



## Transactive memory systems in research team innovation: A moderated mediation analysis<sup>☆</sup>



Vesa Peltokorpi<sup>a,\*</sup>, Mervi Hasu<sup>b</sup>

<sup>a</sup>Saitama University, Japan

<sup>b</sup>Finnish Institute of Occupational Health, Finland

### ARTICLE INFO

#### Article history:

Received 8 November 2013

Received in revised form 13 October 2015

Accepted 25 November 2015

Available online 11 December 2015

#### Keywords:

Task orientation

Team innovation

Transactive memory systems

Transformational leadership

Research team

### ABSTRACT

While transactive memory systems (TMS) have conceptually been linked to team innovation, empirical support is still scarce. This study, by integrating team innovation and TMS research, provides a moderated mediation model with a set of hypotheses that link task orientation, TMS, and transformational leadership on innovation in research teams. Data were derived from 124 research teams in Finland. Hierarchical regression and moderated mediation analyses show that TMS partially mediate the positive relation between task orientation and team innovation. Transformational leadership positively moderated the relationship between TMS and team innovation. The theoretical contributions and practical implications of the findings are considered, and directions for future research are suggested.

© 2015 Elsevier B.V. All rights reserved.

## 1. Introduction

Interest in team innovation has grown during the last three decades in line with increasing reliance on and recognition of teams as the primary drivers of organizational innovation (see Anderson et al., 2014, for a review). Scholars focusing on team innovation outcomes often assume that teams have diverse task information, and that certain team processes or emergent states (i.e., shared psychological states that both influence and are influenced by team processes) facilitate the exchange of such information (Anderson et al., 2014; Hülsheger et al., 2009). The ability of a team to innovate is therefore closely linked to information held by its members and related team processes or emergent states. Team innovation is often defined as “the intentional introduction and application, within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society” (West and Farr, 1990, p. 9). Team innovation is distinguished from creativity by the implementation, as opposed to mere generation of ideas (Anderson et al., 2014).

Among numerous theories describing how teams use information in performing their tasks, TMS theory has attracted increasing attention (see Peltokorpi, 2008; Ren and Argote, 2011, for reviews). TMS can be defined as a set of diverse task

<sup>☆</sup> An earlier, abbreviated version of this study was published in the Academy of Management 2011 Annual Meeting best papers proceedings. We wish to thank Kyle Lewis, Frances Milliken, Tomoki Sekiguchi, and Aarti Ramaswami for their comments on a previous version of this study and Laura Honkaniemi for her research assistance. The Multifactor Leadership Questionnaire (MLQ) Form 5X-Short is used with permission of Mind Garden, Inc., 1690 Woodside Road Suite 202, Redwood City, CA 94061, USA.

\* Corresponding author at: Saitama University, 255 Shimo-Okubo, Sakura-ku, Saitama City, Saitama 338-8570, Japan.  
E-mail address: [vesap@mail.saitama-u.ac.jp](mailto:vesap@mail.saitama-u.ac.jp) (V. Peltokorpi).

information held by different team members combined with a shared awareness of “who knows what” within the team (Wegner, 1986). TMS theory suggests that teams of interdependent members, by dividing responsibility for different expertise domains and using one another as external cognitive aids, are able to create a memory system that holds much more information than any one of those individual members could retain alone. In well-functioning TMS, team members understand who has what specialized task information (i.e., specialization), trust the credibility of that information (i.e., credibility), and organize this information efficiently (i.e., coordination) (Lewis, 2003). Task information diversity and TMS development starts to increase as team members accept the responsibility as experts of different information domains and other members recognize them as experts and start to rely on their expertise. Although TMS have conceptually been linked to team innovation (Peltokorpi, 2008; Wegner, 1986; Zhu, 2009), empirical support is still scarce. The present study examines such effect on team innovation in a sample of 124 research teams.

More specifically, this study contributes to TMS and team innovation research in two ways. First, despite their existence in and importance to knowledge-intensive teams (Lewis, 2003), this is one of the first studies that links TMS to team innovation. To date, empirical evidence is limited to two studies suggesting that TMS has a positive impact on innovation in charter school boards (Zhu, 2009) and a curvilinear impact on innovation in research teams (Peltokorpi and Hasu, 2014). While the focus in previous studies was limited to direct effects, we also take into account constructs that may enhance TMS and moderate the effect between TMS and innovation in research teams. Second, related to our first contribution, this study integrates TMS and team research to provide a moderated mediation model and a set of hypotheses that link task orientation, TMS, and transformational leadership to research team innovation. We start by examining the mediating effect of TMS between task orientation and team innovation. Task orientation refers to a team-level shared commitment to excellence in task performance coupled with a climate which supports the adoption of improvements to established policies, procedures, and methods (West, 1990). We also examine the moderating effect of transformational leadership between TMS and team innovation. Transformational leaders move followers beyond their immediate self-interests through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985). Despite their importance in research teams (Elkins and Keller, 2003), task orientation and team leadership have received scant attention in the TMS literature (Peltokorpi, 2008; Ren and Argote, 2011).

The rest of this paper is organized as follows. The following section provides a review of TMS theory and of the literature that link TMS, task orientation, and transformational leadership to research team innovation. The third section provides hypotheses that link task orientation, TMS, and transformational leadership to research team innovation. The fourth section presents the research sample and measures, and discriminant validity and aggregation analyses. The fifth section presents the findings. The sixth section discusses theoretical contributions and practical implications of the findings, and limitations and suggestions for future studies.

## 2. Conceptual framework

In team innovation research, a common presumption is that teams have diverse task information, and that certain team processes or emergent states, such as task orientation (West, 1990) and transformational leadership (Bass, 1985), promote the efficient flow and exchange of such information (Anderson et al., 2014; Hülsheger et al., 2009). In order to understand how teams coordinate and use information in performing their tasks, scholars have proposed various theoretical frameworks, such as TMS (Wegner, 1986) and team mental models (TMM) (see Mohammed et al., 2010, for a review). TMM can be defined as organized mental representations of the key elements within a team's relevant environment that are shared across team members (Mohammed et al., 2010). While both of these cognitive constructs are important antecedents of team performance (Mohammed et al., 2010; Peltokorpi, 2008), we focus in this paper on TMS because of its emphasis on specialization and shared expertise awareness. More specifically, while TMM refer to knowledge structures or information held in common, TMS refer to knowledge or information distribution within a team and shared awareness of “who knows what” (Peltokorpi, 2008).

TMS are formed and function through the overlapping encoding, storage, and retrieval phases (Wegner, 1986). During the encoding phase, team members learn “who knows what” by making, refining, and updating inferences about each other's expertise and interests. TMS can be formed in part because each team member accepts responsibility for certain task expertise domain(s). In organizational teams, leaders can assign expertise domains explicitly (Peltokorpi and Manka, 2008). Once each team member accepts the responsibility as domain experts, other team members are able to pass information to them for processing and storage. Knowledge-intensive teams form differentiated TMS in which each member holds different task information items (Liang et al., 1995). This specialization reduces knowledge overlaps, allowing teams to hold a greater amount of task-related information. In well-functioning differentiated TMS, *specialized* task information needs to be *credible* and *well-coordinated* (Lewis, 2003). Specialization refers to the level of memory differentiation within a team, credibility to team members' beliefs about the reliability of other members' task information, and coordination to the ability of team members to work together efficiently (Lewis, 2003). Transactive retrieval occurs when two or more team members collaborate to retrieve uniquely held task information. Team members retrieve needed task information by identifying a relevant domain expert through internally/externally held location information about who knows what (Kleinsmann et al., 2010). This way, team members use each other as external memory aids.

TMS are argued to enhance team innovation (Peltokorpi, 2008; Wegner, 1986; Zhu, 2009). Common in these arguments are the benefits related with increased specialization, as well as shared awareness of distributed expertise and novel

Download English Version:

<https://daneshyari.com/en/article/1006251>

Download Persian Version:

<https://daneshyari.com/article/1006251>

[Daneshyari.com](https://daneshyari.com)