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Effects of team knowledge management on the creativity and financial performance of organizational teams

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ABSTRACT

An increasing number of organizations are turning to teams for innovation and creativity. The present study investigated the effects of team knowledge management (TKM) on the creativity and financial performance of organizational teams. Our analysis of data collected from 65 sales teams, across 35 branches of a Korean insurance company, showed that team knowledge utilization (but not team knowledge stock) was positively related to team creativity, which in turn predicted team financial performance over the 6-month period. The positive effects of knowledge utilization were stronger when team leaders had a systematic cognitive style and when teams were exposed to high environmental uncertainty. Furthermore, the systematic cognitive style of leaders had a positive main effect on team creativity and positively moderated the relationship between team knowledge stock and team creativity. The implications of these findings were considered, and some possible directions for future research were suggested.

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Introduction

With the increasing appreciation of teams as the source of innovations (De Dreu & West, 2001; Nijstad & De Dreu, 2002), creativity in group settings has gained increasing research attention (Lopez-Cabrales, Pérez-Luño, & Cabrera, 2009). Working in teams is expected to lead to more novel associations and creative outcomes because of the broader set of perspectives available to members and the cross-fertilization of ideas (Perry-Smith & Shalley, 2003; Tesluk, Farr, & Klein, 1997). Team creativity can be defined as the generation of novel and appropriate ideas, solutions, or processes in the context of team objectives (Amabile, 1996). Because the initial interest in team creativity originated from the brainstorming paradigm (Osborn, 1957), researchers have often compared and contrasted idea-generation processes involving groups and individuals primarily in laboratory settings (e.g., Nijstad & Stroebe, 2006; Paulus & Dzindolet, 1993). Although these studies reveal drawbacks of team creative processes, such as free riding and evaluation apprehension (Diehl & Stroebe, 1991; Paulus, 2000), interest in team creativity among scholars and practitioners has continued to grow (Anderson, De Dreu, & Nijstad, 2004).

Extant studies of team creativity have highlighted the importance of group composition and team emergent states or processes, such as a supportive climate (Gilson & Shalley, 2004), intra-team

communication (Leenders, Van Engelen, & Kratzer, 2003), and team conflict (Chen, 2006). These studies presumed that a heterogeneous membership provides teams with diverse information and knowledge, and that certain team processes promote the efficient flow and exchange of such information and knowledge (Anderson et al., 2004; Hülsheger, Anderson, & Salgado, 2009). Thus, researchers have acknowledged that the ability of a team to generate novel and useful ideas is inextricably linked to task-relevant knowledge embodied in members (Lopez-Cabrales et al., 2009) as well as to the adroit exploitation of knowledge by the team (Zahra & George, 2002). In explaining individual creativity, Amabile (1996) emphasized similar dimensions, such as domain-specific knowledge and creative processes, that promote the utilization of knowledge (cf. Choi, Anderson, & Veillette, 2009). Based on the literature, we propose that team creativity is positively related to team knowledge management (TKM), which includes the presence of knowledge within a team (*team knowledge stock*) and the process of using such knowledge (*team knowledge utilization*).

To understand the way teams use knowledge in performing their tasks, researchers have proposed several theoretical approaches, such as transactive memory systems (TMS; Liang, Moreland, & Argote, 1995), shared mental models (SMM; Mohammed, Klimoski, & Rentsch, 2000), and prior experience (Gino et al., 2009). Studies have shown that all of these are meaningful predictors of group performance (Austin, 2003; Mathieu, Goodwin, Heffner, Salas, & Cannon-Bowers, 2000). Nevertheless, empirical support for the effects of TKM on team creativity is

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generally lacking. Our study examines such effects in a sample of organizational teams.

We also propose that the relationship between TKM and team creativity is moderated by internal and external factors. First, we identify cognitive problem-solving styles (either intuitive or systematic) as a moderator of the TKM–creativity relationship, because creativity involves the cognitive manipulation of information, and the cognitive process of a team can be shaped by the cognitive orientation of its constituents, particularly the leader of the team (Sosik, Avolio, & Kahai, 1997). Cognitive styles involve stable individual differences in perceiving and processing information and experiences that ultimately affect how people feel, think, and act (Sagiv, Arieli, Goldenberg, & Goldschmidt, 2010). An intuitive cognitive style is a tendency to simultaneously analyze information from various perspectives (Scott & Bruce, 1995). In contrast, a systematic cognitive style is a tendency to analyze a situation based on logic and intention (Sagiv et al., 2010). The cognitive styles of team leaders may stimulate the creative thinking of members, and thereby facilitate the identification and utilization of knowledge for creative problem solving by the team (Shin & Zhou, 2007; Taggar, 2002). Second, based on institutional theory, which highlights the role of the external environment in shaping the operations of work units (Anderson & Tushman, 2001), we posit that the TKM–creativity link can be moderated by the operational context of teams. By providing greater group-wide motivation to search for new ideas and fully exploit knowledge, for example, environmental uncertainty may strengthen the effects of TKM on creativity.

Finally, responding to the call for research on the performance implications of creativity (Shalley, Zhou, & Oldham, 2004), we examine the effects of team creativity on team financial performance. Studies of team creativity have focused mostly on antecedents or processes that foster creativity (Hülshager et al., 2009), reflecting the underlying assumption that creativity is beneficial to performance. In this study, we propose that TKM enhances performance by providing creative solutions to teams. Our theoretical model is empirically validated using multi-source, longitudinal data collected from 65 teams in a large insurance company in Korea.

Team knowledge management and team creativity

The literature on knowledge management can be divided into two streams: the content approach and the process approach. Studies based on the content approach focus on the types and characteristics of knowledge, such as domain-relevant skills (Martin & Parboteeah, 2007), tacit versus explicit knowledge (Griffith & Sawyer, 2010), and procedural versus declarative knowledge (Akgün, Dayan, & Di Benedetto, 2008). In contrast, research based on the process perspective focuses on the way knowledge is handled, shared, and utilized among individuals (Gino et al., 2009; Tiwana & McLean, 2005). Similarly, previous studies of team knowledge have assumed that knowledge content provides the raw materials for generating new knowledge (Cruz, Perez, & Ramos, 2007; Mathieu & Schulze, 2006), whereas knowledge processes enable teams to apply relevant knowledge and thus activate the value of such knowledge in team performance (Liang et al., 1995; Moreland & Myaskovsky, 2000).

Shared mental models (SMM) reflect the content approach and suggest that the shared mental representation of team tasks, roles, and attitudes promotes team effectiveness by improving coordination and the formation of normative principles for collective efforts (Klimoski & Mohammed, 1994; Mohammed et al., 2000). Employing both the content and process approaches, Wegner (1986) proposed a theory of transactive memory systems (TMS). These

systems include the knowledge possessed by each individual, along with a collective awareness of who knows what. In subsequent TMS studies, researchers have focused mostly on the latter component and examined the processes that enable teams to identify and efficiently apply the knowledge distributed among members (Liang et al., 1995; Moreland, 1999). Similarly, team learning (Wilson, Goodman, & Cronin, 2007) involves the process of cross-fertilization among team members, thereby encouraging the flow of ideas within the team. Due to the focus of existing studies on the process of acquiring and sharing team knowledge, the literature has provided insufficient information on the function of knowledge content in teams (cf. DeChurch & Mesmer-Magnus, 2010).

Considering both the content and process approaches, we focused on two TKM elements: team knowledge stock and team knowledge utilization. Based on previous studies (Austin, 2003; Wegner, 1986), we define team knowledge stock as a combination of task-relevant knowledge and skills possessed by members and the leader within a team. This reflects the content dimension of TKM. Processes related to team knowledge, such as TMS or team learning, consider the way team knowledge stock is applied to team tasks (Moreland, 1999; Moreland & Myaskovsky, 2000). Therefore, we propose team knowledge utilization as an overarching construct that indicates the extent to which the pool of available knowledge and expertise is activated and exploited within teams. This reflects the process dimension of TKM. The two TKM dimensions are likely to improve team creativity by offering team members a greater supply of task-related information and knowledge, which are the raw materials for creativity (Paulus, 2000; Taggar, 2002; Taylor & Greve, 2006), and by promoting the application and utilization of knowledge in teams (Gino, Argote, Miron-Spektor, & Todorova, 2010; Gino et al., 2009).

Team knowledge stock

A larger knowledge reservoir gives teams the ability to accurately evaluate the value of new information and opportunities (De Dreu & West, 2001). Hence, by providing rich cognitive resources and by making diverse approaches available, a greater team knowledge stock offers more opportunities to recombine existing information and ideas, and to generate novel solutions for problems encountered (Paulus, 2000; Tiwana & McLean, 2005). The presence of a substantial reservoir of task-related knowledge may thus be a necessary condition (although it may not be a sufficient condition) for teams to develop innovative solutions to achieve their goals (Martin & Parboteeah, 2007; Taylor & Greve, 2006).

Hypothesis 1. Team knowledge stock is positively related to team creativity.

Team knowledge utilization

Researchers have noted that the mere presence of knowledge within teams does not necessarily improve performance if such knowledge is not applied nor utilized (Austin, 2003; Griffith & Sawyer, 2010). Only through the utilization of knowledge resources can team members access, explore, and exploit the knowledge that they possess (Tiwana & McLean, 2005). Such utilization enhances awareness of the problem at hand by team members, thereby leading to an in-depth processing of relevant information (Smith & O’Neil, 2003). Furthermore, efforts by team members to effectively utilize their knowledge base stimulates proactive learning, which allows higher-order forms of thinking to occur. These are needed for the elaborate analysis and synthesis of current issues (Choi,

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