ISSN 2085-8272

JOURNAL OF INDONESIAN ECONOMY & BUSINESS

JURNAL EKONOMI & BISNIS INDONESIA

Volume 26, Number 3, September 2011

THE JOURNAL IS ACCREDITED BY THE DIRECTORATE GENERAL OF HIGHER EDUCATION MINISTRY OF NATIONAL EDUCATION THE REPUBLIC OF INDONESIA NO. 81/DIKTI/KEP/2011

Faculty of Economics & Business Universitas Gadjah Mada

ISSN 2085-8272

CONTENTS

Journal of Indonesian Economy and Business
Volume 26, Number 3, 2011, 407 – 441

ANTECEDENT AND CONSEQUENCE OF SOCIAL COMPUTING BEHAVIOR FOR SOCIAL NETWORK SITES: PERSPECTIVE OF SOCIAL INFLUENCE THEORY

Willy Abdillah [1]

Faculty of Economics, Universitas Bengkulu – Indonesia
(cinoek29@gmail.com)

ABSTRACT

This research is a preliminary study to develop and examine the adoption model of social computing. Research model is developed upon the Social Influence Factors, Technology Acceptance Model, and Psychosocial Dysfunction. Research design was employed online and self-administered survey questionnaire. Data of 116 samples were analysed using Partial Least Square (PLS) technique. Results suggest that proposed model has met criteria of goodness-of-fit model and indicate that identification is an antecedent of desire to involve in social network sites (SNS) and involvement in SNS predicts psychosocial dysfunction. Implications for stakeholders and further research are discussed.

Keyword: *social computing, social influence factors, psychosocial dysfunction, and social networking sites.*

INTRODUCTION

Social computing[2] is a new phenomenon of behavior in using information technology (IT). The progression of interactive information and communication technology (ICT), such as Web 2.0 and 3G is the main stimulus of the emergence of social computing behavior. According to Schuler (2007), social computing is a description of every form of computer application in which software serves as social interaction media. Such social interaction includes online, interactive collaboration behavior (Wikipedia, 2009). Not only is social computing a computational facility for the process of human's social dynamism, but also a social structure wherein technology empowers individuals and community, not institutions (Weng *et al.* 2007).

Social computing consists of various forms of behavior. Technically, social computing application consists of some elements, namely, blog, Wikipedia, RSS, instant messaging, multiplayer gaming, open source, websites, and social bookmarking (Wang *et al.* 2007). Website is computational application, which is mostly found in social computing behavior and has the highest growth rate among other computational medias for social computing (Parameswaran and Whinston, 2007)

[1] The writer expresses his deepest gratitude and appreciation to Jogiyanto and Sony Warsono for their criticism and suggestions in preparing this paper.

[2] This paper uses the term of social computing to explain all processes of designing, implementing, and evaluating Information Technology that are intended for social interest (Parameswaran and Whinston, 2007). Social computing theoretically and contextually has different perspective from adoption model of information technology behavior, in general.

The increase of high rapid internet diffusion has spurred the new generation of Social Network Site (SNS) namely, the application of Web 2.0, which has become the mainstream of community communication and interaction, nowadays. Szabo and Huberman (2010) recorded that Facebook, MySpace, and Youtube are Social Network Sites (SNS) that have the highest rate of growth and popularity in virtual world. Such varieties of SNS have become virtual room for individuals to make a profile and connect it to other's profile in personal network. SNS gives everyone a room to share his or her personal matters in the form of words, pictures and video of others. SNS also connects people with their colleagues, schoolmates, and other people in their environment. SNS helps people learn events, occurrences, and large social phenomenon. This way, as a new trend for individual and communal social behavior, has expansive implications towards organization, society and government. Hence, it is very important to study about behavioral involvement in SNS.

Individual social computing behavior can be found in organization and society, so the implications of such behavior can happen to both, especially when trend of SNS usage is growing. According to Smith and McKeen (2008), SNS social computing behavior is able to change organization structure, business process and value system in organization. Social computing behavior can also change business strategy, IT (Information Technology) strategy and the use-of-IS behavior in organization. Such change has large impact on the organization performance. For common society, SNS social computing is able to change social, economic transaction and interaction system. SNS is able to change society's transaction and communication pattern, which spurs socialization process unlimitedly (Parameswaran and Whinston, 2007).

SNS social computing behavior can have positive effect on the organization and it can serve as media for information exchange and communication. SNS also serves as a media for a team interactive collaboration that promotes efficiency and effectiveness of performance. Nevertheless, SNS can arouse paradox when its user is not in line with organization's vision and business strategy. SNS can lead its users to be out of their job roles (extra role-playing) which are not productive. The compulsive[3] use of SNS can even arouse psychosocial dysfunction (Kim *et al.* 2009).

To society, SNS gives various facilities and choices of adoption forms. First, SNS can serve as a media of collaborative communication and interaction. Second, SNS can provide a publicity media to build public image and to do political campaign for politician figures. Third, SNS can act as a promotion media and marketing communication for electronic product business. Fourth, SNS has the ability to promote fairness of information and spur the society's criticalness against the public service of the government institutions. Even, it can become a media for social empowerment, like engineering public opinion to oppose a regime. However, SNS can be used to commit electronic crimes, stealing personal data, prostitution and human trafficking. In the Philipines, Facebook becomes one of media to do crime of abducting child under age (Kompas.com, 2010). Furthermore, adoption of compulsive SNS can cause psychosocial dysfunction, such as loneliness, depression and loosing social contact (Kim *et al.* 2009). SNS growth with its positive and negative consequences is an interesting social phenomenon to observe empirically, especially in terms of social context in Indonesia.

The empirical study on the social computing behavior has been done since the emer-

[3] Compulsive behavior is a form of conscious or unconscious behavior for repeated adoption so as to cause compulsive individual who owns burden in providing partial space and time to carry out such behavior (Caplan, 2005).

gence of cellular technology and Web 2.0. The complexity of social computing can be observed from several perspectives, namely: economic, social, cultural, political and technological perspectives. However, as a social phenomenon, a study through social perspectives is considered to be able to explain comprehensively the social computing (O'Reilly, 2005), although some researchers also recommend using multidisciplinary study.

The study of SNS social computing behavior in perspective of social behavior was carried out for the first time by Malhotra and Galletta (1999). Such study used social influence constructs in TAM (Technology Adoption Model) model to explain SNS phenomenon. Generally, the study was aimed at developing adoption models of information system, like Technology Adoption Models and Theory of Reason Action (TRA). Malhotra and Galletta (1999) argued that the existing theories on information system (IS) are not enough to explain social phenomenon of SNS social computing behavior. Baron *et al.* (2006) stated that TAM and other IS adoption theories are only appropriate for the context of information system adoption in an organization, TAM is not appropriate for the context of daily information system adoption. The rapid growth of information technology and the changes in behavior of IS adoption in social context is believed to cause the gaps among the theoretical models of IS adoption (Schepers and Welzels, 2007). Vanoy and Palvia (2010) concluded that factors of IS adoption models, like perceived usefulness and perceived ease-of-use constructs are too parsimonious to explain the complexity of SNS social computing behavior and IS adoption behavior when the user is directly involved in the process of creating value of IT adopted. Hence, the opportunity of developing adoption models for SNS social computing behavior is wide-open.

This study is aimed at developing and evaluating SNS social computing adoption behavior, using Social Influence Theory. This research is important to carry out because it is theoretically expected to respond to the gaps among the theories of information system adoption in explaining the social computing behavior in the context of social network. The empirical model is expected to give additional reference study of specific information system adoption in the context of social network. The experiments on social, cultural, and psychological constructs can bear an integrative model of social computing adoption. Methodologically, the research design of on-line questionnaire survey towards the social network sites (SNS) is intended to give variants on the research design in the area of IS (information system), behaviorism, especially the experiment of social, cultural, and psychological factors that involved international respondents. Practically, the result of this research is expected to produce scientific information for the related interest owners. For the corporation, this research is able to present an elaboration on the managerial implication of social computing behavior for organization, done either by society as consumers or society as part of manufacturer. The research result can serve as the analysis base for business policy in anticipating the organizational change as the impact of the social behavior change in the adoption of information technology. The organizational change can be the change of market preference that the company must give response to, as well as the change of social behavior in the adoption of information technology of the human resource in the company. For the government, this research result can provide important information for the arrangement of strategic policy draft for the development of national information technology. Such policy covers strategic draft and techniques of the central and regent government in an effort of anticipating behavioral change and society's need of information technology. Besides, this research result can be strategic information on a long-term development of information technology

in the government institution, especially in relevance with the process of bureaucratic reforms in effort of the enforcement of good governance.

This research is different from the previous research. It develops and experiments antecedent and the consequence of SNS social computing behavior with adoption model that has never been experimented through the previous empirical study, especially among the context of Indonesian socio-cultures. This research employs social influence constructs in Social Influence Theories to develop behavioral constructs in Theory of Reason Action (TRA), Technology Adoption Model (TAM), and UTAUT.

Moreover, this research puts into consideration some factors of cultural differentiation as sub-set of social factors, which are assumed to have different psychosocial impact between collective and individual cultures (Cardon *et al.* 2010).

THEORETICAL REVIEW

Social Computing Concept

Social computing is a variant of social computation facility adoption, based on Web. The growing application and new services of computer has provoked collective action behavior and on-line social interaction. That behavior includes exchanges of multimedia information and knowledge evolution with Web base. Variant of social computing includes blog, Wikipedia, social bookmarking, peer-to-peer network, open-source community, photo and video sharing community, and on-line social network. Social Network Site (SNS) is a form of social computing behavior that has the fastest growth (Parameswaran and Whinston, 2007). Facebook, MySpace and YouTube are those that have the largest members and that spur investment growth in electronic business industry. It is fostered by the provision of connectivity of spacious broadband and sophisticated PC (private computer). Collectively, social computation is the subsequent step in the Web evolution, with large social and commercial potentials. Nowadays, many businesses are interested to get involved in on-line social network; like content and advertisement distribution. Somehow, a study on potential impact and opportunities for expanding such effort is not yet revealed.

Social computing has shifted the optimum function of network through empowerment of individual users who do not have enough comprehension towards technology to get involved in Web adoption. Social computing fosters its users' creativity, involvement in social interaction, various knowledges, and various contents, the spreads of information and propaganda, and establishment of collective bargaining power. Organization will face the shift of consumer's market power that is more critical against product in expressing preference change.

The growth of cheap computation facility and the growth of open source software enable grass root innovation to threaten software industry that has been established and the growth of new business. Society that lives around the product will get benefits from the segmented information demand. Such change requires organization to anticipate new opportunities and to respond threats towards the existing business model. Other than that, social computing has impact on society in various domains, that is, political, social, and globalization as well as media and sensor domain.

Social computing opens new horizon of IT research. Social computing changes various aspects of software development, that is, a software development process into more voluntary and participative, changes of types of instrument, and the dynamic computation into network-centric pattern. Social computing changes the process of individual interaction with information, that is, the increased information dynamic centralized on individual participation in various softwares.

In learning social computing, issues on scalability, quality, security and interoperability are importantly considered from technical side. Questions in relevance with incentive and participation motivation in the network, the implication on social welfare, market structure, quality and choices of product and externality impact are the major concern of IT research. Generally, social aspect of social computing is more predominant than technical aspect. Therefore, attention on communal behavior in on-line community and how such behavior is co influential to the individual and environment is the focus of observation in the study of Information System (IS) behavior.

Social computing platform has opened a new dimension of internet adoption. Social computing brings IT infrastructure out of general environmental boundaries of communication and commercialization, to human organization environment in a form of social interaction facility and creativity empowerment. Supportive application and instrument of social computing decrease its users' dependence on participation in information revolution. Social computing presents a real transformation and change of business process, as well as computation method, political collective action, and development of content and interactive entertainment. As part of the change brought about by social computing, Web 2.0 develops into personal computing interface. Computation changes from centralizing on server to the network in which application is fostered to decentralize.

Decentralization supports the innovation growth at a level of grass root, the creation of content and electronic business computation. The fundamental change occurs on the operation system of the server that leads to network-centric and portable computation environment. Social computing also widens its information room for users to draw near business with customer, for the customer to judge preference more easily, better and dynamically, as well as promoting the value of product and service customization. Such change gives potential business opportunities for users, but at the same time, provides threat of digital gaps that result from the unbalanced process of IT learning and IT adoption.

Generally, the emergence of social computing gives opportunity to researcher and business in relation with IT. Researches on social computing area can be developed through various disciplines of science. The research of adoption behavior and the impact of adoption towards the psychosocial health is the central theme to bring up. Researches on behaviorism with various theories of motivation, cognitive, society and culture can enrich the study of social computing.

Social Influence Theory

Social Influence Theory (SIT) was exposed for the first time by Herbert C. Kelman in 1958. He was a professor in the field of socio-psychology who obtained his doctoral degree Ph.D from Yale University. The theoretical focus of Kelman's research were the social influence field and the change of attitude with the focus on the difference between the influential process, correlation of action towards the change of attitude, and the concept of personal responsibility for action done under the order of legal authority. Kelman (1958) explored the influential process in various contexts, including psychotherapy, international exchange of education and workshops on resolution for international conflict. Social Influence Theory is a theoretical base employed by Kelman to observe various context of such study. Social Influence Theory explains that social influence occurs when individual thoughts or action are influenced consciously or unconsciously by other people because of the method of individual change in perceiving himself in relation with others and community in general.

In area of organizational theory, Kelman (1958) divided Social Influence Theory into three major forms, that is: Compliance, Inter-

gence of cellular technology and Web 2.0. The complexity of social computing can be observed from several perspectives, namely: economic, social, cultural, political and technological perspectives. However, as a social phenomenon, a study through social perspectives is considered to be able to explain comprehensively the social computing (O'Reilly, 2005), although some researchers also recommend using multidisciplinary study.

The study of SNS social computing behavior in perspective of social behavior was carried out for the first time by Malhotra and Galletta (1999). Such study used social influence constructs in TAM (Technology Adoption Model) model to explain SNS phenomenon. Generally, the study was aimed at developing adoption models of information system, like Technology Adoption Models and Theory of Reason Action (TRA). Malhotra and Galletta (1999) argued that the existing theories on information system (IS) are not enough to explain social phenomenon of SNS social computing behavior. Baron *et al.* (2006) stated that TAM and other IS adoption theories are only appropriate for the context of information system adoption in an organization, TAM is not appropriate for the context of daily information system adoption. The rapid growth of information technology and the changes in behavior of IS adoption in social context is believed to cause the gaps among the theoretical models of IS adoption (Schepers and Welzels, 2007). Vanoy and Palvia (2010) concluded that factors of IS adoption models, like perceived usefulness and perceived ease-of-use constructs are too parsimonious to explain the complexity of SNS social computing behavior and IS adoption behavior when the user is directly involved in the process of creating value of IT adopted. Hence, the opportunity of developing adoption models for SNS social computing behavior is wide-open.

This study is aimed at developing and evaluating SNS social computing adoption behavior, using Social Influence Theory. This research is important to carry out because it is theoretically expected to respond to the gaps among the theories of information system adoption in explaining the social computing behavior in the context of social network. The empirical model is expected to give additional reference study of specific information system adoption in the context of social network. The experiments on social, cultural, and psychological constructs can bear an integrative model of social computing adoption. Methodologically, the research design of on-line questionnaire survey towards the social network sites (SNS) is intended to give variants on the research design in the area of IS (information system), behaviorism, especially the experiment of social, cultural, and psychological factors that involved international respondents. Practically, the result of this research is expected to produce scientific information for the related interest owners. For the corporation, this research is able to present an elaboration on the managerial implication of social computing behavior for organization, done either by society as consumers or society as part of manufacturer. The research result can serve as the analysis base for business policy in anticipating the organizational change as the impact of the social behavior change in the adoption of information technology. The organizational change can be the change of market preference that the company must give response to, as well as the change of social behavior in the adoption of information technology of the human resource in the company. For the government, this research result can provide important information for the arrangement of strategic policy draft for the development of national information technology. Such policy covers strategic draft and techniques of the central and regent government in an effort of anticipating behavioral change and society's need of information technology. Besides, this research result can be strategic information on a long-term development of information technology

involved (social support). After the users start to adopt technology and interact with SNS in-group of reference, internalization then plays a role as a stimulus of repeated adoption behavior. If SNS community has been have adapted and accepted by users, social identity will be influential factor for the decision to keep involved in SNS.

Although the three forms of social influence constructs can have an overlapping influence, the relative power of the three depend on the stage of adoption process. Subjective norm shows that the influence of individual's external expectation supports decision to behave. An individual will behave to realize such expectation as compliance towards other people. Before the users have new experience in using new system, information from reference group, especially family and close friends becomes important to decide an adoption. After the users have direct experience, compliance (subjective norm) no longer plays an important role in influencing decision of repeated behavior. Taylor and Todd (1995) compared models of adoption decision for the experienced users and the inexperienced users. The research result found out that subjective norm no longer has important role in deciding the IS adoption for the experienced users. However, in the context of interactive SNS adoption, subjective norm is regarded to be consistently able to explain the IS involvement decision for new and old users because dynamic interaction in SNS community allows the users to find social norms that always spur them to keep on their involvement in SNS. Therefore, factors of social influence theory are expected to be able to explain SNS involvement behavior and to be a model of IS adoption development in IS behaviorism domain.

Models of Individual's IS (Information System) Adoption

Theories of IS adoption is built on a base of psychocognitive concept that assumes that adoption behavior is generated by attitudes or perception of an IT, either voluntarily or mandatorily. Cognitive is a term used in psychocognitive psychology to describe a form of thought or perception of an individual or the tendency of using perception towards information and occurence in solving a problem. As part of psychology, cognitive concept becomes one of new matters found in 1960s. Psychocognitive concept learns how people think, feel, learn, memorize, make decision, and how people process (perceive, interpret, store, and recall) data in the brain memory (Hartono, 2007).

The development of cognitive concept in IS was started when the mainstream research of behaviorism emerged in 1960s. Ackoff (1960) innitiated by conducting a case-study to explore the causes of IS failure. That research has stimulated the subsequent researches despite the failure of research result in finding the causes of system value. But it has indicated the correlation between the system users' attitude and behavior towards the success of IS.

Schultz and Slevin (1975) proposed attitude dimension towards the IS adoption. Such dimension consisted of performance, interpersonal, changes, objectives, support and rejection, client or researcher and interest. The research result revealed that there is an influence of measured attitude through the perception of users towards the system adoption with the success of IS. This kind of research model, then was used in many of following researches in seeing reliability influence, attitude (cognitive perception) and intention of IS adoption.

In the same year, Fishbein and Ajzen (1975) proposed a theory that explained the sequential process and cause-effect relation among the influential constructs for IS adoption. This theory assumed that human attitude is generated by intention, attitude, and reliability which are influenced by subjective norm to do things consciously. This theory, later became the base of behaviorism which

was adapted by research of IS. Such theory was then known as Theory of Reason Action (TRA).

Subjective norm is one of dimensions in SIT (that is, compliance) that explains that individual behavior is based on perception that the influence of social values out of an individual affects individual's attitude and behavior. The intention to comply with other's opinion can be in a form of social norm or communal/group norm referred by the entire group's entity. Subjective norms can be voluntary and mandatory. TRA assumes that subjective norm is voluntary. Hence, it explains that individual's behavior is affected by voluntary intrinsic factors, namely: intention and belief also by extrinsic factors, namely subjective norm.

Triandis (1980) criticized TRA because the assumption used can not be used in every situation or context. Basically, humans do not always behave voluntarily, sometimes humans behave emotionally or mandatorily. According to Triandis (1980) TRA should have cognitive and affective aspects in attitude dimension. This Triandis criticism is relevant to the context of IS social adoption. The decision of IS adoption in society is not only influenced by internal cognitive aspect but also affective aspect, which is influenced by individual's social interaction.

Davis (1989) developed TRA model in elaborating belief construct with perceived usefulness construct and perceived ease-of-use construct. Technology Adoption Model (TAM) separate cognitive from affective aspect with belief construct as cognitive aspect and attitude as affective aspect. Secondly, such perceived constructs are key constructs in TAM model and testesd empirically on some researches of IS adoption (Igbaria *et al.* 1996; Venkatesh *et al.* 2003; van der Heidjen, 2004; Chesney, 2006; Abdillah, 2009).

TAM model was mostly employed to explain IS adoption behavior in context of organization because the development of TAM model occurred when the development of IT was directed to comply the need of IS for organization. The application of TAM model for researches of IS adoption in context of organization is appropriate because the outcome of IS adoption explained by TAM model is the enhancement of performance and productivity. Besides, TAM model is considered more parsimonious in explaining the IS adoption behavior in context of organization. There are some reasons why TAM model is mostly employed in explaining the IS adoption behavior in organization, namely:

1. TAM is a useful behavior model to answer questions why many information systems failed to be applied because the users do no have intention to use it, not many models of application in information technology system include psychological factor or behavior in its model and TAM is one of the many considered.
2. TAM is built with a strong theoretical base.
3. TAM has been experimented through many researches and its outcome is mostly supportive to conclusion that TAM is a good model. TAM has even been tested and compared with other models like TRA and Theory of Planned Behavior (TPB) and the result is consistent that TAM is quite good.
4. The most important strength of TAM is that this model is parsimoniously simple but valid.

TAM model was then developed again by Ajzen (1991) by adding Perceived Behavior Control (PBC) construct. This development is based on a reason that IS adoption in organization can be voluntary or mandatory. The voluntary system can be best explained by TAM model because the perceived ease-to-use construct and the usefulness of perception adoption explains that individual's adoption decision is based on belief and consciousness

that the system is good, useful and easy to use. However, not all organization applies IS voluntarily. Even, most of organization obliges its employees to employ IS to foster the achievement of the organization objectives. To explain the decision to adopt IS in this context, experimentation using only two TAM constructs is potential to produce biased interpretation. Therefore, Ajzen (1991) added PBC construct which asserted that the decision of IS adoption by an individual in a voluntary or mandatory system, is fully under the individual's control of awareness and belief to behave. This TPB is experimented by many empirical studies, like Chau and Hu (2002), who tested this model in context of IT professional adoption in hospital. Even, Taylor and Todd (1995) developed decomposition model of TPB by putting colleague influence as predictor indicator. However, the development of those adoption models is still referred to IS adoption behavior in organization.

Recently, the development of IT is not only directed to the compliance of the organization need, but also to the need of collaborative communication and interaction for an individual in and out of the organization. TAM and TPB model cannot fully explain the complexity and the unique of IS adoption behavior. Igbaria *et al.* (1996) developed TAM model and TPB by adding perceived enjoyment construct. This addition is reasonable because the application of IS adoption in organization does not merely comply with the utility and usability aspect, but also the users' satisfaction. This adoption model more clearly indicates the separation of cognitive and affective aspect in attitude construct. Empirical study done by Van Der Heidjen (2004) and Chesney (2006) with development model of Igbaria's clarified that the decision of IS adoption in organization considers cognitive and affective aspect of the users' psychology.

However, Igbaria's development model is fully able to explain IS adoption behavior in organization. The success of IS investment in organization is not only determined by the adoption decision, which is predicted by attitude and positive feeling towards IS. Organization must ensure that the adoption decision in organization is a decision, which comes purely out of the user. Therefore, commitment in the adoption of IS in an organization becomes the key success of IS adoption in a long term.

Malhotra and Galletta (1999) designed and experimented the development of TAM model to explain the long-term IS adoption behavior in organization. Such development model added commitment of IS adoption, perceived ease-of-use, intention and adoption behavior constructs. Commitment of IS adoption construct is the development of some social influence constructs, which derives from Social Influence Theory. Adoption commitment construct explains that attitude, intention, and the decision of IS adoption are influenced deeply by the employee's belief, and that IS adoption is in line with the organization values and personal values (internalization). It also explains that the employee's internal belief that IS adoption can give satisfaction for him/herself and others, as well as a belief that IS adoption can give financial advantages for him/herself and can prevent them from the organizational regulation's penalty ultimatum. The study of Amphora and Galletta (1999) found out that social influence factors are key predictors for attitude, intention and IS adoption behavior in organization.

Along with the development of IT in social domain, researches on IS behavior starts to observe the behavior of IS adoption in and out of organization. The presence of social computation facility, like technology of SMS (short message service) and technology of Web 2.0 spurs the emergence of interactive, and collaborative IS adoption behavior (social computing behavior). IS researchers start to develop the appropriate IS adoption models for the IS application context. Some resear-

chers remain consistent in developing IS adoption models, like TAM and TPB. Venkatesh (2000) and Venkatesh *et al.* (2003) proposed a combined model of IT adoption, (namely UTAUT) that puts back social, cognitive and affective norms as predictor construct. Lin and Anal (2008) found out that UTAUT model is still relevant to explain the phenomenon of IS adoption behavior in social context. However, some other researchers chose to develop adoption model thought by Amphora and Galletta (1999).

The development of model for social computing behavior adoption in social context was started by Bagozzi (2000). That empirical study was carried out in context of on-line collaborative behavior. Bagozzi employed social influence construct as mediating variable. That study found out that attitude and intention to get involved in on-line community are influenced by perceptions towards communal value that is believed to be in line with personal value (communal norm internalization) and intention to get admitted by the community (social identity identification). Perugini and Bagozzi (2001) reasserted that on their empirical study in the context of on-line community, decision on the involvement of on-line community is spurred by internal and external objectives that the individual expect to achieve through the involvement in on-line community. Such internal objectives are the harmony of group/communal values (identification) and social benefits or the avoidance of social penalty (compliance).

The development of social computing adoption in on-line community grew up fast when some empirical studies of Bagozzi and Dholakia (2002; 2004, 2006) confirmed that the role of social influence factor in influencing social computing behavior. Such empirical study was not only conducted in context of on-line marketing (Bagozzi and Dholakia, 2002) but also on-line brand community (Bagozzi and Dholakia, 2006). Such researches did not only confirm the role of social influence factors but also found out new construct of communal behavior intention in IS adoption (we-intention). This construct has been experimented in empirical studies of on-line community and has been concluded to be the characteristic of social computing adoption for on-line community model (Tuomela, 2005).

Studies on behavior of on-line community social computing are growing along with the increasing growth of SNS. The emergence of Friendster, MySpace, Facebook and Twitter as SNS with high growth rate of membership and community dynamic provokes IS adoption studies shifted into that context. The central themes, which are brought up cover the profile of members (Thelwall, 2008), the openness of information (Amphora *et al.* 2004), the information content and the interaction dynamic (Jones *et al.* 2004), the closeness of relation, the social capital and the growth of the group (Mesch andTalmud, 2006; Stefanone and Gay, 2008; Cardon *et al.* 2009), and the impact of SNS adoption towards psychosocial health (Leung, 2007; Jackson *et al.* 2004, Kang, 2007; Kim *et al.* 2009). The variety of empirical studies in context of SNS social computing shows that the complexity of social computing behavior cannot be well explained with the existing IS adoption models (for example; TRA, TAM, TPB, and UTAUT), but it is necessary to develop a more comprehensive model. Besides, research should not only focus on antecedent factors but also the consequence of the adoption behavior.

This research is aimed at developing and experimenting SNS social computing adoption model by considering antecedent and behavioral consequence of the adoption. This research is focused on the use of social influence constructs that come from the Social Influence Theory. The development and experimentation of antecedent constructs and the consequence of one research model allows the researcher to explain the SNS social

computing behavior more comprehensively. Somehow, this research consistently puts perceived constructs in TAM model as a controlling variable to evaluate and assert that the relevant and the better social influence constructs in explaining SNS social computing behavior. Therefore, the discussion on theoretical research and hypothesis development in this research is started with the description of perceived constructs in TAM model. The subsequent discussion is continued with the hypothesis development of every variable that will be tested in this research.

The Perceived Usefulness and The Perceived Ease-of-Use

The perceived usefulness is the measurement of one's level of belief that a technology adoption can enhance his/her performance (Davis, 1989). The perceived usefulness is a belief in the process of making decision. When one believes that the information system is useful, s/he will adopt it. On the other hand, when one doesn't believe that the information system is useful, s/he will not adopt it. Based on motivation theory revealed by Deci (1975), the acceptance of technology by its users is determined by two types of motivation, that are, extrinsic and intrinsic. Intrinsic motivation arises due to the self-felt individual expectation because of the interaction with the application of information technology system. Extrinsic motivation arises due to the expectation on the adoption of application of certain technology system that an individual receives out of the individual's interaction with the system. The definition of the perceived usefulness describes the form of extrinsic motivation due to the benefits that an individual receives out of his or her appreciation towards his better performance.

The previous research showed that the perceived usefulness construct influences positively and significantly towards the information system (Davis, 1989; Igbaria *et al.* 1996). The perceived usefulness is the most significant and important in influencing attitudes, intention and behavior in technology adoption of all other constructs.

Venkantesh *et al.* (2003) experimented the influence of perceived usefulness factor towards the IT adoption of men and women. The result revealed that the influence of perceived usefulness for men is stronger than women. This shows that men have regarded IT more on its aspect of usefulness than women, so that this perception will influence men's attitude in IT adoption.

Garner and Amoroso (2004) developed TAM model by adding four external variables to observe the acceptance of internet technology. Those four variables are gender, experience, complexity and voluntaryness. The research result showed that men have tendency to own higher perceived usefulness than women. Conversely, women tend to have higher perceived ease-of-use than men.

Taylor and Todd (1995) combined TPB decomposition model by adding age variable as external variable in the acceptance of technology. The research result showed that young-aged is more influential towards attitude variable (cognitive) than the IS adoption. On the other hand, old-aged is more influential towards controlling variables of perceived behavior. The implication of the research result shows that cognitive dimension factor is more various for younger person, meanwhile the controlling variable of perceived behavior is more various for elderly person.

On the other hand, elderly person is more influential towards controlling variable of perceived behavior. The implication of the research result shows that cognitive dimension factor is more various for young-aged, meanwhile the controlling variable of perceived behavior is more various for old-aged.

Szajna (1996) experimented empirically the revised TAM model of Davis *et al.* (1989)

by employing university students as respondents. It tested the acceptance of email technology. The method applied is experiment using the same instrument as that used by Davis *et al.* (1989). The research result showed that the stundents' intention of e-mail adoption is more in numbers for the last fifteen weeks than the early weeks of email adoption. In other words, within fifteen-week experiment, the rise of the respondents' email adoption occured. On the stage of pre-implementation, the perceived usefulness turned out to have direct and significant effect on the intention of adoption while the perceive ease-of-use was not significant. Besides that, at this stage, from the result, it is also found that the perceived ease-of-use did not affect the perceived usefulness. At the stage of post-implementation, the perceived usefulness had direct and significant effect towards the intention of adoption while the perceived ease-of-use did not have direct effect.

Davis *et al.* (1989) defined the perceived ease-of-use as the level of one's belief that a certain system adoption does not require hard effort. Although the measurement of effort is interpreted differently by every one, to avoid the sytem users' rejection on the system developed, the built IS should have easy application for the users without a hard effort.

The perceived ease-of-use is one of many factors in TAM model that have been experimented in the research of Davis *et al.* (1989). The research result showed that the perceived ease-of-use was proved to be able to explain someone's reason of adopting information system and to explain how newly developed IS is accepted by the users.

Based on the above explanation, it can be concluded that both perceived constructs in TAM model are robust construct and have been confirmed in many empirical studies. Therefore, a repeated research on both constructs, as the predictor variables are no longer relevant. However, this research is aimed at testing the adoption model of SNS social computing. The different characteristic and nature in the context of IS adoption behavior in organization and in SNS enables both TAM constructs to be retested. This study does not include both TAM constructs as independent, direct variables but positions both TAM constructs as controlling variables. This treatment is based on the reason that the objective of this research is developing and testing the adoption model of SNS social computing based on Social Influence Theory. This research is also aimed at testing and asserting whether the constructs of Social Influence Theory can explain the SNS social computing behavior better than the attitude constructs in TAM model.

HYPOTHESIS DEVELOPMENT

The Correlation between Social Influence Factors and Desire

Kelman (1958) proposed Social Influence Theory to explain that individual's behavior is influenced by social influence factors. The social influence occurs when individual's thoughts and actions are influenced consciously or unconsciously by others as a consequence of the change of perception of individual because of the interaction with those who give influence, other people or society in general (Kelman, 1961). Social Influence Theory explains the three forms of social influence, namely: internalization, identification and compliance.

Internalization is process of individual's forming harmonious values with others and his/her community. Social influence will be effectively formed in someone when the individual is prone to be influenced to agree with the attitude of other's or communities. Individual who is internalizing will voluntarily behave and act consciously towards things that s/he considers in harmony with his/her intrinsic value. This internalization concept was then adapted into the Theory of Organization Commitment as commitment affective motivation, which also known as *Base* (Becker

et al. 1995). The Organizational Commitment Theory defined internalization as "psychological attachment" that is able to foster individual to perform well, committed to organization, and toward organization, loyal to organization, and behave prosocially (prosocial behavior) in and out of organization (O'Reilly and Chatman, 1986). In the domain of organization theory, internalization as affective commitment is strong predictor for productivity and work satisfaction of employees (Allen and Meyer, 1990; Caldwell *et al.* 1990). However, the study conducted by Becker *et al.* (1996) found out that internalization did not directly influence the commitment towards the organization and performance but mediated by who becomes the target of commitment, or *Foci*, of the individual (Reichers, 1985), supervisors, superiors, consumers, colleague or organization. Thus, the closeness level of the referred source of value becomes the key influence of the internalization towards the decision to behave.

In the context of SNS social computing behavior, internalization becomes a strong predictor for individual's intrinsic motivation to participate in SNS. The formerly empirical study of social computing translated internalization construct with group norm construct. But this study consistently employs internalization construct to return internalization construct terminology in the domain of Social Influence Theory.

Individual, who perceives that his/her intrinsic values are suitable with the values referred by on-line community will be motivated to get involved in the community. The empirical study of Amphora and Galletta (1999) found out that internalization predicts usefulness, ease-of-use, and intention to behave in on-line community. Internalization has the highest variants in explaining the social influence factor towards variables of attitude and of intention to behave. Internalization also predicts desire to get involved in SNS (Bagozzi, 2000), desire to get involved in on-line brand community (Dholakia *et al.* 2004). Amphora and Galletta (2005) also found out that internalization predicts IS volitional adoption better than TAM constructs.

This study argues that individual gets SNS social influence and perceives that the harmony between SNS community values and objectives and the individual's value and objectives will spur the individual's desire to get involved in SNS. Based on that explanation, the hypothesis built in this research is as follows:

H_{1a}: Internalization has positive influence on the desire to get involved in SNS (Social Network Sites)

The second dimension of Social Influence Theory is identification, which is a process of the forming of individual's perception to act in accordance with the values observed by others, community, and common society whom s/he looks up to. Identification forms individual's attitude and behavior in accordance with the community's attitude and behavior. Identification construct can be translated as social identity constructs (social identity) (Vanoy and Palvia, 2010; Bagozzi and Dholakia, 2004). Nevertheless, this study persistently uses identification construct to return the terminology of identification construct to Social Influence Theory.

Social influence will effectively be formed in oneself when the individual acts and behaves in accordance with the attitude and behavior of some one that s/he looks up to, and puts respect to, like parents and celebrity. An individual that experiences identification will act and behave voluntarily, consciously towards something s/he regards harmonious with his intrinsic values. Somehow, identification can be mandatory when the individual's decision arises because of an intention to comply others or an uneasy feeling or an in-

tention to maintain his/her relationship and social identity in a community.

Identification concept is adapted into the Theory of Organizational Commitment as motivation (base) continuant commitment (Becker, 1992). The Organizational Commitment Theory defines identification as "financial attachment" that is able to urge an individual to perform well, committed to organization, loyal to organization; behave prosocially (prosocial behavior) in and out of organization (O'Reilly and Chatman, 1986). In the domain of organization theory, identification as a continuant commitment is a strong predictor for productivity and employees' work satisfaction (Allen and Meyer, 1990; Caldwell *et al.* 1990). But the study conducted by Becker *et al.* (1996) found out that the correlation of identification towards organizational performance and commitment is moderated by seniority. Senior employees have a higher continuant commitment than junior employees, because senior employees have wider chance of losing financial value unless they perform well. Time investment and power spent by senior employees to the organization makes them have higher loyalty and commitment towards organization. Subsequently, the research of Becker *et al.* (1996) found that commitment target ambiguity (foci) makes identification weakly influential toward organization commitment and productivity.

In context of SNS social computing behavior, identification becomes strong predictor for individual extrinsic motivation to participate in SNS. An individual, who perceives the presence of motivation to behave in accordance with community social values, will be well motivated to get involved in that community. Empirical study of Malhotra and Galletta (1999) found out that identification predicts the perceived usefulness, the perceived ease-of-use and intention to behave in an on-line community. Identification predicts the desire of on-line advertising group behavior (Bagozzi and Dholakia, 2006) and the desire of involvement in on-line community (Dholakia *et al.* 2004). Amphora and Galletta (2005) also found out that identification predicts better IS volitional adoption than TAM constructs.

Identification construct experiences the development in social computing research. Hwang (2008) employed Social Identity and Self Identity construct as a replacement of Identification construct. Empirical study of Hwang found out that Social Identity and Self Identity influence intention of various knowledges in applying on-line community learning technology.

Barker (2009) developed identification construct into social identity and social compensation constructs. Both constructs have the same meaning as identification in Social Influence Theory. The study that observes the involvement motivation among adults in SNS found out that social compensation and social identity influence the adults' decision to get involved in SNS. That study also found out that the differences in influence of both constructs towards genders. This finding is in line with the research done by Zeng *et al.* (2009). Pelling and White (2009) asserted that social identity is a strong predictor for intention and behavior in the involvement in SNS.

This study argues that individual, who gets SNS social influence and who perceives that his/her involvement in SNS can help him maintain his relationship with others and can give him identity or existence in SNS community will motivate his desire to get involved in SNS. Based on that explanation, hypothesis built in this research is as follows:

H_{1b}: Identification affects positively towards the desire to get involved in SNS.

The third dimension of Social Influence Theory is compliance, that is, a process of the forming of perception in an individual towards the social values of community to obtain certain appreciation or avoidance from penalty

(Kelman, 1958). Compliance forms individual's attitude and show-off behavior to get involved in community. Social influence can effectively be formed in oneself when the individual feels that his behavior will give him benefits and avoidance from penalty. Individual that experiences compliance will behave in accordance with the community's attitude and behavior even if he does not agree with such behavior.

Compliance concept is adapted into the Theory of Organizational Commitment as motivation (*base*) of normative commitment (O'Reilly and Chatman, 1986). Organizational Commitment Theory defines compliance as *"formal attachment"*, which is able to motivate an individual to perform well and to be committed to organization when recompensive service and penalty system in an organization works effectively. So, empirical study done by Becker *et al.* (1996) does not put compliance as predictor because the compliance is not relevant for affective and continuant commitment base for the employees in long term. However, in the domain of organizational theory, compliance as normative commitment is one of the predictors for productivity and the employee's work satisfaction (Allen and Meyer, 1990; Caldwell *et al.* 1990).

Compliance can predict IS mandatory adoption behavior. In the studies of IS, compliance is adapted into subjective norm construct. IS adoption models like TRA, TAM, TPB and UTAUT employs the above constructs as the predictor for IS intention and behavior. Many empirical studies have confirmed the role of subjective norm as predictor of IS adoption behavior in context of organization (Davis, 1989; Ajzen, 1991; Igbaria *et al.* 1996; Venkatesh *et al.* 2003; van der Heidjen, 2004; Chesney, 2006).

In context of SNS social computing behavior, the role of compliance as predictor for motivation in IS involvement is still debatable. Bagozzi and Dholakia (2002; 2004; 2006) concluded that compliance is not relevant for predictor of SNS social computing behavior, because SNS voluntary characteristic is not suitable with the compliance characteristic. A study conducted by Sledginalowski and Kulviwat (2009) in on-line community by using social pressure (normative pressure) construct as the replacement of compliant social influence construct, supported Bagozzi and Dholakia's statement. However, studies done by Malhotra and Galletta (1999; 2005) found out that compliance is influential towards intention and SNS involvement behavior. Malhotra assessed that an individual's involvement in SNS is spurred by various motivations. Individual's SNS behavior can be triggered by motivation to share knowledge, to establish social existence and identity, even SNS can be used as media to get financial benefit through electronic business.

This study argues that individual who gets SNS social influence and perceives that his involvement in SNS community can give him social benefits and can prevent him from social penalty/sanction will motivate his desire to get involved in SNS. Based on the explanation above, hypothesis that is built in this research is as follows:

H_{1c}: Compliance has positive influence towards the desire to get involved in SNS.

The Correlation between Desire and SNS Adoption Behavior

Studies on IS adoption is relatively limited in using desire constructs to explain intention and IS adoption behavior. Studies on consumers' behavior in marketing management even use desire construct as a predictor for buying decision. Desire can be defined as the design of intention and expectation towards certain objectives, which can be achieved through certain action (Gollwitzer *et al.* 1990). Bagozzi (1992) stated that the desire to give motivation to act and behave together with the attitude construct and social influence construct, the desire to influence intention to de-

cide and behave, outrageously will give a push to behavior when given a high commitment to act (internalization and identification). Davis (1984) mentioned a term, "relation condition" to explain a process when desire is related with certain intention and behavior. Someone will act when he is aware and accepts his desire to act. The awareness and acceptance to desire is a catalyst to relieve the internal desire and generally related with biological need, like; food, sexual intercourse and security.

The previous IS studies differentiated desire from intention and action (Perugini and Bagozzi, 2004). Desire has important role in consumers' various behavior (Beolk, Ger, and Askedgaard, 2003). Study done by Dholakia *et al.* (2004) found out that desire has positive influence on intention and behavior of involvement in on-line community. Desires also predict strongly the individual's intention and behavior in on-line community. Desires also predict strongly the individual's intention and involvement in on-line brand community (Bagozzi and Dholakia, 2006). Meanwhile, a study conducted by Shen *et al.* (2009) found out that desire predicts intention and behavior in the involvement of short message service technology.

This research argues that desires, which are formed by social influences, will trigger individual's behavior in SNS adoption. Hence, the hypothesis that is built in this research is as the following:

H_2: Desire has positive influence on the SNS adoption behavior.

The Correlation between SNS Adoption and Psychosocial Dysfunction

Empirical study has revealed the correlation between IT adoption and the users' physical health. The research result revealed indications of health problems; eye, spine and physical fatigue as symptoms, which are often found in IT adoption (Hartono, 2005). The problem of physical health and secure IT adoption is two problems extensively discussed in the study of organizational behavior. Zohar (2000) found out individual, who perceives the healthy, secure working environment and IT facility, has a lower level of work accidents and health disorder than an individual, who feel threatened. Somehow, psychological security and health are limitedly revealed in IS empirical study.

Studies about the impacts of IT adoption, especially internet and interactive media were started when a researcher form Carnegie-Mellon in 1998 University found a proof that they called internet paradox. That study found out that internet adoption has close correlation with the decreasing condition of psychosocial health and social involvement. This finding assumes that facility of social interaction and psychosocial benefits are closely related to the internet adoption.

Jackson *et al.* (2004) did a survey on the activity of HomeNet Too SNS adoption in America. Such study found out that adoption frequency, participation intensity, and the number of site domain accessed, has influence the level of psychosocial health of the users. This study concluded that depression and loneliness are symptoms of social dysfunction, which are largely found among the compulsive users. Besides, losing opportunity in off-line social involvement has a consequence of decreasing psychosocial health quality. The research result of Jackson *et al.* (2004) also found correlation between characteristic, demographic (race and age), and personality traits with the level of psychosocial dysfunction.

The correlation between SNS adoption involvement and psychosocial health was revealed in an empirical study of Kang (2007). Such study argues that the key factor that boosts the social dysfunction because of SNS adoption is the users' disembodiment. Disembodiment is a transcendental process of human body from real condition into the virtual condition, wherein human's motoric and sensoric

function experiences obstacles so that human's physiological and psychological function do not work optimally. Disembodiment is the key factor that triggers a social dysfunction (Morahan-Martin andSchumacher, 2000). Empirical study of Kang (2007) found out that the involvement in on-line community, in which the process of disembodiment takes place, results in psychosocial dysfunction, that is, depression and loneliness.

Leung (2007) observed reciprocal correlation between psychosocial dysfunction and internet adoption. A study conducted on youths and children found out that psychosocial dysfunction, like depression and loneliness even boosts people to adopt internet and involve in on-line community. This study also found out that social influence factors, like friends and family's support could reduce potentials of psychosocial dysfunction.

Schepers *et al.* (2008) asserted Leung's findings (2007) by finding out that social influence factors, like colleague's and senior's support can lessen negative impact of SNS adoption on the psychosocial health. Such study found that types of activities in SNS gives influence towards psychosocial health. Users that download and watch video or songs on-line tend to have lower psychosocial dysfunction than users that communicate on-line.

Schepers' *et al.* (2008) and Leung (2007) finding is strengthened by Kim's finding at al. (2009) that suggested that computational facility adoption does not only create a problem of psychosocial dysfunction but also, on the other hand, psychosocial problems, like: depression, loneliness and low social craftsmanship are what trigger problematic behavior of computational facility adoption. The study of Kim *et al.* (2009) also suggested that frequency and intensity of the individual influence psychosocial dysfunction. However, the study of Kim *et al.* (2009) does not support Schepers *et al.* (2008) which stated that types of on-line activity influence psychosocial dysfunction.

This study argues that individual's involvement in SNS is potential in creating problems of psychosocial or social dysfunction health, like depression and loneliness. The impact of psychosocial dysfunction is more clearly seen when the adoption (frequency, intensity, and numbers of domain accessed) is compulsive. Based on the explanation above, the hypothesis built in this research is as follows:

H_3: SNS adoption has positive influence towards the rise of psychosocial dysfunction, namely; depression and loneliness.

The Influence of Collectivism Cultural Moderation versus the Individualism One

Studies on intercultural, individualism-collectivism (IC) have been identified as an important dimension of culture that influences the level of social closeness (Talukder and Yeow, 2007). Individualism has tendency of having more friends but the number of long-term close friends is a few. Collectivism tends to have a few friends but enjoy their close friendship for a long term (Hofstede, 2001). Proposition on the nature of those two cultural dimension has been revealed in some empirical studies. The current study has tried to put the proposition into the context of the level of social closeness using the base of social capital theory.

Allik and Realo (2004) evaluated the correlation between I-C and social capital that is measured through the voluntary membership of organization. The analysis towards 42 countries found the strong correlation between high individualism and the high social capital. Such study concluded that "in a community where individuals feel free and independent from any social boundaries, and has particular public spirit" (pp. 44-45). Next, individual who lives in individualistic community is prone to create voluntary relationship and inter-trustworthiness. China, interestingly, that is considered to belong to collectivism, tend to

have higher-level of trustworthiness than ever thought. If individualism tend to maintain and nurture relationship in SNS community and a few of them try to make a new friendship with someone whom they have never met (Boyd and Ellison, 2007).

Empirical study that reveals the I-C role in SNS is relatively limited in numbers. William Gudykunst, the key researcher in inter-cultural communication, established a theory of Anxiety-Uncertainty Management (AUM). AUM explained how an individual and group manage anxiety and uncertainty in a process of social interaction with foreigners. Gudykunst (1998) explained that individualism feels more comfortable and more expressive in interacting with foreigners (Cobo, 2008). Based on that perspective, it can be concluded that individualism finds it easier to make new friends in SNS community without any psychosocial dysfunction problem. Anyhow, this research argued that collectivism also finds it easy to get involved in SNS community. This argumentation is supported by a study done by Matei and Ball-Rokeach (2001). Studies that observe the level of closeness of relationship among seven ethnic groups in Los Angeles, found out that 22 percent of all respondents made on-line friendship. Specifically, 44 percent Korean, 31 percent Chinese, 13-19 percent Caucasian, 16 percent Afro-American, and 7-15 percent Hispanic made friend on line to foreigners.

The study of Kin and Yun (2007) towards SNS adoption in Korea found out that on-line communication was chosen because there were obstacles to communicate face-to-face. Respondents in Kim and Yun's study stated that on-line communication provided freedom to express and to vent emotions.

This research argues that inter-cultural dimension I-C has different adoption behavior. The difference on adoption behavior is influenced by different social factors because of different cultural dimension. The difference in the SNS adoption behavior among inter-cultural dimension I-C is predicted to influence the impact of SNS adoption towards the psychosocial health. Based on the explanation above, hypothesis that is built in this research is as the following:

H_4: There are differences of SNS adoption impact towards the psychosocial dysfunction among collectivism and individualism.

RESEARCH METHOD

The research type is descriptive-confirmatory, which means that this research is aimed at developing and experimenting social computing adoption model to explain the relational inter-variable correlation (social influence factors, desire, SNS adoption and psychosocio health). The research design employed is questionary survey. The following is the empirical model tested in this research.

Based on the empirical model above, variables used in this researchk is as follows:

1. Internalization

   Internalization is the individual perceived acceptance towards SNS community values that motivate him/her to get involved. The measurement of internalization construct uses 3 items of measurement that is adapted from Malhotra and Galetta (2005), namely:acceptance statement that SNS involvement is due to the provision of SNS, the comformity of SNS values with personal values and self-interest. The measurement of Internalization employs 5 response scales, 1 for disagreement and 5 for absolute agreement.

2. Identification

   Identification is the perceived agreement of individual to get involved in SNS because of self satisfaction and admittance from the community. The measurement of identification constructs uses 3 items of measurement which is adapted from Malhotra and

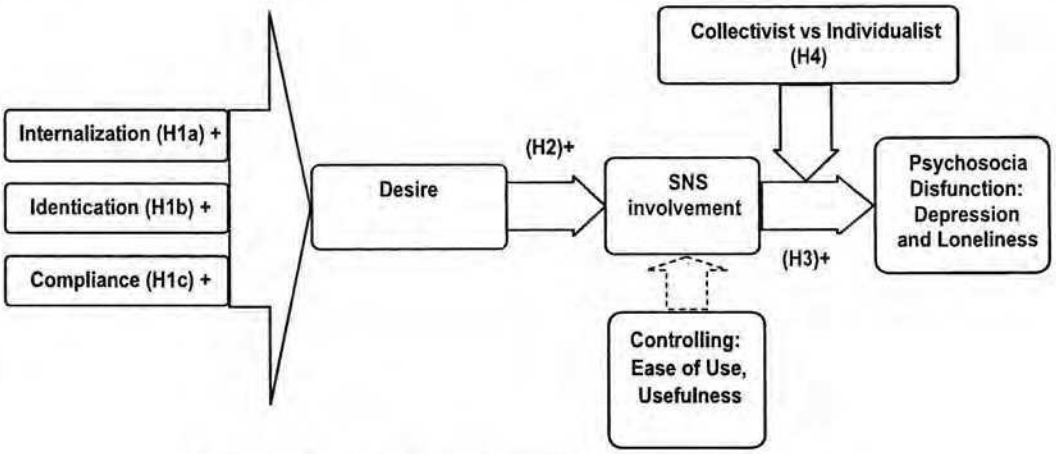

Figure 1. Empirical Model of SNS social computing adoption.

Galletta (2005), namely: statement of pride, expression to others, and sense of belonging to the SNS community. The measurement of Identification construct uses five response scale, 1 for disagreement and 5 for absolute agreement.

3. Compliance

   Compliance is the perceived agreement of an individual to involve in SNS because the valus of SNS involvement can give him economic and social benefits. The measurement of compliance construct uses 4 items of measurement that are adapted from Malhotra and Galletta (2005), namelly: statement of not wasting time on SNS, feeling of getting benefits from SNS involvement, having special judgment on SNS that is not revealed by others, feeling necessity of using SNS to get better appreciation. The measurement of compliance construct uses 5 response scales, 1 for absolute disagreement and 5 for absolute agreement.

4. Desire

   Desire is designs of intention and expectation towards certain objectives that can be achieved through certain action (Gollwitzer *et al.* 1990). The outrageous desire will motivate behavior when it is influenced by high commitment (compliance, internalization, and identification) to act. (Bagozzi, 1992). The measurement of desire construct uses 3 items of measurement that are adapted from Bagozzi and Dholakia (2006), namellly: statement of desire to participate in SNS, statement of desire to participate in SNS, describing obviously him/her, and statement of strong intention to participate in SNS. The measurement of desire construct uses 5 response scales, 1 for absolute disagreement and 5 for absolute agreement.

5. Involvement in SNS

   Involvement in SNS is the users' real action in SNS, which is identified from his membership. The measurement of SNS involvement construct uses 4 items of measurement, which is adapted from Jackson *et al.* (2004), namely: intensity of adoption (second/day), frequence of adoption (namber of visits/day), the number of domain accessed, the number of SMS sent each day.

6. Psychosocial Dysfunction

   Psychosocio health is individual's perception on the condition of psychosocio health. Psychosocial dysfunction construct

is measured with two dimensional variables, namely; depression and loneliness. Depression construct measurement employes 20 items measurement from Center for Epidemilogic Studies Depression Scale, which is adapted from Radloff (1997) and Kraut *et al.* (1998). Loneliness construct uses 20 items of measurement from UCLA Loneliness Scale (version 3), which is adapted from Gierveld (1987). Depression and loneliness construct measurement uses five response scale, 1 for absolute disagreement and 5 for absolute agreement.

7. Perceived Ease-of-Use

   Perceived Ease-of-Use is individual's level of belief that a technology adoption will relieve him from effort. The measurement of perceived ease-of-use employs 6 items of measurement, which is adapted from Davis *et al.* (1989), namely; perceived ease-of-use in learning, flexibility in interaction, ease of doing what is liked, ease of becoming an expert, ease of doing the job, and an obvious and easy interation. The measurement of perceived ease-of-use uses five response scale, 1 for absolute disagreement and 5 for absolute agreement.

8. Perceived Usefulness

   Perceived usefulness is individual's level of belief that a technology adoption will promote his performance. The measurement of perceived usefulness employs 6 items of measurement, which is adapted from Davis *et al.* (1989), namely: perception that SNS promotes performance, makes ease of job accomplishment, beneficial, promotes productivity, enhances effectiveness, and makes job easy. The measurement of perceived usefulness uses five response scale, 1 for absolute disagreement and 5 for absolute agreement.

9. Collectivist and Individualist

   Collectivist and individualist constract is cultural dimension that is attached at nationality and citizenship of an individual (Cardon *et al.* 2009). Collectivist and individualist construct is based on the origin of country and nation. This construct uses nominal scale for the categorization of individual's sub-culture, namely: 1 for collectivist and 2 for individualist.

Population in this research is the member of SNS users of Facebook, Youtube and 4shared. The choice of three types of SNS is due to the fact that each has different characteristic of service and purpose of adoption, namely Facebook for on-line communication, Youtube for downloads, uploads and for on-line video and audio watching, and 4shared for service in sharing various documents, like electronic book, songs and picture. Besides, those three SNS has the highest ratings and growth throughout Indonesia and the world. Based on the criteria, it is expected that the research results can describe and explain more comprehensively about SNS social computing behavior.

Sampling procedure used random procedure with simple random sampling technique. Sampling was started with finding information of sample unit in a sampling frame, a member list of SNS users. Based on the existing sampling, researcher chose all sample units randomly. This sampling technique is expected to support the generalization of research result and to lessen the possibility of biased sampling.

This research took data from respondent's sample using on-line questionnaire survey. The researcher distributed questionnaire on line to all SNS community members that were listed in SNS list. The design and distribution of on-line questionnaire used software application, that is, lime-survey.com. To lessen the potential of low response rate, the researcher did some of the following things:

1. Early Notice

   Early notice was done by acknolewdging in advance the respondents via SNS forum

page and e-mail before the the questions were sent.

2. Survey Sponsorship

   The survey exposed the electronic mandatory letter from the institution.

3. Mandatory Letter

   The electronic mandatory letter was enclosed along with the questions that made the respondents feel respected.

4. Without name

   The survey result was returned without respondents' name to keep confidentiality of respondent's identity.

5. Follow-ups

   Follow-ups via SNS forum page or email was done to remind the respondents after some time the respondents got questions but did not respond yet.

6. Survey is sent to administrator

   Researcher conducted the survey and sent it to SNS forum administrator in order to be passed to all SNS community members.

The evaluation of this research instruments employs two methods, that is, validity test and reliability test. The evaluation of research was conducted through sampling data in pre-survey. Validity test consists of qualitative validity, that is, casing validity and content validity, and construct validity consists of convergent validity and discriminant validity. This research uses supervisor's consideration and colleagues' analysis for qualititative validity while construct validity test uses *Partial Least Square* (PLS) technique with the help of software application of SmartPLS version 2.0. Criteria that is used for construct validity test are outer loading, communality, average variance extracted (AVE), and cross loading.

Besides validity test, this research also conducts reliability test to measure the internal consistence of measurement instrument. Reliability test uses two methods, that is, Cronbach's alpha and composite reliability with the help of software application SmartPLS version 2.0.

The data experimentation in this research uses partial least square (PLS) technique. The reason why PLS model is used is because it is a structural equation model. Goodness of fit of model will be tested by several measurements. Statistical management is done by using software application SmartPLS ver.2.0.M3.

RESULTS

The Characteristic of Research Sample

This research is a preliminary study, which is aimed at experimenting correlation between antecedents and consequence of social computing behavior in context of SNS. In this study, experimentation is focused on the development of research instrument. This study uses individual level of analysis with observed unit; students of Diploma Program of Economics, Vocational School Universitas Gadjah Mada and students of Magister Program for Economics Science, Faculty of Economics and Business Universitas Gadjah Mada. Out of 120 self-administered questionnaire distributed, 108 questionnaires deserves to be used. Meanwhile, on-line questionnaire posted through http://quizhosting.co.cc for two weeks with notification that on-line community members fill out the questionnaire, 8 questionnaires were returned and were eligible for use. Considering the large numbers of samples for statistical data experimentation, the researcher decided to combine the two types of data source, so the total amount of data obtained through questionnaire survey is 116 respondents. Whereas the characteristic of 116 samples of research can be seen in the table 1 below.

Based on statistical result of frequency distribution on table 1, it is seen that there is no variance of age, marital status, and nationality on the research sample. On age perspective, it is seen that respondents administered are young age that belongs to C

Table 1. Characteristic of Samples and Involvement in SNS

		Sex	Age	Status	Natio-nality	SNS types	Time of joining	Number of visits	Length of isits	Number of domain	Number of Message
N	Valid	116	116	116	116	116	116	116	116	116	116
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		**1,64**	**20,59**	**1,03**	**1,00**	**1,71**	**2,68**	**4,30**	**2,82**	**9,36**	**6,72**
Mode		**2**	**20**	**1**	**1**	**1**	**2**	**5**	**1**	**10**	**10**
Std, Deviation		,483	2,604	,159	,000	,987	1,278	3,490	3,266	9,272	5,474
Percentiles	25	1,00	20,00	1,00	1,00	1,00	2,00	2,00	1,00	4,00	3,00
	50	2,00	20,00	1,00	1,00	1,00	2,00	3,50	2,00	6,50	5,00
	75	2,00	20,00	1,00	1,00	2,75	4,00	5,00	3,00	10,00	10,00

category or contact generation. C generation is life generation when science and technology form way of life, personality trait and behavior pattern (Kompas.com, 2010). SNS adoption behavior is one of characteristics that is attached to Content Generation's social system. Therefore, the choice of Content Generation as research sample is expected to represent this research objective.

Based on the distribution of frequency for SNS adoption indicator, namely: SNS types, time of joining, number of visits, length of visits, number of domain and number of message posted in SNS are seen to have quite large variance. SNS types show that most respondents are Facebook users. It is in line with the number of domain and message sent. Facebook is SNS that facilitates on-line socialization and communication process so that it allows number of domain accessed and message sent to be higher than if most respondents are Youtube and 4shared. All of variance of SNS adoption indicator is supposed to be able to explain dependent variable change variance in this research, that is, depression and loneliness.

This research employs PLS method to experiment statistic. Generally, the experimentation covers measurement and structure model test. The following sub-section will explain the two types of statistic test in PLS method.

Measurement Model Test

The measurement model in PLS is used to experiment construct validity and measurement instrument reliability test. The following picture presents the output of measurement model test (Figure 2).

Construct Validity

Construct validity is measured with the use of convergent validity and discriminant validity. Convergent validity of measurement model with the use of reflective indicator is valued based on loading factor of indicators that measures the construct. This research tests ten constructs with number of indicator from three to twenty indicators and uses interval scale 1 to 5 (can be seen on questionnaire attachment), except for gender/sex variable and SNS adoption.

Based on the visual aid of PLS measurement model output above, it is seen that almost all variables experience reduction of indicator because of having low loading factor, that is, below 0.5. The reduction of indicator is clearly seen on two variables, namely: depression and loneliness. Statistically, this reduction is necessarily done in order that structural test produce regression significance level or better prediction effect. However, theoretically, the reduction of indicator causes variable to loose conceptual meaning so that the existence of a

construct becomes less robust. Considering those two points, the researcher decided to persistently reduce indicators by emphasizing indicators with very low loading scores. This is done because this preliminary study is focused on measurement instrument test, which is developed in this research.

The following Table 2 presents summary of the output of measurement model test, that is, construct validity test and reliability test.

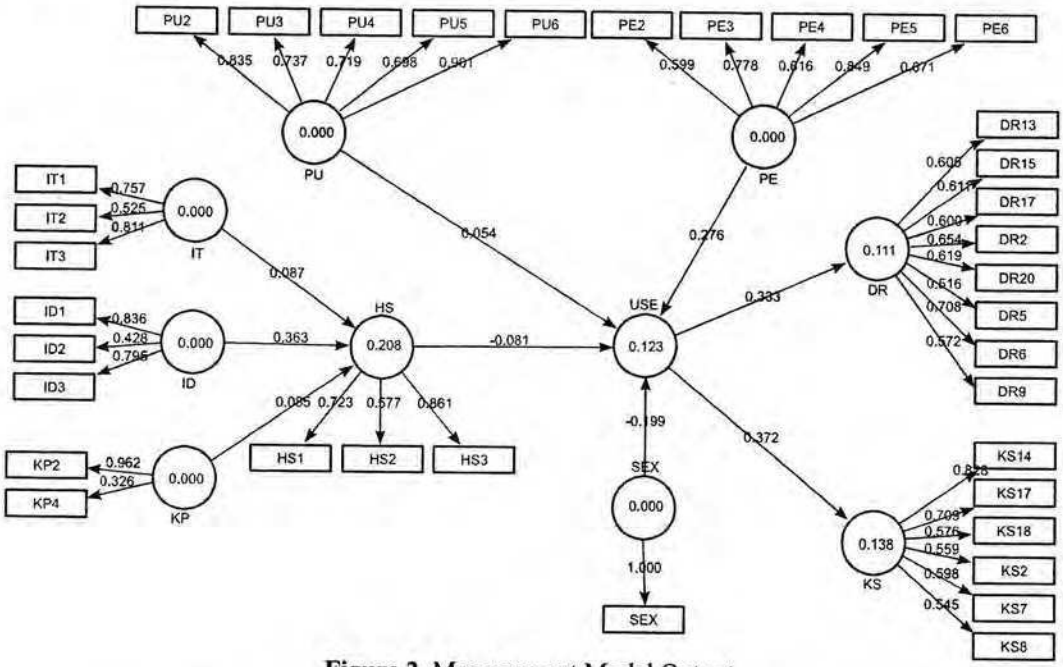

Figure 2. Measurement Model Output

Table 2. Measurement Model Output (construct validity test and reliability test)

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality	Redundancy
DR	0,375443	0,826805	0,110565	0,766949	0,375443	0,036208
HS	0,532351	0,769009	0,208287	0,597506	0,532352	0,095604
ID	0,504608	0,740448		0,568229	0,504608	
IT	0,502333	0,745855		0,526124	0,502333	
KP	0,515271	0,630824		0,101264	0,515271	
KS	0,412465	0,804412	0,138443	0,714651	0,412465	0,051914
PE	0,503188	0,832511		0,783780	0,503189	
PU	0,611264	0,886172		0,879838	0,611266	
SEX	1,000000	1,000000		1,000000	1,000000	
USE	0,500379	0,748606	0,122746	0,492937	0,500380	-0,004608

Note: DR →Depression; HS →Desire; ID →Identification; IT→Internalization; KP: →Compliance; KS → Loneliness; PE →Perceived ease-of-use; PU →Perceived Usefulness; Sex →Gender; Use →Use.

Criteria on Loading Factor Significance

To determine the significance of loading factor, we can use two methods, namely:

1. Determining practical significance:

Hair *et al.* (2006) proposed that the first consideration in determining significance is not based on mathematical reasoning, but is more closely related to practical significance. Rule of thumb, which is usually used for preliminary observation of metrics factor is $\pm$ 30 to be considered to have fulfill minimal level, for loading $\pm$ 40, it is considered better and for loading $\geq$ 50, it is considered as practical significance. Hence, the higher the loading factor score is, the more important the loading role is in interpreting metric factor.

Because loading factor is a correlation between variables and factor, loading quadrant is the total amount of variance of variables, which are calculated for factor. Therefore, loading 0.30 is interpreted to close to 10 percent explanation, and loading 0.50 is meant to have 25 percent of variance, which is calculated by factor. Loading must exceed 0.70 for factor to explain 50 percent of variance. This guideline can be applied when the size of sample is over 100 or more. This approach is practical significance not a statistical significance.

2. Determining statistical significance

Hair *et al.* (2006) proposed that loading factor represents correlation between original variables and their factors. In determining the significance level to interpret loading, statistical significance of correlation coefficience can be used. Furthermore, Hair *et al.* also mentioned several research output showing that loading factor, basically, has bigger standard error than correlation, hence loading factor must be evaluated at the more strict level.

This research has 116 respondents in numbers, that's why loading is considered significance if it has loading value of minimally 0.5. Based on the above data, it can be concluded that this research model can meet the criteria of convergent validity.

Discriminant Validity

The measurement of discriminant validity of PLS measurement model can be judged based on cross loading of measurement with its construct. Table 4 shows the correlation between construct with its indicators is higher than indicators in other construct. In this case, it can be concluded that model built in this research has fulfilled the discriminant validity test.

Reliability Test

Reliability of a measurement shows stability and consistence of an instrument in measuring a concept or a variable (Cooper dan Schindler, 2006; Hair *et al.* 2006). Reliability can be measured by seeing value of Cronbach's alpha and Composite Reliability.

Cronbach's alpha measures the bottom line of reliability value of construct, while Composite Reliability measures the factual value of reliabilty of construct (Chin and Gopal, 1995 in Salisbury *et al.* 2002). In this research, the reliability test method used is Composite Reliability because it is better to estimate internal consistence of construct (Werts *et al.* 1974) in Salisbury *et al.* (2002).

Rule of thumb of alpha value or Composite Reliability must be bigger than 0.7, although value 0.5 still can be accepted in a study with explorative nature (Hair *et al.* 2006). Whereas the result of construct reliability test can be seen on the following table 5.

Table 4. Cross-loading between Construct and Indicators

	DR	HS	ID	IT	KP	KS	PE	PU	USE
DR13	0,605171	0,055891	0,082581	-0,041092	0,199104	0,207574	0,108553	0,077434	0,283546
DR15	0,610564	-0,035025	-0,140151	-0,266097	-0,202386	0,338340	0,031558	-0,007571	0,133425
DR17	0,599719	-0,145085	-0,174235	-0,268033	0,025390	0,208396	-0,036894	0,027773	0,136299
DR2	0,653656	-0,184137	-0,095891	-0,206536	0,089620	0,412492	-0,118260	-0,147173	0,250262
DR20	0,618760	0,001910	-0,012840	-0,115603	-0,174591	0,468006	0,057800	0,069828	0,199564
DR5	0,515726	-0,168772	-0,069816	-0,194846	-0,025191	0,199054	-0,115097	-0,236186	0,112158
DR6	0,707936	-0,162188	-0,126434	-0,198773	-0,031672	0,416959	-0,054552	-0,117422	0,204440
DR9	0,572349	-0,184130	-0,257768	-0,253720	-0,193357	0,330216	-0,045582	-0,124035	0,193044
HS1	-0,076802	0,722876	0,349722	0,189470	0,151389	-0,088475	0,189650	0,324346	0,023810
HS2	-0,051409	0,577437	0,181692	0,089347	0,025027	0,056394	0,225480	0,046070	0,004454
HS3	-0,165442	0,860855	0,380180	0,303051	0,287508	0,045984	0,336546	0,256358	0,019836
ID1	-0,110568	0,391994	0,835572	0,423547	0,376496	-0,016922	0,364789	0,227953	0,083878
ID2	-0,063977	0,059141	0,428474	0,240280	0,287216	-0,053992	0,058606	0,249450	0,048872
ID3	-0,114264	0,347010	0,795018	0,405036	0,257254	-0,067738	0,279453	0,352184	0,100140
IT1	-0,215306	0,210901	0,348522	0,757394	0,270724	-0,036269	0,270355	0,265801	0,075946
IT2	-0,232049	0,117317	0,285556	0,524522	0,268113	-0,083727	0,003267	0,310275	-0,033524
IT3	-0,202153	0,272801	0,435508	0,811314	0,201736	-0,062036	0,309961	0,354066	0,069778
KP2	-0,136549	0,252826	0,428046	0,379417	0,961550	-0,116526	0,286501	0,423878	0,072385
KP4	0,368516	0,073433	-0,005792	-0,126723	0,325519	0,104620	-0,022970	-0,064293	0,049516
KS14	0,341146	-0,016137	-0,001165	-0,019381	-0,035329	0,820091	0,031296	-0,142929	0,364486
KS17	0,361748	-0,066618	-0,170417	-0,048594	-0,088695	0,709027	0,051223	-0,139599	0,230929
KS18	0,260058	0,075071	0,094351	0,075493	0,073316	0,575594	-0,022724	0,168269	0,193713
KS2	0,531578	0,000815	-0,066496	-0,186659	-0,184126	0,559491	0,048117	0,009094	0,245947
KS7	0,330058	0,040804	0,010590	-0,079976	0,026863	0,598330	-0,001187	-0,042430	0,161602
KS8	0,216942	-0,003667	-0,080778	-0,044927	-0,089587	0,545146	0,060553	0,054324	0,129398
PE2	-0,182392	0,217592	0,278547	0,209214	0,110631	-0,129070	0,598651	0,267994	0,047864
PE3	0,008233	0,288946	0,252149	0,202183	0,155987	0,039038	0,778378	0,291132	0,237031
PE4	-0,224799	0,263528	0,297363	0,349071	0,249107	-0,095953	0,616191	0,322837	0,071230
PE5	0,002545	0,192947	0,346627	0,297227	0,229663	-0,018383	0,849309	0,360871	0,261249
PE6	0,047159	0,334634	0,263123	0,177952	0,215498	0,190059	0,671319	0,193966	0,183060
PU2	-0,074750	0,347240	0,288320	0,325352	0,331834	-0,011802	0,306668	0,835187	0,061627
PU3	-0,160817	0,211572	0,239316	0,258181	0,245184	-0,136848	0,274094	0,736682	0,044296
PU4	-0,045233	0,180239	0,207604	0,192945	0,254770	-0,102085	0,209878	0,718671	0,043073
PU5	-0,193653	0,169340	0,206604	0,209823	0,199562	-0,094965	0,178944	0,698459	0,028698
PU6	-0,019458	0,293738	0,355433	0,453502	0,367779	-0,013996	0,394290	0,900970	0,173107

Table 5. Composite Realibility Value

Variabel	Composite Reliability
Depression	0,826805
Desire	0,769009
Identification	0,740448
Internalization	0,745855
Compliance	0,630824
Loneliness	0,804412
PE	0,832511
PU	0,886172
SEX	1,000000
Use	0,748606

Table 5 shows the value of Composite Reliability of each construct is over 0.5 so that it can be stated that the measurement instrument used in this research is reliable.

Structural ModelTest

Goodness-of-Fit Model

Cohen (1988) in Scheper *et al.* (2005) explained that effect size of R^2 can classified into small category (value R^2=0.02), While (value R^2=0.13) and big (R^2=0,26). The output of measurement model in this research shows that effect size is big.

Besides seeing R^2 as global fit measurement of a model, it can also be seen from GoF value (Tenenhaus *et al.* 2005). GoF value is classified into small category (0,1), medium (0,25) and big (0,36) (Schepers *et al.* 2005).

Based on the calculation result, GoF value of research model is 0.56 (look at Table 6). Referring to criteria of Schepers *et al.* (2005), this research model can be categorized as model with the best conformity.

Structural Test Model or Hypothesis Test

The hypothesis test in PLS method uses structural model technique, that is, a regression technique with variance base. This research evaluates six hypotheses for direct correlation between independent variables towards dependent variables. Other than two controlling variables, namely; the perceived ease-of-use and the perceived usefulness, but they are not put into hypothesis. The following table 7 presents the summary of structural model test output in PLS to evaluate hypotheses in this research.

Table 6. The calculation of Goodness-of-Fit

	R Square	Communality	GoF
Depression	0,11057	0,37544	
Desire	0,20829	0,53235	
Identification		0,50461	
Internalization		0,50233	
Compliance		0,51527	
Loneliness	0,13844	0,41247	
PE		0,50319	
PU		0,61127	
SEX		1	
Use	0,12275	0,50038	
Average	0,580041	0,545731	**0,562886**

Table 7. Output of Structural Model Pengujian (Hypothesis Test)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)
HS -> USE	-0,081334	-0,120412	0,078951	0,078951	1,030175
ID -> HS	0,362738	0,349505	0,112829	0,112829	3,214934
IT -> HS	0,087133	0,135654	0,088561	0,088561	0,983872
KP -> HS	0,084882	0,124877	0,086591	0,086591	0,980272
PE -> USE	0,275601	0,313962	0,085755	0,085755	3,213803
PU -> USE	0,054034	0,145011	0,076920	0,076920	0,702466
SEX -> USE	-0,199368	-0,191395	0,084811	0,084811	2,350745
USE -> DR	0,332513	0,408977	0,099369	0,099369	3,346259
USE -> KS	0,372079	0,425574	0,083472	0,083472	4,457556

Based on the output of structural model test above, only hypothesis H1b and H3 are supported, that is, Identification that has correlation with desire to get involved in SNS and SNS actual adoption predicts psychosocial dysfunction (depression and loneliness). Besides that, the outcome of controlling variable test reveals that only the perceived ease-of-use predicts the actual adoption. The result of this test shows that there is potential that constructs of TAM model be developed in social computing adoption model.

Other than that, this research does not find correlation between desire and the actual adoption. The research result indicates that desire is not a construct specifically predicts actual behavior, like intention construct. The following research is expected to be able to develop this social computing adoption by adding intention construct as a direct predictor of actual adoption. This research also finds out that gender predicts the involvement in SNS. This finding indicates that there is difference in involvement behavior between men and women in SNS. However, this research has not observed thoroughly this finding yet. Therefore, the subsequent research should employ mixed method to be able to observe thoroughly this finding and research is expected to find a comprehensive explanation about this finding.

The followings are summary of hypothesis test output of all variables in this research.

Based on the tabulation of hypothesis test output above, it can be concluded that out of seven hypotheses proposed, three hypotheses are supported (namely: hypothesis H1b and H3), three hypotheses are not supported (namely: H1a, H1c and H2) and one hypothesis can not be tested (namely: H4) because the research data can not be obtained. As a whole, this research can become the base of developing social computing adoption model. Somehow, it is necessary to do further improvement and development of research instrument, especially related to the promotion of validity and reliability of psychometric indicators, namely: depression and loneliness variables. Besides that, a mixed design for research is expected to produce a more comprehensive research result.

Table 8. Output of Hypothesis Test

	The proposed hypothesis	The output of Hypothesis Test	Conclusion
H1a:	Internalization has positive influence on the desire to get involved in SNS.	β= 0,087 t-value = 0,984	Not supported
H1b:	Identification has positive influence on the desire to get involved in SNS.	β = 0,363 t-value = 3,214	Supported
H1c:	Compliance has positive influence on the desire to get involved in SNS.	β =0,084 t-value= 0,980	Not supported
H2:	Desire has positive influence on the SNS adoption behavior.	β = -0,081 t-value = 1,030	Not supported
H3:	SNS adoption has positive influence on the increase of psychosocial dysfunction, namely; depression.	β = 0,332 t-value = 3, 346	Supported
H3:	SNS adoption has positive influence on the increase of psychosocial dysfunction, namely; loneliness.	β = 0,372 t-value = 4,457	Supported
H4:	There are differences between collectivist and individualist in the impact of SNS adoption on psychosocial dysfunction.	NA	NA

DISCUSSION

This research is aimed at developing and evaluating IS adoption model to explain social computing behavior, which cannot maximally be explained through the previous adoption models. This study is triggered by theoretical issue about the necessity of the development for conceptual adoption model and IS utilization, like TRA, TAM and TPB model (Baron *et al.* 2006; Vanoy and Palvia, 2010).

The development of social computing behavior model involving antecedent variables (namely: internalization, identification, compliance), actual behavior, and consequence behavior (namely: depression and loneliness) is expected to be able to explain social computing behavior through structural model test with partial regression or variance-based techniques.

In general, the output of measurement model test indicates that empirical model developed and evaluated in this research fulfill the criteria of goodness-of-fit model quite well. Even the predicted value of variance variables in research model (R square) indicates the level of prediction effect also quite well. Therefore, statistically it can be concluded that model, which is developed in this research, can explain well social computing behavior. However, this generalization of research result and replication is required to develop adoption model and social computing behavior well

The output of hypothesis test through structural model test also indicates that the effect of prediction for antecedent variables is quite good, that is, Identification predicts desire to get involved in SNS. The output of such test indicates that respondents involved in SNS are generally motivated by the attraction of SNS endorser, like friend, colleagues, family members, or others considered to have attraction. This finding indicates that the power of social capital offline becomes important information for the interest holder in electronic

business upon pushing participants to get involved in SNS as communication media and marketing. It is why social capital must be put into consideration in order to make it as motivator for an individual. Theoretically, the output of this research shows that social influence factors are antecedent of individual to get involved in SNS. Individual's involvement in SNS is different from individual's involvement in IS in general, namely, social influence aspect is more predominant that technological aspect in influencing individual to get involved in IS adoption and utilization. Such conclusion is strengthened by the output of controlling variables for perceived ease-of-use, which positively predicts desire to get involved in SNS. Such finding explains that socio-technological factor in TAM model, that is, perceived usefulness and the perceived ease-of-use is poorer in explaining social computing behavior than social influence factors. However, such conclusion requires further evaluation to assert the different prediction strength between TAM model and Social Influence Theory in explaining social computing behavior. Such evaluation can be the design of laboratory experimentation to obtain better internal validity, because the survey design used in this research cannot fully guarantee the achieved internal validity through statistic test, especially when the output of PLS test does not produce prediction effect for all antecedent variables.

The other interesting experimentation result is the absence of prediction effect for desire toward actual behavior. In general, IS adoption and utilization models are relatively limited in using desire variable. Most commonly, IS adoption and utilization models uses intention variable, because intention is considered as direct and strong predictor towards actual behavior. Besides that, TRA model, which is the basic model of IS adoption and utilization model, explains that there is one sequential process belief, attitude, intention, behavior in explaining adoption behavior so that intention is considered as relevant variable to explain behavior. On the other hand, this research argues that desire explains better about actual behavior that intention because SNS involvement is more influenced by fun aspects and addiction. Desire is stronger than intention to predict involvement behavior. However, statistic test result denotes that desire does not predict actual behavior. This finding arouses assumption and questions for the further research, namely, whether intention is a direct predictor for SNS involvement behavior. It is why, further experimentation is required to answer such assumption because this research is consistent to other previous studies about SNS involvement behavior, which found out that desire is the best predictor towards social computing actual behavior.

The most recent important finding in this research is that actual behavior in SNS involvement predicts psychosocial dysfunction, namely; depression and loneliness. Theoretically, this finding shows that psycho-technological factors are important variables in social computing behavior. This result strengthened the researcher's assumption that socio-psycho-technological perspective can be developed in a research model to explain the adoption behavior and IS utilization, especially in context of social computing behavior. The previous adoption models and IS utilization generally used socio-technological or psycho-technological perspective partially in one research model. The development and experimentation of research model covers antecedent and consequence of social computing behavior indicates a change to develop further research model for social computing behavior better. Practically, this finding gives important information for the interest holder about the negative impact of SNS involvement. This research result strengthens the assumption that there is paradox indication of internet that requires anticipation of the users and the interest holder. The high involvement in SNS can trigger compulsive behavior that creates nega-

tive outcome for users and the other related parties. Therefore, regulation, controlling, self-controlling and SNS management system are required to anticipate potentials of negative impacts of SNS involvement. Such anticipatory steps should be begun by individual that is involved in SNS, family, organization or company, and SNS applications developers.

CONCLUSIONS

This research is aimed at developing and evaluating social computing adoption model that covers antecedent variables and consequence of SNS involvement behavior. This research is a preliminary study focusing on the development and instrument test. Design of questionnaire survey with statistic approach is supposed to produce a valid and reliable measurement instrument for the development of social computing adoption model.

This research involves social influence factors and psychosocial dysfunction factors. Based on the result of primary data collecting through self-administered and on-line survey it can be obtained that 116 respondents has quite various indicator variance of SNS involvement behavior. However, this study has not got age and cultural background variance, so that the differentiation test for both demographical characteristic has not yet been done. Therefore, the following research is expected to widen age range and larger coverage of research samples. On-line survey with duration and intensity of more intensive sending of reminder message is expected to be able to obtain age variance and a more spacious cultural background.

Based on measurement model test output, validity construct (namely: convergent validity and discriminant validity) and reliability construct have been statistically complied. However, several indicators in some variables must be reduced to obtain high *loading* score and enough average of extracted variance. Besides that, the indicator of *cross loading* is seen on indicators of depression and loneliness variables despite the fact that those two variables reliability is quite high. This is the major concern for the following research to re-improve content validity and to design techniques of questionnaire distribution as to minimizing bias on data collecting.

In general, this research has developed and found social computing adoption model with quite valid and reliable measurement instrument. This is supported by the output of structural model test that shows most proposed hypotheses are supported. However, the development of measurement instrument and sampling method becomes the major concern to obtain a more robust research result in the future. The development of measurement instrument covers the questionnaire designs, expert panelist's discussion in order to produce a valid and reliable instrument. Besides that, the improvement of random sampling method with biased –response test is expected to be able to minimize sampling errors.

REFERENCES

Abdillah, W., 2009. "The Situational Cognitive Mediation Effects on Dispositional Personality Influence on the Intention to Use the Internet: An Empirical Study of Information Technology Acceptance Within Higher Education Institution". *International Journal of Management in Education*, 3, 359-374.

Ackoff, R.L., 1960. "Unsuccessful Case Studies and Why". *Operations Research*, 2, 259-263.

Ajzen, I., 1991. "The Theory of Planned Behavior". *Organizational Behavior and Human Decision Processes*, 50, 179 – 211.

Allen, N.J., and J.P. Meyer, 1990. "The Measurement and Antecedents of Affective, Continuance and Normative Commitment to Organization". *Journal of Occupational Psychology*, 63, 1-18.

Allik, J., and A. Realo, 2004. "Individualism-Collectivism and Social Capital". *Journal of Cross-Cultural Psychology*, 35, 29-49.

Bagozzi, R. P., 1992. "The Self-Regulation of Attitudes, Intentions, and Behavior". *Social Psychology Quarterly*, 55, 178–204.

Bagozzi, R.P., 2000. "On the Concept of Intentional Social Action in Consumer Behavior". *Journal of Consumer Research*, 27, 388–396.

Bagozzi, R.P., and K.H. Lee, 2002. "Multiple Routes for Social Influence: The Role of Compliance, Internalization, and Social Identity". *Social Psychology Quarterly*, 65, 226–247.

Bagozzi, R.P., and U.M. Dholakia, 2002. "Intentional Social Action in Virtual Communities". *Journal of Interactive Marketing*, 16, 2– 21.

Bagozzi, R.P., and U.M. Dholakia, 2006. "Open Source Software User Communities: A Study of Participation in Linux User Groups". *Management Science*, 52, 1099–1115.

Bagozzi, R.P., 2007. "The Legacy of the Technology Acceptance Model and a Proposal for a Paradigm Shift". *Journal of the Association for Information Systems*, 8, 244–254.

Barker, V., 2009. "Older Adolescents' Motivations for Social Network Site Use: The Influence of Gender, Group Identity, and Collective Self-Esteem. *CyberPsychology and Behavior*, 12, 209-213.

Baron, S., A. Patterson, and K. Harris, 2006. "Beyond Technology Acceptance: Understanding Consumer Practice". *International Journal of Service Industry Management*, 17, 111-135.

Becker, T.E., 1992. "Foci and Bases of Commitment: Are They Distinctions Worth Making?" *Academy of Management Journal*, 35, 232-244.

Becker, T.E., D.M. Randall, and C.D. Riegel, 1995. "The Multidimensional View of Commitment and the Theory of Reasoned Action: A Comparative Evaluation. *Journal of Management*, 21, 617-638.

Becker, T.E., R.S. Billings, D.M. Eveleth, and N.L. Gilbert, 1996. "Foci and Bases of Employee Commitment: Implications for Job Performance". *Academy of Management Journal*, 39, 464-482.

Belk, R. W., G. Ger, and S. Askegaard, 2003. "The Fire of Desire: A Multisited Inquiry Into Consumer Passion". *Journal of Consumer Research*, 30, 326–351.

Boyd, D.M., and N.B. Ellison, 2007. "Social Network Sites: Definition, History, and Scholarship". *Journal of Computer-Mediated Communication*, 13 (1), 210-230.

Caldwell, D.F., J.A. Chatman, and C.A. O'Reilly, 1990. "Building Organizational Commitment: A Multi-Firm Study". *Journal of Occupational Psychology*, 63, 245-261.

Caplan SE., 2005. "A Social Skill Account of Problematic Internet Use". *Journal of Communication*, 55, 721–736.

Cardon, P.W. *et al.* 2009. "Online and Offline Social Ties of Social Network Website Users: An Exploratory Study in Eleven Societies". *Journal of Computer Information Systems*, Fall, 54-66.

Charron, C., J. Favier, and C. Li, 2006. "*Social Computing*: How Networks Erode Institutional power, and What to do About It. *Forrester Customer Report*.

Chau, P.Y.K., and P.J. Hu, 2002. "Examining a Model of Information Technology Acceptance by Individual Professionals: An Exploratory Study". *Journal of Management Information Systems*, 18, 191-229.

Chesney, T., 2006. "An Acceptance Model for Useful and Fun Information System". *An Interdisciplinary Journal of Humans in ICT Environments*, 2, 225-235.

Chin, W. W., 1995. "Partial Least Squares is to LISREL as Principal Components Analysis is to Common Factor Analysis". *Technology Studies*, 2, 315-319.

Cobo, L., 2008. "Social Networking in Spanish". *Billboard*, 120, 20-21.

Cooper, D.R. and P.S. Schindler, 2006. *Business Research Methods*. 9th ed. New York: Irwin/McGraw-Hill.

Davis, F.D., R.P. Bagozzi, and P.R. Warshaw, 1989. "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models". *Management Science*, 35, 982–1003.

Davis, F.D., 1989. "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology". *MIS Quarterly*, 13, 319-340.

de Jong Gierveld, J., 1987. "Developing and Testing a Model of Loneliness". *Journal of Personality and SocialPsychology*, 53, 119– 28.

Fishbein, M. and I. Ajzen, 1975. *Belief, Attitude, Intentions and Behavior: An Introduction to Theory and Research.* Boston, MA :Addison-Wesley.

Gardner, C. and D.L. Amoroso, 2004. "Development of an Instrument to Measure the Acceptance of Internet Technology by Consummers". Proceedings of the 37th Hawaii International Conference on System Sciences.

Gollwitzer, P. M., H. Heckhausen, and B. Stellar, 1990. "Deliberative and Implemental Mind-Sets: Cognitive Tuning Toward Congruous Thoughts and Information". *Journal of Personality and Social Psychology*, 59, 1119−1127.

Gudykunst, W.B. 1998. "Applying Anxiety/ Uncertainty Management (AUM) Theory to Intercultural Adjustment Training. *International Journal of Intercultural Relations*, 22, 227-25.

Hair, J.F. Jr., W.C. Black, B.J. Babin, R.E. Anderson, and R.L. Tatham, (2006) *Multivariate Data Analysis*. 6th ed. NJ: Pearson Prentice Hall.

Hartono, J.M, 2005. *Sistem Teknologi Informasi-Pendekatan Terintegrasi: Konsep Dasar, Teknologi Aplikasi, Pengembangan dan Pengelolaan [Integrated Approach of Information Technology System: Basic Concept, Application Technology, Development, and Management]*, 2nd ed. Yogyakarta: Andi.

Hartono, J.M., 2007. *Sistem Informasi Keperilakuan [Behavioral Information System.]* 1st ed. Yogyakarta: Andi.

Hartono, J.M., 2008. *Metodologi Penelitian Sistem Informasi [Research Methodology of Information System]* 1st ed. Yogyakarta: Andi.

Hartono, J.M., 2008. *Pedoman Survei Kuesioner: Mengembangkan Kuesioner, Mengatasi Bias dan Meningkatkan Respon [Questionnaire Survey Guidance: Developing Questionnaire, Overcome Bias, and Increase Response]*. 1st ed. Yogyakarta: BPFE.

Hofstede, G., 2001. *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations.* 2nd ed. California: Sage.

Hwang, Y., 2008. "Towards the Development of an Integrative Framework for Technology Mediated Learning". AMCIS Proceedings, 1-9.

Igbaria, M., S. Parasuraman, and J.J. Baroudi, 1996. "A Motivational Model of Microcomputer Usage". *Journal of Management Information Systems*, 13, 127-143.

Jackson, L.A., A.Eye, G. Barbatsis, F. Biocca, H.E. Fitzgerald, and Y. Zhao, 2004. "The Impact of Internet Use on Other Side of the Digital Divide". *Comm of the ACM*, 47, 43-48.

Jones, Q., G. Ravid, and S. Rafaeli, 2004. "Information Overload and the Messing Dynamics of Online Interaction Spaces: A Theoretical Model and Empirical Exploration". *Information System Research*, 15, 194-210.

Kang, S., 2007. "Disembodiment in Online Social Interaction: Impact of Online Chat on Social Support and Psychosocial Well-Being". *CyberPsychology and Behavior*, 10, 475-479.

Kim, J., R. LaRose, and W. Peng, 2009. "Loneliness as the Cause and the Effect of Problematic Internet Use: The Relationship Between Internet Usage and Psychological Well-Being". *CyberPsychology and Behavior*, 12, 451-455.

Kelman, H. C., 1958. "Compliance, Identification, and Internalization: Three Processes of Attitude Change". *Journal of Conflict Resolution*, 2, 51–60.

Kelman, H.C., 1961. "Processes of Opinion Change". *Public Opinion Quartely*, 25, 57-78.

Kim, K.H. and H. Yun, 2007. "Clying for Me, Clying for Us: Relational Dialectics in a Korean Social Network Site". *Journal of Computer-Mediated Communication*, 15.

Kompas.com. 2010. *Facebook meningkatkan tindakan penculikan dan kejahatan seksual di Filipina [Facebook Increases Kidnapping Action and Sexual Criminalities in Philipine]*. URL accessed at October 13th, 2010.

Kraut, R., M. Patterson, V. Lundmark, *et al.* 1998. "Internet Paradox: A Social Technology that Reduces Social Involvement and Psychological Well-Being?" *American Psychologist*, 53,1017–1031.

Lee, M.K.O., C.M.K. Cheung, and Z.H Chen, 2005. "Acceptance of Internet-Based Learning Medium: The Role of Extrinsic and Intrinsic Motivation". *Information and Management*, 42, 1095– 1104.

Lee, M.K.O., C.M.K. Cheung, K.H. Lim, and C.L. Sia, 2006. "Understanding Customer Knowledge Sharing in Web-Based Discussion Boards: An Exploratory Study". *Internet Research*, 16, 289–303.

Leung, L., 2007. "Stressful Life Events, Motives for Internet Use and Social Support Among Digital Kids". *CyberPsychology and Behavior*, 10, 204-214.

Li, D., P.Y.K. Chau, and H. Lou, 2005. "Understanding Individual Adoption of Instant Messaging: An Empirical Investigation". *Journal of the Association for Information Systems*, 6, 102–129.

Malhotra, Y., and D. F. Galletta, 1999. "Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation". *Proceedings of the 32th Hawaii International Conference on System Science,* IEEE Computer Society Press. Los Alamitos. CA.

Malhotra, N.K., S.S. Kim, and J. Agarwal, 2004. "Internet Users's Information Privacy Concerns (IUIPC): The Construct, the Scale and Causal Model". *Information System Research*, 15, 336-355.

Malhotra, Y., and D. Galletta, 2005. "A Multidimensional Commitment Model of Volitional Systems Adoption and Usage Behavior". *Journal of Management Information Systems*, 22, 117–151.

Matei, S. and S.J. Ball-Rokeach, 2001. "Real and Virtual Social Ties", *American Behavioral Scientist*, 45, 550-564.

Mesch, G. and I. Talmud, 2006. "The Quality of Online and Offline Relationships: The Role of Multiplicity and Duration of Social Relationships". *The Information Society*, 22, 137-148.

Morahan-Martin, J. and Schumacher P., 2000. "Incidence and Correlates of Pathological Internet Use Among College Students". *Computers in Human Behavior*, 16, 13–29.

O'Reilly, C.A., III. and J. Chatman, 1986. "Organizational Commitment and Psychological Attachment: The Effects of Compliance, Identification and Internalization on Prosocial Behavior". *Journal of Applied Psychology*, 71, 492-499.

O'Reilly, T. 2005. "What is web 2.0". available at *http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html*. Accessed on January 8th, 2009.

Parameswaran M. and A.B. Whinston, 2007. "Research Issues in Social Computing". *JAIS*, 8, 336-350.

Pelling, E.L. and K.M. White, 2009. "The Theory of Planned Behavior Applied to Young People's Use of Social Networking Websites". *CyberPsychology and Behavior*, 12, 755-759.

Perugini, M. and R.P. Bagozzi, 2001. "The Role of Desires and Anticipated Emotions in Goal-Directed Behavior: Broadening and Deepening the Theory of Planned Behavior". *British Journal of Social Psychology*, 40, 79–98.

Radloff, L., 1977. "The CES–D Scale: A Self-Report Depression Scale for Research in the General Population". *Applied Psychological Measurement*, 1, 385–401.

Reichers, A.E., 1985. "A Review and Reconceptualization of Organizational Commitment". *Academy of Management Review*, 10, 465-476.

Salisbury, W.D., W.W. Chin, A. Gopal, and P.R. Newsted, 2002. "Research Report: Better Theory Through Measurment-Developing a Scale to Capture Consensus on Appropiation". *Information System Research*, 13 (1), 91-103.

Schepers, J., A. M. Jong Wetzels and K. Ruyter, 2008. "Psychological Safety and Social Support in Groupware Adoption: A Multi-Level Assessment in Education". *Computers and Education*, 51, 757-775.

Schuler, D. 1994. "Social Computing". *Comm the ACM*, 37, 28–29.

Schultz, R.L. and D.P. Slevin, 1975. "Implementation and Organizational Validity: An Empirical Investigation" in: R.L. Schultz and D.P. Slevin, *Implementing Operation and Research/Management Science*. eds. New York: American Eisevier Publishing Co.

Shen, A.X.L., C.M.K. Cheung, M.K.O. Lee, and H. Chen, 2009. "How Social Influence Affects We-Intention to Use Instant Messaging: The Moderating Effect of Usage Experience". *Information System Froniert*, 111, 1-13.

Smith, H. and J. McKeen. 2006. "Development in Practice XXXI: Social Computing: How Should it be Managed?" *CAIS*, 23, 409-418.

Song, J. and Y. J. Kim, 2006. "Social Influence Process in the Acceptance of a Virtual Community Service". *Information Systems Frontiers*, 8, 241–252.

Stefanone, M.A. and G. Gay, 2008. "Structural Reproduction of Social Networks in Computer-Mediated Communication Forums". *Behaviour and Information Technology*, 27, 97-106.

Sledgianowski, D. and S. Kulviwat, 2009. "Using Social Network Sites: The Effects of Playfulness, Critical Mass and Trust in a Hedonic Context". *Journal of Computer Information System*, Summer, 74-84.

Szabo, G., and B.A. Huberman, 2010. "Predicting the Popularity of Online Content". *Comm of the ACM*, 53, 80-90.

Szajna, B., 1996. "Empirical Evaluation of the Revised Technology Acceptance Model". *Management Science*, 1, 85-92.

Tajfel, H., 1978. "Social Categorization, Social Identity, and Social Comparison" in Tajfel, H. *Differentiation between social groups: Studies in the social psychology of intergroup relations (Ed.)*, London: Academic Press.

Talukder, M. and P.H. Yeow, 2007. "A Comparative Study of Virtual Communities in Bangladesh and the USA". *Journal of Computer Information Systems*, 47, 82-90.

Taylor, S. and P. A. Todd, 1995. "Understanding Information Technology Usage: a Test of Competing Models". *Information Systems Research*, 6, 144-176.

Thelwall, M., 2008. "Social Networks, Gender, and Friending: An Analysis of MySpace Member Profiles". *Journal of the American Society for Information Science and Technology*, 59, 1321-1330.

Tuomela, R., 2005. We-Intention Revisited. *Philosophical Studies*, 125, 327–369.

Turner, J. C., 1991. *Social Influence.* Milton-Keynes, UK: Open University Press.

Triandis, H, C., 1980. "Values, Attitudes, and Interpersonal Behavior". *Nebraska Symposium on Motivation, 1979: Beliefs, Attitudes, and Values,* Lincoln, NE: University of Nebraska Press.

van der Heijden, H., 2004. "User Acceptance of Hedonic Information System". *MIS Quartely*, 28, 695-704.

Vanoy, S.A. and P. Palvia, 2010. "The Social Influence Model of Technology Adoption". *Comm of the ACM*, 53, 149-153.

Venkatesh, V. and Davis, F. D. 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46, 186–204.

Venkatesh, V., M.G. Morris, G.B. Davis, and F.D. Davis, 2003. "User Acceptance of Information Technology: Toward a Unified View". *MIS Quarterly*, 27, 425–478.

Wang, F., D. Zeng, K.M. Carley, and W. Mao, 2007. "Social Computing: From Social Informatics to Social Intelligence". *IEEE Computer Society.*

Wikipedia. Social Computing. Available at http://wiki/Social_computing/, accessed on December 2009.

Zohar, D., 2000. "A Group-Level Model of Safety Climate: Testing the Effect of Group Climate on Microaccidents in Manufacturing Jobs". *Journal of Applied Psychology*, 85, 587–596.