

Board 98: Exploring the Relationship Between Team Personality and Team Dynamics in Construction Project Teams: A Literature Review

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Abstract

Team dynamics and personality play an essential role in the success of construction projects. Construction project teams comprise professionals working together to design, detail, and construct a project. Team dynamics impact the collaboration and interaction of these project teams. How and why some teams "click" better than others, can be described by the strength of their collective personality. In this ongoing study, we conducted a literature review to explore the relationship between team personality and team dynamics and examine how to derive group-level personality measures from individual member inputs. Our review recognized the existence of a strong relationship between team personality and team dynamics. Although previous research on team composition has examined the impact of individual team member personalities on their team functioning, only a few studies have inspected collective team personality and its effect on team dynamics. While some efforts have been made to derive overall team personalities from the mean or variance of individual team member personalities, the results are somewhat inconsistent. There is still less conclusive evidence showing how to determine group-level personalities. Our review also noted that the construction sector has not fully incorporated personality traits as team-level constructs in design and construction project teams. The combined personality of all team members, including the owner, architect, engineer, contractor, key subcontractors, and other subject matter experts lacks full integration into construction research. Implications and recommendations are presented at the end of this paper.

Introduction

Teams are groups of individuals that work together towards a common goal, utilizing coordinated interactions to complete tasks [1], [2], [3], [4]. The use of teams in the workplace has a long history and has grown significantly in various industries in recent years [5]. As work environments become increasingly complex, organizations are turning to team-based approaches, allowing the integration of various skills and knowledge [6]. Getting a diverse group of individuals together to collaborate and work as a unit is necessary for addressing complex challenges [5]. Effective team performance relies on combined efforts of teamwork, which define how tasks and goals are accomplished in a team context [7].

Teams are vital for project success within the construction sector. Teamwork has become a necessity rather than a choice due to the complex and multifaceted nature of construction projects [8], [9]. A construction project team includes professionals from one or more organizations who collaborate to design, detail, and construct a project [10]. Construction teams require high interdependence of team members to carry out tasks [11]. Team members rely on each other's input to attain project goals. Effective team organization and management considerably impact project success [1]. However, it is customary to note that construction teams are often fragmented due to frequent reorganization and the formation of new projects or phases [12]. Project organizations mostly consist of team members who have never worked together before and will

disperse after the contracted scope [13]. The increasing globalization and technological advancement have also made construction teams more complex and diverse, requiring various project management approaches for success [14], [15].

Teamwork has a variety of benefits, including knowledge creation, reduction of errors, promotion of innovation, productivity improvement, and increase in job satisfaction [2]. Teams can increase an organization's adaptability to dynamic environments [6]. Team development and adaptability are crucial in dynamic systems where teams encounter a variety of situational demands [16]. The effectiveness of teamwork is influenced by factors like individual personalities, interpersonal relationships, cultural backgrounds, roles, time constraints, and prior experience [17]. Understanding the characteristics that contribute to effective team dynamics and the optimal combination of these characteristics can aid in designing high-performing teams [10], [18]. In this study, we focused on the role of personality in team dynamics. We collected and examined relevant literature to assess the relationship between team personality and team dynamics, as well as the methods used to derive group-level personality from individual team member personalities.

Methods

The literature search included a review of peer-reviewed journal and conference articles. Electronic search engines and sources such as the University of Kansas library, Google Scholar, and ResearchGate were brought into play in the search. Keywords and phrases such as "teamwork," "team dynamics," "team effectiveness," "team personality," "construction teams," "team success," and "personality in construction projects" were used to identify related studies. The initial search yielded journal and conference articles dating back to 1947 that had the potential to accomplish the objectives of the study. After screening these articles using full-text analysis, studies pertinent to the research objectives were selected for final review.

Findings

Defining Team Dynamics and Team Personality

Team dynamics, also known as group dynamics, refers to the interpersonal relationships and processes that occur within and between groups over time [4]. The study of group dynamics, encompassing the behavior of individuals within groups, has a rich history in psychology and the social sciences [5]. Over the past century, a significant body of research on this topic has been accumulated, yielding a comprehensive understanding of the functioning of groups. The concept of team dynamics was first introduced in the 1940s by social psychologist Kurt Lewin, who argued that individuals demonstrate distinct behaviors when working in groups [19].

Team dynamics are essential for effective team collaboration [4]. The scientific study of group/team dynamics offers valuable insights into the operation and improvement of teams [5]. According to Lewin [19], the interactions within a team contribute to its performance and overall effectiveness. Teams with positive team dynamics tend to exhibit trust, effective communication, care, cooperation, fruitful decision-making, accountability, and creativity, leading to enhanced performance. Conversely, negative team dynamics can hinder team effectiveness, regardless of the

expertise of its individual members due to a lack of motivation, conflicts, and misunderstandings [17]. Overall, team dynamics can describe the effectiveness of teams in their performance.

The word personality is derived from the Latin word *persona*, which refers to a mask used by actors in a play. Schultz and Schultz [20] exploring different personality theories, defined personality as “The unique, relatively enduring internal and external aspects of a person’s character that influence behavior in different situations”. According to Schultz and Schultz [20], the direct meaning of the word *persona* may give the impression that personality refers to external characteristics seen by other people. However, several attributes of an individual, a collection of various characteristics beyond physical qualities, are encompassed within the personality word. Personality comprises subjective social and emotional traits as well, ones that we may not be able to see directly [20].

Personality assessment is a prominent area of application of psychology to real-world concerns [21]. Standardized methods of measuring personality are essential in psychological research as they can examine the different aspects of human behavior. Different industries and professionals use personality assessments to understand and evaluate people’s behavior, traits, and tendencies [22]. Personality assessments can help improve self-awareness and personal growth. Additionally, these assessments help individuals in career development by identifying one’s strengths and weaknesses and finding good fitting career paths for their personality. People can also learn how to enhance their relationship and interpersonal skills by taking personality assessments. Research psychologists assess the personalities of their subjects attempting to account for their behavior in an experiment or to correlate their personality traits with other measurements [20].

The existence of group-level effects on individual behaviors is a long-accepted phenomenon in psychology [4]. Prewett et al. [1] define team personality composition as “a team-level index of the personality traits within the team, reflecting the strength (or elevation) of a given trait within the team and/or the heterogeneity of a trait within a team”. The study states the primary reason for creating team-level indices of personality as relating personality characteristics to team-level criteria without inappropriately crossing levels of analysis.

Personality traits are believed to be critical attributes in team composition research. Team personality composition refers to the configuration and aggregation of personality traits in teams that influence team processes and outcomes [23]. The characteristic thoughts, feelings, and behaviors reflected in personality influence how members react and relate to each other while working together [21]. Personality measures have been used in different parts of the construction sector. Team members’ personality factors affect team performance through a variety of processes [22]. From how team members approach task completion to how they interact with one another, a team’s personality may impact its performance [24]. Construction project team dynamics is one area where team members' personalities play a critical role.

Relationship Between Team Personality and Team Dynamics

Personality has been identified as a key factor in shaping team dynamics and performance [24]. In describing the convoluted social processes that emerge in groups, Lewin's research suggests that a group's performance is subject to its psychological behaviors. Lewin further proposed that

individual team members' personalities influence the roles and behaviors of other team members and the group. Each person's personality in a group involuntarily sculpts the direction of group dynamics [25].

Haythorn [26] states that there is a significant relationship between an individual group member's behavior and the characteristics of the entire group dynamics. According to the study, personality traits tend to be strongly related to the smooth and effective functioning of the group. The study, although focused on small groups, proved that the personality of group members shapes the way team members interact with each other as well as how they approach tasks.

Allen and Woodley [18] also emphasized the importance of considering personality variables when selecting individuals either for an existing team or a newly created team. On a similar note, Prewett et al., [1] state that the connection between team personality and team dynamics is a crucial area of research, as it helps to explain why some teams function more effectively than others. As team members understand one another better, they get to use their understanding to enhance teamwork, improve communication and get through challenges as a single entity.

Juhász [6] states that the role of personality in team process and team performance is unarguable. According to the study, interactions that take place among the team members including patterns such as conflict, efforts toward leadership and communication differentiate teams from each other. Personality is an important factor in accounting for how employees behave in teams and in the organization shaping the dynamics of each setup.

Kozlowski and Bell [27] also emphasize the relationship between team personality and team dynamics. Understanding team personality can benefit team leaders and managers in creating a positive team environment and maximizing team performance. Recognizing team members' strengths and weaknesses helps leaders leverage their individual traits to create a cohesive team that is focused on achieving common goals.

Assessment of Overall Team Personality in Construction Project Teams

Allen and Woodley [18] describe two levels at which team composition research can be conducted: the individual and team levels. Individual-level research examines the connections between team members' personalities and their perceptions of the team. Team-level research, on the other hand, investigates the relationships between the team's personality and collective or group-level assessments of team processes and overall team performance. The study further shows that although examining the personality of team members at an individual level is important, measuring these criteria at the team level is essential. In doing so, teams understand their processes and perform competently. However, to accomplish this, Allen and Woodley [18] state that conceptualizing and operationalizing personality traits as group-level constructs are vital.

Karmer et al. [22] in assessing the effect of personality composition on group performance, noted incomplete evidence on group-level personality valuation. The study, from previous literature, discovered three methods to operationalize personality composition in groups. The most common method is to calculate the mean score of the group for a particular personality trait, the second method is to assess the variability (i.e., variance or range) of individual personality traits in the

group, and the third method is to focus on minimum and/or maximum scores, which are especially appropriate to assess ceiling and floor effects in groups. Overall, Kamer et al. [22] state that although existing research has revealed that the personality composition within a group is associated with the group's performance, the specific compositional effects are not well understood.

Prewett et al. [28] tried to assess how best to map individual personality scores onto a team personality score. The study reviewed literature and learnt that researchers have addressed the aggregation problem using an array of methods, but a consensus on the best method remains elusive. The most common methods of aggregation of team personality were then chosen and evaluated. These include the *mean personality score* of team members, the *lowest member score* (minimum method), the *highest member score* (maximum method), and the *spread of team member scores* (variance method). The outcomes of the evaluation showed that available methods of aggregation of individual personality to the team are questionable as they do not consider the entire team's distribution of scores, they are of unknown reliability, and they typically fail to consider the matching of personality to team roles. Prewett et al. [28] suggest that researchers should estimate the reliability of their team scores. Additionally, the study proposes a further exploration of how the measure of team personality intersects with team roles as it benefits team personality literature.

The review of the literature revealed that there is still inconsistent evidence regarding the investigation of team-level personality [6], [18], [22], [24], [28], [29], [30]. Most of them use either team mean or team variance to estimate team-level personality. With the available evidence, it is difficult to predict the interpretation of team personality. Does a higher/lower level of team personality traits mean the team performs better/worse? Does greater variance in a specific team personality trait show lower cohesion within the team? The need for further research in computing group-level personality from individual team member personalities persists.

Conclusion and Recommendations

Our review of previous research has revealed a strong connection between team personality and team dynamics. Personality is a key factor that impacts team dynamics, but there has been relatively little research on the effect of overall team personality ratings on team performance. Team researchers have been slow to incorporate personality traits as team-level constructs. While some studies have attempted to estimate overall team personalities using the mean or variance of individual team member personality traits [18], there is limited evidence demonstrating the validity of these measures. Moreover, the results of the few available studies on this topic are fairly inconsistent.

The lack of research on overall team personality is particularly evident in the construction sector. There is a dearth of studies examining the assessment of individual team members' personalities (such as those of the owner, architect, engineer, contractor, and key subcontractors) and the combined effects of these personalities on the entire team. Loosemore [14] states the variation in construction project team members and structures over the course of a project. Additionally, construction projects often involve constraints such as time and cost control [15], making it critical for construction teams at different stages of the project to understand the full team composition.

All team members must strive to work together to ensure a successful project outcome. Solving problems that arise from a group of unfamiliar people working together is essential to develop an effective, functioning team [31]. We recommend an in-depth assessment of the relationship between overall team personality and team dynamics in the construction sector. It is also vital to explore how team performance and project outcomes are affected by the personalities of individuals and the entire team.

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