Predicating team performance in technology industry: Theoretical aspects of social identity and self-regulation

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ABSTRACT

The technology industry environment has been so complex that oftentimes only effective and well-coordinated work teams can efficiently detect, assess, and deal with the drastic changes of such environment. This study develops a research model based on the theories of social identity and self-regulation to forecast team performance in order to understand the interrelations between social, emotional, and motivational factors of teams in technology industry. In the model, team performance is influenced indirectly by goal commitment, emotional intelligence, and teamwork interdependence via the full mediation of team planning and team identity. At the same time, the effects of team planning and team identity on team performance are hypothetically moderated by goal commitment. Empirical testing of this model, by investigating team personnel in high-tech firms from technology industry, confirms the applicability of team planning and team identity as dual mediators among these work teams. The managerial implications and research limitations based on the empirical findings herein are provided.

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1. Introduction

Previous literature regarding technology innovation indicates that the average success rate of technology firms created by teams is higher than that of the firms created by individual entrepreneurs (Liu et al., 2015; Tsai et al., 2014; Wu et al., 2010). Indeed. The technology industry environment has been so complex that oftentimes only effective and well-coordinated work teams can efficiently detect, assess, and deal with the drastic changes of such environment (Wu et al., 2010; Joe et al., 2014; Tsai et al., 2012). Besides, from the aspect of technology development opportunities, work teams have greater capacity for opportunity identification, innovation, and utilization than individuals (Wu et al., 2010). Therefore, team performance is critical for technology firms to effectively cope with turbulent and serious competitive threats in a global market.

To successfully achieve good performance, team members are trained and encouraged to reinforce their capability and motivation so as to work collectively in an effective manner. Previous research has provided support for the validity of different employees' capabilities and motivations and has confirmed their relevance to work-related performance. For instance, previous literature regarding performance in technology industry has argued the importance of individuals' emotional intelligence, their own independent goal commitment (e.g., Aubé and Rosseau, 2005), their tasks (e.g., Campbell and Gingrich, 1986), and so forth. While these capabilities and motivations have been well discussed in prior studies to understand working processes underlying the behavior of individual workers, there is a strong need for further research to examine these issues from the collective aspect of teams.

Workplace management has fostered a wide range of conditions in which the function of individuals' own work, emotional intelligence, or personal goal commitment becomes blurry in a team. Individual members in a team have to function collaboratively and cannot be just viewed as representing

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independent parties, because they are not motivated merely by their individuals' capabilities or motivations. In fact, individuals' capabilities and motivations are likely projected on, shown by, and adapted to, for instance, the collective emotional intelligence, goal commitment, or work interdependence of the team. For that reason, this research develops a comprehensive model built upon previous contemporary works, which helps high-tech management understand how team performance and its mediators are influenced by: (1) team workers' attachment to shared goals (i.e., goal commitment); (2) team workers' interdependent engagement in dong their work (i.e., teamwork interdependency); and (3) team workers' collective ability to accurately perceive, understand, and manage emotions (i.e., emotional intelligence).

This research ponders how current insights into work motivation and capability in the literature can be utilized to incorporate complex teaming situations. By doing this, this study applies the self-regulation theory and social identity principle (Tajfel, 1978; Tajfel and Turner, 1979) to establish a theoretical model that clearly explains the different behavioral motives in collective terms. Specifically, this study uses team planning derived from the self-regulation theory and team identity derived from the social identity theory as dual mediators that facilitate team performance. Team planning is defined as a teaming activity that requires the team to lay out a course of action by which it can attain an already chosen objective (Mehta et al., 2009), while team identity is defined as the degree to which workers define themselves as members of a particular team (e.g., Eckel and Grossman, 2005).

Theories of self-regulation and social identity have been used to elaborate the circumstances under which high-tech personnel are likely to consider themselves as part of a collective (Lin, 2014). That is, self-regulation and social identity processes can function together to produce contextually meaningful and relevant judgment and behaviors in workplaces (e.g., Abrams, 1999; Abrams and Brown, 1989; Oyserman, 2007). Team planning (i.e., self-regulation) directly affects team performance (Mehta et al., 2009; DeShon and Gillespie, 2005), and thus teams with different strengths of determinants (e.g., goal commitment) may respond differently with various self-regulation tactics to guide teaming activities over time (e.g., Hong and O'Neil, 2001). To sum up, this study explores how team performance in technology industry is positively related to the proposed exogenous predictors (e.g., goal commitment) through the full mediation of team planning and team identity.

In the goal-setting literature, goal commitment is critical not as an end in itself, but as a means to an end: performance. Hollenbeck and Klein (1987) noted that when the entire range of goals appears, goal commitment will moderate the relationship between performance and its predictors (e.g., Hollenbeck et al., 1989). Consequently, this study extends such previous finding to further evaluate goal commitment that moderates the effects of team planning and team identity on team performance, which has not been tested yet in previous studies.

This study is different from previous research in two important ways. First, this study complements previous research that has explicitly verified team planning as a major mediator in the development of team performance (e.g., Mehta et al., 2009). By integrating team planning with team identity together as two

key mediators and justifying goal commitment as a moderator in a single model setting of collective performance among high-tech teams, this study complements previous research by obtaining a thorough in-depth understanding about the development of team performance in technology industry. Second, while a majority of empirical studies regarding team performance rely only on a one-time survey from a single data source, this study differs by using primary survey data obtained from two different sources (i.e., team members and their respective leader) in two different points of time with one month apart. Such a survey method reduces the threat of common method variances and thus strengthens the inferences of this study. Given the above-mentioned critical advantages, this study is able to successfully describe a clear picture of team performance development.

2. Research model and hypotheses

Since the work mode of teams (e.g., for R&D, services, etc.) is an essential part in technology industry, developing and strengthening team performance in the technology industry can be considered necessary for successful innovation (Flipse et al., 2014). Nevertheless, the predictors of team performance in technology industry have been somewhat overlooked and often remain implicit (Flipse et al., 2014). For that reason, this study establishes a research model (see Fig. 1) based on the theories of self-regulation and social identity to predict the development of team performance in technology industry. In the model, team planning is positively related to goal commitment, emotional intelligence, and teamwork interdependence via the full mediation of team planning and team identity. At the same time, the effects of team planning and team identity on team performance are respectively moderated by goal commitment. Note that this study examines these three exogenous variables (i.e., goal commitment, emotional intelligence, and teamwork interdependence), because they represent three major concerns of team workers: work mood (i.e., emotional intelligence), work design (i.e., teamwork interdependence), and their determination regarding work (i.e., goal commitment). The development of the hypotheses is justified in the following.

Team planning represents an indispensable regulatory approach and team-based process for improving team performance (e.g., Janicik and Bartel, 2003). Based on self-regulation, team planning relates to metacognition that represents people's knowledge of and control over their cognition in workplaces (Kozlowski et al., 2009). In technology industry, teams frequently apply planning as a tactic to coordinate various complicated activities, consequently improving team performance (Weldon et al., 1991). Hence, team planning turns out to be a crucial meta-cognitive skill that drives team performance (Brown et al., 1983; Ford et al., 1998).

In addition to team planning, team identity is also positively associated with team performance. The social identity theory suggests that members of a team with dramatic different perceived social categories (i.e., low team identity) may find it difficult to integrate their values and norms and work together (Jehn et al., 1999). Team workers feel more comfortable working with the group they identify with (Eckel and Grossman, 2005; Northcraft et al., 1996), consequently boosting their team performance. Strong team identity encourages team workers