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Multilevel influences of transactive memory systems on individual innovative behavior and team innovation

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ABSTRACT

Despite the dual benefits of transactive memory systems (TMSs) for individual innovative behavior and team innovation, prior literature has seldom explored these issues simultaneously. This study both explores how TMSs affects individual creative self-efficacy and innovative behavior and examines whether the TMS affects team innovation by collecting survey data from 475 individuals in 86 teams participating in two iterations of the Intelligent Ironman Creativity Contest in Taiwan. Findings suggest a multilevel mediation model in which creative self-efficacy partially mediates the relationship between TMSs and the individual's innovative behavior. At the team level, the TMS positively affects team innovation. This paper concludes with a discussion of theoretical and practical implications.

1. Introduction

Creativity and innovation are associated not only with socio-economic development but with the advancement of health and welfare in the population (Edwards-Schachter, García-Granero, Sánchez-Barrioluengo, Quesada-Pineda, & Amara, 2015; West & Altink, 1996). However, while numerous studies have focused on factors that enhance or inhibit the generation of novel and useful ideas offered by individuals (i.e., creativity), the literature has paid less attention to the subsequent stage of idea implementation (i.e., innovative behavior) intended to produce better procedures, practices, or products (Anderson, Potocnik, & Zhou, 2014).

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Recently, scholars have increasingly recognized the importance individual innovative behavior and attempted to identify individual and task characteristics that predict innovative behavior (Anderson et al., 2014; Edwards-Schachter et al., 2015; Hammond, Neff, Farr, Schwall, & Zhao, 2011). Still, little is known about how an individual's innovative behavior can be improved within the team context. Teams represent an almost ubiquitous social context in which individual creativity and innovation is enacted (Richter, Hirst, van Knippenberg, & Baer, 2012), and the importance of collaboration and teamwork is a focus across different settings, such as education (Sawyer, 2006; Tierney, 2014) and management (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008). Given that the literature has attributed the stimulation of divergent perspectives, greater information, and collaborative learning to the team (Anderson et al., 2014; Chen, Farh, Campbell-Bush, Wu, & Wu, 2013), there is a need to explore team level factors that drive individual innovative behavior.

Transactive memory systems (TMSs) (Wegner, 1986) can help explain how team members share knowledge and learn from each other, and related research seeks to understand how individuals both contribute to overall team innovation while benefiting themselves as well. A TMS refers to a shared system describing how team members use mutual reliance and coordinated access to encode, store, retrieve, and communicate differentiated yet complementary knowledge in order to complete collective tasks (Lewis & Herndon, 2011). Therefore, as is generally assumed, the TMS benefits both team members individually through transactive memory processes and the team's collective performance. Despite the multilevel nature of TMSs (Lewis & Herndon, 2011) and the dual benefits to the individual and team, to our knowledge, prior literature has not examined this phenomenon from a multilevel perspective. Thus, this study develops and tests a multilevel model of TMSs (see Fig. 1).

The first aim of this study is to investigate the multilevel role of creative self-efficacy, which mediates the relationship between TMSs and innovative behavior. In executing creativity or innovation tasks, individuals with access to an effective TMS may view their team as providing task-related assistance, such as necessary resources (Bakker, 2005, 2008; Lewis, 2003; Schaufeli, Bakker, & Salanova, 2006) or emotional support (Deci & Ryan, 2008), and thus realize increased creative self-efficacy (e.g., the belief that one has the ability to produce creative outcomes; Tierney & Farmer, 2002) when performing an innovation task. Subsequently, individuals are more likely to demonstrate innovative behavior in their work.

The second aim of this study is to examine the influence of TMSs on team level innovation. The literature has found TMSs to be positively associated with desired team outcomes, such as team performance or team effectiveness (Hammedi, van Riel, & Sasovova, 2013; Lewis & Herndon, 2011; Ren & Argote, 2011), yet relatively little is known about whether TMSs improve team innovation. We argue that TMSs may nurture team innovation because the structural and process components of the TMS help the team coordinate member learning and knowledge retrieval while executing collective tasks (Gino, Argote, Miron-Spektor, & Todorova, 2010; Wegner, 1986; Zhang, Hempel, Han, & Tjosvold, 2007), which are considered important elements of team innovation.

Our study is the first to empirically examine the multilevel model of TMSs, and thus contributes to extant literature in several ways. First, the results of this study shed light on how team dynamics affect individual outcomes by demonstrating that the TMS is an important source of creative self-efficacy and facilitates innovative behavior, both considered important variables in the creativity and innovation literatures. Second, the multilevel perspective advances the TMS literature by responding to Lewis and Herndon's (2011) call for multilevel research. Finally, exactly how TMSs affect team innovation has received little attention. Thus, results of this study also contribute to the external validity of TMSs.

2. Theoretical background and hypotheses

2.1. TMSs and the issue of analysis level

The TMS is a shared system that describes how team members use mutual reliance and coordinated access to encode, store, retrieve, and communicate differentiated yet complementary knowledge in order to complete collective tasks (Lewis &

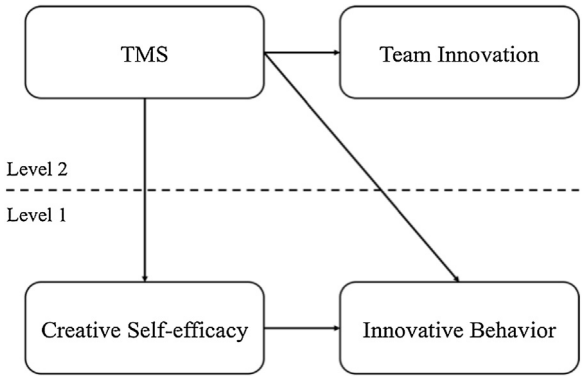

Fig. 1. A Multilevel Framework of the TMS.