team members an effective team have understanding of organizational goals and involve them self in the process of

getting them, their mission and vision is focused on the mile stone of organization, the share ideas and efforts in order to get want they are supposed to.

- Expectations and Roles: mostly commonly problems that can have bad impacts is in most teams and groups, members do not understand their clear roles and they do not know what to may be expected from other members (Holladay & Services, n.d.). Knowing one's roles and understanding what to expect from other members, increases and assures that every member known his responsibilities and that increases the success chances.

- Cooperation: in order to be success, cooperation must be rewarded and strengthen by top management as it is important element in team integrity.

- Support: an effective team member support each other in their work.

- Trust: effective team members trust each other; they freely express their reactions (may be positive or negative) without and fear.

- Communication: based on consistency, members fluidly and effectively exchange ideas and information with each other.

- Adaptability: Members are creative and continually changing and growing to achieve the mile stones and goals that satisfy the needs of customers.

- Problem solving: creative and effective team members focus on the causes of problem and then seek problem's solution. They diagnose the situation before doing anything.

In addition, the coordination, communication, balance of workers' cooperation, effort, mutual support, and cohesiveness are the six aspects of teamwork quality that are decided for the quality of work collaboration in teams (Hoegl & Gemuenden, 2001).

TABLE 2.1: TWQ Constructs

Subconstruct	**Description**
Communication	Frequency, formalization, and openness of the information exchange.
Coordination	Common understanding when working on parallel subtasks, and agreement on common work-down structures, schedules, budgets, and deliverables.
Mutual support	Team members' ability and willingness to help and support each other in carrying out their tasks.
Balance of member contribution	The ability to employ the team members' expertise to its full potential. Contributions should reflect the team member's specific knowledge and experience.
Effort	Team members' ability and willingness to share workload and prioritize the teams' task over other obligations.
Cohesion	Team members' motivation to maintain the team and accept that team goals are more important than individual goals.

Teams, as a means of organisation, may elevate the employees' roles to a higher plane of responsibility and output. Employees that join a team are more invested in the success of the business as a whole because working in a team necessitates dedicating more time to tasks that directly impact the company's bottom line. Amason et al. (1995) have found that the team's efforts have paid off by enhancing decision making, fostering agreement and support for action, and establishing an atmosphere that is cooperative and focused on common goals. Since we are primarily concerned with the first two aspects of cooperation quality—communication and coordination—we will begin by surveying the literature on these topics (Amason et al., 1995).

It is well known that communication (when taken in sense of information sharing) is a fundamental Component of teamwork quality and project success (Allen, Katz, Grady, & Slavin, 1988; Griffin & Hauser, 1992). This feature serves as a communication hub, allowing members of the team to share information, collaborate on projects, solicit and provide suggestions, and get immediate responses

(Pinto & Winch, 2016). It has been discovered, for instance, that a lack of information sharing and the occurrence of misunderstanding between team members and stakeholders of a project are regarded to be among the primary reasons of project failure. "Communication" is described as "the process of exchanging thoughts, ideas, or messages between individuals or groups" (Evans, 2021). This is the single most crucial aspect of teamwork in any group. The quality and clarity of communications inside an organisation may be characterized in terms of its level of formality, structure, openness, and frequency of information transmission (Hoegl & Gemuenden, 2001). Formal communication necessitates prior planning and preparation whereas informal communication does not and can be crucial to the success of team members in their work. Frequency refers to the degree to which team members communicate with one another; formalisation describes the degree to which team members are able to converse with one another on the fly. According to Pinto and Winch (2016), failure of a project is possible if teams are unable to effectively communicate with one another. It's generally accepted that a team's productivity and performance are impacted by the ease with which information may move from one member to another inside an organisation. Timely and accurate information creation, collection, dissemination, storage, retrieval, and disposal are all parts of communications management (Culo & Skendrovic, 2010).

In addition, they found that successful project managers spend over 90% of their time engaging with team members and other stakeholders, whether those stakeholders are inside or external to the firm. Those with varied cultural and organisational backgrounds, different competence levels, and different viewpoints and interests in the project's success may all find common ground via effective communication (team performance). According to Malik et al. (2021) It's important to remember that there are three facets to communication: the formal, the casual, and the desire to communicate. Both team performance and project success are adversely impacted by too formalised modes of communication, whereas informal modes of communication have a favourable impact on project success, and a desire to communicate is favourably correlated with team performance. Furthermore, a minority of experts believe that informal communication has a negative impact on

project success, although evidence shows that it really improves coordination and trust, which in turn boosts team performance and ultimately leads to a successful project. Team members and other stakeholders should be encouraged to maintain an open line of communication since doing so is conducive to the efficient growth of coordination and trust, both of which are critical to the success of the team's performance and the project as a whole. In light of the results of a search analysis of (Kanawattanachai & Yoo, 2007), It is hypothesised that team members' initial beliefs and confidence in each other's specialized expertise are formed in large part by early and regular task-oriented discussions. Team performance in the beginning stages of a project has also been shown to be significantly influenced by the amount and regularity of task-oriented communication. It's also generally agreed that a project's success is tied to how well teams communicate with one another (Griffin & Hauser, 1992). Research by Allen et al. (1988), expertise from all team members is crucial, thus they should not be inhibited from sharing their knowledge. Many factors contribute to ineffective team communication, including team members' lack of clarity of the project's structure and their own interdependencies, which may lead to a breakdown in communication (Pinto & Winch, 2016). They also noted how certain team members' reluctance to disclose information—which they see as a source of power over the rest of the team—can contribute to a breakdown in communications and ultimately the project's failure. Effective communication is a crucial factor in building a high-performing team. So, the TWQ model has to have communication in the sense of exchanging information (Weimar et al., 2017).

According to Gupta (2020), the term "coordination" refers to any plan or system that facilitates cooperation among separate organisations. The true meaning and purpose of coordination is for teams to create and agree upon a common goal framework for completing a given job, with distinct and well-defined objectives for each member (Hoegl & Gemuenden, 2001). Numerous studies have shown that improved team performance is one possible outcome of increased coordination. Information usage promotes team performance, but too much coordination might stifle the development of domain-specific expertise and dampen the positive effects of knowledge sharing on productivity, Knowledge Utilization, Coordination, and Team Performance. Coordination may come from a variety of sources, and it is

crucial to the quality of team work and the overall success of the project. Malone and Crowston (1994), has defined coordination as "managing interdependence across activities," which might involve things like assigning tasks to one another and keeping track of who is responsible for what. Individual team members are responsible for a variety of tasks throughout the task stages. Success of the TWQ and the project depends on the activities being coordinated and harmonised with one another (Tannenbaum, Beard, & Salas, 1992).

In order to divide up tasks, set deadlines, and determine how much labour would be required, teams need to agree on a standard set of structures. In order to coordinate effectively, teams need to create and settle on a shared framework for achieving task-related objectives, with specific enough subgoals for each member. When organising a new iteration, agile teams often choose or allocate responsibilities. Some of the "user stories" (requirements) in the backlog are selected for development in a specific iteration. Typically, a user narrative will include many tasks, each of which will be completed by the user. Each assignment is either created specifically for one or more team members, or is chosen by one or more team members based on their expertise and preferences, and a rough estimate of the workload is provided. The definitions and explanations provided by the scholars above make it clear that both of these factors (communication and coordination) contribute in their own ways to the overall success of a team. Thus, based on everything we've discussed and seen, we may draw the following conclusion.

Hypothesis 1: Teamwork quality has significant positive impact on team performance.

2.2 Teamwork Quality and Team Reflexivity

Even though many studies find that reflective thinking is beneficial for teams, the circumstances under which teams are reflective have gotten very less attention (Schippers, Homan, & Van Knippenberg, 2013). They contend that teams with weak performance may benefit greatly by engaging in reflexive teamwork. Reflexive teams have a habit of gaining insight into their own functioning by reflecting on and learning from their past blunders and group dynamics. They also

came to the conclusion that when a team is performing well, there is less of a need for reflexivity and learning, hence the link between the two is less evident in terms of end team performance. When team members reflect on and share their thoughts about the project's objectives, methods, and tactics, they get a better understanding of their work and may better plan for the future. Reflection and self-explanation, data verification, planning, and obtaining input from peers are the four key stages that lead to the aforementioned ideas and behaviours (Chen, Bamberger, Song, & Vashdi, 2018). The term "reflexivity" refers to the manner in which an individual's behaviour may be framed by considering the impact of other people's behaviour and the environment in which that behaviour takes place (Finlay, 2003).

According to the theory of team reflexivity, teams perform better if they often evaluate their own actions and make adjustments (Konradt, Otte, Schippers, & Steenfatt, 2016). Teams may benefit from a more thorough knowledge of their past achievements and failures by soliciting feedback from colleagues and gathering cross-validated information and then carefully considering the proper approach to future projects (West, 2000). Now as teamwork quality is the name of team collaboration by applying the rules of communication, mutual support, trust, coordination etc. resulting in team reflection, creating a hypothesis that there is significant influence of teamwork quality on team reflexivity. Furthermore, teamwork quality increases team reflexivity because the discussed factor of TWQ that is support (Hoegl & Gemuenden, 2001). When there is supporting characteristics in team member then they reflect to project's objectives and make decisions on work future. Furthermore, teamwork's quality factor (cohesion) also brings support to team reflexivity in term of when team members are happy an organization and stay cohesive with team then team members do plan project's objectives and carry the project to its milestone in pursuit of above discussion, following hypothesis is suggested.

Hypothesis 2: teamwork quality has significant positive influence on team reflexivity.

2.3 Team Reflexivity and Team Performance

Conscious reflection on team functioning (team reflexivity) has been suggested as a key technique for enhancing team performance, and an increasing number of studies have shown a correlation between team reflexivity and increased efficiency and effectiveness (team performance) (Schippers & Koopman, 2007; Schippers et al., 2013). The effectiveness of a team may be gauged by looking at the outcomes of their efforts. The success of a team may be measured by how well it completes its tasks, how well its products turn out, how efficiently its operations run, and how well the team itself operates. According to Lindsjørn et al. (2016) Competence as a Group have a description in terms of efficiency and efficacy. Expanding Chen et al. (2018), team reflexivity begins with members asking for and receiving feedback from one another; in the next phase, reflection and self-explanation, members are prompted to use their own and the group's past successes and failures to provide an explanation for the outcome of their performance; this serves as a springboard for articulating the team's conditions, its goals, and its analysis of opportunities and threats.

According to Schippers et al. (2013), team members that engage in reflective practise are better able to draw upon their accumulated expertise and adapt to new conditions. Recent empirical research reveals that team reflexivity might contribute positively to team performance since it helps teams to enhance their work performance. According to De Dreu, Nijstad, Bechtoldt, and Baas (2011) In order to be more successful and efficient in these difficult circumstances, teams need to be creative. It has been hypothesised that a key component of high-performing teams is team reflexivity, or the deliberate examination of performance. Recent studies have shown conflicting results when examining the link between team reflexivity and performance indicators, leading the researchers to the conclusion that team reflexivity may have beneficial effects on performance, but only in certain contexts. As some scholars have found, long-term research involving 70 student teams shows that low-performing teams gained more from team reflexivity than originally high-performing teams, in terms of both learning and increased end performance (Schippers et al., 2013). When discussing research findings Schippers et al. (2013) have labeled as that The importance of team reflexivity for efficiency

and productivity has been established, but studies addressing the limits of team reflexivity are rare. They have also emphasized the need of shedding light on the circumstances under which reflexivity is cost-effective, given that it is an energy-intensive activity. To back up their conceptual analysis, they observed that the connection between team reflexivity and team invention depended on team-level labour needs. Team reflexivity was shown to be connected with the creation of novel and more effective methods of working for teams in challenging environments (i.e., those with a high workload), indicating that team reflexivity affects team performance (De Dreu et al., 2011).

Conversely, teams that are already doing well may not benefit as much from reflexivity since they may not have as much of a need to talk about or think about ways to enhance their performance and processes. In other words, by starting off strong, a team's reflexivity is less likely to have a beneficial impact on their overall performance. Ultimately, when teams' performance takes a turn for the worst, reflexivity will be at its most beneficial and effective. When performance goals are met, performance improvements and therefore team reflexivity are less needed (Schippers et al., 2013). Moreover, Research suggests that team reflexivity (TR)-defined as a team's conscious reflection on their objectives, strategies, and processes (West, 2000) is an important team process fostering adaptation and information processing (Schippers, Den Hartog, & Koopman, 2005; Konradt et al., 2016).

According to Hackman and Morris (1975) theory of team effectiveness, productive teams is those that are able to pool members' expertise and mindset in order to determine how to prioritise tasks most effectively. Reflection helps students gain an understanding of meta-level issues related to the appropriateness of aggregate techniques, which in turn aids them in not only acquiring a preeminent understanding of their work but also in achieving their immediate goals and preparing themselves to effectively manage any foreseeable future challenges (West, 1996). Research by Maynard, Mathieu, Gilson, O'Boyle, and Cigularov (2012) have also come to the conclusion that we need to stop focusing just on poor team success and consider a broader range of factors influencing team performance. As a result, teams who practice reflexivity are more attuned to their own deficiencies, as well

as quality issues, potential hazards, and the environment in which they operate (Schippers & Koopman, 2007). Organizations that regularly use reflexivity conduct thorough checks of both their internal and external environments. Members' ability to think outside the box and take initiative in light of these shifting circumstances is bolstered by this kind of ongoing evaluation. Therefore increasing their value as a representative of the team (Hoegl & Gemuenden, 2001). As a consequence, we may conclude that team reflexivity can foster and foster positive team outcomes, such as increased productivity and efficiency. We may foresee that improved team decision-making and coordination will result from increased team reflexivity because of the familiarity with the situation. Such groups are more likely to put their assets to good use and advance as a unit. Due to their better expertise and inventiveness, reflexive teams are less prone to make hasty judgments and more likely to identify the best solution to challenges (Rogelberg, Barnes-Farrell, & Lowe, 1992). Success for both the team and the project is likely to follow from such in-depth knowledge of both the product and its limitations. In this way, increased output and efficiency may be achieved by better leveraging the collective knowledge and experience of the team. Taking into account the above analysis and explanation of team reflexivity, the following is postulated:

Hypothesis 3: Team reflexivity has positive influence on team performance.

2.4 Team Reflexivity Mediation on TWQ and Team Performance

That team reflexivity has a beneficial effect on team performance is the topic of Hypothesis 3. This is because it is anticipated, while examining team reflexivity, that teams would reflect on project objectives and share their plans for the future in light of the project's milestones. According to Schippers et al. (2013) teams that engage in deep self-reflection are more likely to provide novel concepts for projects and enhanced procedures for completing tasks, goods, and services. In addition, a study of BBC TV production teams indicated a favourable correlation between creative team performance and team reflexivity, while a survey of 100

Chinese office employees found that teams that discussed and analysed their work produced better results (West, 1997), Furthermore, they have concluded in the presentation of their study that teams believed that reflexivity better predicted their success. According to West (1997), Predicting a team's efficacy and efficiency is greatly aided by their level of reflexivity, which increases with team size. In addition, it was indicated in the second hypothesis that teamwork quality has a positive impact on team reflexivity. As a result of this debate, it was determined that team performance is affected by team reflexivity, which in turn is influenced by teamwork quality:

Hypothesis 4: Team reflexivity mediates the relationship between teamwork quality and team performance.

2.5 Moderating Role of Task Conflict in the Relationship between Team Work Quality and Team Performance

According to Wall Jr and Callister (1995), when one group believes that another is working against or adversely impacting their interests, this is called conflict. Scientists have shown that to past literature has described that conflict may arise between people, inside organisations, and even across countries. But task conflict is the main subject of this investigation. Many studies have shown that team performance and satisfaction suffer when members have conflicting priorities, yet!. Team creativity and productivity may both benefit from a little healthy task conflict. On the basis of Pelled et al. (1999), task conflict may be useful since it helps team members learn more about one another's viewpoints and values. However, it is not yet clear whether or not task conflict reduces a team's efficiency (Lira et al., 2007). Group or work on complex tasks without standard solutions is one context in which task conflict may have a positive effect on team effectiveness, as noted by a number of authors (De Dreu & Weingart, 2003). In this context, team members are more likely to communicate and consider one another's perspectives, both of which can lead to improved performance (Jehn, 1992). Few studies have concluded

that conflict is negatively related to task outcome (De Dreu & Weingart, 2003) or non-significant correlations (DeChurch & Marks, 2001). Some other reseachers present a positive relationship between these variables (Amason et al., 1995).

According to Farh et al. (2010) the most detrimental effect on team productivity and innovation might be caused by task conflict. However, modest degrees of task conflict may not necessarily translate into creative outputs in the context of project teams facing severe timetables and requests to provide unique but practical solutions. Thus, in light of the above ambiguity, it has been chosen to investigate the impact of mild task conflicts on the connection between task-related work quality (TWQ) and team performance. Even after controlling for the non-routininess and complexity of the group work as a mediator of the conflict type, team performance connection, (De Dreu & Weingart, 2003) and colleagues found no positive link, disproving the notion that task conflict improves team performance. Depending on how it is handled, disagreement within a group may have positive or negative results, and this is something that we investigate in our research. In light of this debate, the following theory is proposed.

Hypothesis 5: Task conflict moderates the relationship between teamwork quality and team performance such that it weakens the said associator.

2.6 Research Model

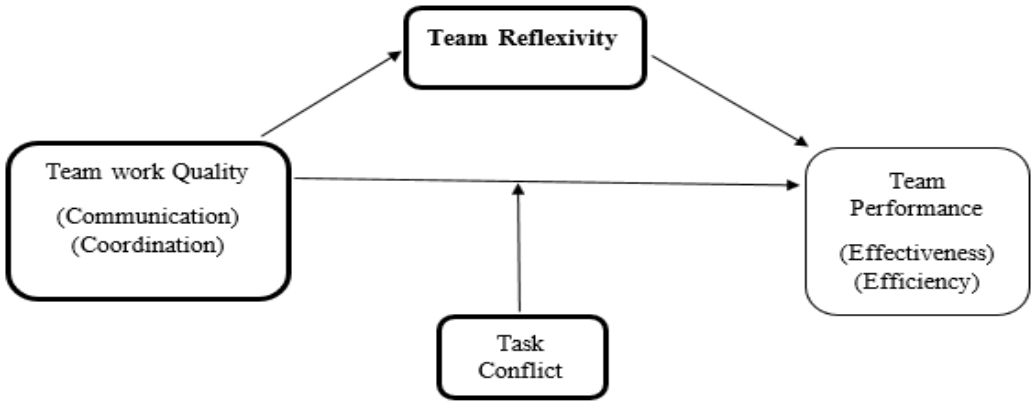

FIGURE 2.1: Teamwork Quality Impact on Team Performance with Mediating Role of Team Reflexivity and Task Conflict as Moderator

2.7 Summary of Research Hypothesis

Based on a comprehensive literature review, to fill the identified gaps and resolve the problems discussed above, the following hypotheses are developed:

H_1: Teamwork quality has significant positive impact on team performance.

H_2: Teamwork quality has significant positive influence on team reflexivity.

H_3: Team reflexivity has positive influence on team performance.

H_4: Team reflexivity mediates the relationship between teamwork quality and team performance.

H_5: Task conflict moderates the relationship between teamwork quality and team performance such that it weakens the said associator.

Chapter 3

Research Methodology

3.1 Research Design

The present study illuminates the effect of teamwork quality on team performance among Peshawar in the construction industry. It also studies the mechanism of team reflexivity as mediators and task conflict as moderator to further deepen the relationship between TWQ and team performance.

3.1.1 Quantitative Research

Researchers may decide whether to do qualitative or quantitative research based on the questions they want answered. Data has been collected from respondents using questionnaires, making the current study quantitative in character. Statistical programmes like SPSS has been used, among others, to check the data.

3.1.2 Cross Sectional Study

It is a cross-sectional research, meaning that it does not follow a specific group over a prolonged period of time. Data from participants is gathered at a specific moment in time and then analysed quantitatively in cross-sectional research.

3.1.3 Unit of Analysis

For current study the unit of analysis is individual (Project team member) working in construction industry of Pakistan. All these team members were requested to take part in this study. All Workers working in construction projects were included in this research.

3.2 Population and Sampling

3.2.1 Population, Sample and Sampling Technique

For the same research study, population included managers, supervisors and employees working at different position in construction industry of Pakistan are targeted. Construction industry is targeted because this is a huge industry and deliver on daily basis, so that there can be more and more respondents for better sampling and data analysis. Construction industry is selected as this is complex and needs more focus to enhance teamwork quality and team performance. so the unit of analysis for present study is an individual.

Sampling is a commonly used procedure for collecting data. Due to time constraints (shortage), data will be collected from Peshawar. Data will be collected through self-administered questionnaires and through non-probability sampling technique (convenience sampling).

Convenience sampling method is chosen due to some of its merits over other techniques such: there are fewer rules because of which it can be carried out easily, this technique takes less time with respect to others, cost required to perform convenience sampling is less as compared to other sampling techniques, sample data is easily accessible, and data is collected quickly. Where the cover letter will be added to indicate research purposes. Participants will be assured of their responses are anonymous and confidentiality is assured which can help us in getting genuine response. Online survey would also be used to get quick access to data, furthermore few respondents will be targeted through friend and family network. about 650 questionnaires were distributed (based on sample size calculator where

confidence level is 95% and 5% margin of error). This study have 390 complete responses which fulfilled requirement of 390 responses according to sample size. The total analyzed sample for current study is 390 response which is almost 60% of 650.

3.2.2 Contribution to Study

Construction projects fail due to non-effective and non-efficient workers, or in simple words these complex projects fail because of less performing team workers or employees. The rate of construction industry failure is enough high in developing countries (Pakistan) as compared to the developed countries. In Pakistan teamwork quality is never focused in construction projects which leads projects into delay or over-cost because teamwork quality is combination of communication, coordination, trust, support and cohesiveness of members which are significantly correlated to team performance or project success (Hoegl & Gemuenden, 2001). As discussed in chapter-2, that communication is success factor of team performance (Pinto & Winch, 2016) because having effective communication in team member enhances problem solving power of employees because of which team members become cohesive to project and coordinate the scope of project or work. The link between collaboration quality and team performance is examined in light of the phenomenon of task conflict, which is inherent to every construction project and often results in overruns and delays. The number of building projects is growing steadily worldwide since the construction sector is so large and intricate. Our research, conducted in the Pakistani construction sector, sheds light on how teamwork quality (communication and coordination) influences team performance and how task conflict affects the same. In addition, this research will provide light on how team reflexivity acts as a moderator between collaboration quality and performance.

3.2.3 Sample Characteristics

3.2.3.1 Gender

According to the **Table 3.1** given below out of 390 respondents, 298 respondents were male and 92 were females. According to this data 76.4 % respondents were male and 23.6 % were female. According to the results of these tests, number of male respondents are higher in number than female respondents.

TABLE 3.1: Gender of Respondents

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Male	298	76.4	76.4	76.4
Female	92	23.6	23.6	100
Total	390	100	100	

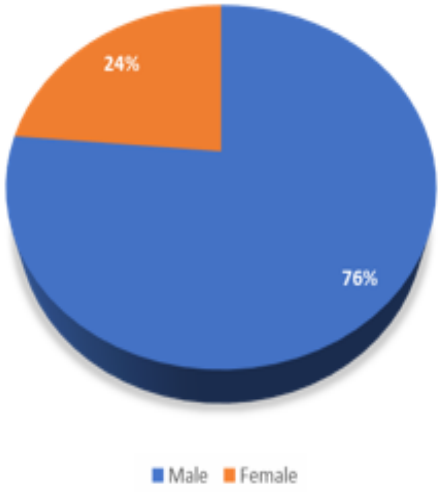

FIGURE 3.1: Gender of Respondents

3.2.3.2 Age

Table 3.2 given describes that those 42 respondents out of 390 were between ages 18-25. Which is 10.8 % of the total Sample. The highest number of respondents that is 241 were between ages 26-33 that is 61.8 % of the total responses. 107 respondents were of ages 33-41 and that is about 27.4 % of 390 responses.

TABLE 3.2: Age of Respondents

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
18-25	42	10.8	10.8	10.8
26-33	241	61.8	61.8	72.6
33-41	107	27.4	27.4	100
Total	390	100	100	

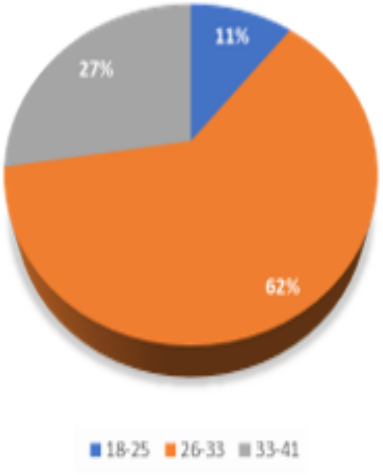

FIGURE 3.2: Age of Respondents

3.2.3.3 Qualification

By looking into the **Table 3.3** we can see that 334 respondents were Master qualified which is 85.6 percent of the total sample. 56 responses were from doctorial qualification which 14.4 percent of the total number of responses.

TABLE 3.3: Qualification of Respondents

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
MS	334	85.6	85.6	85.6
PHD	56	14.4	14.4	100
Total	390	100	100	

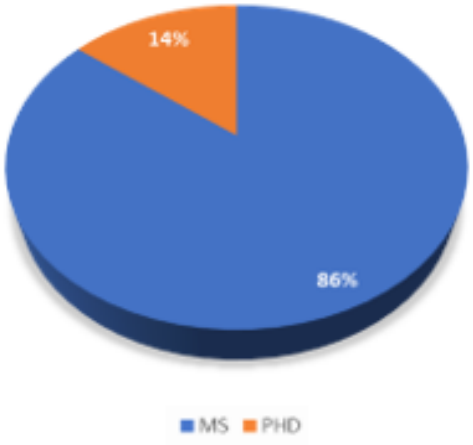

FIGURE 3.3: Qualification of Respondents

3.2.3.4 Experience

Respondents with experience of 4-7 years were highest in number that is 177 which is 41.4%. Respondents with experience of 1-3 years were 167 which is 39%. 62 respondents have experience of 8-11 years that is 14.6%. 17 respondents had an experience of 12-15 years which is 4% and only 5 respondents had an experience of over 15 years that is 1.2%.

TABLE 3.4: Experience of Respondents

years	**Frequency**	**Percent**
01-03	167	39
04-07	177	41.4
08-11	24	14.6
12-15	17	4
>15	5	1.2
Total	390	100

3.2.4 Pilot Study

Initial research of limited/small scale that is worked out to analyze a planned study before performing a complete analysis is known by pilot study. This study is performed to check if respondents are understanding the real meaning of scale or not? Pilot study does help in finding the validity of the variables (Van Teijlingen & Hundley, 2001). With the results of this research in hand, we can be certain

FIGURE 3.4: Experience of Respondents

that our surveys are both legitimate and readily understood by the people who fill them out. From the respondents in our representative sample, we were able to acquire 10% (39 replies) of the Data we needed. Results from the research indicated adequate values for the alpha coefficient: Teamwork Quality 0.861, Team performance 0.904, Team reflexivity 0.848 and Task conflict 0.911. general accepted rule for Cronbach's Alpha's value is 0.6 to 0.7 indicates that reliability level is acceptable. Equal or greater than 0.8 means a good level of reliability but higher value than 0.95 are not good because they might be redundance indications (Hulin, Netemeyer, & Cudeck, 2001). After carrying out the pilot study, the alpha values of each variable lays between 0.75 and 0.95 which indicates acceptable level of reliability. Results of this pilot study of 39 responses gave indication that the study can be carried out further.

TABLE 3.5: Reliability Analysis

Variable	**Items**	**Reliability (Alpha)**
Teamwork Quality	14	0.861
Team performance	15	0.905
Team reflexivity	5	0.848
Task conflict	18	0.911

3.2.5 Instrumentation/Data Collection

The information was gathered using a questionnaire. The questionnaire was split in half. Respondents' ages, genders, education levels, and occupations were collected in the first section. In the second section, questions pertaining to the other variables of the research, such as teamwork quality, team performance, team reflexivity, and task conflict, were posed to respondents. The survey questions are asked on a series of Likert-type scales ranging from "strongly disagree to strongly agree". Where 1 belongs to strongly disagree, 2 = disagree, 3= neutral, 4 = agree and 5 = strongly agree. In order to do a good job with the study, the researcher will utilize the questionnaire to gather primary data. The original data has the advantage of being obtained at the scene of the incident. The modified survey in the appendix was used to compile the data. Individuals and businesses in the construction industry were polled by email and WhatsApp. In the emails, it was requested that the HR departments and offices make sure the online questionnaire was completed by qualified individuals with the necessary technical abilities. The questionnaire itself provided both detailed instructions for completion and a concise explanation of the research's goals. We followed up on the initial requests every four days for a total of three weeks before analysing the data we gathered.

3.2.6 Teamwork Quality

Teamwork quality will be captured with 14 items scale taken from previous studies (Hoegl & Gemuenden, 2001). Where 10 of them will be considered for communication and 4 for coordination. The responses will be obtained through 5-point Likert scale ranging from 1= Strongly disagree to 5= Strongly Agree. Example: There is frequent communication within the team.

3.2.7 Team Performance

A 15 items scale will be used to measure team performance where 10 of them are taken for effectiveness of team and 5 are used to measure team's efficiency. These 15 items are taken from previous study and research paper by (Lindsjørn

et al., 2016). Where again this study will capture the responses through 5 points Likert scale from 1= strongly disagree to 5 = strongly agree. Example: From the company's perspective, all team goals are achieved

3.2.8 Team Reflexivity

Each team's self-reflection will be graded on a scale of 1 to 5 based on their (De Jong & Elfring, 2010), responses to five questions designed by. There is a 1–5 Likert scale (strongly disagree to strongly agree) Example: In this team we modify our objectives in light of changing circumstances.

3.2.9 Task Conflict

Task conflict will be measure by using 18-items scale taken from previous studies (Todorova et al., 2014). Reponses of this variable will also be captured through 5-point Likert scale which is from 1= strongly disagree to 5= strongly agree. Example: I get information about the issues.

3.3 Description of Variables

3.3.1 Teamwork Quality

Teamwork is known by the process of collaborating and doing tasks together in a group to have or achieve a specific or common goal (Harappa, 2020), but in order to have that specific or common goad, the teamwork must be effective which is then known by the Teamwork Quality. According to Hoegl and Gemuenden (2001), Team work quality is just like a multifaceted higher order construct including effort, cohesion, coordination, mutual support, communication and balance of members contribution. The premise upon which this structure is based is that highly collaborative teams or workers exhibit behaviours related to all six (aforementioned) facets of team work quality, which means these six are indicators (just like KPIs) of the collaborative work process in team and combine to team

work quality construct. however, these factors may not be enough for team performance or project success because (Hoegl & Gemuenden, 2001), does also suggest factors like communication of team with external sources, organizational factors and management can also play a good role in working out project's success and team performance. The given below are team work quality facets (followed in this research) that provides bunch of details.

1. Communication: is there sufficiently frequent, direct, informal and effective communication?

2. Coordination: are efforts synchronized and well-shaped with in the team?

3.3.2 Team Performance

Effectiveness and efficiency on the part of a team are used as measures of team performance for the purposes of this analysis. Team performance may be defined in terms of how well and efficiently tasks are completed by a group of people (Lindsjørn et al., 2016). Where Whether or if the quality of the final product/project is as expected is all that matters in terms of a team's effectiveness. Customers are a good barometer of a project or product's quality, which encompasses factors like its usefulness, durability, dependability, and efficacy. Efficiency is measured by how well the team is able to complete the project within the allotted time and money. According to (Hoegl & Gemuenden, 2001) In contrast to efficiency, which evaluates results in relation to inputs, effectiveness focuses on the results themselves.

3.3.3 Team Reflexivity

According to Schippers et al. (2005), When a team engages in reflexivity, members of that team openly and collaboratively investigate challenges or obstacles they face on the job. The time and place of each one team's reflection relative to the activity at hand might vary widely. Prior to carrying out a job, it is useful for a team to pause and think about the mission, its strategy, and its methodology as a whole. As part of this process, teams should consider the nature of the challenge

they confront across many time scales. As a team works to complete a job, it's important to pause and assess whether or not you're on the right track, whether the appropriate issue is being addressed, and if everything is being done properly. After a job is done, it's important to take stock of what was accomplished and how things were handled. For the purposes of this research, we will use the definition of "team reflexivity" provided by (Chen et al., 2018), which states: "Team reflexivity is the member's reflection on and communication about the project objects, processes, and strategies, enabling them to interpret their accomplishments and prepare for future actions.

3.3.4 Tast Conflict

Work conflict, as defined by the aforementioned body of academic literature, is present whenever there is disagreement or argument among group members over the nature of the task at hand. When team members argue about how to complete a task or on the purpose of the project, a conflict arises (Todorova et al., 2014). For purposes of this research, we will refer to "task conflict" as disagreements between team members on the nature of the project's tasks or its contents.

Chapter 4

Results and Analysis

After data collection from respondents, we have used Statistical Package for Social Sciences (SPSS) was used to carry different types of analysis such as descriptive, reliability, correlation and regression etc. based on this analysis we have concluded and discussed our derived research questions and hypothesis.

4.1 Descriptive / Normality Analysis

Descriptive analysis gives an idea and conclusion of the dissemination of the analyzed data, it helps in finding mistakes and outliers. This type of analysis allows to recognize resemblances among variables, which helps in finding out whether the data is fair enough for conducting further statistical analyses. Descriptive Analysis helps in summarizing, understanding and explaining data points an easy way such that patterns might appear that justify every condition of the data. The details about the data collected in this research investigation are presented in the table below "Descriptive Statistics".

There are 8 variables in total, with demographic information for 4 of them (age, gender, education level, and years of experience) shown in the first column of the table. The second column provides information on the study's sample size, which comes in at 390 replies out of 650. The typical values for team performance, task conflict, and team reflexivity are all in the 4–5 range, whereas the mean value for collaboration quality is 3–5. The fourth letter in the alphabet stands

for standard deviation, which reveals the general shape of our data distribution and the distances of individual data values from the computed mean. How close our data mean is to the actual or true mean of the population is what the standard deviation tells us. Together, they can provide a sharper picture than the mean alone. Standard deviation is used to examine the dispersion of a group of numbers around their mean. According to (National Library of Medicine), standard deviation, sometimes expressed as *delta*, measures how far the data is from the mean. A big standard deviation indicates a greater degree of dispersion in the data than does a small one. As the standard deviation increases, the data points move further apart from the mean. It is impossible to find instances with a negative standard deviation. An outlier's presence might lead to an abnormally high standard deviation. A solitary outlier can increase standard deviation and in turn, misrepresent the data. The value of standard deviation should be lesser then 1. From table number 4.1, it is clear that all the vales of standard deviation are in range of 0.1 to 0.7. Fifth and sixth column talk about skewness and kurtosis values of the responses, these values tells that whether the data is scattered or normally distributed. All four factors were given a Likert scale value between 1 and 5, with 5 being a very strong agreement with the statement being made. Most respondents agree with questions about teamwork quality, as measured by the independent variable, which has a mean of 3.878 and a standard deviation of 0.601; similarly, most respondents strongly agreed with questions about team performance, measured by the dependent variable, which has a mean of 4.05 and a standard deviation of 0.524, Team reflexivity got 4.22 as mean value meaning that respondents strongly agreed to asked questions and scale and 0.493 as standard deviation. Moderating variable (task conflict) has a mean of 4.12 and 0.5044 as standard deviation. The data was found to be normal except experience as per skewness values -3 to 3 and kurtosis values -10 to 10.

TABLE 4.1: Descriptive Statistics

Variable	**N**	**Mean**	**SD**	**Skewness**	**Kurtosis**
Gender	390	1.24	0.425	1.249	-0.442
Age	390	2.17	0.596	-0.072	-0.341
Qualification	390	5.14	0.351	2.041	2.175
Experience	390	1.04	0.186	5.009	23.206
TWQ	390	3.8782	0.60117	-0.045	-0.411
TP	390	4.0595	0.52469	-0.301	-0.511
TR	390	4.2241	0.49276	-0.424	0.55
TC	390	4.1253	0.50445	-0.82	0.536
N	390				

4.2 Reliability Analysis

The reliability of a scale is measured by how consistently it returns the same findings over several tests. The Cronbach Co-efficient Alpha (internal consistency reliability) value range starting from 0 to 1. Alpha values > 0.9 "are considered as excellent, > 0.8 as good, > 0.7 as acceptable, < 0.7 are considered as questionable and less than 0.5 are treated as poor. On the basics of the above thumb rule provided for the evaluation of alpha (Cronbach's alpha) test result, the questionnaire which is adopted for the same study found that the reliability value of the existing questionnaire of TWQ and Team reflexivity are more than 0.8 which means that the questionnaire is good to collect data for Teamwork quality and team reflexivity. The Cronback's alpha values of team performance and task conflict are more than 0.9 which indicates that the questionnaire used for these two variables are excellent to use. See **Table no 4.2** for figures.

4.3 Correlation among Variables

Table 4.3 shows how each variable is correlated to another variable. I have used Pearson correlation test which describes about the association of one variable with another. Correlation is a number which explains the relationship. The Pearson correlation is most common to measure linear correlation which is a number from -1 to 1 measuring the direction and strength of the relationship (Turney, 2022).

TABLE 4.2: Reliabilities of Variables

Variable	**Items**	**Reliability (Alpha)**
Teamwork Quality	14	0.863
Team Performance	15	0.904
Team Reflexivity	5	0.841
Task Conflict	18	0.909

Value from 0 to 1 describes positive correlation between variables, like when one variable changes the other in relationship changes in the same direction. Value equals 0 means no correlation or no relationship between variables. Value between 0 and -1 explain negative correlation meaning that if one variable changes, the other will change but in opposite direction (Turney, 2022). Values that are above 0.8 or near to 1 show that the variables are highly correlated meaning that the relationship between variables is strong that they may be represented as a single variable. This also means that there is data error of multi collinearity. Therefor this error must be dealt accordingly by running different tests so that it can be minimized. If not, the error of multi collinearity can affect the correlation of other variables. Based on the table given below the relationship between teamwork quality and team performance is 0.682 (r=0.682, p ¡ .01) which is strong correlation because the value lies above 0.5, which means that there is significant correlation between teamwork quality and team performance. this relationship is positive which means that increasing teamwork quality will increase team performance. the relationship between teamwork quality and team reflexivity is 0.375 which is moderate correlation because the value lies between 0.3 to 0.39. this relationship is significant as p-value is less than 0.01. as the relationship is positive so that increasing teamwork quality will increase team reflexivity. Similarly, the relationship between team reflexivity and team performance is strong as the r-value lies above 0.5, this relationship is significant and positive, the positive value indicates that increase in team reflexivity will increase team performance. the correlation of task conflict with teamwork quality is 0.660, with team performance is 0.703 and with team reflexivity is 0.606. all values are above 0.5, which means

that the relationship of task conflict is strong with each variable. After running theoretical analysis using PROCESS Macro by Andrew F. Hayes, the moderation of task conflict has negative impact on the relationship of teamwork quality and team performance. In the table 4.3, p value indicates the significance level of the relationship and demonstrates about the error chance in data. In table given, the P value if lesser then 0.01 means that there is 1% chance of error in data. For this approach values are symbolized with "**" while values with 5% chance of error in data are symbolized with "*". This value also represent that the relationship is 99% significant if values are less than 0.01 and be 95% significant if values are less than 0.05.

Table 4.3: Correlations

	1	**2**	**3**	**4**
Team Work Quality	1			
Team Performance	.682**	1		
Team Reflexivity	.379**	.620**	1	
Task Conflict	.660**	.703**	.606**	1

** = p < .05 significant correlation is at the 0.05, ** = p < .01 significant correlation is at the 0.01, *** = p < .001 significant correlation is at the 0.001.*

4.4 Regression Analysis on Variables

The SPSS add-on Process Procedure for SPSS version 4.1 (Written by Andrew F. Hayes, Ph.D.) was used to examine the correlation and causality between the variables. The bootstrapping method of analysis is used here; in this method, random samples are drawn from data and the expected statistics are calculated for each sample individually. Both the impact of collaboration quality on team performance and the moderating function of task conflict in this relationship have been investigated using this tool, the link of teamwork quality with team reflexivity, the impact of team reflexivity on team performance, and so on. Model 5 in fig 4.1 from Model Templates for PROCESS for SPSS and SAS is used when Y is the dependent variable (team performance), X is the independent variable

(Teamwork quality), M is the mediating variable (Team reflexivity), and "W" is the moderating variable (Tast conflict). An overall 390-person sample was put through their paces.

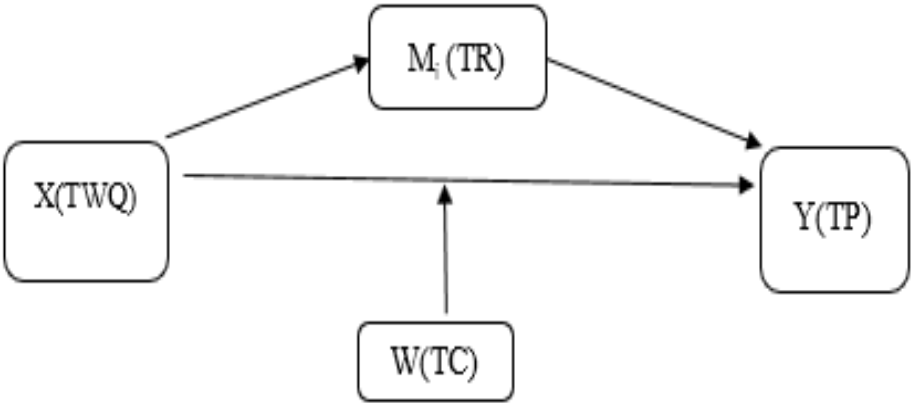

FIGURE 4.1: Regression Analysis

4.4.1 Outcome Variable as Team Reflexivity

After running the analysis shown in table 4.4, it is indicated that R-sq is 0.1436 which means that TWQ causes 14.36% change in team reflexivity. Anova results that is p-value is 0.0000 which is less than 0.05 (i.e., $p<0.05$, $p=0.0000$), hence we can say that the relationship between teamwork quality and team reflexivity is significant. As indicated that the Coeff (beta value) for TWQ is 0.3107 which means that the change in TWQ by one unit will bring the change in team reflexivity by 0.3107 units. As beta value (0.3107) positive and p-value less than 0.05, so we can say that the hypothesis.2 which states that teamwork quality has significant positive influence on team reflexivity so,

H2: Teamwork Quality has significant positive influence on team reflexivity (Supported).

TABLE 4.4: Regression on Team Reflexivity through Teamwork Quality

	R2	**Coeff (Beta)**	**Se**	**T**	**p**
Constant		3.0193	0.1511	19.9797	0.000
TWQ	0.1436	0.3107	0.0385	8.0672	0.000

4.4.2 Outcome Variable as Team Performance

Table 4.5 shows regression of TWQ and TR on team performance. teamwork quality causes 46.5% (R-sq = 0.465) change in team performance. the relationship between teamwork quality and team performance is significant (i.e., p<0.05, p=0.0000) and as beta value is 0.682, that means that change in teamwork quality by one unit brings 0.682 units changes in team performance. as beta is positive so we can say that the relationship between TWQ and TP is positive which justifies hypothesis.1 so,

H1: teamwork quality has significant positive impact on team performance (Supported). The impact of team reflexivity on team performance is

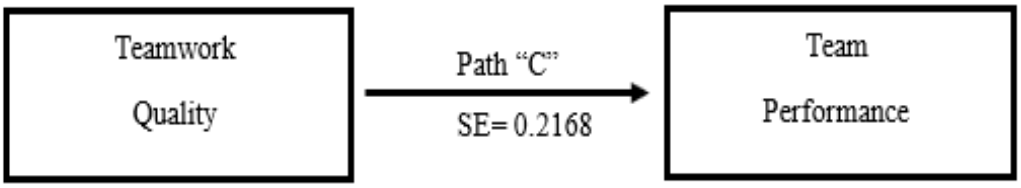

FIGURE 4.2: Direct Effect of X on Y

also positive and significant, because p-value from table 4.5 can be noted as less than 0.005 (p<0.05, p=0.0000) which is significant and beta is 0.620 which is positive. R-square for team reflexivity is 0.385 which means the changes in TR by one unit will cause 0.385-unit changes in team performance. as coefficient of team reflexivity is positive (Beta=0.620) so we can say the hypothesis is Supported. So,

H3: Team reflexivity has positive influence on team performance (Supported).

TABLE 4.5: Regression on Team Performance through Teamwork Quality and Team Reflexivity

	R2	Coeff (Beta)	Se	T	p
Constant		-2.9991	0.7927	-3.7833	0.0002
TWQ	0.465	0.682	0.2168	5.6755	0.000
TR	0.385	0.62	0.0408	9.2395	0.000

TWQ: Teamwork quality,TR: Team Reflexivity.

4.5 Testing Mediation of Team Reflexivity between TWQ and TP

In order to check mediation of team reflexivity in the relationship between teamwork quality and team performance, we have used a plugin of SPSS named as Process Procedure for SPSS version 4.1 (Written by Andrew F. Hayes, Ph.D.). For the same purpose we have taken Y as dependent variable (team performance), X as independent variable (Teamwork quality) and M as mediating variable (Team reflexivity). Model.4 was taken from Model Templates for PROCESS for SPSS and SAS. The results of the study are shown in table 4.6, where we see that the

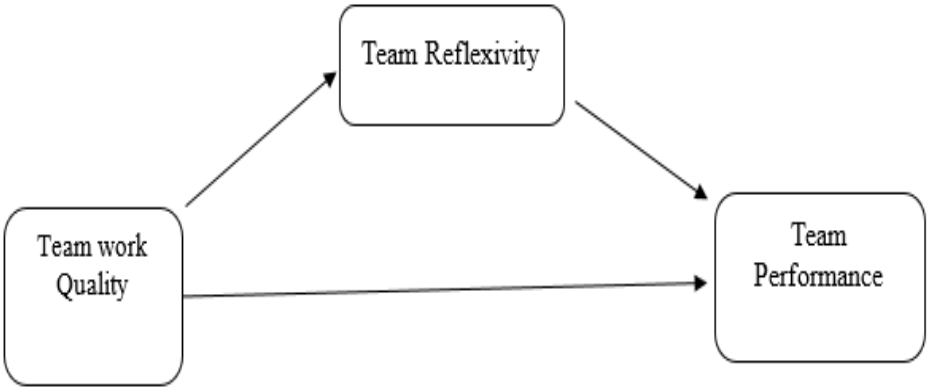

FIGURE 4.3: Mediation of Team Reflexivity

overall influence of collaboration quality on team performance is positive and statistically significant (p0.0000). The quality of the team's work has a direct, and beneficial, impact on the efficiency of the team's work. Teamwork quality has an indirect influence on team performance of 0.1398. This suggests that a shift of one unit in teamwork quality will result in a 13.98% shift in team reflexivity. Furthermore, both the BootLLCI and BootULCI values for this correlation are positive, indicating that there is a positive and substantial association between collaboration quality and team performance and that team reflexivity mediates this correlation.

H4: Team reflexivity mediates the relationship between teamwork quality and team performance (Supported).

TABLE 4.6: Direct and Indirect Effect of X on Y

Total effect of X on Y					
Effect	**Se**	**T**	**P**	**LLCI**	**ULCI**
0.5955	0.0324	18.3824	0.0000	0.5318	0.6592
0.4557	0 .0296	15.3872	0.0000	0.3975	0.5139
TR	0.1398	0.0314	0.0831	0.2071	

X= Teamwork Quality, Y= Team Performance, N=390, CI = Confidence interval, LL = Lower Limit and UL = Upper Limit.

4.6 Testing Moderation of Task Conflict on TWQ and TP Relationship

Table 4.7 evidence of task conflict as a moderator between collaboration quality and team performance in a two-step regression analysis. A positive (β =0.337) and statistically significant (p<0.05, p=0.0000) influence of collaboration quality on team performance was found, with a total R-squared value of 58%. Model.2 has an R-squared value of 0.583, which indicates that a change in TWQ and TC will result in a 58.3% change in team performance, but the beta and p-values are -0.105 and 0.049, respectively, indicating that task conflict moderates the relationship between TWQ and team performance in the opposite direction and with significant statistical significance. Table 4.7 shows that there is a statistically significant and positive association between our independent and dependent variables, with TWQ being the primary cause of a 46.5% variation in team performance. But! Task conflict acts as a moderator between collaboration quality and team performance, changing the direction of the relationship when it is present. Furthermore, the -0.105 beta value indicates that the strength of this association decreases when the impact of task conflict is taken into account. Therefore, H5 is correct.

H5: However, the association between collaboration quality and team performance is weakened by task conflict (Supported)

TABLE 4.7: Hierarchical Regression for Moderation

Variables	**M1**(β)	**M2**(β)
Team work quality	0.337***	
Task Conflict	0.467***	
R^2	0.579	
TWQ x TC		-0.105*
R^2		0.583
χR^2		0.004

** = p < .05. ** = p < .01. *** = p < .001.*

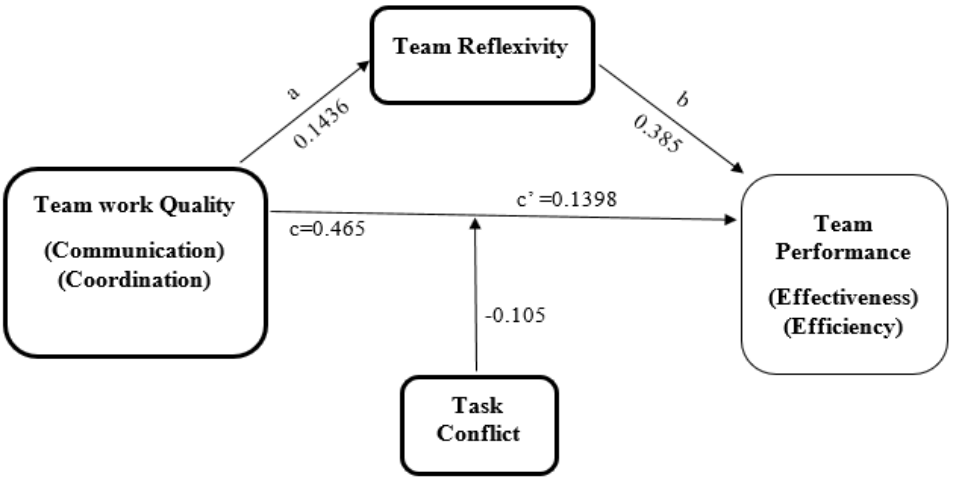

FIGURE 4.4: Research Model with Results

4.7 Hypothesis Summary

TABLE 4.8: Hypothesis Summary

Hypothesis	Statement	Status
H1	Teamwork quality has significant positive impact on team performance	**Supported**
H2	Teamwork quality has significant positive influence on team reflexivity	**Supported**
H3	Team reflexivity has positive influence on team performance	**Supported**
H4	Team reflexivity mediates the relationship between teamwork quality and team performance	**Supported**
H5	Task conflict moderates the relationship between teamwork quality and team performance such that it weakens the said associator	**Supported**

Chapter 5

Discussion and Conclusion

5.1 Discussion

5.2 Introduction

Accusative of this study is to find out relationship of Teamwork quality with team performance while team reflexivity plays a mediating role and task conflict as moderator. This chapter holds the discussion on the results brought forward after the analysis of the study.

5.2.1 Discussion on Research Question No.1

The first research question which the current study was trying to answer is:,

Research Question.1:

What is the relationship between teamwork quality and team performance in construction industry? In order to find answer to Question.1, a hypothesis was developed and tested that,

H1: Teamwork quality has significant positive impact on team performance.

The examination of correlations demonstrates a favorable relationship between collaboration quality and team performance. The regression study showed that

effective teamwork significantly predicts final team performance. Collaboration quality (in terms of both communication and coordination) was shown to be a significant predictor of team performance (effectiveness and efficiency). In support of this association, several additional studies have shown support for predictions similar to this. Easley, Devaraj, and Crant (2003) reports that the use of teams is a remarkably pervasive phenomenon in organisations, and that collaborative systems designed and developed to support the team's work is one way that businesses try to boost the efficiency and effectiveness of their teams. In addition, their findings imply that system utilisation is a function of collaboration quality and that the efficiency and effectiveness (performance) of teams using supported tasks is correlated with the use of collaborative technology systems. In order to accomplish a task effectively, team members must coordinate their efforts and mutual support in a very defied way (Fussell, et al.). further they have declared that there are two way which can be utilized to coordinate work are team design and communication. Term design means the method through which team structure their task and communication can be face to face, phone, or another way. Based on Easley et al. (2003) the use of a collaborative system acted as a moderator between the team's individual Teamwork traits, a proxy for the cohesiveness of a group, were shown to be favourably related to the use of the collaborative system, which in turn was found to be positively related to team performance on the tasks for which the system was designed to provide assistance. There is a strong correlation between team work quality (including their three additional elements) and team performance, as shown by the study cited in the citation. We found that the quality of collaboration accounts for 66% of the variation in team performance as evaluated by team members and 40% of the variation in team performance as evaluated by other stakeholders. According to Hoegl and Gemuenden (2001) the level of cooperation between team members has a direct bearing on the final outcome of the project. The research found that TWQ (composed of six components) accounted for 41% of the variation in team performance as judged by the team members themselves. In addition, Pinto has shown how inefficient dialogue may lead to a failed team effort.

5.2.2 Discussion on Research Question No.2

The second research question which the current study was trying to answer is:

Research Question.2:

Does teamwork quality affect team reflexivity in construction project? In order to workout answer to Question.2, a hypothesis was developed and tested that,

H2: Teamwork quality has significant and positive influence on team reflexivity.

The correlation results of data taken from 390 respondents, shows that there is significant positive impact of teamwork quality on team reflexivity. Teamwork quality do cause 14.36% positive and significant changes in team reflexivity. Beta was checked for the same relationship which is showing beta value as 0.3107 which means that if any changes equaled to one (1) in teamwork quality will bring 0.3107 units changes in team reflexivity. So, these correlation results answer the same question (Question.2) that teamwork quality has significant and positive influence on team reflexivity. In simple words, teamwork quality causes reflexivity in teams working in construction industry of Pakistan.

5.2.3 Discussion on Research Question No.3

The third research question which this study attempts to answer is,

Research Question.3

Does team reflexivity affect team performance of construction project? In order to answer the same question, we had created a hypothesis as below.

H3: Team reflexivity has positive influence on team performance.

The regression analysis on team reflexivity and team performance shows that team reflexivity is positively and significantly associated with each other. The R-sq value was noted as 0.385 which means if one-unit changes comes in team reflexivity, will cause 0.385 units changes in team performance the p-value of this relationship was noted less than 0.005 which is showing a significant result. So, answering to the question "Does team reflexivity affect team performance?" is yes it does. The relationship is also tested by many other researchers such as according to (Schippers

et al., 2013) team reflexivity creates environment for teams under which they apply their learnings and skills from previous work experience to current and future tasks and challenges, in result they contribute to effectiveness of team as it allows team to improve their work performance. team reflexivity is found to positively predict team productivity and team performance (Lyubovnikova, Legood, Turner, & Mamakouka, 2017). According to Schmutz, Lei, Eppich, and Manser (2018) Team members who can reflect on their own performance and that of their team amid stressful situations have a better chance of contributing to the group's overall success. For bigger teams, team reflexivity is particularly useful when working through difficult situations jointly. When it comes to protecting the resource that extreme action teams value most—their own members' lives—team reflexivity is a strong technique. Collectively reflecting on objectives and tactics has been demonstrated to be beneficial for team functioning and to link to satisfaction, commitment, performance, and team invention Pieterse, Van Knippenberg, and van Ginkel (2011). The degree to which a team engages in self-reflection is a strong predictor of that group's success (West, 1997). Researchers have shown that groups that engage in regular self-reflection have more success than those who don't. For the obvious reasons that team reflexivity improves performance in areas such as problem identification and resolution; information, skill, and knowledge sharing; the generation of new ideas and strategies; and the development of novel approaches. indeed. Proof for a positive correlation between teamwork quality and team performance stems from the previous studies on team adaption and on interruptions (Okhuysen, 2001) and interventions (Vashdi, Bamberger, & Erez, 2013). Further, reflexivity in team is fundamental as due to mindfulness and self-reflection of responsible team enable the team to work out better solution or answer for the issues they face in workplace (Hadi & Chaudhary, 2021).

5.2.4 Discussion on Research Question No.4

The fourth research question which this study attempts to answer is,

Research Question.4

Does team reflexivity mediate the relationship between teamwork quality and team performance in the industry of construction?

To answer this question, we have developed a hypothesis in chapter 2 stating that,

H4: team reflexivity mediates the relationship between teamwork quality and team performance.

Teamwork and team performance are positively connected, and the examination of correlation reveals that team reflexivity plays a mediating role in this relationship. According to the data, team reflexivity plays a positive and substantial mediating function between TWQ and team performance. Inasmuch as high-quality collaboration leads to increased reflexivity, which in turn leads to greater effectiveness and efficiency, it follows that we may boost team performance by fostering higher-quality teamwork. The role of team reflexivity as a moderator has been studied extensively. To improve team performance, teams may benefit from engaging in team reflexivity (cite: edmondson, 1999, psychological). In addition, Hirst, Mann, Bain, Pirola-Merlo, and Richver (2004) and his co-researchers determined that team reflexivity drives towards improvement of performance in response to training and improved leadership. The benefits of teamwork on individual members' performance are mediated via reflexivity, as explained by Tjosvold (1991). In order to understand the relationship between collaboration quality and team performance, this research examined the mediating role of team reflexivity. Team reflexivity affects the benefits of better performance in two ways, both of which have been mapped out by Schippers et al. (2005): the first is the resulting interdependence of different individuals, and the second is the engagement of different people over the course of a group's or team's existence. Researchers have shown that reflexivity promotes teamwork and shared authority among people. In addition, the regression analysis reveals that the direct effect of quality teamwork on performance is larger than the indirect effect through team reflexivity. Consequently, we can confirm that team reflexivity mediates the connection between teamwork quality and team performance in the building sector.

5.2.5 Discussion on Research Question No.5

The fifth research question which this study attempts to answer is,

Research Question.5

Does task conflict moderate the relationship between teamwork quality and team performance?

To answer the above question, we have developed a hypothesis as,

H5: However, the association between collaboration quality and team performance is weakened by task conflict.

Through the use of SPSS's two-steps regression analysis, we looked at how working together as a team affects their productivity while dealing with task conflicts. The results reveal that the presence or absence of task conflict has a distinct impact on the link between collaboration and team performance. After performing the study in the presence of task conflict, it was shown that collaboration quality has a 46.5% influence on team performance in the construction sector workplace when there is no task conflict. According to the data, the beta value changes to -0.105 when there is a disagreement between tasks, hence the answer is yes. Task conflict does act as a moderator between the quality of collaboration and the effectiveness of the team, as shown by the score of 5, and the negative sign indicates that this moderator acts in the other direction, weakening the association between teamwork and performance. These findings corroborate those of other studies that linked task conflict to a decrease in team performance i.e.., (De Dreu & Weingart, 2003). Some research suggests that the link between collaboration quality and team performance may be negatively or positively affected by task conflict. When team members talk about the problem and learn from each other's thoughts and views, task conflict may be productive (Pelled et al., 1999).

5.3 Theoretical Implication

The current research work has few contributions to the project management domain of teamwork quality and team performance, first of all we have conceptualize the teamwork quality (i.e, communication and coordination) effect on team performance, this relationship was missing in the current project management literature and the finding confirmed this relation. Second, we have tested the TWQ effect on team reflexivity, this relationship was also missing which was confirmed in

this study. We have also tested the intervening role of team reflexivity between teamwork quality and team performance and this relationship was missing in the literature of project management which was confirmed in this research work too. Finally, we have also tested the role of task conflict as moderator between teamwork and team performance and that relationship was also confirmed through results of this research work.

5.4 Practical Implication

This research work has many managerial implications for project-based organizations. First, this study demonstrates that teamwork quality enhances team effectiveness and efficiency (team performance). therefore, this study suggests that managers in project-based organizations or managers of temporary projects should have adopted teamwork quality in the work environment. Secondly, this study has worked out that communication and coordination causes team reflexivity In construction projects, so when construction manager or site supervisor provides teamwork quality (communication and coordination) then this build situations under which team/workers do apply their knowledge and skills from past experiences to cope with future tasks and challenges of construction work which then have potential to contribute to team performance i.e., effectiveness and efficiency of team. Thirdly, the current study finds that team reflexivity can be a good predictor of team performance. So, managers in construction industry enhance team performance by bringing team reflexivity.

Finally, this study has found that task conflict can weaken the relationship between teamwork quality and team performance. Therefore, managers need to investigate task conflicts prior base in construction project to overcome its negative impact on team performance.

5.5 Strengths, Limitations, and Future Directions

Almost all studies have some limitations as studies cannot possibly cover every aspect of the gaps. Similarly, this research work has limitations as well. Some limitations are related to time and some are related to other resources. Some limitations of this study can be noted. To begin, this research does not have longitudinal data but rather cross-sectional data. We cannot conclude that one thing causes another since our research only shows connections between factors. Our understanding of causality in interactions and the evolution of team cooperation and perceptions of team performance might both benefit from a longitudinal research design incorporating numerous in formants. This study is empirical, and the depth of empirical data gathered for this study allows inductive reasoning of the results obtained, primarily to the dominance of teams with innovative tasks and activities. Because innovative tasks are complex and dynamic, they require that a wide range of skills be integrated to achieve high team performance (effectiveness and efficiency). Teamwork quality may be considered as a measure of how effectively this integrated functioning with novel tasks is accomplished. As a result, the quality of the team's work becomes more crucial to the efficiency and effectiveness of the team as assignments grow more novels. Therefore, if the job being done is regular, other elements, such as organisational context and process know how, may be more essential in determining a team's efficiency and effectiveness. Considering that our research is empirical and sought to create ideas unique to a narrowly defined area (team communication and coordination), we believe this to be the case. We call for further studies to better our knowledge of moderating factors such the impact of task variables on the connection between collaboration quality and team performance. Therefore, this study offers evidence that collaboration quality is a significant component for team performance, making the influence of teamwork quality on team performance an important subject for the next research. Additionally, more research is required since this study only examines two aspects of cooperation quality whereas others, such as trust, mutual

support, coherence, etc., may also be important. This study is limited to construction industry of Pakistan and data for this approach was collected from less population because it was quite difficult to gather data from construction industry because of COVID-19 situations and some reasons related to security. Some results of this study were not according to what was expected or much different from previous literature. It is also worthy to included that this research has used convenience sampling method due to resources and time constraint (convenience sampling method was used to have the data in less cost and in short time). Furthermore, we have used SPSS for data analysis, in future studies, one can used advanced and developed tools such as M-Plus and SMART PLS for analysis as these tools are considered good for complex models.

5.6 Conclusion

This study is focusing on one the most important aspect of management. Most of the researches in area of project management is now focusing on social and psychological aspects of projects team. Resources such as humans (teams) if managed properly can bring positive results and push the project into success because human resources, if managed can boost the effectiveness and efficiency of project resulting in better team performance. More work in the research field is done to understand and discuss the issue of teamwork quality but there are still wide gaps which need dedication and attention so that the concept of teamwork quality and its impact on team performance can be understood. In previous studies i.e., Weimar et al. (2017) and Hoegl and Gemuenden (2001) they have taken more than 5 elements of teamwork quality to determine their impacts on the success of innovative projects and team performance but here is no work done to check the impact of teamwork quality on team performance when few or two elements of teamwork quality are taken on the same association. So, in this research we have limited this multi facet to two number of elements i.e., coordination and communication. Previous studies have not included the moderation of any variable but in current study, we have taken task conflict as moderating variable.

The current world is a global village and is turning very fast. Construction projects and methodology are changing enough fast due to technology advancement in different construction organizations. Because of globalization, construction industry is facing with number of challenges that require solutions and for dealing with these challenges, there is a requirement to manage different resources of industry especially human resources. Because human resources are significant resources for any industry as if this resource is managed properly can bring many reflections of dealing with issues and challenges in the correct way. According to literature review that we have already conducted, Teamwork quality is in direct relationship team reflexivity meaning that if team communicate and coordinate, they will be more reflexive and cohesive. This relationship was noted positive as well as significant. The purpose of this research is to determine the effect of TWQ on team performance, taking into account the moderating effects of team reflexivity and task conflict. We sent out 650 surveys and used a random selection of 390 of them to uncover these connections. Support for hypotheses 1, 2, 3, 4, and 5 is provided by the data in the present investigation. Teamwork quality in the construction sector was shown to have a beneficial effect on team performance, and the research found that the connection between the two variables was mediated by team reflexivity. The findings showed a positive and statistically significant correlation between TWQ and team reflexivity, indicating that TWQ generates team reflexivity. Team reflexivity was also revealed to be a significant influence in the success of this study's teams. And this study's findings show that task conflict significantly moderates the positive association between collaboration quality and team performance in a way that is counterproductive.

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Appendix-A

Questionnaire

Dear Respondent

Dear Respondent, I am a student of MS Project Management at Capital University of Science & Technology, Islamabad. I am conducting research on "**Impact of Teamwork Quality on team performance with Mediating Role of Team reflexivity and Task Conflict as Moderator**". You can help me by completing the questionnaire, which I think, you will find quite interesting. I appreciate your participation in my study and I assure that your responses will be held confidential and will only be used for educational purposes.

Please read the instructions carefully and answer all the questions. There are no "tricky" questions, so please answer each item as frankly and as honesty as possible. It is important that all the questions be answered.

Thank You for being a part of this study.

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Section 1: Demographics

Gender	1- Male 2- Female 3- Transgender
Age(years)	1 (18-25), 2 (26-33), 3 (34-41), 4 (42-49), 5 (50-above)
Qualification	1 (Matric), 2 (Inter), 3 (Bachelor), 4 (MS/M.Phil.), 6 (PhD)
Experience(years)	1 (0–5), 2 (6–10), 3 (11-16), 4 (17-22), 5 (23-28), 6 (29-above)

Section 2: Teamwork Quality

Please considering Teamwork quality element **"Communication" and indicate the response that describe your belief about jobs in general. The scale ranges from 1= Strongly Disagree, 2= Disagree, 3= Neither agree/nor disagree, 4= Agree, 5= Strongly Agree.**

Sr. No	**Statement**					
1	There is frequent communication within the team	1	2	3	4	5
2	The team members communicate often in spontaneous meetings, phone conversations, etc.	1	2	3	4	5
3	The team members communicate mostly directly and personally with each other	1	2	3	4	5
4	There are mediators through whom much communication is conducted*	1	2	3	4	5
5	Relevant ideas and information relating to the teamwork is shared openly by all team members	1	2	3	4	5
6	Important information is kept away from other team members in certain situations*	1	2	3	4	5
7	In the team there are conflicts regarding the openness of the information flow*	1	2	3	4	5
8	The team members are happy with the timeliness in which they receive information from other team members	1	2	3	4	5

9	The team members are happy with the precision of the information they receive from other team members	1	2	3	4	5
10	The team members are happy with the usefulness of the information they receive from other team members	1	2	3	4	5
Coordination						
11	The work done on subtasks within the team is closely harmonized	1	2	3	4	5
12	There are clear and fully comprehended goals for subtasks within our team	1	2	3	4	5
13	The goals for subtasks are accepted by all team members	1	2	3	4	5
14	There are conflicting interests in our team regarding subtasks/subgoals*	1	2	3	4	5

Section 3: Team Performance

This section deals with team performance. **Please indicate the degree to which you agree, disagree, strongly agree, strongly disagree and neutral with the following statements that describe Team performance for your project that may be running or completed. The scale ranges from 1= Strongly Disagree, 2= Disagree, 3= Neither agree/nor disagree, 4= Agree, 5= Strongly Agree.**

Sr.No	**Statement**					
1	Going by the results, this teamwork can be regarded as successful	1	2	3	4	5
2	All demands of the customers are satisfied	1	2	3	4	5
3	From the company's perspective, all team goals are achieved	1	2	3	4	5

4	The performance of the team advances our image to the customer	1	2	3	4	5
5	The teamwork result is of high quality	1	2	3	4	5
6	The customer is satisfied with the quality of the teamwork result	1	2	3	4	5
7	The team is satisfied with the teamwork result	1	2	3	4	5
8	The product produced in the team, requires little rework	1	2	3	4	5
9	The product proves to be stable in operation	1	2	3	4	5
10	The product proves to be robust in operation	1	2	3	4	5
Efficiency						
11	The company is satisfied with how the teamwork progresses	1	2	3	4	5
12	Overall, the team works in a cost-efficient way	1	2	3	4	5
13	Overall, the team works in a time-efficient way	1	2	3	4	5
14	The team is within schedule	1	2	3	4	5
15	The team is within budget	1	2	3	4	5

Section 4: Team Reflexivity

This section deals with team reflexivity. **Please indicate the degree to which you agree, disagree, strongly agree, strongly disagree and neutral with the following statements that describe Team reflexivity for your project that may be running or completed. The scale ranges from 1= Strongly Disagree, 2= Disagree, 3= Neither agree/nor disagree, 4= Agree, 5= Strongly Agree.**

Sr. No	**Statement**					
1	In this team we often review the feasibility of our objectives.	1	2	3	4	5

2	In this team we often discuss the methods used to get the job done.	1	2	3	4	5
3	In this team we regularly discuss whether we are working effectively together.	1	2	3	4	5
4	In this team we modify our objectives in light of changing circumstances.	1	2	3	4	5
5	In our team we often review our approach to getting the job done	1	2	3	4	5

Section 5: Task Conflict

This section deals with task conflict. **Please indicate the degree to which you agree, disagree, strongly agree, strongly disagree and neutral with the following statements that describe Task conflict within team/task for your project that may be running or completed. The scale ranges from 1= Strongly Disagree, 2= Disagree, 3= Neither agree/nor disagree, 4= Agree, 5= Strongly Agree.**

Sr. No	**Statement**					
1	The people I work with and I often engage in debate about our different opinions or ideas	1	2	3	4	5
2	The people I work with and I regularly express differing viewpoints about the issues involved in our work	1	2	3	4	5
3	The people I work with and I often criticize each other's viewpoints about our work (e.g., tasks/assignments)	1	2	3	4	5
4	The people I work with and I frequently argue about what our output should look like (e.g., meals served, medicine delivered, calls answered . . .)	1	2	3	4	5

5	The people I work with and I frequently clash about our objectives/goals.	1	2	3	4	5
6	I get information about the issues.	1	2	3	4	5
7	I consider others' opinions	1	2	3	4	5
8	It helps to better understand the issues	1	2	3	4	5
9	Positions become clearer	1	2	3	4	5
10	My coworkers and I regularly take time to figure out ways to improve our work processes.	1	2	3	4	5
11	My coworkers and I tend to handle differences of opinion privately, rather than involving others.	1	2	3	4	5
12	My coworkers and I go out and get all the information we possibly can from others—such as from residents or coworkers in other parts of the organization.	1	2	3	4	5
13	My coworkers and I frequently seek new information that leads us to make changes.	1	2	3	4	5
14	Someone always makes sure that we stop to reflect on our work process.	1	2	3	4	5
15	People often speak up to make sure they understand the issues being discussed.	1	2	3	4	5
16	My coworkers and I invite people from outside the work location to present information or have discussions with us.	1	2	3	4	5
17	Conflict and disagreements often occur between people who hold different jobs (e.g., between a nurse and a dining services employee or between an administrator and a security employee).	1	2	3	4	5
18	People holding different jobs tend to disagree more than people holding the same job.	1	2	3	4	5