



Online social networks: Why do students use facebook?

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ABSTRACT

The growth and popularity of online social networks has created a new world of collaboration and communication. More than a billion individuals around the world are connected and networked together to create, collaborate, and contribute their knowledge and wisdom. Despite the importance of online social networks, there is relatively little theory-driven empirical research available to address this new type of communication and interaction phenomena. In this paper, we explored the factors that drive students to use online social networks (e.g., Facebook). Specifically, we conceptualized the use of online social networks as intentional social action and we examined the relative impact of social influence, social presence, and the five key values from the uses and gratification paradigm on We-Intention to use online social networks. An empirical study of Facebook users ($n = 182$) revealed that We-Intention to use online social networks is strongly determined by social presence. Among the five values, social related factors had the most significant impact on the intention to use. Implications for research and practice are discussed.

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1. Introduction

Social networking websites are virtual communities which allow people to connect and interact with each other on a particular subject or to just “hang out” together online (Murray & Waller, 2007). Membership of online social networks has recently exploded at an exponential rate. For example, the market share of the top 20 social networking websites grew by 11.5 percent from January 2007 to February 2007, social network website activity accounted for 6.5 percent of all Internet traffic in February 2007 (Hitwise, 2007). Indeed, the popularity of social networking sites is highly demonstrable by the number of people using them. It is also measured by the amount of interactions per user taking place on the network. Since social interactions and connection is the objective of online social networks, it is more appropriate to consider the use of online social networks as collective social action (Cheung & Lee, 2010; Ordóñez de Pablos, 2002; Rodríguez Pérez and Ordóñez de Pablos, 2003; Zhao & Ordóñez de Pablos, 2010a,b). As this phenomenon is quite new, there exists relatively little theory-driven empirical research on intentional social actions within online social networks. In this paper, we aim at developing and empirically validating a research model on intentional social action in online social networks (e.g., We-Intention to use Facebook).

Facebook was chosen in this study. We believe that Facebook is appropriate for the current study as it is the most popular online so-

cial networking site among university students. Understanding why students use online social networking sites is crucial for the academic community, as this new communication platform exhibits important impact on student motivation to learn, affective learning, and classroom climate (Mazer, Murphy, & Simonds, 2007). In addition, it creates an online social space where university students can build and maintain social capital with others (Ellison, Steinfield, & Lampe, 2007; Lytras and Garcia, 2008; Lytras & Ordóñez de Pablos, 2007). It is particularly important for university students to build social capital with the industry (Chakrabarti & Santoro, 2004).

The rest of the paper is structured as follows. The next section reviews the prior studies of We-Intention and social influence processes. The third section proposes a research model of intentional social action in online social networks by building on relevant theories. The fourth section describes a survey study of users of social networking sites (e.g., Facebook) to empirically test our research model. The fifth section discusses the findings of our empirical study. Finally, we conclude the paper by describing the implications for both research and practice, as well as the limitations of the study and future research directions.

2. Theoretical background

Prior research on intentional social action remains scant in the IS literature (Bagozzi, 2007). In this paper, we will introduce the concept of We-Intention, and explain the concept in terms of social influence theory and social presence theory. We will also address the uses and gratifications paradigm.

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2.1. We-Intention

We-Intention is defined as a “commitment of an individual to engage in joint action and involves an implicit or explicit agreement between the participants to engage in that joint action” (Tuomela, 1995, p.9). The concept was initialized by a number of philosophers (e.g., Bratman, 1997; Tuomela, 1995), and was expressed in terms of “We together will perform X (X represents a joint action)”. While I-intention is explained by individual-level reasons for performing a personal act, We-Intention is explained when a person view the self as part of a social representation in performing a group act (Bagozzi & Lee, 2002). We-Intention exists when a person believes not only that he can perform his part of their joint action, but also that he together with his fellow participants can perform the action jointly at least with some nonzero probability (Tuomela, 2006, p. 37). Compared with I-Intention, We-Intention highlights the individual commitment in collectivity and the social nature of group action. Therefore, We-Intention is a more appropriate approach to study online social activities.

2.2. Social influence theory

Social influence determines the changes in attitudes and actions produced by social influence which may occur at different “levels” (Kelman, 1958). Different levels of change correspond to differences in the process whereby individuals accept the influence (Kelman, 1958). The three different processes of influence are: compliance, internalization and identification.

- Compliance occurs when an individual perceives that a social actor wants him/her to perform a specific behavior, and the social actor has the ability to reward the behavior or to punish the non-behavior (Venkatesh & Davis, 2000).
- Internalization refers to the adoption of common self-guides for meeting idealized goals shared with others (Dholakia, Bagozzi, & Pearo, 2004).
- Identification occurs when an individual accepts influence because he wants to establish or maintain a satisfying self-defining relationship with another person or a group (Kelman, 1958).

2.3. Uses and gratifications paradigm

Uses and gratifications (U&G) is a media use paradigm from mass communications research that focuses on individual use and choice of media (Katz, 1959). The main purpose of this paradigm is to explain the reasons that people choose a specific medium over alternative communication media and to elucidate the psychological needs that motivate people to use a particular medium. This paradigm assumes that users are goal-directed in their behavior and are aware of their needs. Purposive value, self-discovery, entertainment value, social enhancement, and maintaining interpersonal connectivity are the key values (or needs) that are widely adopted to determine the use of virtual communities (Cheung & Lee, 2009).

- Purposive value refers to the value derived from accomplishing some pre-determined informational and instrumental purpose.
- Self-discovery refers to the understanding and deepening salient aspects of one’s self through social interactions.
- Maintaining interpersonal interconnectivity refers to the social benefits derived from establishing and maintaining contact with other people such as social support, friendship, and intimacy.
- Social enhancement refers to the value that a participant derives from gaining acceptance and approval of other members, and the enhancement of one’s social status within the community on account of one’s contribution to it.

- Entertainment value refers to fun and relaxation through playing or otherwise interacting with others.

2.4. Social presence theory

According to Short, Williams, and Christie (1976), social presence is “the degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships”. The presence of others in a virtual environment is important because it implies direct or indirect human contact (Gefen & Straub, 2004). Individuals participating in a virtual social networking site can perform communication in a style that is similar to face-to-face communication. Research has found that richer media (media with higher social presence) tend to be preferred in communication settings where the task is ambiguous and uncertain (Straub & Karahanna, 1998).

3. Research model and hypotheses

Based on the literature review, a research model of this investigation is developed as depicted in Fig. 1. We-Intention is determined by social influence factors (i.e., subjective norm, group norms, and social identity), social presence, and factors from the uses and gratifications paradigm. Definitions and interrelationships of the constructs in the research model are addressed in the followings.

3.1. We-Intention to use a social networking site

Intentions are assumed to capture the motivational factors that influence a behavior (Ajzen, 1991). We-Intention focuses on the presence of “we” together in making an intention that we will continue to use an online social networking site in the future. This is a joint intention made by a group of people that everyone will perform his/her own part (individual intention of joining and using online social networks continually) to perform a joint action together with others (continue to use online social networks together).

3.2. Social influence and We-Intention to use a social networking site

The social influence underlying subjective norm reflects the influence of expectations from significant others and represents what Kelman terms “Compliance”. In IS adoption research, the compliance process appeared to be paramount. Before users have any actual usage experience with a new system, second-hand information, particularly from the primary reference groups (family or friends), are important for their usage decisions. However, it remains to be seen whether this is true for users of highly interactive online social network systems since, in contrast with stand-alone systems, these users are more exposed to other people’s influences as they interact in the social network.

H1: A stronger subjective norm leads to a higher level of We-Intention to participate in an online social networking site.

The second mode of social influence characterized by group norms is similar to the term “Internalization” as suggested by Kelman (1958). Internalization is the adoption of a decision based on the similarity of one’s values with the values of other group members. Thus, if a user realizes that he/she shares similar values or goals with other users in an online social networking site, we expect his/her We-Intention will increase.

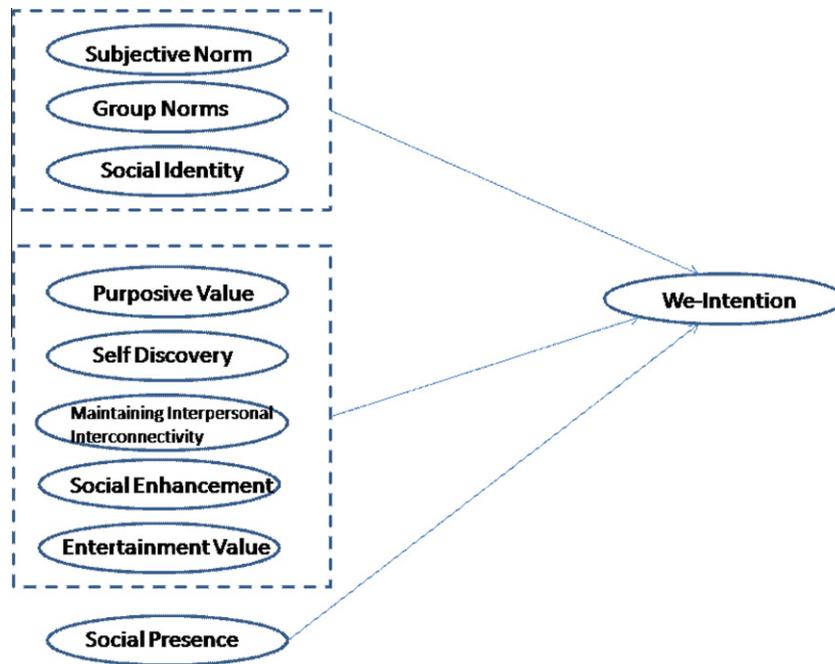


Fig. 1. Research Model.

H2: Stronger group norms lead to a higher level of We-Intention to participate in an online social networking site.

The third mode of social influence, identification, refers to the self-awareness of one's membership in a group, as well as the emotional and evaluative significance of this membership (Tajfel, 1978). Social identity can create a sense of belonging to an online social networking site when users view themselves as the members of the community. The psychological state of being part of the community in an online social network can be derived from either one of the following situations:

- (1) Affective social identity: a sense of emotional involvement with the community
- (2) Evaluative social identity: an evaluation of self-worth on the basis of belonging to a particular group or
- (3) Cognitive social identity: a sense of self-awareness of being part of the community.

Each of the three components of social identity is expected to have main effects on We-Intention to use a social networking site. Thus, if a user holds strong social identity toward an online social networking site, we expect his/her We-Intention will increase.

H3: A stronger social identity leads to a higher level of We-Intention to participate in an online social networking site.

3.3. Values and We-Intention to use a social networking site

Uses and gratifications theory is a useful framework for understanding the needs and motivations for individuals to use new media. Online social networks are special form of virtual community that provides an online social space for individuals to communicate and interact. There are only very few studies using the uses and gratifications paradigm to examine and identify the common underlying dimensions for the usage of virtual communities. Dholakia et al. (2004) were one of the pioneers who adopted the uses and gratifications paradigm to explain why individuals participate in virtual communities. Five key values of using virtual com-

munities are suggested, including purposive value, self-discovery, social enhancement, maintaining interpersonal connectivity, and entertainment value. In line with the strong theoretical background, as well as the rigorous research method, Dholakia et al.'s study provides a foundation for the current investigation on the use of online social networks. These five values are expected to determine their usage of social networking sites.

H4: The level of purposive value of using online social networking sites positively affects We-Intention to use online social networking sites.

H5: The level of self-discovery of using online social networking sites positively affects We-Intention to use online social networking sites.

H6: The level of maintaining interpersonal interconnectivity of using online social networking sites positively affects We-Intention to use online social networking sites.

H7: The level of social enhancement of using online social networking sites positively affects We-Intention to use online social networking sites.

H8: The level of entertainment value of using online social networking sites positively affects We-Intention to use online social networking sites.

3.4. Social presence and We-Intention to use a social networking site

Social presence theory (Short et al., 1976) suggests that the degree of social presence in the medium determines how sociable of a medium. Some social networking sites emphasize the presence of other people's involvement in order to facilitate communication through the Internet. For example, the presence of others can be seen by the News Feed function, as it keeps tracks of friends' actions once they log in the online social network. Non-users can also seek the presence of their friends in an online social network through the Join Invitation function. A high perceived social presence would have a greater impact influencing individuals to join and to continue using an online social networking site, since individuals tend to select the medium that they perceive to have the highest social presence (Flanagin & Metzger, 2001). Therefore:

H9: A higher level of social presence leads to a higher level of We-Intention to participate in an online social networking site.

4. Research design

Facebook (<http://www.facebook.com>), an online social networking site, was used in this study to examine intentional social actions in online social networks. In 2009, Facebook has surpassed its competitor MySpace, which had a longer history than Facebook, and become the most popular online social network. Facebook was launched by a former Harvard student Mark Zuckerberg in 2004. Apart from providing services (e.g. email, join/browse network, photo album, and the like) that most traditional social networking websites do, Facebook provides multiple add-in functions (e.g., virtual pets, online games, the wall, virtual gifts) that facilitate users to customize their own interface on Facebook. In addition, Facebook provides a special function called “News Feed” that allows users to browse their friends’ movement on Facebook (e.g., friends with whom they are networking).

4.1. Data collection

An invitation message with the URL to the online questionnaire was posted on a number of online social groups of Facebook (mostly student groups). To increase the response rate, an incentive of supermarket vouchers was offered as lucky draw prizes. A screening question was used to ensure that the respondents were current active users of Facebook. In addition, they were told to follow an instruction before filling the questionnaire:

“Imagine that you are logging onto the Internet to engage in the group interaction and communication that you described above. You have a number of friends within Facebook that you regularly interact with. Please picture briefly in your mind the name and image of each online friend. Then, write your nickname and their nicknames in the table below”.

These instructions were designed to capture the respondents’ collectivity of using Facebook. To ensure that there was no duplicated respondents, IP addresses were recorded and checked. A total of 182 responses were collected in this study. Sixty-eight percent were female and 32% were male. The majority respondents (75%) were aged 19–23. Up to 86% were students.

4.2. Measures

The measures of the constructs in this study were borrowed from previous literature (see Table 1). All constructs were measured using multi-item perceptual scales. That means each construct was measured by a few items for construct validity and reliability.

5. Data analysis and results

Partial least square (PLS) was used to test the hypotheses in the research model and to ensure that the conclusion on structural relationship is drawn from a set of measurement instruments with psychometric properties. In this paper, we first report the results of the measurement model, and then the structural model.

5.1. Assessment of the measurement model

Convergent validity is shown when each measurement item correlates strongly with its assumed theoretical construct. It can be examined by using the composite reliability (CR) and the average variance extracted (AVE). The critical values for CR and AVE are 0.7 and 0.5, respectively (Fornell & Larcker, 1981).

Discriminant validity is shown when each measurement item correlates weakly with all other constructs except for the one to which it is theoretically associated. The square root of the AVE of each construct should be much larger than the correlation of the specific construct with any of the other constructs in the model (Chin, 1998). Table 2 shows that the squared root of AVE extracted for each construct, all AVE values are greater than the off-diagonal elements in the corresponding rows and column, demonstrating discriminant validity.

5.2. Assessment of the structural model

Fig. 2 show the results of the PLS structural model with the overall explanatory power, the estimated path coefficients and the associated *t*-values of the paths. All the significant paths are indicated with an asterisk.

The model accounts for 28 percent of the variation in We-Intention to use online social networking sites. Social presence is the most significant exogenous variables of We-Intention with a path coefficient of 0.23. Among the social influence factors, only group norms exhibits a significant impact on We-Intention with a path coefficient of 0.18. Among the five values, social related factors (i.e., maintaining interpersonal interconnectivity and social enhancement) and entertainment value are important in determining We-Intention to use social networking sites.

6. Discussion and conclusion

The objective of this study is to explain why students use Facebook. Social influence theory, the use and gratifications paradigm, and social presence theory are adopted to explain the phenomenon. The results show that social presence has the strongest impact on We-Intention to use Facebook. This supports the fact that most people use Facebook so as to get instant communication and connection with their friends. Group norms also has a significant influence on We-Intention to use Facebook. When users realize the similarity of their values with their groups, they will have higher tendency toward We-Intention to use Facebook. However, social identity does not have any significant relationships with We-Intention. This may be due to the numbers of communities the users have joined. If a user join too many communities, it is hard for him/her to create a sense of belonging to a specific group. Among the five values, social related factors (maintaining interpersonal interconnectivity and social enhancement) and entertainment value are found to be significant. The result is consistent with previous virtual community research. Social factors are more important in determining intentional social action (Cheung & Lee, 2009; Dholakia et al., 2004).

6.1. Theoretical and practical implications

This study is one of the very first studies which attempts to explain collective behavior in Web 2.0 applications using intentional social action. Over the past two decades, IS researchers have demonstrated considerable interest in measuring personal intentions in traditional information systems adoption where the usage experience does not depend on other users (Davis, Bagozzi, & Warshaw, 1989). In online social networking sites in contrast, social interaction and connection is the objective. These social networking sites give everyone a place to share their personal stories, in words, pictures, and videos with their friends. They also connect people with friends and others who work, study, and live around them. They help people learn more about events, parties, and other social functions. We believe that We-Intention encapsulates social behaviors

Table 1
Psychometric properties of measures.

Constructs	List of items	Source
We-Intention (INT) CR = 0.97, AVE = 0.95	INT1: I intend that our group (i.e., the group that I identified before) interact on Facebook together something during the next 2 weeks INT2: We (i.e., the group that I identified above) intend to interact on the Facebook sometime during the next 2 weeks (2003)	Dholakia et al. (2004)
Subjective norm (SN) CR = 0.69, AVE = 0.50	SN1: People who influence my behavior would think that I should use Facebook SN2: People who are important to me would think that I should use Facebook	Dholakia et al. (2004)
Group norms (GN) CR = 0.89, AVE = 0.80	Interacting together sometime within the next 2 weeks with your online group can be considered to be a goal. For each of the people listed below, please estimate the strength to which each holds the goal GN1: Average of the strength of group members' goal GN2: Strength of self's goal	Dholakia et al. (2004)
Social identity (SI) CR = 0.90, AVE = 0.60	SI1: Please indicate to what degree your self-image overlaps with the identity of the group of friends as you perceive it. SI2: How would you express the degree of overlap between your personal identity and the identity of the group you mentioned above when you are actually part of the group and engaging in group activities? SI3: How attached are you to the group you mentioned above? SI4: How strong would you say your feelings of belongingness are toward the group you mentioned above? SI5: I am a valuable member of the group that I mentioned above. SI6: I am an important member of the group that I mentioned above	Dholakia et al. (2004)
Purposive value (PV) CR = 0.87, AVE = 0.50	How often do you use Facebook to satisfy the following needs? 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 bargain PV7: To get someone to do something for me PV8: To solve problems PV9: To make decisions	Dholakia et al. (2004)
Self-discovery (SD) CR = 0.86, AVE = 0.75	SD1: To learn about myself and others SD2: To gain insight into myself	Dholakia et al. (2004)
Maintaining interpersonal interconnectivity (MII) CR = 0.82, AVE = 0.70	MI1: To have something to do with others MI2: To stay in touch	Dholakia et al. (2004)
Social enhancement (SE) CR = 0.95, AVE = 0.90	SE1: To impress SE2: To feel important	Dholakia et al. (2004)
Entertainment value (EV) CR = 0.87, AVE = 0.66	EV1: To be entertained EV2: To play EV3: To relax EV4: To pass time away when bored	Dholakia et al. (2004)
Social presence (SP) CR = 0.90, AVE = 0.64	SP1: There is a sense of human contact in Facebook SP2: There is a sense of personalness in Facebook SP3: There is a sense of sociability in Facebook SP4: There is a sense of human warmth in Facebook SP5: There is a sense of human sensitivity in Facebook	Gefen and Straub (2004)

Table 2
Correlation matrix and psychometric properties of key constructs.

	INT	SN	GN	SI	PV	SD	MII	SE	EV	SP
INT	0.97									
SN	0.15	0.71								
GN	0.40	0.08	0.89							
SI	0.37	0.09	0.57	0.77						
PV	0.30	0.07	0.43	0.43	0.71					
SD	0.26	0.11	0.33	0.35	0.53	0.87				
MII	0.31	0.03	0.32	0.41	0.50	0.61	0.84			
SE	0.24	0.01	0.37	0.45	0.65	0.51	0.64	0.95		
EV	0.30	0.03	0.29	0.33	0.48	0.53	0.63	0.66	0.81	
SP	0.42	0.12	0.47	0.53	0.29	0.37	0.40	0.35	0.29	0.80

Notes: Shaded diagonal elements are the square root of AVE for each construct.

by the collective and is a more appropriate approach to studying user decisions to use online social networks.

The result of this study is also important to practitioners, particularly, the academic community. Previous studies have demonstrated that learning strategies are shifting towards a more active and group-oriented learning approach (Chatti, Jarke, & Frosch-Wike, 2007). Web 2.0 applications (such as online social networks) indeed empower the e-learning environment by facilitating collaborative learning (Bostrom, Gupta, & Hill, 2008; Sigala, 2007). Social presence is the most important factor that

determines students' usage of Facebook. The features of social presence indeed can also encourage students to collaborate and work together. For instance, the special feature "News Feed" allows users to sense the presence of their friends in Facebook. It also provides users an overview of the activities of their friends in Facebook. In addition, the new function "Facebook Chat" offers a function similar to MSN messenger. Users can find out who is present and perform online chatting with them in a real-time.

6.2. Limitations and future research

In interpreting the results of this study, one must pay attention to a number of limitations. First, to keep the model parsimonious, the proposed research model only focuses on the impact of the three modes of social influence (subjective norm, group norms, and social identity), the five values of uses and gratifications paradigm and social presence on intentional social action. The model explains 28% of the variance, future studies should continue to explore factors specific to the context of online social networks. Second, the study respondents were mostly users of Facebook. The study represents mostly student users of online social networks. Care must be taken when extrapolating the findings to other types of online social networks that target different groups of users (e.g., professionals in LinkedIn). Third, because of the cross-sectional

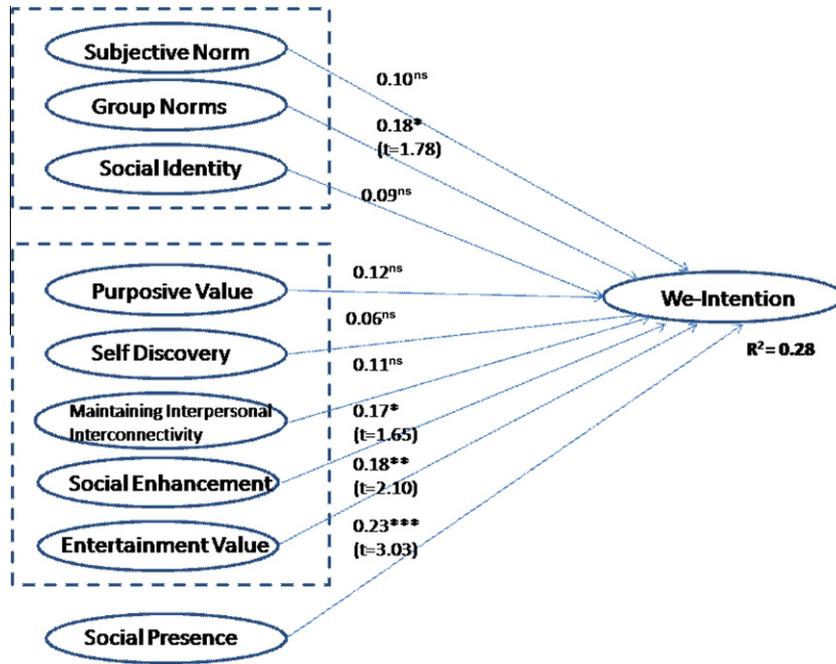


Fig. 2. PLS results of the research model (Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$).

nature of the study, spurious cause-effect inferences may be presented. A longitudinal design is needed in the future for valid cause-effect inferences.

Considering this study has raised many interesting questions, it is believed that the current study triggers additional theorizing and empirical investigation on intentional social actions in online social networks.

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References

- Azjen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association of Information Systems*(4).
- Bagozzi, R. P., & Lee, K. H. (2002). Multiple routes for social influence: The role of compliance, internalization and social identity. *Social Psychology Quarterly*, 65(3), 226–247.
- Bostrom, R. P., Gupta, S., & Hill, J. R. (2008). Peer-to-peer technology in collaborative learning networks: Applications and research issues. *International Journal of Knowledge and Learning*, 4(1), 36–57.
- Bratman, M. E. (1997). I intend that We J. In G. Holmstrom-Hintikka & R. Tuomela (Eds.), *Contemporary action theory* (pp. 49–63). Kluwer, Dordrecht: The Netherlands.
- Chakrabarti, A. K., & Santoro, M. D. (2004). Building social capital and learning environment in university–industry relationships. *International Journal of Learning and Intellectual Capital*, 1(1), 19–36.
- Chatt, M. A., Jarke, M., & Frosch-Wike, D. (2007). The future of e-learning: A shift to knowledge networking and social software. *International Journal of Knowledge and Learning*, 3(4/5), 404–420.
- Cheung, C. M. K., & Lee, M. K. O. (2009). Understanding the sustainability of a virtual community: Model development and empirical test. *Journal of Information Science*, 35(3), 279–298.
- Cheung, C. M. K., & Lee, M. K. O. (2010). A theoretical model of intentional social action in online social networks. *Decision Support Systems*, 49(1), 24–30.
- Chin, W. W. (1998). Issues and opinion on structural equation modeling. *MIS Quarterly*, 22(1), vii–xvi.
- Davis, F. D., Bagozzi, R., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- Dholakia, U. M., Bagozzi, R. P., & Pearo, L. K. (2004). A social influence model of consumer participation in network- and small-group-based virtual communities. *International Journal of Research in Marketing*, 21, 241–263.
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communications*, 12, 1143–1168.
- Flanagin, A. J., & Metzger, M. J. (2001). Internet use in the contemporary media environment. *Human Communication Research*, 27(1), 153–181.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-commerce and the importance of social presence. Experiments in e-products and e-services. *OMEGA*, 32(6), 407–424.
- Hitwise. (2007). Social networking visits increase 11.5 percent from January to February. Retrieved December 23, 2007, from Hitwise.
- Katz, E. (1959). Mass communication research and the study of popular culture: An editorial note on a possible future for this journal. *Studies in Public Communication*, 2, 1–6.
- Kelman, H. C. (1958). Compliance, identification, and internalization three processes of attitude change. *The Journal of Conflict Resolution*, 2(1), 51–60.
- Lytras, M. D., & Garcia, R. (2008). Semantic Web applications: A framework for industry and business exploitation – What is needed for the adoption of the Semantic Web from the market and industry. *International Journal of Knowledge and Learning*, 4(1), 93–108.
- Lytras, M., & Ordóñez de Pablos, P. (2007). Red Gate Corner: A Web 2.0 prototype for knowledge and learning concerning China business and culture. *International Journal of Knowledge and Learning*(4–5), 542–548.
- Mazer, J. P., Murphy, R. E., & Simonds, C. J. (2007). I'll see you on "Facebook": The effects of computer-mediated teacher self-disclosure on student motivation, affective learning, and classroom climate. *Communication Education*, 56(1), 1–17.
- Murray, K. E., & Waller, R. (2007). Social networking goes abroad. *International Educator*, 16(3), 56–59.
- Ordóñez de Pablos, P. (2002). Knowledge management and organizational learning: Typologies of generic knowledge strategies in the Spanish manufacturing industry from 1995 to 1999. *Journal of Knowledge Management*, 6(1), 52–62.
- Rodriguez Pérez, J. M., & Ordóñez de Pablos, P. (2003). Knowledge management and organizational competitiveness: A framework for human capital analysis. *Journal of Knowledge Management*, 7(3), 82–91.
- Short, J., Williams, E., & Christie, B. (1976). *Theoretical approaches to differences between media. The social psychology of telecommunication* (pp. 61–76). London, New York: Wiley.
- Sigala, M. (2007). Integrating Web 2.0 in e-learning environments: A socio-technical approach. *International Journal of Knowledge and Learning*, 3(6), 628–648.
- Straub, D. W., & Karahanna, E. (1998). Knowledge worker communications and recipient availability: Toward a task closure explanation of media choice. *OSCI*, 8(2), 160–175.
- Tajfel, H. (1978). Social categorization, social identity, and social comparison. In H. Tajfel (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations*. London: Academic Press.

- Tuomela, R. (1995). *The importance of us: A philosophy study of basic social notions*. Stanford, CA: Stanford University Press.
- Tuomela, R. (2006). *Joint intention, We-mode and I-Mode*. Stanford, CA: Stanford University Press.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.
- Zhao, J., & Ordóñez de Pablos, P. (2010a). Analysis of cooperative mechanism of industry-academy R&D alliance lab and case study. *Human Factors and Ergonomics in Manufacturing*(2), 123–134.
- Zhao, J.-Y., & Ordóñez de Pablos, P. (2010b). Chinese firms' outward direct investment: Technological innovation mechanisms, organizational modes, and improving strategies. *Human Factors and Ergonomics in Manufacturing*, 20(2), 149–160.