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55. We-Intention to Use Instant Messaging for Collaboration: A Social Influence Model

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Abstract
The purpose of this study is to introduce the concept of "we-intention" into group technology adoption and diffusion research. In this study, we examined the "we-intention" of using instant messaging for team collaboration. Building upon the social influence framework, a we-intention model is developed and tested with 163 respondents. The research model explained 41.3% of the variance in we-intention. Attitude, group norm and social identity were found to be statistically significant in determining we-intention to use instant messaging for collaboration, and value perception had significant effects on attitude and social influence factors. We believe that the implications of this study are important for both researchers and practitioners.

Keywords: We-intention, Uses and Gratifications, Social Influence, Instant Messaging, Collaborative Technology

Introduction

A recent McKinsey Global Survey on the use of Web 2.0 showed that more than three-fourths of executives plan to maintain or increase their investments in collaborative technologies. Some have considered that the investment in Web 2.0 is a strategic move (McKinsey & Company 2007). Osterman Research (2006) also reported that 99% of organizations in North America will adopt and use instant messaging as their basic communication tool by 2009. Instant messaging has a number of unique features that greatly support group collaboration, including (1) the "presence awareness" mechanism; (2) a personalized contact list and (3) private chat rooms (Huang and Yen 2003; Quan-Haase et al. 2005). In this regard, users can make good use of these features to collaborate more effectively with others. For example, the "presence awareness" mechanism notifies users when people in their personalized contact list are online and available to receive messages. Users can send messages to these online group partners which then produces a private chat room between the two users via a "pop-up" window. The two users can then invite other group members to take part in that particular conversation wherein collaborative discussion can take place. All these features greatly support collaborative work between co-workers and increase efficiency and productivity between dispersed virtual work teams.

Research on instant messaging has been receiving tremendous attention in recent years. Prior studies on the use of instant messaging for work-related activities have mostly adopted a qualitative analysis approach (Herbsleb et al. 2002; Isaacs et al. 2002; Nardi et al. 2000). For example, Nardi et al. (2000) discussed interaction and outeraction processes involved in the use of instant messaging through an ethnographic study. Herbsleb et al. (2002) also reported that privacy concerns, training and perception of utility are important issues related to the use of instant messaging when introduced to geographically distributed workgroups. Recent studies started to investigate the use of instant messaging in the workplace with a quantitative analysis approach. For instance, de Vos et al. (2004) investigated the adoption and usage of instant messaging in a knowledge worker organization. He found that perceived usefulness, compatibility of instant messaging with work, technology self-efficacy, and pressure from social contacts at work explained best why individual users adopted and used instant messaging in the workplace. The unit of analysis in these previous studies, however, is still at an individual level (I-intention to adopt and use instant messaging). For instant messaging to be a truly collaborative technology, its primary use would be to facilitate complex work discussions in the workplace, thus the use of this technology must be endorsed by a group. In this regard, the traditional I-intention approach may not provide enough insight into explaining the acceptance and usage behaviors of collaborative technologies. In addition, the traditional "I-intention" neglects the collective nature of group behavior in which collective commitments and obligations are involved. "We-intention", implying an implicit or explicit agreement between the participants to engage in a joint action (Tuomela 1995), is a more applicable construct for the study of collaborative technologies.

This study attempts to investigate "we-intention" to use instant messaging for collaboration. Since the use of collaborative technologies is a social behavior, we incorporate Kelman's (1974) social influence framework into our research model. This study is anticipated to provide new and important insights to both researchers and practitioners. In the next section, we will review the theoretical background of the study, followed by a description of the research model and the research hypotheses. The research method and the results of our data analysis are reported in parts 4 and 5 respectively. This paper is concluded with the limitations of this study and its implications for theory and practice.

Theoretical Background

In this section, the theoretical foundation for the current study is presented. Specifically, the concept of "we-intention" is first introduced, followed by the theory of reasoned action, Kelman's (1974) social influence framework and the uses and gratifications paradigm.

We-Intention

We-intention can be considered as the intention to participate in a group to perform a group act in which the participants perceive themselves as members of the group. Different from traditional individual intention, we-intention emphasizes collective agreement and commitment involved in the performance of a group behavior. In addition, people with we-intention view a group activity holistically (Bagozzi and Lee 2002). In this sense it is the group that performs or experiences an action, instead of individuals independently engaged in separate actions. For instance, consider the statement "we will play football together on Sunday afternoon". Here, each player regards the football game as a group action rather a personal act. They perceive themselves as a part of the football team and are collectively committed to playing together. Obviously, this example of "we-intention" is different from "I-intention" to perform an individual act (e.g., I plan to go to library) in which other people

are not involved as essential parts of the behavior. Consequently, "we-intention" highlights the collective notion of reflective group behavior. Table 1 provides a summary of the central features distinguishing we-intention from I-intention.

Table 1: Summary of Differences between I-intention and We-intention

	I-intention	We-intention
Target	Singular subject	Plural targets
Goal achievement processes	Intention content is privately accepted by the intender	Intention content is collectively accepted by each participant
Reasons for acting	Personal reasons	Group reasons
Behavioral control	Full authority over the action	Shared authority over the action
Commitment	Private commitment	Collective commitment
Satisfaction conditions	The intention content is satisfying for an individual	Simultaneous satisfaction among all participants

Although group activities such as the adoption and use of collaborative technologies, are frequently investigated in the IS filed, "we-intention" has been an overlooked concept in the past two decades of IS research. Most IT adoption and diffusion literature has been built from a few commonly used intention-based theories, such as the technology acceptance model (Davis 1989), theory of reasoned action (Fishbein and Ajzen 1975), and theory of planned behavior (Ajzen 1985). These theories only explain user acceptance and usage behavior from an individual perspective (i.e., an individual intention to adopt a new technology). However, this individual perspective seems insufficient to explain the use of a collaborative technology. Clearly, a collaborative technology could only be accepted for team collaboration when it is adopted by all group members. In addition, if an individual commits him or herself to using this technology with other group members, there will be an explicit obligation to both adopt and use it. Thus, the adoption and usage of a collaborative technology should be considered as a group action. From this perspective, "we-intention" is more applicable than "I-intention" in studying the issues concerning group acceptance behavior in IS research.

Theory of Reasoned Action

IS researchers have constantly borrowed intention models from social psychology as a theoretical foundation for research on the determinants of user behavior (Christie 1981). Among these models, the theory of reasoned action (TRA) (Fishbein and Ajzen 1975) is one of the most commonly used theories in IS research and has proven to be successful in predicting and explaining a wide range of behaviors (Bock et al. 2005; Davis et al. 1989; Venkatesh et al. 2003). According to TRA, an individual's behavior is affected by his or her behavioral intention, which in turn, is jointly determined by attitude toward the behavior and subjective norm concerning the performance of the behavior.

Social Influence Framework

Davis et al. (1989) have highlighted the role of social influences in information technology acceptance and usage behavior and further suggested that Kelman's (1974) theoretical distinction of social influence processes can be considered as a theoretical base for developing knowledge in this area. Kelman (1974) proposed three different processes of social influences including compliance, identification, and internalization. Compliance occurs when an individual accepts influence to receive support or approval from another person or group. Subjective norm is often used to reflect the social influence underlying compliance process. Identification occurs when an individual accepts the influence to establish and maintain a satisfying relationship to another person or group. Internalization occurs when an

individual accepts the influence due to similarity of one's goals or values with that of other group members. Kelman's (1974) social influence framework has been widely used to explain group and collective behavior (Bagozzi and Dholakia 2002; Bagozzi and Lee 2002); however, prior IS studies have primarily taken a very narrow point of view with regards to Kelman's theory (1974). They interpreted it with a focus on social normative compliance (Bock et al. 2005; Karahanna et al. 1999; Venkatesh and Davis 2000). Indeed, a number of researchers have already argued that the normative component fails to tap important facets of social influence (Armitage and Conner 2001; Davis et al. 1989; Terry et al. 1999). Fortunately, this problem is currently being addressed by several IS researchers (Malhotra and Galletta 2005). The role of identification and internalization processes seems especially important in the collaboration environment due to the group behavior involved. It is therefore important to take Kelman's (1974) social influence framework into account to provide new and important insights into understanding IT adoption and diffusion, especially collaborative technology acceptance behavior.

Uses and Gratifications Paradigm

The uses and gratifications (U&G) paradigm, first introduced by Katz et al. (1974), has its foundation in mass communication research and is considered a useful approach for investigating individuals' motives for media use. The general idea of this paradigm is that users actively seek gratifications from media and technology use based on their individual social or psychological needs. Over the years, the U&G approach has been applied to understand the individual motives of users on a variety of media (Flanagin and Metzger 2001; Leung 2001; Stafford et al. 2004). Recent studies in marketing have also examined the impacts of individual motives on group norm and social identity, which are probably the two most important determinants of we-intention (Dholakia et al. 2004). A deep understanding of gratification sought by technology users will be able to guide practitioners in how best to stimulate individual motivations to accept social influence and engage in a group acceptance behavior. Recent research in the IS field has also suggested that the U&G approach should be considered in investigating IT adoption and diffusion behavior (Pedersen and Ling 2003).

Uses and gratifications in virtual community can be generally classified into five categories, namely purposive value, self-discovery value, value of maintaining interpersonal interconnectivity, social enhancement value, and entertainment value (Dholakia et al. 2004; Flanagin and Metzger 2001). Purposive value is defined as the value derived from accomplishing special tasks, such as solving problems, making decisions, giving and receiving information, learning from social interactions, etc. Self-discovery value represents acquiring a deep understanding of ones' self. Value of maintaining interpersonal interconnectivity is related to the benefits derived from establishing and maintaining relationships with others. Social enhancement value refers to the increased self-esteem derived from acceptance and approval of others. Entertainment value relates to fun and relaxation derived from interacting with others. These five values are also consistent with recent findings related to the motivations of instant messaging use (Huang and Yen 2003; Leung 2001; Ramirez et al. 2004).

Research Model and Hypotheses

Figure 1 depicts the research model of this study. This model integrates Kelman's (1974) social influence framework into the original TRA to give a better explanation of we-intention to use instant messaging for collaboration. To deeply understand group members' motivations for adopting and using instant messaging in the workplace, we also include

individual motives as antecedents of attitude and social influence factors. The constructs and their relationships are discussed in this section.

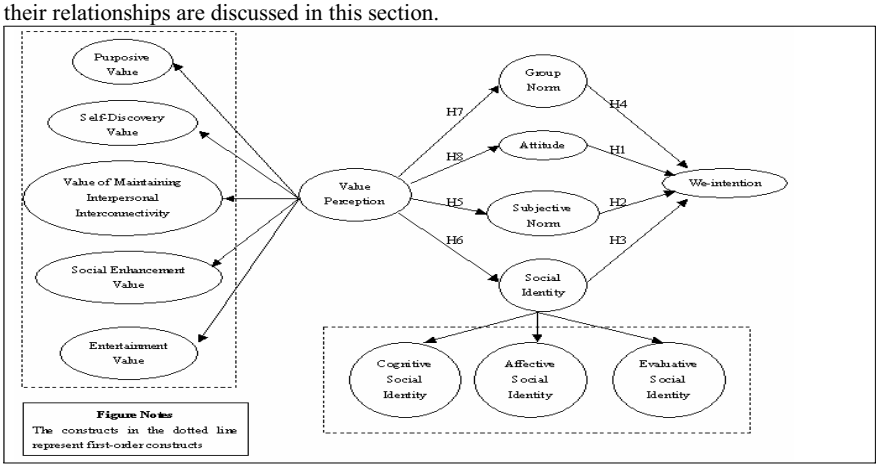

Figure 1: The Research Model

Theory of Reasoned Action and the Role of Social Influence

Since using instant messaging for collaboration is a group activity, the conventional individual intention in the TRA is replaced by we-intention in this study so as to capture the collective nature involved in instant messaging acceptance and usage behavior. According to the TRA, an individual's we-intention to use instant messaging for collaboration is determined by his or her attitude toward the use of instant messaging and perceived interpersonal pressure to use instant messaging for collaboration. Thus, the first two hypotheses are:

H1: Attitude toward the use of instant messaging has a positive impact on we-intention to use instant messaging for collaboration.

H2: Subjective norm concerning the use of instant messaging for collaboration has a positive impact on we-intention to use instant messaging for collaboration.

In addition to the compliance process captured by subjective norm in the TRA, identification and internalization processes are two other important types of social influences which determine user behavior, especially group thought or behavior. The identification process is represented in the current research through the effect of social identity. It refers to one's conception of self in terms of the relationships with other group members and the focal group (Bagozzi and Dholakia 2006). In this regard, Ellemers et al. (1999) recently proposed that one's social identity involves cognitive, affective, and evaluative components. In a cognitive sense, social identity represents a self-awareness of one's membership in the focal group, including both similarities with other group members and dissimilarities with outsiders. In an affective sense, social identity implies a sense of attachment and belongingness toward the focal group and fosters loyalty and citizenship behaviors by group members (Bergami and Bagozzi 2000). In an evaluative sense, social identity refers to the value connotation attached to the group memberships and represents an evaluation of one's group-based self-worth. In our present context, instant messaging provides a variety of features to promote relationship development. For instance, instant messaging offers a synchronous and friendly manner for group members to communicate with others and develop a long term relationship. Unique features such as buddy lists and presence awareness promote the feeling of involvement with

the social group. Simultaneous communication amongst many group members can foster a sense of community and improve the knowledge and awareness of group memberships. Due to identification, team members develop we-intention to use instant messaging for collaboration, reinforcing perceived self-enhancement as a consequence of group membership as well as establishing or maintaining a positive relationship with the collaborative group and other group members. This leads to the following hypothesis:
H3: Social identity with the collaborative team has a positive impact on we-intention to use instant messaging for collaboration.

The third form of social influence referred by Kelman (1974) is internalization, which is characterized by group norm in the current research. Social influence underlying the internalization process is captured by the congruence of one's values or goals with that of other group members. Recent research has shown that group norm has a strong influence in digital environments (Postmes et al. 1998). Consistent with this view, recent evidence indicates that group norm exerts a strong positive impact on we-intention in virtual community participation (Bagozzi and Dholakia 2002; Bagozzi et al. 2006; Dholakia 2004). For example, Bagozzi and Dholakia (2002) demonstrated that if a member's values and goals are congruent with those of other members in a virtual community, they will form participation we-intentions. In the current study, since users who use instant messaging for collaboration share the same interests and have the common goals, they constitute as a social group. There is a great overlapping of values and goals amongst group members who use instant messaging for collaborative work, which facilitates this internalization process. Therefore, we believe that group norm regarding the collaborative team exhibits a direct positive effect on we-intention to adopt and use instant messaging for team collaboration. This leads to the following hypothesis:
H4: Group norm regarding the collaborative team has a positive impact on we-intention to use instant messaging for collaboration.

The Role of Individual Motives

Although both individual-level variables and group-level variables have important influences on technology adoption and usage intention, some researchers postulated that at least some of the individual-level variables are antecedents to group-level variables (Dholakia et al. 2004). Consistent with the social identity theory (Hogg and Abrams 1988) as well as previous research in online social interactions (McKenna and Bargh 1999), this perspective argued that social influences can arise when members in the group have an clear perception of the benefits and value attached to the membership (Dholakia et al. 2004). To achieve a better understanding of an individual's motivations, values and interests under collective use of instant messaging and how these individual motives impact on social influences, we employ the uses and gratifications paradigm to reflect the gratification sought in the shaping of we-intention to use instant messaging.

Subjective norm reflects social pressure from significant others to perform a focal activity. If a person perceives the anticipated action to be consistent with his or her personal motives, he or she will be more willing to comply with the social pressure. In our current study, if the use of instant messaging in team collaboration will reap lots of beneficial outcomes, group members will be more likely to accept the influence from their significant referent groups. Based on the discussion above, we hypothesize that:
H5: Value perception has a positive impact on subjective norm concerning the use of instant messaging for collaboration.

Social identity theorists have posited that identification with a focal group is derived initially from its functionality, that is, the extent to which the group can fulfill the important needs of its affiliated members (Hogg and Abrams 1988). Recent research has further demonstrated that individual motivations will have significant impact on social identity with virtual community (Dholakia et al. 2004). In the present context, when a member finds his or her personal motives can be well satisfied through using instant messaging for collaboration with other group members, he or she will have a high identification with the collaborative team. Therefore, we hypothesize that:
H6: Value perception has a positive impact on social identity with the collaborative team.

There are three possible ways to make group norm known to members. First, users can actively seek out the goals, values, beliefs and conventions of the focal group when they first join the group. Second, users may slowly come to recognize the values and norms of the group through socialization and repeated interactions with other members over a period of time. The last way is that users may learn the norms beforehand and join the focal group based on their perceived congruence with the group norm (Dholakia et al. 2004). In any case discussed above, members accept the influence of group norm only when they find that what they seek to gain is congruent with the values and norms of the focal group. In our specific context, internalization occurs when an individual perceives that his or her own motives for using instant messaging for collaboration are similar to the group norm regarding the collaborative team. The congruence between individual motives and group values/goals will promote internalization of the group's norm. This leads to the following hypothesis:
H7: Value perception has a positive impact on group norm regarding the collaborative team.

According to Rubin (1986), attitude toward a medium varies among users and plays an important role in explaining why and how people use that medium. Recent evidence also suggested that users' motives are significant predictors of positive attitude towards the Internet (Ko 2000). In the current study, we assume that if one's individual motives have been satisfied through using instant messaging for collaboration, he or she will develop a positive attitude toward the use of instant messaging in the workplace. Therefore,
H8: Value perception has a positive impact on attitude toward the use of instant messaging for collaboration.

Research Method

The objective of this study is to examine we-intention in collaborative technology acceptance and usage behavior. More specifically, we investigate users' we-intention in the use of instant messaging for collaborative work. The target respondents of this study are university students who have used instant messaging for collaborative work (e.g., using instant messaging to discuss group projects or assignments together). An online survey was conducted to test the research hypotheses. Participation in the survey was completely voluntary and privacy was assured. To encourage more participation, an incentive of a memory card was offered as a lucky draw prize among successful respondents.

All the measures had been validated in prior studies (as shown in Table 2). Minor changes in the wordings were made so as to fit them into the current investigation context of instant messaging. In addition, a screening question was employed to identify respondents who use instant messaging for collaboration. For respondents who have used instant messaging for group discussions or assignment-related activities with their classmates, they were asked to "imagine that you are using instant messaging to discuss a group project/assignment with the group of classmates that you regularly collaborate with." Then, respondents were asked to

"picture briefly in your mind the name and image of each group member and write your nickname and their nicknames in the table below." These instructions were designed to capture the collaborative groups with which the participants had developed we-intentions to use instant messaging. A total of 163 usable questionnaires were collected. Among the respondents, 39% were female and 61% were male. A large majority (74%) of the respondents aged between 21 and 25. The average usage experience with instant messaging was 5.35 years and the average time spent on instant messaging every day was 4.39 hours.

Table 2: Summary of Psychometric Properties of the Measures

Construct	List of items	Loading	Source
Purposive Value (PV) α=0.931 β=0.601	How often do you use instant messaging for collaboration to gratify the following needs? (seven-point "never-frequently" scales) PV1: To get information PV2: To learn how to do things PV3: To provide others with information PV4: To contribute to a pool of information PV5: To generate ideas PV6: To negotiate or to bargain PV7: To get someone to do something for me PV8: To solve problems PV9: To make decisions	 0.652 0.772 0.813 0.845 0.800 0.783 0.734 0.793 0.767	Flanagin and Metzger (2001)
Self-discovery Value (SDV) α=0.925 β=0.861	How often do you use instant messaging for collaboration to gratify the following needs? (seven-point "never-frequently" scales) SDV1: To learn about myself and others SDV2: To gain insight into myself	 0.928 0.928	Flanagin and Metzger (2001)
Maintaining Interpersonal Interconnectivity (MII) α=0.799 β=0.665	How often do you use instant messaging for collaboration to gratify the following needs? (seven-point "never-frequently" scales) MII1: To have something to do with others MII2: To stay in touch	 0.815 0.815	Flanagin and Metzger (2001)
Social Enhancement Value (SEV) α=0.844 β=0.729	How often do you use instant messaging for collaboration to gratify the following needs? (seven-point "never-frequently" scales) SEV1: To impress SEV2: To feel important	 0.854 0.854	Flanagin and Metzger (2001)
Entertainment Value (EV) α=0.919 β=0.741	How often do you use instant messaging for collaboration to gratify the following needs? (seven-point "never-frequently" scales) EV1: To be entertained EV2: To play EV3: To relax EV4: To pass the time away when bored	 0.851 0.915 0.875 0.797	Flanagin and Metzger (2001)
Attitude (ATT) α=0.898 β=0.689	Using instant messaging for collaboration during the next 2 weeks would be: (seven-point semantic scales) ATT1: foolish/wise ATT2: harmful/beneficial ATT3: bad/good ATT4: unpleasant/pleasant	 0.853 0.823 0.875 0.763	Bagozzi and Lee (2002); Perugini and Bagozzi (2001)
Subjective Norm (SN) α=0.927 β=0.865	SN1: Most people who are important to me think that I should/should not use instant messaging for collaboration sometime during the next 2 weeks. (seven-point "should-should not" scale) SN2: Most people who are important to me would approve/disapprove of me using instant messaging for collaboration sometime during the next 2 weeks. (seven-point "approve-disapprove" scale)	0.930 0.930	Bagozzi and Lee (2002)
Group Norm (GN)	Using instant messaging for collaboration sometime during the next 2 weeks with the group of classmates you identified above can be		Bagozzi and Lee

α=0.909 β=0.834	considered as a goal. For each member in your group, please estimate the strength to which each holds the goal. (seven-point "weak-strong" scales) GN1: Strength of the shared goal by the self. GN2: Average of the strength of the shared goal for other members.	 0.913 0.913	(2002)
Cognitive Social Identity (CSI) α=0.846 β=0.734	CSI1: How would you express the degree of overlapping between your own personal identity and the identity of the group you collaborate with through instant messaging when you are actually part of the group and engaging in group activities? (eight-point "far apart-complete overlap" scale) CSI2: Please indicate to what degree your self-image overlaps with the identity of the group of partners as you perceive it (seven-point "not at all-very much" scale)	 0.857 0.857	Bagozzi and Lee (2002)
Affective Social Identity (ASI) α=0.929 β=0.867	ASI1: How attached are you to the group you collaborate with through instant messaging? (seven-point "not at all-very much" scale) ASI2: How strong would you say your feelings of belongingness are toward the group? (seven-point "not at all-very much" scale)	 0.931 0.931	Bagozzi and Lee (2002)
Evaluative Social Identity (ESI) α=0.919 β=0.851	ESI1: I am a valuable member of the group. (seven-point "does not describe me at all-describes me very well" scale) ESI2: I am an important member of the group. (seven-point "does not describe me at all-describes me very well" scale)	 0.922 0.922	Bagozzi and Lee (2002)
We-Intention (WE) α=0.919 β=0.851	WE1: I intend that our group use instant messaging for collaboration together sometime during the next 2 weeks. (seven-point "disagree-agree" scale) WE2: We intend to use instant messaging for collaboration together sometime during the next 2 weeks. (seven-point "disagree-agree" scale)	 0.922 0.922	Bagozzi and Lee (2002)

Note: α= composite reliability; β= average variance extracted.

Results

Partial Least Squares (PLS) was used to test the proposed research model. The PLS procedure (Wold 1989) is a second-generation multivariate technique which could assess the measurement model and the structural model simultaneously in one operation. Additionally, PLS has the ability to model latent constructs under condition of non-normality. Compared to alternative structural equation modeling techniques, it has a minimal demand in terms of the sample size to validate a model. Following the two-step analytical procedures (Hair et al. 1998), the measurement model was first examined and then the structural model was assessed.

The Measurement Model

We assessed the convergent validity by examining the composite reliability and the average variance extracted (Hair et al. 1998). Composite reliability is the measurement for internal consistency. Average variance extracted indicates the amount of variance captured by a construct as compared to the variance caused by the measurement error. A composite reliability of 0.70 or above and an average variance extracted of more than 0.50 are deemed acceptable (Fornell and Larcker 1981). Table 2 summarizes factor loadings, composite reliability values (α) and average variance extracted value (β) of the measures of our research model. All the measures exceeded the recommended thresholds, with composite reliability ranging from 0.799 to 0.931 and average variance extracted ranging from 0.601 to 0.867.

Discriminant validity indicates the extent to which a given construct differs from other constructs. It can be verified by comparing the shared variances between constructs with the

average variance extracted for each construct (Fornell and Larcker 1981). To demonstrate the adequate discriminant validity of the constructs, the square root of the average variance extracted for each construct should be greater than the correlations between that construct and all other constructs. Table 3 presents the correlation matrix of the constructs and the square roots of the average variance extracted. The results suggested an adequate level of discriminant validity of the measurements.

Table 3: Correlation Matrix of the Constructs

	GN	ATT	SN	CSI	ASI	ESI	PV	SDV	MII	SEV	EV	WE
GN	**0.913**											
ATT	0.371	**0.830**										
SN	0.210	0.251	**0.930**									
CSI	0.467	0.445	0.196	**0.857**								
ASI	0.522	0.469	0.106	0.720	**0.931**							
ESI	0.422	0.458	0.239	0.600	0.656	**0.922**						
PV	0.486	0.433	0.296	0.413	0.479	0.554	**0.775**					
SDV	0.368	0.361	0.292	0.382	0.407	0.420	0.599	**0.928**				
MII	0.472	0.482	0.268	0.405	0.467	0.441	0.759	0.600	**0.815**			
SEV	0.131	0.230	0.267	0.161	0.202	0.282	0.459	0.566	0.383	**0.854**		
EV	0.099	0.123	0.178	0.096	0.058	0.083	0.234	0.312	0.202	0.457	**0.861**	
WE	0.448	0.469	0.134	0.481	0.527	0.569	0.641	0.501	0.566	0.376	0.223	**0.922**

Note:
GN=Group Norm, ATT=Attitude, SN=Subjective Norm, CSI=Cognitive Social Identity, ASI=Affective Social Identity, ESI=Evaluative Social Identity, PV=Purposive Value, SDV=Self-discovery Value, MII=Maintaining Interpersonal Interconnectivity, SEV=Social Enhancement Value, EV=Entertainment Value, WE= We-Intention
*The shaded numbers in the diagonal row are square roots of average variance extracted.

The Structural Model

The results of the analysis are depicted in Figure 2, which presents the overall explanatory power, the estimated path coefficients (all significant paths are indicated with asterisks), and the corresponding t-values of the paths. Tests of significance of all paths were performed using the bootstrap resampling procedure. The model accounts for 41.3% of the variance in "we-intention to use instant messaging for collaboration". The results also show that individual motives explain 22.3% of the variance in group norm, 22.6% of the variance in attitude, 11.7% of the variance in subjective norm, and 30.2% of the variance in social identity. All structural paths (except the path from subjective norm to we-intention) were found to be statistically significant in the research model. Social identity had the strongest impact on we-intention, with a path coefficient at 0.419, followed by attitude and group norm, with path coefficients at 0.205 and 0.154 respectively. Subjective norm was found to not exert a significant effect on we-intention. One possible explanation is that the use of instant messaging tends to be voluntary, in that subjective norm is not taken as one of the considerations in fostering users' we-intention to adopt and use instant messaging. This is also consistent with previous studies, which have shown that the direct effect of subjective norm on intention is significant only in the mandatory setting (Venkatesh and Davis 2000). Another probable explanation for the failure of subjective norm in predicting we-intention may be attributed to the fact that most of the users in this study are quite experienced in instant messaging, with an average instant messaging usage experience of 5.35 years. In this regard, Karahanna et al. (1999) found that subjective norm became less important with

increasing experience. The results also showed that individual motivations (i.e., value perception) have statistically significant effects on both social influence variables and attitude toward the use of instant messaging at the 0.001 level. This evidence adds credence to the argument that individual motives play an important role in determining group members' attitude and perceived social influence on group acceptance of instant messaging for team collaboration.

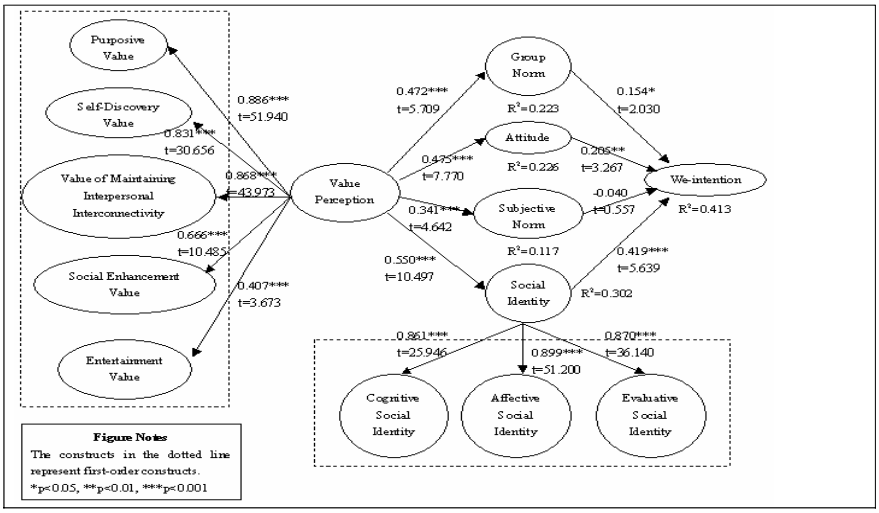

Figure 2: Results of Research Model

Discussion and Conclusion

To gain a deeper insight into the use of instant messaging in work-related activities, this study offers a novel exploration of the concept of "we-intention". It is to be used as a useful guide in examining collaborative technology acceptance and usage behavior. This issue is managerially important as the use of instant messaging in the workplace has dramatically increased worldwide. We believe that the implications of this study are interesting and important for both researchers and practitioners.

Limitations

Before discussing the implications, the limitations of the research should be noted. First, the data were collected mainly from university students. "We-intention" in this study can only refer to the use of instant messaging for group projects, which may be different from the tasks conducted in business contexts. Although university students are major users of instant messaging and represent the future workforce, generalization of the findings beyond this population should be done with caution. Second, the correlation between the purposive value and the value of maintaining interpersonal interconnectivity seems very close to the square root of the average variance extracted for the purposive value. Third, in this study we have not examined the actual behavior of using instant messaging for collaborative work. A longitudinal study is highly recommended for future research on this topic.

Implications for Research

This study is one of the few attempts to introduce the "we-intention" concept into IT adoption and diffusion research. Different from the traditional concept of individual intention, we-intention captures the collective nature involved in group acceptance and usage behavior. In the context of IT-supported collaboration, an individual does not have the full authority over using or not using a special technology. Once he or she commits to using this technology with other group members, there will be an explicit or implicit promise and obligation to adopt. Unlike individual intention, the individual cannot be released from the obligation merely by changing his or her mind. Under the circumstance of group acceptance, participants will more likely perceive themselves as members of the collaborative group and adopt the particular collaborative technology in concert with other group members. In this regard, "we-intention" could well reflect the group notion in acceptance and use of instant messaging in the current study.

From a theoretical perspective, this study extends the current research in four ways. First, as we note above, "we-intention" is a useful concept in explaining IT acceptance and usage behavior, especially in a collaboration environment. Future research should address this issue in depth and in different types of Web 2.0 technologies. Second, this study represents an attempt to marry TRA with the social influence framework. Both identification and internalization processes have statistically significant impacts on we-intention to use instant messaging for collaboration. Third, this study responds to recent calls for integrating U&G approach into IT adoption and diffusion research (Pedersen and Ling 2003). A deeper understanding of individuals' gratification sought will enrich our knowledge of how users perceive the power of social influence and why they accept social influence to use instant messaging for collaboration. This provides a logical and reasonable explanation for the use of instant messaging in team collaboration.

Implications for Practice

The results of this study also provide important insights to practitioners. As one of the most widely used collaborative technologies, instant messaging has several inherent benefits for an organization. It reduces delays in decision making, facilitates effective and efficient collaboration among dispersed virtual work teams, and promotes knowledge and information sharing (Osterman Research 2006). In general, this study has major implications for practice in the following ways.

First, a better understanding of employees' we-intention to use instant messaging for team collaboration will help practitioners harness the full potential of this technology in order to operate with the rapid and real-time dynamics which are quickly becoming a relevant standard of the current business environment. Under the we-intention condition, employees have collective commitments and obligations towards using instant messaging with other team members; therefore, it is necessary for practitioners to make this commitment visible, e.g., through announcing the list of endorsed participants.

Second, social influence plays an important role in we-intention formation. The acceptance and use of instant messaging in team collaboration is mainly motivated by considerations of identity maintenance and value congruence. There is a need for practitioners to make good use of some of the special features of instant messaging, such as chat rooms, user profile and buddy lists to enhance the sense of belongingness of all participants and to promote group values and norms among all members.

Third, individual motives offer useful guidelines for practitioners to arouse group members' enthusiasm towards accepting social influence on instant messaging usage. Practitioners should provide more benefits and incentives embedded in group membership, such as offering advice to group members, providing some privileges and creating regular opportunities for group activity in order to satisfy individual motives for the use of instant messaging and to make social influence more salient. On the other hand, the findings of this study also assist instant messaging software developers in realizing that features like task management, sociability, and enjoyment are very important for group collaboration.

To sum up, this study provides new and important insights into understanding users' "we-intention" regarding collaborative technology adoption and usage behavior, in particular, the use of instant messaging for team collaboration. Future research should continue this line of research to examine the different antecedents and consequences of we-intention in adopting and using other collaborative technologies, especially the use of Internet-based collaborative technologies (e.g., wiki, weblogs, discussion forums, youtube, etc.)

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