THE IMPACT OF ENTERPRISE SOCIAL NETWORKING USE ON TEAM PERFORMANCE: TRANSACTIVE MEMORY SYSTEM AS AN EXPLANATION MECHANISM

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Abstract

Enterprise social networking (ESN) is widely used to facilitate employees’ communication and collaboration in today’s competitive business environment. However, the underlying mechanism through which ESN improves team performance is not clear. To address this gap, we propose that the ESN use may affect the building of transactive memory systems (TMS), which in turn influence team performance. Specifically, we differentiate task-oriented and relationship-oriented ESN use and try to identify their differential influence on TMS. We plan to conduct this study in China via a survey. This study will help link the research area of ESN to TMS, which will extend our understanding about the role of ESN.

Keywords: Enterprise Social Networking, Task-oriented ESN use, Relationship-oriented ESN use, Transactive Memory Systems, Team performance.
1 INTRODUCTION

Enterprise social networking (ESN), which refers to the application of social networking techniques for employees to share information within the organization, is becoming popular (Riemer & Tavakoli, 2013). ESN is widely used by team members to communicate and collaborate with each other (Bennett, 2012; Nygard et al., 2011). For example, large enterprises begin to build their own ESN, which includes IBM’s “Beehive”, HP’s “Watercooler”, Deloitte’s “Dstreet”, PG’s “PeopleConnect”, SAP’s “Harmony”, and so on (Jarrahi, 2011). According to Forrester Research, the social enterprise apps and related services market will develop at a compound annual growth rate of 61%, and the total market value will reach $6.4 billion in 2016 (Dewing, 2011).

Although ESN can be served as an important tool to create competitive advantage (Riemer & Tavakoli, 2013), it may play double-edged roles (Turban, Bolloju, & Liang, 2011). Specifically, ESN can be used to facilitate knowledge management, problems-solving, and experts identification, which is beneficial to increase workflow efficiency. However, ESN may decrease productivity because of misuse and personal chat (van Zyl, 2009). This indicates that the value of ESN depends on how the tools are used and harnessed (Majchrzak, Cherbakov, & Ives, 2009). In this view, it is necessary to explore the influence of different ESN use on team performance.

Indeed, the use of social networking service has been divided into task-oriented use and relationship-oriented use (Kwon & Wen, 2010). The task-oriented use normally focuses on completing work tasks efficiently and effectively, while relationship-oriented use emphasizes maintaining and developing personal relationships (Fiedler, Chemers, & Mahar, 1976; Hiller, Day, & Vance, 2006; Yukl, 1989). It is suggested that these different oriented use may have various role in organization management, such as knowledge creation (Lopez-Nicolas & Soto-Acosta, 2010). However, although scholars have defined this categorization of ESN use, little research empirically explore the various role of these two ESN use in improving team performance.

On the other hand, scholars have proposed that the relationship between ESN use and team performance may be not direct. Indeed, as an important kind of enterprise social media tools, ESN is widely used as potential solutions to knowledge management (Cheung & Lee, 2010; Leidner, Koch, & Gonzalez, 2010). Specifically, ESN could provide an open and integrated platform for employees to share personal and professional information. This advantage makes it easier for knowledge seeker to find the necessary information or the right person (Fulk & Yuan, 2013). Although some researches have presented the important role of IT support for knowledge management, such as the development of transactive memory systems (TMS) (Choi, Lee, & Yoo, 2010), few studies empirically investigate the relationship between ESN use, knowledge management, and team performance.

To address the above gaps, we apply transactive memory theory to investigate the influence of ESN use on team performance. Specifically, this study will focus on the various roles of task-oriented ESN use and relationship-oriented ESN use in improving team performance. According to the transactive memory theory, communication is a valuable tool for learning, storing, and retrieving information from other people. The theory further defines transactive memory systems (TMS) as a "shared system for encoding, storing, and retrieving information" (Wegner, Erber, & Raymond, 1991, p. 923), which could support knowledge transfer between employees in organization. It is suggested that with well-developed TMS, employees are aware of each other’s expertise (specialization), believe in each other’s competence and reliability (credibility), and work together efficiently with few misunderstanding (coordination). TMS can be viewed as an effective knowledge management facilitator of team performance (Kanawattanachai & Yoo, 2007; Lewis, 2004; Liang, Moreland, & Argote, 1995). In this view, we propose ESN as the valuable communication tool, which could promote the development of TMS, thereby improving team performance.
2 BACKGROUNDS AND LITERATURE REVIEW

2.1 Enterprise social networking

Social Networking Service (SNS) is defined as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Ellison, 2007, p. 211). ESN reflects the implementation of SNS within an organization, which could facilitate communication and knowledge sharing among employees (Fulk & Yuan, 2013). That means, as inspired by public SNS (i.e. Facebook), ESN allows employees to articulate their social networks (Ellison, 2007). For example, ESN provides an open online platform for employees to customize their profile pages, post events and status updates, share documents, comments, photos and videos (Fulk & Yuan, 2013).

The literature suggests that ESN offer four affordances for users, including visibility, editability, persistence, and association (Treem & Leonardi, 2012). Visibility refers to the ability of ESN to make employees’ behaviours, knowledge, preferences, and communication network connections visible to others (Treem & Leonardi, 2012). Through visibility, ESN provides an easy way for employees to see who does what in an organization. Editability refers to the ability of ESN to allow employees to modify and revise content published on the ESN. The affordance of editability helps improve information quality of ESN. Persistence makes it possible for content previously created and published to remain permanently accessible (Wagner & Majchrzak, 2007). Finally, through association, ESN addresses the need for connecting knowledge users to each other and to knowledge content. These four affordances of ESN can well explain its impact on organizational processes, such as knowledge management (Fulk & Yuan, 2013; Treem & Leonardi, 2012).

Although ESN has attracted a lot of attentions from practitioners and researchers, our understanding about its role in organizational management is still limited. In the existing literature, some scholars are trying to explore the role of ESN for a team. For example, Nygard et al. (2011) present that ESN tools could be used for improving team performance with high diversity because ESN supports several types of interaction among people in separate places and avoids breakdowns in collaboration and cooperation. Riemer and Richter (2010) further indicate that ESN could support team awareness creation and team coordination. They present that ESN allows team members to record issues, to update information, and then facilitates them to share information, to coordinate tasks with on the open and real-time platform.

2.2 Task-oriented and relationship-oriented ESN use

Most of legacy information systems are task-oriented, while ENS can be used as task-oriented or relationship-oriented (Kwon & Wen, 2010). On the one hand, as the enterprise social media tools, ESN needs to help employees exchange knowledge (Cheung & Lee, 2010; Leidner et al., 2010), which could facilitates idea generation, problem-solving and task coordination (Riemer, Scifleet, & Reddig, 2012). On the other hand, ESN makes employees’ social ties visual to each other, and can be used to support relationship building and maintaining (Brzozowski, 2009). In this study, we differentiate task-oriented and relationship-oriented ESN use according to the literature about the ESN use (J. DiMicco et al., 2008; J. M. DiMicco, Geyer, Millen, Dugan, & Brownholtz, 2009), social ties (Zhong, Huang, Davison, Yang, & Chen, 2012) and leadership style (Fiedler et al., 1976; Hiller et al., 2006; Yukl, 1989). Table 1 presents the detailed differences between task-oriented and relationship-oriented ESN use. We presented that the task-oriented ESN use and relationship-oriented ESN could be different in motivation, behaviours, information, and social ties. Specifically, task-oriented ESN use normally focuses on completing work tasks, while relationship-oriented ESN use emphasizes building and maintaining personal relationships (Fiedler et al., 1976; Yukl, 1989). Such different motivation would incur the different behaviours when team members use ESN. For example, task-oriented ESN users would use the ESN to plan, clarify and monitor their tasks, while relationship-
orientated ESN users would apply the ESN to listen, encourage and support each other within the team. Under this condition, task-oriented ESN use would require the sharing of professional and work information, and the relationship-oriented ESN use would need to share the personal and general information. Through using ESN for task, team members could build instrumental ties with each other, and through using ESN for relationship, they would build expressive ties easily.

<table>
<thead>
<tr>
<th>Category</th>
<th>Task-oriented ESN use</th>
<th>Relationship-oriented ESN use</th>
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<tbody>
<tr>
<td>Motivation</td>
<td>Completing work tasks</td>
<td>Building and maintaining relationship</td>
</tr>
<tr>
<td>Behaviours</td>
<td>Planning, clarifying, and monitoring</td>
<td>Listening, encouraging and supporting</td>
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<tr>
<td>Information</td>
<td>Professional and work information</td>
<td>Personal and general information</td>
</tr>
<tr>
<td>Social ties</td>
<td>Instrumental ties</td>
<td>Expressive ties</td>
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Table 1. The differences between task-oriented and relationship-oriented ESN use

These two kinds of system use orientation are not exclusive to one another; some teams may equally use ESN as task-oriented and relationship-oriented. However, these categories would be helpful in structuring our understanding of how to make better use of ESN. Indeed, the existing literature mostly examined ESN use with lean measures, which focuses on “quantity of use”, such as frequency of use and duration of use (Steinfield, DiMicco, Ellison, & Lampe, 2009). However, the use of ESN normally involves some social issues, which make the lean measures inappropriate to understand the ESN use. For example, the frequency of use may actually indicate using one function of ESN over and over. Thus, it may be more insightful to think about the “quality” of use, considering a wide range of uses for ESN. This way would extend our understanding of the outcome of different business use of information systems, such as knowledge management (Lopez-Nicolas & Soto-Acosta, 2010).

2.3 Transactive memory systems

Transactive memory systems (TMS) refer to a specialized division of labor that develops within a team with respect to the encoding, storage, and retrieval of knowledge from different domains (Wegner, 1987, 1995). The idea of TMS was first proposed as a mechanism to explain how individual memory can be extended with the external aids (Ren & Argote, 2011). TMS are effective knowledge coordination techniques and are positively related to team performance (Kanawattanachai & Yoo, 2007; Lewis, 2004; Liang et al., 1995).

The literature suggests that TMS have three distinct dimensions of group behaviours: specialization, credibility, and coordination (Brandon & Hollingshead, 2004; Lewis, 2003; Liang et al., 1995). Specialization refers to the differentiated structure and awareness of each other’s expertise among team members (Moreland & Myaskovsky, 2000; Zhong et al., 2012). The collective awareness of who know what helps team members leverage knowledge of others to perform a given task. Credibility is defined as team members’ beliefs about one another’s competence and reliability (Kanawattanachai & Yoo, 2007; Zhong et al., 2012). When team members trust each other’s capabilities and competencies, they will be comfortable accepting procedural suggestions from other team members and share information more freely. Coordination is the extent to which group members work together efficiently with few misunderstanding (D. Nevo, Benbasat, & Wand, 2012; Zhong et al., 2012). It includes a set of concerted actions of cooperation, such as task decomposition and task allocation (Lewis, 2003). For effective and coordinative work, team member need a shared understanding of who knows what (Wegner, 1987, 1995) and who does what within teams (Brandon & Hollingshead, 2004).

Scholars have proposed some factors which can influence the building of TMS within teams, such as task interdependence (Zhang, Hempel, Han, & Tjosvold, 2007), group training (Liang et al., 1995), team familiarity (Lewis, 2004) and communication (Hollingshead & Brandon, 2003). Among these factors, communication tool would be the important facilitator of TMS (He, Butler, & King, 2007; Kanawattanachai & Yoo, 2007; Lewis, 2004). Such tool could support the open and frequent
communication during the planning phase, which would be positively related to the emergence of TMS. In this view, some scholars indicate that ESN, which presents an efficient communication tool, is beneficial for TMS (Meyer & Dibbern, 2011; S. Nevo & Chengalur-Smith, 2011). Fulk and Yuan (2013), for example, applied transactive memory theory to explain the affordance of ESN to support expertise location. However, the underlying influencing mechanism of ESN use on TMS is still unclear.

2.4 Team performance

As teams are widely used in contemporary organization, team performance causes more interests from both organizational researchers and practitioners (Kozlowski & Ilgen, 2006; Zhang et al., 2007). Team performance is a multidimensional construct. In this paper, team performance refers to the efficiency and effectiveness with which task is conducted (Faraj & Sproull, 2000; Zhong et al., 2012). In detail, effectiveness is the degree to which team members can meet the work quality requirements and team goals; while efficiency is the degree to which team members can complete tasks in accordance with plans and budgets. Both of efficiency and effectiveness are equally important to team performance.

3 RESEARCH MODEL AND HYPOTHESES

Based on the literature review, we develop a structural model and associated hypotheses (see Figure1). We propose that TMS serves as underlying mechanism through which ESN use exerts an impact on team outcomes. The model also considers the different oriented ESN use, including task-oriented and relationship-oriented.

![Figure 1. The impact of ESN use on team performance.](image-url)

3.1 The impact of ESN use on TMS

Specialization refers to the differentiated structure and awareness of each other’s expertise among team members (Moreland & Myaskovsky, 2000; Zhong et al., 2012). ESN provides some functions that help team members keep connected and familiar with each other easily. For example, the personal profile can create a space for users to present their demographic information, such as age, gender, and education background. ESN also allows users to review others’ posting. The review is user generated contents, which facilitate tacit knowledge sharing.

Task-oriented ESN users tends to post more professional and work related information, such as planning, clarifying, and monitoring. These task-oriented communication help team members learn more about others’ knowledge directly and accurately. At the same time, task-oriented communication was found positively influence expertise location in virtual teams (Kanawattanachai & Yoo, 2007). Furthermore task-oriented ESN use helps team members build instrumental ties, which are also positively related to specialization in teams (Zhong et al., 2012).

Relationship-oriented ESN users tend to post more personal and general information, such as interest and expertise, in order to build and maintain relationship with other team members. The wide
broadcast of personal information facilitate the understanding of each other. In addition, relationship-oriented ESN use helps team members form expressive ties. Expressive ties are characterized as more interactive and can be used to transfer tacit knowledge more effectively (Chia, Foo, & Fang, 2006). The knowledge sharing and social communication activities help team members learn more about each other’s expertise (Lewis, 2004). Thus, we hypothesize:

**H1a**: Task-oriented ESN use is positively related to specialization in teams.

**H1b**: Relationship-oriented ESN use is positively related to specialization in teams.

Credibility is defined as team members’ beliefs about each other’s competence and reliability (Kanawattanachai & Yoo, 2007; Zhong et al., 2012). When team members trust each other’s competence and reliability, they don’t need to claim their own knowledge, which can help them save much time (Liang et al., 1995).

Task-oriented ESN use tends to build instrumental ties, which focuses on regular communication concerning task problems and work advice. The regular task-oriented communication facilitates individual meta-knowledge known to others, leading to the formation of cognition-based trust (Butler Jr & Cantrell, 1994; Kanawattanachai & Yoo, 2007). Moreover, task-oriented ESN use facilitates team members to share professional and work information via the open ESN, which could help team members judge each other’s competence. In this view, task-oriented ESN use could provide some detailed evidences of each other’s reliability and qualification, which could promote the credibility within a team.

Relationship-oriented ESN use facilitates affect and emotional reactions among team members, and leads to the building of expressive ties. Expressive ties promote shared understanding and clear communication, and thus more suggestions can be accepted by other team members (Gibbons, 2004). In addition, team members with relationship-oriented ESN use will be inclined to conduct more altruistic behavior. The faith in others’ good intentions may increase the possibility of trust their advice (Zhong et al., 2012). Thus we hypothesize:

**H2a**: Task-oriented ESN use is positively related to credibility in teams.

**H2b**: Relationship-oriented ESN use is positively related to credibility in teams.

Coordination reflects the effective and coordinative knowledge processing. It requires the team members to work efficiently with few misunderstanding (D. Nevo et al., 2012; Zhong et al., 2012). This suggests that to develop coordination, team members should develop a shared understanding about task decomposition and task allocation (Lewis, 2003). We propose that such shared understanding could be developed within teams by the use of ESN.

Specifically, the task-oriented ESN use focuses on instrumental ties, which can facilitate team members to gather information, advice, and resources necessary to accomplish a task. For example, team members could exchange the professional and work information, such as the R&D information, with each other through the ESN. This sharing would help employees update each other’s work process and status, thereby facilitates the understanding of who does what (Bennett, 2012). The frequent professional communication further enables team members to understand of each other’s knowledge accurately, which reduces conflict and misunderstanding (Kotlarsky, Van Fenema, & Wilcock, 2008).

On the other hand, the relationship-oriented ESN use emphasizes expressive ties, which encourages team members to share personal and general information. This use also facilitates social interaction and improves the level of familiarity among team members. With the relationship-oriented ESN use, team members could encourage assistance, support and sympathy for others, and adjust their own behavior to lubricate the coordination processes. Chen and Peng (2008), for example, propose that close social relationships among team members are benefit for coordination and cooperation. Thus we hypothesize:

**H3a**: Task-oriented ESN use is positively related to coordination in teams.

**H3b**: Relationship-oriented ESN use is positively related to coordination in teams.
3.2 The impact of TMS on team performance

The positive relationship between TMS and team performance has been widely demonstrated in the existing literature (Kanawattanachai & Yoo, 2007; Lewis, 2004; Liang et al., 1995). Specifically, specialization makes it possible that different team members are responsible for expertise in different areas, which conduce to solve all kinds of difficulties. In addition, specialization is the collective awareness of team members’ knowledge. Awareness of knowledge location improves team performance because individual can find the right knowledge with the right person easily in the team when faced with problems (Faraj & Sproull, 2000; Littlepage, Robison, & Reddington, 1997).

Credibility is team members’ beliefs about one another’s competence and reliability (Kanawattanachai & Yoo, 2007; Zhong et al., 2012). Team members are more comfortable to accept procedural suggestions from others in the team with high credibility. In addition, when team members trust each other, they don’t need to claim their own knowledge, which can help them finish their task more effectively. Zand (1972) argued that the effectiveness in the scope of search for solutions are significantly different between the high-trust teams and the low-trust teams. Mistrust arouses defensive behaviour, which is adverse to team performance.

When the levels of coordination are high, team members can work together closely, agree on the assignments of subtasks and maximize the performance of the overall task. On the contrary, when the coordination among team members is missing, and each member works for the sake of his own goal, the efficiency and effectiveness will still not be satisfactory. Based on the analysis above, we hypothesize:

H4a. Specialization in teams will positively influence team performance.

H4b. Credibility in teams will positively influence team performance.

H4c. Coordination in teams will positively influence team performance.

4 RESEARCH DESIGN

This paper tries to investigate how ESN can be used to improve team performance, thus an explorative cross-sectional design will be suitable for this research. We will use survey method and develop a questionnaire, which contains two types of oriented ESN use, TMS and team performance. In detail, the questions about the three dimensions of TMS are based on the work of Lewis (2003), which contains 15 items. The measures of team performance are adapted from Zhong et al. (2012), including team efficiency and team effectiveness. There is no established scales that measure task-oriented and relationship-oriented ESN use. We plan to develop the measurement based on the extant literature, such as the work of (Hiller et al., 2006). A sample item from task-oriented ESN use is “Our team use ESN mainly to plan how the work gets done” and a sample item from relationship-oriented ESN use is “Our team use ESN mainly to foster a cohesive team atmosphere”. We will refer to more literature and the opinions of fellow researchers to ensure the validity of the instrument. Additionally, both team age and team size that might affect team performance are included in our model as control variables.

We will select team members that use ESN tool as a communication medium to accomplish their tasks as our sample population. Since teams are the key building blocks of today’s knowledge-based organization (Leonard & Sensiper, 1998), the choice of industry in this study will be knowledge-based industry in China, such as software development firms, manufacturing organizations, and consultancy services companies (Ariff, Milton, Bosua, & Sharma, 2011). We intend to analyse our data in three steps. We first examine the psychometric properties of the measurement using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Then, the individual responses are transformed to the team level responses by performing statistical tests. Finally, we use the partial least square (PLS) to test the hypotheses.
Our study aims to explore that ESN use can help team members understand others’ expertise, stimulating them to confide in others’ expertise and lubricate the coordination process which in turn help improve team performance. Furthermore, we differentiate ESN use into task-oriented and relationship-oriented.

This paper is expected to have implications in both theoretical and practical perspectives. There are three important theoretical implications. First, different from previous studies that examine ESN use with lean measures, such as frequency of use, we differentiate task-oriented and relationship-oriented ESN use. These categories would extend our understanding of ESN use in organization. Second, we apply transactive memory theory to explain how ESN can be used to improve team performance. As ESN is a kind of social networking technique used in the workplace, our research responses to the call that social networks and information technologies help TMS function and manifest (Ren & Argote, 2011). In the end, we investigate the impact of different oriented system use on knowledge coordination processes, which contribute to the literature of information system and knowledge management research.

This study also provides practical implications. The potential findings of our study will provide a guide for practitioners on how to make better use of ESN. First, in order to improve team performance, ESN should be encouraged to be used to help team members get to know who knows what and who does what. In this way, TMS can be well developed within teams, and then team performance can be subsequently improved. Second, the practitioners can enhance the building of TMS within teams through focusing on the different oriented ESN use. For example, they can take different incentive strategies based on the differences between task-oriented and relationship-oriented ESN use.

Acknowledgement

The work described in this paper was fully/partially supported by the grants from the National Natural Science Foundation of China (NSFC: 71101136, 71201150, 71090401/71090400, and 71332001) and the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. CityU 195413 and N_CityU115/10).

Reference


