

Modeling the Effects of Personality on Performance Outcomes in Student Teams

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Abstract

This paper discusses relationships between team personality elevation and diversity and team work performance outcomes in the context of student teams engaged in academic coursework. A model is presented proposing that team effort, team effectiveness, and team work satisfaction are influenced by elevation and diversity of the Big Five personality dimensions and that these effects are mediated by group communications and workload sharing. The model proposes that the influence of personality elevation and diversity on performance outcomes is mediated by communication within the group and by group workload sharing. Relationships among these components are presented as propositions to guide future research.

Keywords: Big Five Personality, Team Performance, Team Communications, Workload Sharing

Introduction

Researchers have directed considerable effort to investigating effects of team composition on the outcomes of team work. As a result, it is widely accepted that team work outcomes are influenced by both surface level traits of team members such as ethnicity, gender, and age, as well as deep traits such as personalities, attitudes, and beliefs (Hsiao-Yun, Shih and Chiang 2015). It is generally agreed that work outcomes are influenced by both the mean levels of these deep traits and their diversity within teams, and that trait effects are mediated by team structure and team processes (van Knippenberg and Mell (2016). This knowledge has been widely applied in work settings and has provided a basis for informed approaches to team formation, team training, team leadership selection, and the resolution of team conflicts (Peeters, et. al. 2006). Unfortunately, there are limits to our knowledge of how fully these findings are applicable in academic settings. Much of the work has been done in businesses settings and it remains unclear whether findings that are applicable in work teams in business settings also apply in teams composed of students engaged in academic course work. This is a serious limitation; many of the learning experiences in business higher education involve student teams. Teams bring together students from different backgrounds who have different personalities and goals and who differ in their levels of energy, motivation, and commitment. The effectiveness with which teams complete tasks and activities significantly affects the extent to which learning goals are achieved. Thus a better understanding of team effectiveness offers the potential for improving learning outcomes and is important to both students and educators (Bobbitt, Inks, Kemp, and Mayo 2000). The purpose of this paper is to address this shortcoming by conceptualizing a model of personality influences the outcomes of student teams engaged in academic course work.

The Conceptual Model

Personality Dimensions

Although personality has been conceptualized in several different ways, the most important differences in personality can be grouped into specific categories. Goldberg (1981) suggested that five major dimensions of personality could serve as a framework for the majority of existing theories including the views of Cattell (1957), Eysenck (1970), and Guilford (1975).

This approach has proven to be empirically robust across diverse populations in a variety of research settings. Costa and McCrae (1992) view personality as a multi-dimensional construct consisting of five components identified as agreeableness, conscientiousness, emotional stability, extraversion, and openness to experience. They proposed a personality model based on these five factors. Research has produced considerable evidence that individual differences in these five factors account for differences in the ways people think, feel, and interact with others. According to the model, individuals high in agreeableness are likely to be cooperative, warm, understanding, and sympathetic and unlikely to be rude, harsh, insincere, and unsympathetic. Those high in conscientiousness are likely to be hard working, well organized, dependable and firm while those less conscientious are likely to be lazy, disorganized, unreliable, and indecisive. Similarly, emotional stability describes individuals who are calm, self confident, and patient in contrast to neuroticism which describes tension, insecurity, and irritability. People high in extraversion are likely to be gregarious, assertive, and sociable in contrast with introverts who are likely to be reserved, timid and quiet. Openness to experience refers to reflectiveness, creativity, and comfort with theory in contrast with closeness which refers to conservatism of opinions, practicality, and resistance to change.

Personality Composition

Research in organizational settings has examined relationships between personality and work performance in groups. This research has identified personality traits that contribute to group functioning and facilitate accomplishment of group tasks. The earliest studies investigated relationships between work outcomes and personality at the individual level. However, more recent studies have begun to address personality traits at the group level, and have focused on group level personality indicators such as team personality elevation and team personality diversity (Hackman 1987; Muchinsky and Monahan 1987; and Neuman, Wagner, and Christiansen 1998). Team personality elevation refers to a team's average level of strength on each of the five personality dimensions. For example, a team as high in personality elevation on agreeableness would exhibit high levels of cooperation, warmth, and understanding. This does not imply that all team members would score high on agreeableness, but does imply that there would be some members who would elevate the average agreeableness score for the team. Elevation of group personality traits has received considerable attention as a predictor of group performance (Kahan, Webb, Shavelson, and Stolzenberg 1985; Driskell, et. al. 1988). For example, Williams, Parker, and Turner (2010) showed that the dimensions of openness and agreeableness are associated with higher levels of proactivity and that team proactive personality elevation was positively associated with proactive team behaviors.

Team personality diversity refers to the variance or differences among team members on each of the five dimensions. A team high in diversity on conscientiousness would have individual members who vary in terms of dependability, organization, and commitment to work. Such teams may perform ineffectively because members with high conscientiousness can perceive their counterparts as lazy and irresponsible while members with low conscientiousness may perceive other group members as overly intense and serious about group work. Daan van Knippenberg and Julija N. Mell (2016), distinguished between three types of diversity Trait diversity refers to diversity in stable characteristics such as demographic background, educational background, or personality. State diversity refers to differences in more malleable attributes such as decision preferences, task relevant information, or moods. Emergent diversity refers to variation in team processes and psychological states defined in reference to the team. They proposed that interactions between trait and state diversity lead to emergent diversity. Teams high in diversity are often referred to as heterogeneous, whereas teams low in diversity are described as homogeneous. Prior research has investigated the effects of personality diversity on group performance and has suggested situations under which heterogeneous and homogeneous groups result in better job performance (Muchinsky and Monahan 1987; Day and Bedeian 1995). Research has shown, for example, that diversity in age and education were positively related to team performance when need for cognition was high and that these diversity effects were further mediated by collective team identification and elaboration of task-relevant information (Kearney, Gebert and Voelpel 2009).

Team Process Variables

Literature indicates personality composition influences performance outcomes through the mediating role of group processes. Specifically, communication within the group and group workload sharing can enhance team effectiveness and team work satisfaction.

Effective communication is critical for coordinating work expectations, providing norms, and strengthening individual members' identification with the team (Hovland, Janis and Kelley 1953). As such, communication within the team is an antecedent condition of workload sharing and effective team performance. In a study of 1020 members in 191 teams Liao and Long (2016) proposed a model in which communication related variables of information accumulation, information transformation, and information selection mediated effects of cognitive diversity on team performance outcomes (Liao and Long 2016). Workload sharing also plays a central role in determining performance outcomes. It enhances effectiveness by preventing social loafing and the free rider effect (Harkins 1987). To enhance workload sharing group members should believe that their individual performance can be distinguished from the group's and that there is a link between individual performance and group outcomes. Recent research has shown that team helping behavior is influenced by personality diversity and showed that personality diversity effects are mediated by differences in team cooperation and team cohesion (Liang , Shih and Chiang 2015).

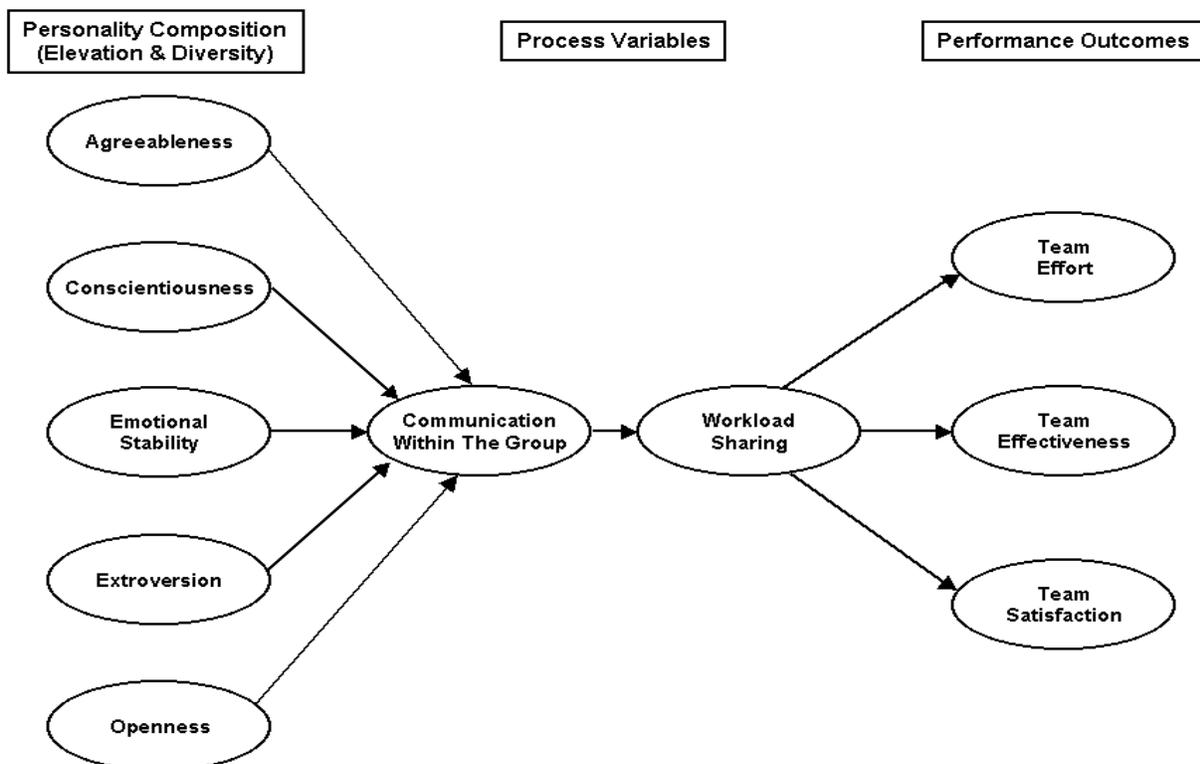
Team Performance Outcomes

For the present model, team performance is conceptualized as a global construct having three dimension; team effort, team performance effectiveness, and team member satisfaction. This approach is consistent with prior literature and empirical evidence supports the proposition that these outcomes are influenced by personality composition Fisher et. al. (2012), for example, showed that agreeableness was positively related to similarity in team work conceptualization, coordination, and team performance. In this paper, effort refers to decisions team members make about how hard they will work in pursuit of team goals. Effectiveness refers to the overall quality of the team's work and the team's ability to meet its goals. Team satisfaction is the affective component of how an individual likes working with the team and membership in the team (Forrester and Tashchian 2003).

Research Propositions

Consideration of the above literature leads to the following propositions about the effects of personality composition on team performance outcomes as mediated by group processes. Specifically, personality elevation and diversity has an effect on team effort, team effectiveness, and team satisfaction, and that these effects are mediated by communication and workload sharing. These relationships are presented in Figure 1 and are stated as the following research propositions.

Figure 1: The Impact of Personality Composition on Performance Outcomes



Proposition 1.a. Agreeableness elevation enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 1.b. Conscientiousness elevation enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 1.c. Emotional stability elevation enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 1.d. Extroversion elevation enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 1.e. Openness elevation enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 2.a. Agreeableness diversity enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 2.b. Conscientiousness diversity enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 2.c. Emotional stability diversity enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 2.d. Extroversion diversity enhances team performance outcomes by facilitating team communication and workload sharing.

Proposition 2.e. Openness diversity enhances team performance outcomes by facilitating team communication and workload sharing.

This article provides a conceptual framework designed to guide further research in the domain of student team performance. Excellent scales exist for measuring personality dimensions. Recent work has also produced valid and reliable measures for group communication and workload sharing. Scales also exist for measuring team performance outcomes, although these are less well developed. As valid and reliable measures of performance outcomes become available, the propositions advanced here should be empirically tested in classroom settings across a variety of group learning tasks.

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