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Team characteristics and employees' individual learning: A cross-level investigation

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ABSTRACT

To build and maintain their competitive advantage, companies increasingly rely on effective learning processes. However, a review of the literature shows sparse research on the understanding of team effects on learning at the micro or individual level. One of the most important contexts for individual learning is collaboration with others. We therefore contribute to the literature by examining how three critical team level variables are related to team members' individual project learning. We argue that team meta-knowledge, team creativity, and team external cooperation are all positively related to individuals' project learning. We tested our hypotheses on 94 projects represented by 340 individual responses. Using Hierarchical Linear Modeling analysis, our results provide support for the positive effects of team creativity and team external cooperation, but not for team meta-knowledge. We discuss the implications of our findings for human resource management.

Introduction

To build and maintain their competitive advantage, companies increasingly rely on effective learning processes. Jiang and Li (2008) underline organizational learning's strategic importance for firm outcomes, showing a strong relationship between organizational learning and firms' financial performance. Furthermore, extant research underscores the importance of learning within teams (Bresman, 2010; Edmondson, Winslow, Bohmer, & Pisano, 2003). As companies rely on teams for innovation in the face of competition, many companies are now making use of teams to realize their goals. An important component of success with the use of such teams is individual learning. Shaping the company to become a learning organization therefore is a crucial activity (Jones, 2001; Moingeon & Edmondson, 1996).

Despite the importance of learning and although team learning has been extensively studied (Bresman, 2010), team-level effects on *individuals'* learning have been relatively sparse. A review of the literature has revealed that most learning studies have either been done at single levels of analysis emphasizing either the individual (e.g., Tan & Zhao, 2003) or the team level (e.g., Edmondson, 2002; Sarin & McDermott, 2003) or the organizational level (e.g., Tucker, Nembhard, & Edmondson, 2007). However, those studies that have been done emphasizing different levels have been either conceptual (e.g., Schaffer, Lei, & Paulino, 2008), have emphasized the influence of team characteristics on organizational learning (e.g., Edmondson, 2002), or have explored the link between individual and organizational learning (e.g., Antonacopoulou, 2006). Absent are investigations that explore cross-level effects of teams on individual learning. Nevertheless, as Jehn and Bezrukova (2010) argue, individual team members' satisfaction is an important outcome of teamwork as it particularly depicts the individual employees' perspective on the favorability of performing in teams. Employees' satisfaction related to learning thus addresses the attractiveness of teamwork as perceived from an individual perspective. While teamwork provides many positive outcomes on the team level, such as team performance, teamwork becomes even more attractive for individuals if it also comes along with opportunities for individual learning. This is what we refer to as project learning, i.e., individuals' learning in a project context.

This paper approaches individual learning from a cross-level perspective, whereby data collected at one level (e.g., team level) are related to data collected at another level (e.g., individual level). This is in sharp contrast to examining relationships at single levels of analysis (e.g., all data collected at individual or firm level). Rousseau (1985) suggests that there are three forms of cross-level studies: (1) Cross-level Model 1 where group level/contextual variables are related to individual level variables. (2) Cross-level Model 2 whereby the context moderates individual relationships. (3) Cross-level Model 3 or frog pond effects, whereby the effects of deviation from group

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averages on organizational phenomena is examined. As such, our study is a cross-level Model 1, where we examine the impact of team characteristics on individual learning.

Our approach is to illuminate team level effects on individual learning. Additionally, our setting also made a cross-level perspective more enticing. As we discuss later in detail, our hypotheses are tested on 94 innovation teams. Such teams depend on individual learning for success. We provide stronger understanding of such learning that clearly occurs through teams (Edmondson, 2002). In the process, we provide additional insights as to the mechanisms whereby team-level characteristics affect teams collectively to relate to individual learning. Such insights make an added contribution to the team level literature.

Given the above, we contribute to the literature by examining how key team-level characteristics are related to individuals' project learning. We define individuals' project learning as individual project participants' acquisition of new knowledge and skills through taking part in a team project (Savelsbergh, van der Heijden, & Poell, 2009). Why should we be concerned with individual project learning? As mentioned earlier, many organizations rely on teams to stay competitive (van Woerkom & Croon, 2009). Teamwork provides the source for innovation whereby companies are provided novel ways to solve problems (Schaffer et al., 2008). However, success of such teamwork is only possible if individual members within the team can learn (Bresman, 2010). Thus, our study addresses significant gaps in the literature regarding how key team characteristics are related to individual project learning.

Given the sparseness of research in understanding individuals' project learning, our study contributes to further understanding in the area. By conceptually specifying and empirically investigating team-level characteristics as determinants of individuals' project learning, we first contribute to the micro-level foundations of organizational learning, and to cross-level research in general. In their conceptual piece on organizational learning, Crossan, Lane, and White (1999) argue that organizational learning depends on individual level learning processes. They also call for more cross-level research to understand the interrelation of different levels of analysis. With the increasing interest in the micro-foundations of company performance (Teece, 2007), a deeper knowledge into individual level characteristics of organizational phenomena, such as individuals' project learning, promises valuable insights. We contribute to this stream of research demonstrating how team-level characteristics influence individuals' project learning.

In formulating our study, we also heed Schaffer et al.'s (2008) assertions that individual learning is not a solitary activity but occurs in particular contexts (i.e. teams) as team members interact with each other. Thus, in contrast to the extant literature, we argue that specific team characteristics provide a contextual environment that enhances individual learning. Furthermore, by using Hierarchical Linear Modeling, we address potential problematic issues that pertain to studies where regression was used to test hypotheses dealing with data at different levels.

In the following, we describe the variables and derive our cross-level hypotheses. We then test the hypotheses based on data from 340 individuals participating in 94 teams. We note that the teams considered in this study all pertain to innovative projects in various industries. Each team in the study was under pressure to find novel solutions to new problems they were encountering as part of their projects. As such, these teams were constantly under pressure to make maximal use of the capabilities and skills of their team members to find solutions to ongoing project problems.

Theory and hypotheses

Recent work by Edmondson and Nembhard (2009) suggests that one way of looking at individuals' learning is by examining aspects of collaboration that provide individuals with higher levels of knowledge. We adopt this perspective suggesting that collaboration in teams can be a nurturing ground for individuals' learning, if the joint project obtains three specific characteristics.

In constructing a framework for team-level antecedents of individuals' project learning, we rely on Blumberg and Pringle's (1982) motivation-opportunity-ability (MOA) framework. The MOA framework has been previously applied to explain information processing (Andrews, 1988) and knowledge exchange (Gruen, Osmonbekov, & Czaplewski, 2007; Siemsen, Roth, & Balasubramanian, 2008) and thus appears to be a suitable framework for our context. In the team context, the MOA framework suggests individuals' project learning to depend on the individual's motivation (M), opportunity (O) and ability (A) to learn. Motivational aspects, as Andrews (1988) argues, are of personal relevance to the team members. According to Csikszentmihalyi (1996), creativity "is about capturing those moments that make life worth living". Taking into consideration the close relation between creativity and happiness, we argue that team creativity, i.e. the joint development creative solutions to problems (Weiss, Hoegl, & Gibbert, 2011) is of personal relevance and thus a motivational factor for individual team members' learning.

The opportunity to learn is offered to team members particularly when interacting with external partners (Kessler, Bierly, & Gopalakrishnan, 2000). According to Andrews (1988), the opportunity dimension is related to contexts that offer exposure to learn, while at the same time, the exposure cannot be completely controlled by the team members. In this vein, external collaboration well meets the understanding of a learning opportunity as defined in the MOA framework.

Finally, the ability dimension of the MOA framework is related to response-enabling variables under the respondent's own control (Andrews, 1988). Applied to the team context, such response-enabling variables include the team's meta-knowledge (Quintas, Lefrere, & Jones, 1997), which is inherited by the team and which enables individual team members' project learning. Specifically, the teams' collection of knowledge likely provides team members with the necessary ability for these teams to solve particular projects problems.

We therefore argue that these three characteristics represent the three aspects of the MOA framework and contribute to a contextual environment through which individual project learning is enhanced. Specifically, the presence of these characteristics creates an environment whereby team members are expected to behave within specific boundaries. There are several mechanisms by which individual behaviors can be impacted by team characteristics. Through daily actions and interactions that naturally take place among team members, they learn about expectations and goals of the team. As such, mere interaction can result in influences from team characteristics. However, the nature of the innovation teams here suggests that they face inherent pressures to perform. It is therefore likely that these team members engage in many behaviors conducive to individual learning. For example, team members may ask for feedback, exchange information as well as discuss performance. Such behaviors can also create a collective team climate whereby team members are expected to conform to such norms in order to reach team goals. Additionally, social learning theory (Bandura, 1977) suggests that individuals are likely to learn through direct experiences as well as observed experiences. The three variables we consider here are likely to contribute to learning. Below, we discuss each of these factors, how they create specific contextual environments and discuss the link with individuals' project learning.

Team Meta-Knowledge. The first factor we consider is team meta-knowledge or team members' awareness of the expertise of other team members and how that knowledge is distributed among the team members (Faraj & Sproull, 2000). Much research has