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Towards the Development of an Integrative Framework for Technology Mediated Learning

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ABSTRACT

As mandatory involvement requirements may not intrinsically motivate learners to achieve high quality learning, social factors under affective commitment are especially important determinants of TML success. This paper investigates an individual's social and self identities as important determinants in developing affective commitment (identification) and intrinsic motivation (perceived enjoyment) to share knowledge by email in the TML environment. Furthermore, given the recent emphasis on gender in system adoption and socio-linguistic literature, this study investigates gender as a moderating variable in the proposed model. The integrative framework of e-learning in this study will help us understand the antecedents of effective knowledge sharing intervention in the TML environment, based on the integrated model of social identity theory, social influence theory, self determination theory, and socio-linguistic literature. Furthermore, IS practitioners will be able to understand the different roles of identity and gender in developing and designing TML and KM systems,

KEYWORDS

Technology mediated learning, identity, gender, perceived enjoyment

Introduction

Technology mediated learning (TML) has been defined as "an environment in which the learner's interactions with learning materials (e.g., readings, assignments, exercises), peers, and/or instructors are mediated through advanced information technologies" (Alavi and Leidner, 2001, p.2). Since mandatory involvement requirements may not intrinsically motivate learners to achieve high quality learning (Bullen, 1998), affective commitment, such as identification, is an especially important determinant of TML success. In addition, social intervention for interaction and communication in e-learning positively influence outcomes in varied dimensions of TML (Rourke and Anderson, 2002; Garrison et al., 2003). Given that effective learning requires engagement with others in the learning community (Laurillard, 2000), these social factors should be investigated further in the TML context. Bohlken (1998) suggested that incorporating the social aspects of e-learning can enhance classroom effectiveness within a TML environment. For example, several studies suggest that in-depth learning effects are accomplished when students realize the need to learn by collaboratively sharing knowledge (Cooney, 2000; Arbaugh, 2000; Poole, 2000). This research proposes the integrative framework of TML to investigate the moderating role of gender difference in the relationships among different identities, identification, and the perceived enjoyment in the TML environment.

Literature Review and Proposed Hypotheses

Figure 1 presents the integrative model of TML and shows the potential causal relationships and moderatin effects in the model. In addition to the relationship between social identity and perceived enjoyment of sharing knowledge by email, the current study also includes identification as a partial mediator in the model. Self identity is included in the model as an antecedent to perceived enjoyment and identification. The moderating effects of gender in these relationships will be tested. Specifically, male will have a stronger influence of self identity, while female will have a stronger influence of social identity. The specific elements of the model and related hypotheses are further detailed below.

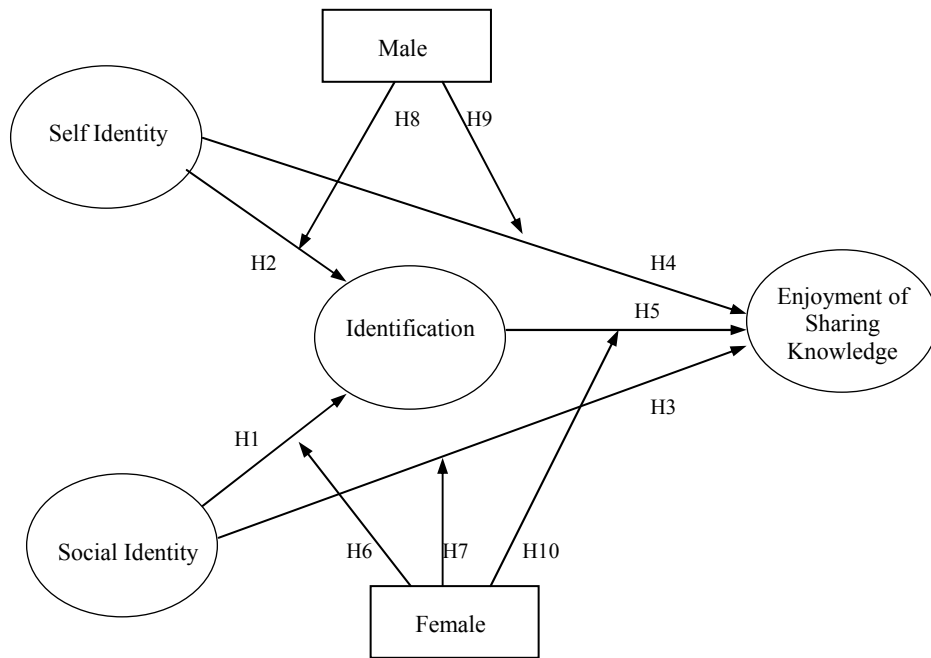


Figure 1. The Integrative Model of Technology Mediated Learning

Social/Self Identity and Identification

Social identity theory (Tajfel, 1982; Tajfel and Turner, 1986) is concerned with when and why individuals identify with, and behave as part of, social groups, adopting shared attitudes towards outsiders. Tajfel (1982) sought an account of group identity that held together both society and the individual. Tajfel first sought to differentiate between those elements of self identity derived from individual personality traits and interpersonal relationships as opposed to those elements of social identity derived from belonging to a particular group. Social identity is defined as the individual’s knowledge that he/she belongs to certain social groups, together with some emotional and value significance to him/her of the group membership (Abrams and Hogg, 1990). Therefore, it is the groups to which we belong that form our social identity or our self conception as a group member. Self identity is defined as the salient part of an actor’s self which relates to a particular behavior that reflects the extent to which an actor sees him/herself as fulfilling the criteria for any societal role (Conner and Armitage, 1998). Abrams and Hogg (1990) and Turner (1982) conceptualize self identity as a subsystem of self-concept. Self-concept is described as a collection of images which vary in terms of the length of their establishment, complexity and richness of content. Each individual is seen to have a repertoire of identities open to them (social and self), each identity informing the individual of who he/she is and what this identity entails (Turner, 1982). The salience of these many identities for an individual at any time will vary according to the social context (Abrams and Hogg, 1990). Where self identity is salient, the individual will relate to others in an interpersonal manner, dependent on their character traits and any personal relationship

existing between the individuals. However, social identity is more salient than self identity in self-conception when the group behavior is more salient.

Social influence theory (Kelman, 1958, 1961; Becker et al., 1995) also provides a well-established basis for understanding social behavior of individuals that relates to identities. Social influence theory distinguishes a variety of types and levels of social commitment: identification, internalization and compliance. Kelman's theory explains how the different commitment mechanisms change the target behavior. For example, identification occurs when system users adopt behaviors to achieve a satisfying and self-defining relationship with another person or group. Internalization occurs when system users adopt behavior because of its content, which they find congruent with their own values. These two mechanisms, explained as "affective commitment" by Malhotra and Galletta (2005), alter an individual's belief structure, causing an individual to respond to potential social status gain (Venkatesh et al., 2003). The third mechanism of commitment is compliance, which occurs when the behavior is primarily a result of incentives, rewards, or punishments, but the actor may not necessarily appreciate or understand the value of the desired behavior. Compliance can result in behavior modification only if the actor's behavior is controlled and managed by organizational intervention. Based on Kelman's (1958, 1961) social influence theory, Venkatesh and Davis (2000) suggested that compliance in mandatory contexts causes social influence to have a direct effect on intention; in contrast, social influence in voluntary contexts operates by influencing perception about the technology through the psychological attachment mechanisms of affective commitment, such as identification and internalization.

Identification occurs when a person interacts with others to achieve a satisfying and self-defining relationship with another person or group (Kelman, 1958, 1961). We identify with groups to which we perceive ourselves as belonging. Identification carries two meanings. Sometimes we think of ourselves as group members and at other times we think of ourselves as unique individuals. This varies situationally, so that we can be more or less a group member, depending upon the circumstances. What is crucial for our purposes is that thinking of ourselves as a group member (social identity) and thinking of myself as a unique individual (self identity) are both parts of our self-concept. Identification occurs when individuals adopt behaviors based on these different identities.

In this study, knowledge sharing in the TML environment should be interpreted as a voluntary system because the learners can freely choose the communication media, such as group email function, telephone, or face-to-face discussion, and there is no instructional intervention in this knowledge sharing process. This study tests the influence of different identities (social identity and self identity) on identification of sharing knowledge by email. We expect a direct positive relationship between social/self identities and identification within a voluntary system environment of TML. Thus, we hypothesize that:

H1: Social Identity will have a positive effect on Identification.

H2: Self Identity will have a positive effect on Identification.

Social/Self Identity and Perceived Enjoyment

Perceived enjoyment refers to the extent to which the activity of using a computer system is perceived to be personally enjoyable in its own right aside from the instrumental value of the technology (Davis et al., 1992; Yi and Hwang, 2003). According to Davis et al. (1992, p. 1112), extrinsic motivation refers to "the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself," whereas intrinsic motivation refers to "the performance of an activity for no apparent reinforcement other than the process of performing the activity per se." Davis et al. (1992) and recently Venkatesh and Speier (2000) classified enjoyment as a type of intrinsic motivation and perceived usefulness as a type of extrinsic motivation. Several studies of flow theory showed the relationship between perceived enjoyment and perceived control, that is, the extent to which a user feels in charge of the interaction (Ghani and Deshpande, 1994; Ghani et al., 1991; Webster and Ho, 1997; Chan, 2001; Chung and Tan, 2004). Flow construct includes intense concentration, a sense of being in control, a loss of self-consciousness and a transformation of time (Agarwal and Karahana, 2000). This shows that perceived enjoyment or flow enhances the perceived control that is mainly governed by self, which can be interpreted as self control within a voluntary context.

Self determination theory (Deci and Ryan, 1985) showed that all individuals have natural, innate, and constructive tendencies to develop an ever more elaborate and unified sense of self. It focuses on how individuals develop a coherent sense of self through regulation of their behavioral actions that may be self-determined, controlled, or motivated. Malhotra (2002) argued that tacit perspective of knowledge management should be managed and controlled mainly by self control or intrinsic

motivation, rather than by formal controls based on self determination theory. Based on social identity theory and self determination theory, we hypothesize that both social and self identities influence perceived enjoyment of sharing knowledge by email within a voluntary system environment of TML. Given that thinking of ourselves as a group member (social identity) and thinking of myself as a unique individual (self identity) are both important determinants of self, these aspects should influence the self control or perceived enjoyment to share knowledge by email. Terry et al. (1999) suggested that social identity influences the intrinsic motivation or attitude of the recycling behavior of community residents. Self identity has also been considered to be related to an intrinsic motivation for human behavior, since there is no apparent reinforcement other than one's own internal needs (Compeau and Higgins, 1995; Lee et al., 2001). Thus, we hypothesize that:

H3: Social Identity will have a positive effect on Perceived Enjoyment of Sharing Knowledge by email.

H4: Self Identity will have a positive effect on Perceived Enjoyment of Sharing Knowledge by email.

Since identification process derives from system user's *affective* commitment, it focuses on a satisfying self-defining relationship with another person or group or an intrinsic motivation of group behavior. In identification, the system user's feeling of satisfaction derived from the salience of the desired relationship has a similar effect on intrinsic motivation (Malhotra and Galletta, 2005; O'Reilly and Chatman, 1986). Lewis et al. (2003) recently explained (p. 662), "Via identification, the individual seeks to believe and act in a manner similar to those possessing referent power. Therefore, compelling messages received from important others are likely to influence one's cognition about the expected outcomes of technology use." Specifically, in the TML or KM systems environment, this group salience or relationship, through affective commitment by identification, plays an important role in developing perceived enjoyment to share knowledge by email. Thus, we hypothesize that;

H5: Identification will have a positive effect on Perceived Enjoyment of Sharing Knowledge by email.

Moderating Effects of Gender

Sociolinguists (e.g., Tannen, 1994; Yates, 2001) suggest that social communication behavior, including TML or e-learning, should be investigated with gender as a central social aspect. Men and women may communicate in what on a superficial level may seem the same language, but the social message behind the words between the average man and the average woman is quite different, as is how this message is interpreted (Yates, 2001). Socio-linguistic researchers argue that men and women have different social influence for conversational interaction (Coates, 1986; Gefen and Straub, 1997). Male patterns of communication tend to be based on the notion of a social hierarchy, while female patterns tend to be network-oriented (Tannen, 1994). In general, women focus more on creating intimacy, while men focus more on asserting independence and seeking respect (Gefen and Straub, 1997). Women's discourse tends to be more tentative and socially oriented, while men tend to be more categorical (Preisier, 1987). Furthermore, women show cooperation in their discourse, while men tend to be competitive (Coates, 1986). For men, discourse tends to be a struggle to preserve independence, while women's communication is inclined toward seeking and confirming intimacy, support, and consensus (Gefen and Straub, 1997). In the TML context, Yates (2001) also found that men tend to access TML more to obtain information, while women did so more to interact with other students.

Gefen and Straub (1997) showed that women sense more social presence in work-related emails. Venkatesh and Morris (2000) also showed that women are more affected by social norms in their adoption of IT. Men communicate more with the objective of creating and preserving their social status and exchanging information (report talk), while women do so more with the objective of creating social inclusion or exchanging emotions (rapport talk) (Gefen and Ridings, 2005; Tannen, 1994). In the unified theory of acceptance and usage of technology (UTAUT) model, Venkatesh et al. (2003) showed that women have a stronger relationship between social influence and behavioral intention. Social identity, the individual's knowledge that he/she belongs to certain social groups together with the group membership, would be salient to female since they focus on social inclusion and emotion in their communication. Thus, we hypothesize that:

H6: Social Identity will have a stronger effect on Identification in Female.

H7: Social Identity will have a stronger effect on Perceived Enjoyment of Sharing Knowledge by email in Female.

On the other hand, male patterns of communication tend to be based on the notion of a social hierarchy (Tannen, 1990), seeking respect (Gefen and Straub, 1997), more categorical tendency (Preisler, 1987), competitiveness (Coates, 1986) and asserting independence (Gefen and Straub, 1997). Generally, men are supposed to be more competitive, assertive, dominating, and less complimentary than women (Anderson and Leaper, 1998; Edelsky, 1993; Holmes, 1992; Kilbourn and Weeks, 1997; Weatherall, 1998; West and Zimmerman, 1983). Based on an extensive review of the literature, Minton and Schneider (1980) concluded that men tend to be more self-confident. Self identity, the extent to which an actor sees him/herself as fulfilling the criteria for any societal role, would be salient to male since they focus on social status and categorical role in the communication. Thus, we hypothesize that:

H8: Self Identity will have a stronger effect on Identification in Male.

H9: Self Identity will have a stronger effect on Perceived Enjoyment of Sharing Knowledge by email in Male.

Female is more socially oriented than male. A female's social orientation suggests that the influence of identification, system users' tendency to achieve a satisfying and self-defining relationship with another person or group, on intrinsic motivation would be more salient in the case of female samples. Several studies suggest that women and men also differ in the extent to which they can be influenced by others (Becker, 1986; Eagly and Carli, 1981). Minton and Schneider (1980) concluded that women are more people and social-oriented. Crawford et al. (1995) also found that women tend to be more in accordance with group opinion. In the IS literature, Venkatesh and Morris (2000) and Venkatesh et al. (2000, 2003) found that the influence of social norms on IT adoption behavior are stronger in the case of female samples. This salience of normative pressure in female cases would suggest that an individual's tendency to achieve a satisfying relationship with the group for the intrinsic motivation to share knowledge by email would be stronger in case of female samples. Thus, we hypothesize that:

H10: Identification will have a stronger effect on Perceived Enjoyment of Sharing Knowledge by email in Female.

Research Design Plan

A survey of undergraduate business students in the northern region of the U.S. will be implemented with the students who are in the introductory MIS course and voluntarily participate in the experiment. The students will be asked to show their opinion and perception regarding knowledge sharing by group email functions in Blackboard, the Internet-based academic class management system. Each group in the class will be composed of four members and will be assigned to prepare two group projects for final presentation in the course. One of the group projects will be a structured interview with IT experts in the field regarding IS job market issues and a recently completed IS project management engagement. Group members will be required to complete the group's work, such as interviewing, preparing an interview protocol, reporting and presenting, and to participate in the project via group emails, telephone, and face-to-face discussion in class. The second group project will be a database development project using MS Access. Each group will be required to develop a CD management database using seven tables and relationships in MS Access. Overall database structure will be decided based on the discussion of group members. Our target sample is more than 400 Blackboard system users – more than 200 female and more than 200 male users. Preliminary data analysis results using PLS will be presented in the conference. Measure validation and model testing will be conducted using Partial Least Square (PLS) Graph Version 3.0 (Chin, 1998), a structural equation-modeling (SEM) tool that utilizes a component-based approach to estimation. PLS makes few assumptions about measurement scales, sample size, and distributional assumptions. Compared with covariance-based SEM tools such as LISREL and EQS, PLS is more appropriate for exploratory research into new phenomena with the complex model, which is the case in our study (Chin, 1998). This study, which includes both direct and moderating effects in the complex model, will be used PLS rather than the other SEM techniques in data analysis.

Implications for Practice and Research

The practical contribution of this research is to show important aspects of identification for knowledge sharing in TML and KM systems implementation, applying the social influence theory by Kelman (1958, 1961). The relationships among social identity, self identity, and perceived enjoyment of sharing knowledge, suggested by this study, can be used to target activities needed to further improve TML or KM implementation. It has been emphasized that further research in IS should attempt to bridge the gap between the information-based model of the organization and the knowledge-based view that recognizes diverse perspectives, values, and attitudes of KM and TML adopters (Zack, 2001). For example, KM or TML system

designers can focus on satisfying group relationships among voluntary users to facilitate knowledge sharing by incorporating various approaches such as “knowledge repositories” or “communities of practice” (DeLone and McLean, 2003). Identification of knowledge contributors is the most important factor for system success, specifically when the contributors believe the group is important to themselves. This identification of knowledge contributors is a more powerful factor for knowledge sharing than the other normative or mandate factors. Our proposed model supports the overall understanding of these phenomena and, based on our empirical findings, confirms the model.

Given that much current IS research focuses on knowledge sharing (e.g., Ko et al., 2005; Wasko & Faraj, 2005; Bock et al., 2005), the present study shows that the effects of identities and gender are crucial to improving the “enjoy-ability” factor in KM and TML systems. As the empirical results in this study show, there are significant moderating effects of gender in these relationships. For example, “communities of practice” (DeLone and McLean, 2003) in KM and TML would be more successful with female group members because of the stronger relationship between social identity and perceived enjoyment in female. These findings also provide further practical guidance in developing and designing KM and TML systems.

Further research is also needed to specifically examine the influences of other individual characteristic constructs on social identity, self identity, identification, and intrinsic motivation to share knowledge by email. Social influence theory and identity theory are not fully investigated in the IS domain, while they are well studied in the psychology literature. The relationships among other constructs, such as culture, capability, and extrinsic motivation, and different identities also deserve exploration. Further, how these psychological constructs are related to actual learning performance should be investigated further in future research.

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