The Role of Microblogging Capacities in Knowledge Sharing and Collaboration in Virtual Teams

Research-in-Progress

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Abstract

To combat loss of knowledge, organizations are investing in social media technologies, such as microblogging platforms, to help facilitate knowledge transfer. While literature indicates that knowledge sharing and collaboration attitudes are impacted by many factors, there is a dearth of research investigating the relationships between technology capacities and individual attitudes toward knowledge sharing and collaboration in virtual teams. To narrow the research gap, this study explores five potential microblogging capacities, and proposes a model to test the impacts of these factors on employees' attitudes to share knowledge. Specifically, the study identifies microblogging ubiquity, brevity, communication, subscription, and source identity and suggests these may positively influence knowledge sharing attitudes in virtual teams.

Keywords

Social media, microblogging, knowledge sharing, collaboration, knowledge management systems, virtual teams

Introduction

This article builds upon prior research-in-progress study (Cleveland et al. 2015) by expanding the scope with specific hypotheses and by refining the theoretical model.

A key goal for organizations has been to avoid repetition of mistakes by relying on the use of previously acquired knowledge (Hanisch et al. 2009). The presence of organizational procedures to share knowledge does not, however, guarantee knowledge sharing. The lack of adherence to procedures for knowledge documentation and the existence of a variety of knowledge contribution barriers inhibit knowledge management practices in organizations. As a result, especially in virtual communities, novices never learn from experienced professionals and repeat similar mistakes.

To combat loss of knowledge, organizations are investing in technologies that help facilitate knowledge transfer. One information and communication technology (ICT) that has increasingly gained acceptance in distributed teams for the purposes of knowledge exchange is a social media service called microblogging (Seebach 2012). Microblogging allows users to create personal profiles showing their photo, list of their experiences and interests, subscribe to the posts of others, engage in discussions, and share ideas via short, but frequent posts within their immediate network of followers (Java et al. 2007). Research has demonstrated that microblogging can be used as a vehicle to share meaningful stories (Duh et al. 2012), to effectively communicate and reflect (Wright 2010; Zhang et al. 2010), and to support collaboration and transfer of learning among users (Ebner et al. 2010).

While extant literature indicates that knowledge sharing attitudes are impacted by many factors, there is a dearth of research investigating the relationships between technology capacities of social media systems and individual attitudes toward knowledge sharing. In particular, there is significant lack of research on

the potential of microblogging capacities to influence attitudes toward knowledge sharing and collaboration in virtual teams via microblogging. The following paper proposes to address this research gap and attempts to provide an answer to the question: What impact do the technological capacities of microblogging have on attitudes toward using that social media for knowledge sharing and collaboration in virtual teams?"?

The rest of the paper is structured as follows. First, literature review is performed to establish the variables of this study. Attitude toward using microblogging for knowledge sharing and microblogging capacities are analyzed, and a theoretical model is proposed to address specific relationship. The paper concludes with recommendations for future research.

Literature Review

Attitudes toward Knowledge Sharing and Collaboration

While organizational knowledge is embedded in the personal skills, experiences, and work practices of employees, social communities with shared, context-related practices are essential for organizational knowledge transfer that requires a continuous interchange among knowledge seekers and knowledge contributors, a social network, and an existing ICT (Cleveland 2013; Cleveland et al. 2014; Cook et al. 1999; Hansen et al. 1999; Marakas et al. 2000; Newell et al. 2006; Nonaka 1994; Tsoukas et al. 2001). Moreover, the mere existence of virtual communities does not guarantee knowledge sharing among individuals. Instead, employees need to have positive intentions toward knowledge sharing behavior.

According to the theory of reasoned action (Fishbein et al. 1975), employees' intentions to engage in knowledge sharing behavior will be greatest when their attitudes toward that behavior are favorable. As a result, extant literature has examined a number of factors that influence knowledge sharing attitudes. For example, in a survey among 132 randomly selected companies and 190 managers, Chow et al. (2008) found that social network, shared goals, and subjective norms significantly contributed to attitudes toward knowledge sharing. Subjective norms included the degree to which an individual perceives how others approve of his or her participation in a specific behavior. Social network included the people with whom participants have developed close relationships in the organization. Shared goals were considered to promote exchange of ideas and mutual understanding. Moreover, Mahmood et al. (2011) established in a study among 209 IT professionals that the higher the subjective norm the higher an individual's attitude to share tacit knowledge.

Extant studies have examined other contributing factors such as trust, anticipated reciprocal relationship, willingness to share knowledge (Hassandoust et al. 2011), anticipated intrinsic incentives, and commitment to the organization (Vuong et al. 2008). From a technology perspective, accessibility to the system (Weber et al. 2012), KMS self-efficacy (Chen et al. 2012), perceived usefulness, and ease of use of the system (Davis 1993) have been established to positively impact attitude to share knowledge. Still, the literature lacks studies that examine the role of the most fundamental capacities of social networking services in collaboration and knowledge sharing in virtual teams. The following section explores several of these capacities of a specific social media system.

Microblogging Capacities

Microblogging has been shown as an effective tool for long conversations and discussions similar to community forums (Zhang et al. 2010). Microblogging allows users to post short stories via small but frequent posts distributed by instant messages, mobile phones, email, or the Web (Java et al. 2007). With a few keystrokes, a message can reach numerous users simultaneously. Due to its ubiquitous nature, microblogging has also been proposed as a platform for capturing knowledge simultaneously (Cleveland 2012; Duh et al. 2012; Wright 2010). Additionally, microblogging fosters a metadiscursive practice and facilitates the transfer of learning between formal and informal learning contexts (Ebner et al. 2010; Mills et al. 2011).

Ubiquity and Brevity

The microblogging platform is ubiquitous. It can be accessed via a variety of devices, from numerous locations at different times and time zones (Zhao et al. 2011). This pervasive accessibility provides users the ability to share ideas and experiences instantaneously while readers can gain access to this knowledge simultaneously (Zhao et al. 2008). In contrast to writing emails, microblogging imposes limits on the number of characters in each post. This restriction not only shortens the narratives, but also broadens the posted content as a result of contribution by numerous different users. As a result, brevity allows users to compose posts with less effort, to increase frequency of posting, and to make knowledge sharing part of a collaborative, community based effort (Meyer et al. 2010; Zhao et al. 2011).

Source Identity and Subscription

Microblogging platforms allow users to create personal profiles that include pictures, short biographies, and interests. This capacity allows knowledge seekers to learn more about the knowledge providers, credibility of their knowledge content, and the providers' expertise (Cleveland et al. 2013; Morris et al. 2012). Microblogging platforms operate on a 'follower' model by allowing users the ability to subscribe to each other's information sharing streams (Java et al. 2007). This capacity allows the formation of networks of users with common knowledge interests. The user's posts are sequential and time based, ordered by the most recent post first. This feature allows an information seeker to gain an idea of the way events progressed by scrolling through the timeline and reading the posts of the information provider.

Communication

Microblogging can facilitate conversations between users for the purpose of sharing lessons (Cleveland 2012). For example, the Twitter platform allows users to re-post (retweet) other users' posts in their own network, thus successfully sharing new knowledge with new audiences. In a five-month study of microblogging users at a Fortune 500 company, Zhang et al. (2010) found that microblogging was used as an Intranet forum to share diverse types of information with specially formed groups engaging in long conversations, which suggests the possibility of knowledge sharing and informal learning process occurrence. Microblogging was shown to help users determine the type of work others engaged in, build connections, find answers to specific questions, and improve informal communication. The researchers also conducted a web-based survey with 160 responses and interviewed 18 users with different participation patterns. The results further demonstrated that people found the microblogging platform to be a more effective way than email or instant messages to get responses from people whom they didn't know (weak-ties). Microblogging reduced the need for more formal communication (social presence theory) as it was perceived as less formal than email, suggesting it served as an informal communications channel.

In a similar research, Ebner et al. (2010) conducted a study with 34 students (21 full-time and 13 part-time) who used a microblogging platform for communication, collaboration, and documentation during a course. Of 11,214 microblogging posts, 60% were classified as reply posts, suggesting a rather rigorous communication process between the users. Of the weekly posts, about 24% of posts were related to the learning and teaching results while 36% were categorized as private, which was interpreted as small talk. These results suggest a great potential for informal learning through communication on various topics. The study also demonstrated that microblogging can be used for informal and project-oriented communication, which supports social interactions in group work.

In a different research, Zhao et al. (2011) examined microblogging in a large IT company. The results indicated that 91% of the 886 posts were work-relevant. Specifically, 44% were associated with tasks statuses, 19% with information and idea sharing, 18% with other work-related statuses, and 6% with questions. It was determined that microblogging filled a specific communication need for sharing less critical yet specific updates relevant to users' daily work activities. Users shared non-critical information, while reducing efforts and enabling frequent sharing. Users were able to form an easy-to-understand audience, which in turn helped them know what to post. Furthermore, participants explained that microblogging led them to initiate timely communication, posts provided context for meetings held later, and knowledge about the work of the various collaborators created better social awareness and presence.

Riemer, Altenhofen and Richter (2011) also conducted an analysis of the microblogging posts. They extracted 1190 genre appearances (communicative events where members shared some set of communicative purposes) from a microblogging system at a German university. Results showed that task coordination accounted for 21% of all genre appearance where users updated others on the progress of their work, asked others for updates, directly addressed others to delegate specific work, or asked other questions. Additionally, 18% of the genres were associated with time coordination, such as meeting coordination, and provided information on meeting locations and agendas, while 17% of the genres were associated with discussions and statements of opinions, feedback on ideas, and replies to messages. Furthermore, in another study, Riemer et al. (2010) found that 20% of posts were associated with problem-solving genres, while task coordination consisted of 41% of the posts. In this study, users of the microblogging system engaged more frequently in discussions or shared opinions in order to build shared context to better understand what others were doing.

These studies demonstrate a variety of microblogging capacities that can facilitate conversations, problem-solving, discussions, and clarifications between users in virtual teams.

Theoretical Model

Figure 1 provides a theoretical model that presents several microblogging capacities that impact attitude toward using microblogging for knowledge sharing and collaboration.
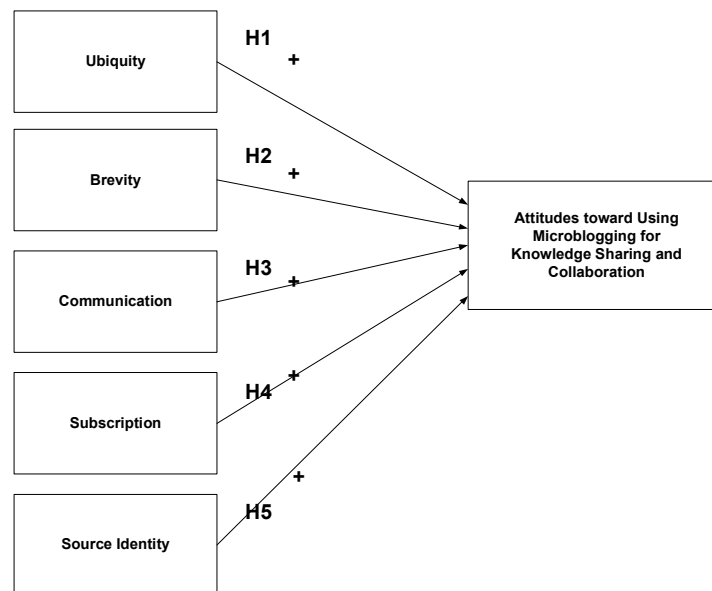

Figure 1. Theoretical Model

The ubiquitous nature of the microblogging platform allows users the ability to share ideas and experiences through a variety of devices, locations, and time zones (Zhao et al. 2008; Zhao et al. 2011). While the brevity of microblogging messages shortens the narratives, it results in the creation of broader content from multiple users, reduced effort to compose content, increased frequency of posts, and broader community-based collaborative engagement to share knowledge (Meyer et al. 2010; Zhao et al. 2011). Extant studies demonstrate that the greater the perceived ease of use of a system, the higher the user's attitude toward the use of such systems (Davis 1989). For example, Hsu et al. (2008) found that the user's attitude toward using online blogging was impacted by ease of use of such systems. As a result, it is hypothesized that:

H1.　　Microblogging's ubiquity capacity has a positive effect on attitudes toward using microblogging for knowledge sharing and collaboration in virtual teams.

H2.   Microblogging's brevity capacity has a positive effect on attitudes toward using microblogging for knowledge sharing and collaboration in virtual teams.

Microblogging provides a platform for synchronous and asynchronous interaction between users thus facilitating one-to-one and one-to-many communication processes. Feedback received from numerous readers inspires the users to modify their comments where necessary and to stimulate social interaction through meaningful inquiries (Cheng 2012).   Ebner et al. (2010) showed that the majority of microblogging posts constitute small talk that can be used for clarification and communication on a variety of topics. These social interactions allow users to engage others in strong communities to resolve specific problems. Furthermore, Zhang et al. (2010) noted that microblogging users regarded the microblogging platform as a convenient method to engage people whom they didn't know and as a result reduced the need for formal communication, share information in long conversations, and improve informal communication.

Microblogging allows users to form social awareness through timely communication and knowledge sharing within easy-to-understand audiences (Zhao et al. 2009; Zhao et al. 2011). Through microblogging, users seek knowledge, converse on ideas, collaborate on shared interests, build stronger social connections with people outside their work teams, coordinate meetings, converse about opinions, and solve problems in order to build shared context and better understand the work of others (Riemer et al. 2011). Microblogging is also occasionally used to organize ad-hoc team meetings with an informal and voluntary character, like having a time-off for a coffee or meeting one-on-one for discussing an urgent issue (Meyer et al. 2010). As a result, microblogging promotes social interaction and as context for making contact with others.

According to Hauptmann et al. (2010), microblogging is the only media of many-to-many communication through which there would be no real gap between meetings, workshops, etc. Members of the network post what they like to post, and they do it when they desire. Furthermore, the effort of setting up and coordinating a learning network would be reduced to a minimum. Meyer et al. (2010) noted that microblogging promotes social interaction. Like instant messaging, Twitter was extensively used for informal communication, either as group messages to the whole team or direct messages to one single person. Equally important was the fact that status updates provided a context for making contact with other members with information about the others' backgrounds, current information about their work, and a variety of topics that can serve as starting points for a conversation. Zhao et al. (2011) found that microblogging allows sharing of low criticality updates that may not be shared via email, but as if bumping in the hallway as well as random ideas from a conversation, noteworthy items from a talk, a pleasant meeting with a business partner, or other personal experience.

Ehrlich et al. (2010) analyzed microblogging posts of 34 employees from IBM and interviewed 25 users to determine use of the platform. They found that microblogging use among distributed employees helped them feel closer to the rest of the company employees as it facilitated a continuous sense of what was happening. As a result, they concluded that microblogging increased social connections by facilitating easy affiliation and interactions between users.

Seebach (2012) found that in 80% of the time microbloggers leveraged their entire social networks when seeking specific knowledge and that knowledge providers belonging to the weaker-ties of the social network provided higher knowledge quality on open-ended request for subjective knowledge on specific issues.

These studies suggested that microblogging users utilize the platform to create social connections and develop "swift-tie" trust relationships with others through informal communication practices. As a result, it is hypothesized that:

H3.   Microblogging's communication capacity has a positive effect on attitudes toward using microblogging for knowledge sharing and collaboration in virtual teams.

Hauptmann et al. (2010) noted that microblogging fosters informality in its best knowledge sharing manner. This is a result of the publishing and subscribing principle where no posted information is

meaningless unless the network defines it so. Members can find information about others' backgrounds, their work, and a variety of topics that can serve as starting points for a conversation (Meyer et al. 2010). Ehrlich et al. (2010) found that microblogging use among distributed employees helped them quickly find access to more knowledge sources and with higher quality information than other forms of communication.

Müller et al. (2011) surveyed the top eight microblogging users of a homegrown microblogging platform at a Fortune 500 company. The feedback revealed that microblogging facilitated information sharing, networking with others, and easily following up with experts. The tool was also helpful at allowing users to learn best-practices and business challenges, keep up to date on the standards/quality procedures, and keep up to date with the process of leveraging and improving documentation standards, document quality, and document processes. Muller and Stocker also found that perceived individual benefits from the tool included assistance in getting the right information, expert knowledge, and learning from followers. Furthermore, participants indicated that organizational benefits from the platform included improved flow of information, worldwide networking, promotion of knowledge management practices and learning, and diffusion of rich experiences leading to more innovative thinking and better products.

Extant literature also shows that trust is critical in the motivation to share knowledge among sources and recipients (Cabrera et al. 2005). Gagné (2009) argued that motivation to share knowledge increases among knowledge sources and recipients if the sources are perceived as leaders by the recipients. Followers often feel greater sense of relatedness, mutual cohesion and commitment to a common cause with the leaders (Bass et al. 2006). These studies support the argument that microblogging subscription allows users to locate, follow, relate and exchange useful knowledge. As a result, it is hypothesized that:

H4.   Microblogging's subscription capacity has a positive effect on attitudes using microblogging for toward knowledge sharing and collaboration in virtual teams.

Morris et al. (2012) studied credibility of knowledge sources in microblogging. They conducted a survey of 256 Twitter users and discovered that features associated with lowest credibility perceptions for microblogging posts included non-standard grammar, default account image (or avatar) and following a large number of other users. In contrast, the features considered most enhancing microblogging credibility are associated with the author of the posts. These features include: author influence (measured by number of followers, number of retweets, i.e. reposting of the author's original posts), the number of mention counts, topical expertise (determined by the author's Twitter homepage), and reputation.

Extant literature demonstrates that source credibility influences knowledge sharing in organizations. For example, Ko et al. (2005) found that the more credible a consultant on enterprise systems projects, the greater the knowledge transfer among the source and recipients. Furthermore, Slaughter et al. (2000) also found that knowledge exchange between technology departments was influenced by the credibility of the knowledge sources.

It is argued that microblogging facilitates the discovery of credible sources of knowledge. As a result, it is hypothesized that:

H5.   Microblogging's source identity capacity has a positive effect on attitudes toward using microblogging for knowledge sharing and collaboration in virtual teams.

Conclusion

The current study attempted to derive answers to the question: What impact do the technological capacities of microblogging have on attitudes toward using that social media for knowledge sharing and collaboration in virtual teams?" To answer the question, five potential microblogging capacities were explored, and a model was proposed to test the impacts of these capacities on employees' attitudes to share knowledge via microblogging. The study identified ubiquity, brevity, communication, subscription, and source identity and suggested those may positively influence knowledge sharing attitudes. Future steps for this study will include the development and validation of appropriate instruments to measure

the variables, pre-testing the instruments to improve validity and reliability, and conducting a survey among a purposive sample of microblogging users.

Results of a study that determine factors impacting attitudes to share knowledge via social media can have substantial contribution to the knowledge management literature and significant practical implications for organizations. For example, future research can shift focus toward enhancing specific microblogging capacities that complement knowledge users' needs and contribute to the increase in knowledge seeking and knowledge contribution practices. Such a study can add value to the organizational decision making process on whether management should invest in social media microblogging platforms to prevent further loss of knowledge and eliminate information silos to make knowledge discovery easier. Future studies should also clarify the results of existing research whether microbloggers should engage each other in more frequent informal communication and collaboration practices in order to share knowledge and enhance person-to-person learning. Specific questions that remain to be addressed include: Do attitudes toward using microblogging for sharing and collaboration impact behavioral intention to share knowledge via such systems? If so, what is the strength of this impact and does it lead to actual knowledge sharing and collaboration behaviors via such systems?

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