

The Effects of Multi-identity on One's Psychological State and the Quality of Contribution in Virtual Communities: A Socio-Psychological Perspective*

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In a virtual community, one can possess multiple identities and pretend to be different by creating self-identity in contrast with his or her actual self. Does false identity undermine the qualitative growth of a virtual community by reducing members' accountability? Or does it stimulate their contributive behaviors by ensuring freedom of speech? It is imperative to understand the effects of multi-identity considering the distinct properties of a virtual community in which people easily change their identities at little or no cost. To answer these questions, we adopted the concept of self-discrepancy from the social psychology theory rooted in the concept of the self and developed a theoretical model to predict quality of contribution of the individual member in virtual communities. Based on the self-discrepancy theory, we first identified two different domains of the self: (1) an "actual self" that consists of attributes that the person believes he or she currently possesses in real life and (2) a "cyber self" that consists of attributes the person believes he or she possesses in a virtual community. Next, we derived an index for two different types of self-discrepancy by using the differences between the actual and the cyber identities: Personal Self-discrepancy and Social Self-discrepancy. Personal Self-discrepancy reflects the degree of discrepancy between actual and cyber identity regarding a person's intelligence, education, and expertise. Social Self-discrepancy reflects the degree of discrepancy between actual and cyber identity regarding a person's morality, sociability, and accordance with social norms. Finally, we linked them with sense of virtual community, perceived privacy rights, and quality of contribution to examine how having a multi-identity influences an individual's psychological state and contributive behaviors in a virtual community. The results of the analysis based on 266 respondents showed that Social Self-discrepancy negatively influenced both the Sense of Virtual Community and Perceived Privacy Rights, while Personal Self-dis-

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crepancy negatively influenced only Perceived Privacy Rights, thereby resulting in reduced quality of contribution in virtual communities. Based on the results of this analysis, we can explain the dysfunctions of multi-identity in virtual communities. First, people who pretend to be different by engaging in socially undesirable behaviors under their alternative identities are more likely to suffer lower levels of psychological wellbeing and thus experience lower levels of sense of virtual community than others. Second, people do not perceive a high level of privacy rights reflecting catharsis, recovery, or autonomy, even though they create different selves and engage in socially undesirable behaviors in a virtual community. Third, people who pretend to be different persons in terms of their intelligence, education, or expertise also indirectly debase the quality of contribution by decreasing perceived privacy rights. The results suggest that virtual community managers should pay more attention to the negative influences exercised by multi-identity on the quality of contribution, thereby controlling the need to create alternative identities in virtual communities. We hope that more research will be conducted on this underexplored area of multi-identity and that our theoretical framework will serve as a useful conceptual tool for all endeavors.

Keywords : Virtual Community, Self-discrepancy, Multi-identity, Sense of Virtual Community, Perceived Privacy Rights

I . Introduction

A man widely known by his Internet alias, "Minerva," was arrested on charges of spreading false rumors in early 2009. A self-educated internet financial guru wrote more than 200 anonymous commentaries on the virtual community called "Agora," criticizing the government's economic policies. Even though he had never been formally trained in the area of economics or finance, he acted as a financial expert in a virtual community and negatively influenced the national economy as a result. People raised the question: "Would this have been possible if he had made his postings or commentaries under his actual identity for all to see?"

This event triggered debates on not only the freedom of speech, but also the issue of anonymity that may lead people to take on mul-

ti-identity in virtual communities. This is because people are often motivated to adopt alternate identities that differ from their real personas under anonymous conditions. By creating different identities, people are more likely to be honest and real because they are unrestrained by social status or other social cues, thereby fostering effective discussion in online spaces [DeSanctis and Gallupe, 1987]. On the other hand, taking on different identities may allow people to ignore the consequences of their behaviors online. In particular, it may impede their ability to consider the quality of their knowledge contributions, resulting in negative outcomes for the virtual community [Dennis, 1996].

This paper seeks to examine the effects of multi-identity in a virtual community. Given this purpose, we first conceptualize one's multi-identity by capturing the discrepancy be-

tween the real life identity (termed "actual identity") and the alternative identity represented in cyberspace (termed "cyber identity"). Next, we develop a theoretical model that links the level of discrepancy between these two different identities (actual identity and cyber identity) to the individual's psychological state and quality of contribution. Such an examination may reveal how best to manage or control the individual members' cyber identities and anonymous statuses for the qualitative growth of a virtual community.

A systematic theory relating the effects of multi-identity to the quality of contribution in a virtual community is lacking in spite of the rapid growth of virtual communities and the wide use of community technologies in business. A number of critical research questions call for an empirical examination with regard to one's identity and contribution quality in an online space [Ma and Agarwal, 2007; Dellarcas, 2003; Rains, 2007]. In this study, we raise the following questions:

- (a) *What are the factors influencing the quality of contribution in a virtual community?*
- (b) *Does having a multi-identity hinder the qualitative growth of a virtual community by reducing members' sense of a virtual community?*
- (c) *Does having a multi-identity stimulate the members' contributive behavior by enhancing their perception of privacy rights?*

II. Theoretical Development

A virtual community is defined as an online social network where people with common interests, goals, or practices interact to share in-

formation and knowledge and engage in social interactions [Chiu *et al.*, 2006]. To compensate for the lack of social cues in a computer-mediated communication environment, people use avatars, video images, pictures, and graphical representations to present themselves. However, the guaranteed anonymity in a virtual community frequently allows people to pretend to be different persons or to possess different identities. People use this anonymity to spread rumors, abuse, and groundless slander. Therefore, researchers argue as to what motives underlie their actions when people explain themselves and reveal their actual identities [Ma and Agarwal, 2007]. Furthermore, research suggests that people are usually more likely to achieve recognition from other members when they contribute knowledge using their actual identities in virtual communities [Dellarcoas, 2003; Ma and Agarwal, 2007].

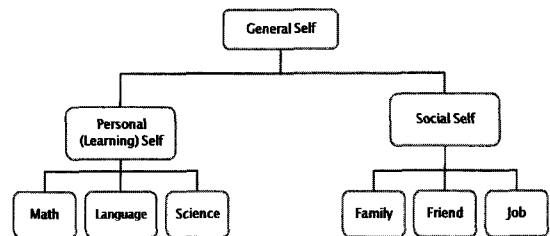
Alternatively, there is another perspective to the debate. Can creating a different identity result in positive consequences in virtual communities if people feel they have more privacy rights and consequently more freedom of speech? People want to break free from their daily personas, and in cyber space, this alternate identity allows them to do what they want, freely, without having to conform to social norms or experiencing anxiety about social regulations [Pedersen, 1997]. For example, by creating alternate identities, people feel that they can express their emotions freely and can do things that do not seem feasible in real life. In some cases, people also feel that they can engage more in creative activities in their virtual communities. We posit that creating alternate identities may have positive or negative re-

percussions in virtual communities. However, little research exists on how taking on a multi-identity influences an individual's psychological state and behavior in virtual communities. We will discuss the concept of self-identity in the next section so that we can infer the consequences of taking on multi-identity in virtual communities.

2.1 Self-identity

Self-identity is "the individual's self-appraisal of a variety of attributes along the dimensions of physical and cognitive abilities, personal traits and motives, and the multiplicity of social roles" [Whitbourne and Connolly, 1999]. Aiming to chart the contours of the self-identity, the social cognitive theory [Bandura, 1986; 1989] explains that one's cognitions about the "self"-including competency, expectations, and morality-may influence their affect and behavior in relation to others. In the same line, Markus [1977] argues that self-identity is the sum total of beliefs one has about oneself, which is directly associated with the term self-concept. Self-concept is made up of cognitive molecules called self-schemas: beliefs about oneself that guide the processing of information relevant to the self. Researchers explain self-concept using hierarchical self-schemas [Franzino, 1966; Kihlstorm and Cantor, 1984] that elucidate how we see ourselves. According to the self-schema, the general self comprises two different aspects: the personal self and the social self. The former refers to the properties that constitute an individual's learning abilities, while the latter refers to the properties constituting an individual's social relationships. <Figure 1> illustrates

the hierarchal self-schemas.



Source: Hong, 2008.

<Figure 1> Hierarchical Self Concept

2.2 Self-discrepancy

Self-discrepancy, however, arises out of the mismatch between how we see ourselves, especially when we perceive that we have different selves. Self-discrepancy theory [Higgins, 1987] explains how self-discrepancy can be formed and how it influences an individual's psychological state. Higgins [1987] argues that people have a psychological structure that helps them understand the different types of negative emotions experienced by those who hold conflicting self-beliefs, or a discrepancy, about themselves. More specifically, self-discrepancy theory describes two different types of self-images: the actual self and the ideal self. The "actual self" represents the person as he is and consists of the attributes that the individual believes he or she possesses or the attributes that a significant other believes he or she holds. In contrast, "ideal self" consists of the attributes that the individual or a significant other desires or prefers to acquire [Higgins, 1987]. If an individual perceives a large gap between the actual self and the ideal self, then he or she experiences feelings of disappointment, frustration, unfulfillment, and sadness [Boldero and Francis,

2000; Higgins, 1999; Scott and O'Hara, 1993].

By applying the notion of self-discrepancy to this study, which attempts to capture the discrepancy between the "actual self" and the "cyber self," we assume that a discrepancy occurs when the attributes associated with one's self-state (e.g., the actual self) do not correspond with the attributes associated with a different self-state (e.g., the cyber self). Similarly, by adopting the self-discrepancy theory, we identify two different domains of the self: (1) an actual self that consists of attributes that the person believes he or she currently possesses in real life and (2) a cyber self that consists of attributes the person believes he or she possesses in a virtual community.

2.3 Multi-identity in a Virtual Community

According to the conventional perspective, people usually engage in self-regulation to reduce self-discrepancy: the processes by which we seek to control or alter our thoughts, feelings, behaviors, and urges [Carver and Scheier, 1998]. Through self-regulation, individual members behave in a socially desirable way in a community. However, less self-regulation is required in cyberspace than offline. Even though people perceive a high level of self-discrepancy between their actual and cyber selves, they are less likely to control or alter their thoughts, feelings, or behavior, thus leading to lower psychological ownership in the community. Therefore, people can easily possess multiple identities and pretend to be different by creating self-identities that are in contrast with their actual selves in a virtual community. This is pos-

sible because a virtual community is usually anonymous, and members are not familiar with each other. For example, an individual can act like an expert, even though she or he does not possess enough knowledge to be regarded as one. Conversely, an individual can also pretend to be illiterate or act like a juvenile delinquent, though he or she may actually be very well educated and intelligent.

In this study, we use the term multi-identity to describe instances in which a person has an alternate identity and acts like a different person in a virtual community by creating a cyber self that is distinguished from his or her actual self. There are both theoretical and operational reasons for such a conceptualization to be considered appropriate. First, there is significant empirical evidence indicating that an individual's cyber identity could be different from his or her offline (actual) identity. Second, there is no agreed-upon function or dysfunction with regard to taking on multiple identities in a virtual community. Thus, this study, firstly, attempts to capture the discrepancy between actual and cyber self-identities. Next, this study tries to examine how the level of discrepancy between an individual's actual and cyber identity influences his or her psychological state in a virtual community.

2.4 Sense of Virtual Community

Sense of virtual community is defined as the individual's psychological state reflecting his or her feelings, emotions, and attitudes toward virtual communities. Sense of virtual community is regarded as a key construct in understanding the dynamics of virtual communities

[Koh and Kim, 2003] and is sub-categorized into three dimensions: membership, influence, and immersion. Membership refers to the feeling of belonging in a virtual community [McMillan and Chavis, 1986]. Influence implies that people feel they can make a difference in their communities [Koh and Kim, 2003]. Immersion refers to the holistic sensation that people feel when they act with total involvement [Csikszentmihalyi, 1975]. Koh and Kim [2003] delineate the construct of immersion by adopting the concept of 'flow,' and define immersion as 'the state of flow' during virtual community navigation.

In place-based and face-to-face communities of interest, a sense of community leads to satisfaction and commitment and is associated with involvement in community activities [Blanchard and Markus, 2004; McMillan and Chavis, 1986]. In this regard, community research indicates that the factors driving people to contribute to the community are related to a sense of community. When applying this notion to the virtual community, it is posited that a sense of virtual community leads to beneficial outcomes by stimulating members' contributive behaviors. With respect to contributive behavior, Wasiko and Faraj [2005] suggest that quality of knowledge and the desire to help are critical factors aiding growth and sustenance of a virtual community.

2.5 Perceived Privacy Rights

Perceived privacy rights can be defined as the rights to control one's own exposure conditions [Rachels, 1975]. People seek privacy through anonymity. Anonymity plays a critical

role in most contemporary computer-mediated communication [Rains, 2007]. Anonymity mitigates status differences, social pressure, and fear of retribution [Flanagin *et al.*, 2002; Postmes and Lea, 2000], and thus makes it easier for individual members to exercise their privacy rights in virtual communities. Lack of privacy may negatively affect information sharing processes and consequently it may result in the loss of community members in a virtual community. Research suggests three types of privacy rights that can be exercised under anonymous conditions [Pederson, 1997]: recovery, catharsis, and autonomy. These types of privacy give people chances to experiment with new behaviors without the fear of social condemnation. More specifically, people perceive possession of privacy rights in a virtual community when they experience (1) recovery from social injury, (2) catharsis by expressing their emotions freely, and (3) autonomy by trying out new behaviors, engaging in creative activities in their communities, or breaking social norms and loosening their inhibitions.

III. Research Model and Hypotheses

We use the concept of self-discrepancy to capture the degree of difference between actual identity and cyber identity. Furthermore, as we discussed above, we categorized self-concept into (1) personal self and (2) social self. The former represents the perception of a person's learning ability (e.g., intelligence, education, expertise), while the latter refers to a person's social relationship with friends, family, and others (e.g., morality, sociability, and accord-

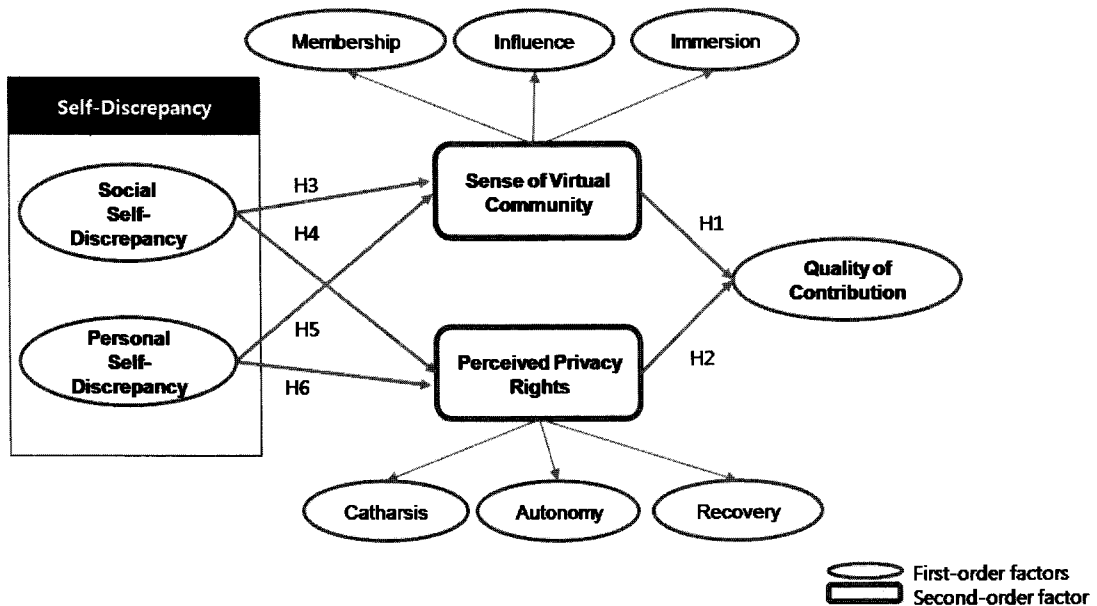
ance with social norms). Therefore, the discrepancy between actual and cyber identity can be divided into two different aspects. First, we created the term "Personal Self-discrepancy," which reflects the degree of discrepancy between actual and cyber identity regarding a person's intelligence, education, and expertise. On the other hand, we created the term "Social Self-discrepancy," which reflects the degree of discrepancy between actual and cyber identity regarding a person's morality, sociability, and accordance with social norms.

Next, we link the two different types of self-discrepancy with sense of virtual community (representing an individual's psychological state in a virtual community). We posit that when the degree of self-discrepancy is high, people feel a negative sense of virtual community, and thus decrease the quality of their contribution. On the other hand, based on the

anonymity theory, we posit that people feel they have more privacy when they possess multiple identities in cyberspace. Accordingly, we integrate the self-discrepancy and anonymity theories into an overarching framework that allows us to examine the relationships between multi-identity, sense of virtual community, perceived privacy rights, and quality of contribution in a virtual community. Note that we used sense of virtual community and perceived privacy rights as a superordinate construct by forming a second-order construct.

3.1 Quality of Contribution

Contribution refers to the extent to which people may be willing to exert themselves on behalf of a community. There is abundant literature that addresses the quality of contribution in VCs from a different perspective-namely,



<Figure 2> Research Model

the quantity of contribution [Peddibhotla and Subramani, 2009]. For example, Wasko and Faraj [2005] distinguished the helpful aspect of contribution from the volume of contribution. Researchers believe that there is a tradeoff between contribution quality and quantity. A prior theory suggests that incentives to contribute are likely to lead to increased volume, but decreased quality, of contributions [Peddibhotla and Subramani, 2009]. In this study, we define the quality of contribution as the extent to which members contribute knowledge to the community in a way that is accurate, useful, relevant, and helpful. With respect to the contributive behavior, the quality of the content that members contribute is definitely critical to the continuous growth of the virtual community.

Although the past few years have witnessed significant growth in the number of VCs, empirical studies reveal that very few are successful at retaining their members and motivating them to contribute their knowledge [Ma and Agarwal, 2007]. Prior research on virtual communities suggests that socio-psychological factors are related to all motivations to contribute. For example, Wasko and Faraj [2005] suggest that social motives, such as being part of a network and enhancement of perceived reputation, are critical to stimulating contributive behavior in a virtual community. It is likely that people develop a shared sense of co-operation and citizenship that in turn can enhance the quality of contribution [Peddibhotla and Subramani, 2009].

In this study, sense of virtual community has been regarded as a key construct in understanding the dynamics of the virtual commun-

ity [Koh and Kim, 2003]. Although previous literature mentions diverse sub-dimensions regarding the sense of virtual community, our research model also includes influence and immersion. Influence implies that people feel they can make a difference in their community [Koh and Kim, 2003], while immersion refers to the holistic sensation that people feel when they act with total involvement. Koh and Kim [2003] delineate the construct of immersion by adopting the concept of "flow" and define immersion as "the state of flow" when navigating the virtual community. In place-based and face-to-face communities of interest, a sense of community leads to emotions of satisfaction and commitment and is associated with involvement in community activities [Blanchard and Markus, 2004]. Here, community research indicates that factors such as sense of community, organizational citizenship, and psychological ownership drive people to contribute to the community. By applying this notion to the virtual community, it is posited that sense of community leads to beneficial outcomes by stimulating members' contributive behaviors.

[Hypothesis 1]: *The level of sense of virtual community an individual member perceives will be positively associated with the quality of contribution*

3.2 Perceived Privacy Rights and Quality of Contribution

Contribution is driven by individual-level calculations of costs and benefits [DeSanctis and Gallupe, 1987]. Writing and posting take time

and effort. However, there are benefits to this activity as well, since contributors are able to conceal their personal identities, and confidentiality is maintained through anonymity. Such benefits sometimes cause diverse dysfunctional behaviors such as humiliation, antagonism, and selfishness. However, in the context of a virtual community, people are more likely to give honest answers or disclose confidential information when they can protect their privacy. Research has suggested that people experience recovery, catharsis, and autonomy as part of their privacy rights [Pedersen, 1997], and those privacy rights enable people to focus on the merits of an individual's contribution-as opposed to his or her status or other social cues-and thus, foster more effective discussions [DeSanctis and Gallupe, 1987; Rains, 2007; Valachi *et al.*, 1992]. Consequently, it is likely that people who perceive greater privacy rights may be able to enhance the quality of their contributions.

[Hypothesis 2]: *The level of perceived privacy rights will be positively associated with the quality of contribution.*

3.3 Multi-identity and Sense of Virtual Community

Identity research suggests that taking on a multi-identity lowers an individual's psychological wellbeing [Schafer *et al.*, 1996; Swann, 1983]. Possessing a multi-identity refers to the number and distinctiveness of self-aspects that make up a person's self-concept, and has been associated with lower self-esteem and greater depression. For example, people spend more

time and energy producing incompatible behaviors (role conflict) and tend to exert too much effort juggling multiple roles.

The most important point is that discrepancy between different selves leads to negative psychological situations that are associated with different types of emotional states. According to the discrepancy theory, if the degree of self-discrepancy is high, then the individuals either lack positive emotions (e.g., satisfaction) or possess excess negative emotions (e.g., anger, fear, or anxiety). In other words, a mismatch between the different selves lowers an individual's psychological wellbeing and may increase negative emotions [Schafer *et al.*, 1996].

Applying this notion to the context of virtual communities, we can infer that a person who takes on a different identity in a virtual community may have a lower sense of virtual community. If an individual member has a high degree of self-discrepancy between different selves, then this person may experience greater internal conflicts and negative emotions about himself, thereby leading to a lower sense of virtual community. In this study, we capture the difference between actual self and cyber self and define it as self-discrepancy. Self-discrepancy has two sub-dimensions: personal and social self-discrepancy.

[Hypothesis 3]: *The level of Personal Self-discrepancy between the actual and cyber identity will be negatively associated with the sense of virtual community.*

[Hypothesis 4]: *The level of Social Self-discrepancy between the actual and cyber identity will be negatively as-*

sociated with the sense of virtual community.

3.4 Multi-identity and Perceived Privacy Rights

Under anonymous conditions, people make use of the factors that enhance the privacy function, such as recovery, catharsis, and autonomy [Pedersen, 1997]. While being among strangers is socially consoling, in an anonymous environment like a virtual community, people usually exercise their privacy rights freely without the fear of social norms or regulations. Therefore, people may feel more comfortable revealing themselves to other community members.

By creating alternate identities, people are more likely to be honest and to reveal their less polished sides, because they are unrestrained by social status or other social cues, thereby fostering effective discussion in online spaces [DeSanctis and Gallupe, 1987]. For example, if a person acts like a totally different person, he or she might perceive a higher level of privacy, which is reflected in the aforementioned factors (recovery, catharsis, and autonomy). People usually feel that they can protect themselves from the hurtful remarks of others and recover from negative social experiences when they are guaranteed anonymity. In virtual communities, people use anonymity to create different identities. Thus, the greater the extent to which people perceive the discrepancy between their actual and cyber identities, the greater the perception of privacy in their virtual communities.

[Hypothesis 5]: *The level of Personal Self-dis-*

crepancy between the actual and cyber identity will be positively associated with the level of perceived privacy rights.

[Hypothesis 6]: *The level of Social Self-discrepancy between the actual and cyber identity will be positively associated with the level of perceived privacy rights.*

IV. Method

To test the proposed research model, we adopted the cross-sectional survey method for data collection and examined our hypotheses by applying the partial least squares (PLS) method to the collected data. We chose PLS from several other tools (e.g., AMOS, LISREL) because PLS is more suitable when the objective is causal predictive testing in situations of low theoretical information rather than testing an entire theory, and it is appropriate for the early stages of theory development [Barclay *et al.*, 1995; Chin, 1998; Howell and Higgins, 1990; Yoo and Alavi, 2001]. Given that this study is an early attempt to develop a theoretical model that predicts the influence of multi-identity on one's psychological states and contribution behavior, PLS is appropriate for this study. The individual is the unit of analysis for this study.

4.1 Measurement

The items for measurement were adapted from existing measures validated by other researchers. In order to measure self-discrepancy, we adapted and modified items from Marsh *et al.*'s Tennessee Self-Concept Scale (TSCS) and

Marsh *et al.*'s Self-Description Questionnaire (SDQ). Based on the two methods, we derived several scales to measure the specific aspects regarding self-concept. Firstly, by using seven items measuring self-concept, we asked the respondents to answer the question: "Who are you in the real world?" Second, we asked the question: "Who are you in your virtual community?" To capture the discrepancy between actual self and cyber self, we derived the numerical index representing self-discrepancy by calculating the difference between actual self and cyber self.

The items for the sense of virtual community were adapted and modified from Koh and Kim [2003]. The items mainly asked questions regarding perception of membership, influence, and immersion. For the measurement of perceived privacy rights, we used the privacy function factors for anonymity proposed by Pedersen [1997]. The function factors for perceived privacy rights are categorized into three sub-dimensions: recovery, catharsis, and autonomy. Responses to the questions in these categories were assigned scores from one to five. To measure quality of contribution, items were adapted from (1) Wasko and Faraj [2005]'s helpfulness of contribution scale and (2) Chiu *et al.* [2007]'s quality of knowledge scale. <Table 1> represents the definitions of the constructs and measurement items.

4.2 Data Collection

A web survey was conducted to test the model proposed above. The sample population for this study was comprised of panel members of an Internet survey company. E-mail

messages were sent to the people selected by a stratified sampling method. They were solicited to visit a website for the survey. To filter the proper respondents, we first used the filtering question: "Are you now a member of a virtual community?" If a respondent answered "no," then the survey did not proceed. We asked the respondents to select one virtual community in which they were engaged as an active member. Next, we asked questions measuring perceived self-identity, psychological states, and behavior associated with knowledge contributions in their virtual communities. We gathered 300 questionnaires from 378 people who started to answer the survey. We eliminated incomplete questionnaires, and finally, 266 individuals were used to test the hypotheses. Profiles of these 266 respondents are summarized in <Table 2> below. To test for a possible nonresponse bias, we compared means for all the major variables and demographics for early respondents and late respondents [Oppenheim, 1996]. The results of *t*-tests for the all research variables, including demographic profiles, were not significant.

V. Results

5.1 Measurement Model

The face and content validity of the constructs was established in the design process and in the experts' preview of the questionnaire. We assessed the reliability of the individual item by examining the loading of the measures on their corresponding constructs. Internal consistency was examined using the composite scale reliability index developed by

<Table 1> Constructs and Questionnaire Items

Constructs Reference(s)	Items
Actual Self Identity ¹ adapted and modified items from Tennessee Self-Concept Scale (TSCS) and Self-Description Questionnaire (SDQ). (Marsh <i>et al.</i> , 1983; 1985)	In the real world, I define myself 1. I am satisfied with my moral behavior (Morality) 2. I make friends easily (Sociability) 3. I am smart and intelligent (Intelligence) 4. I have received a high level of education (Education) 5. I am an expert with special skill and knowledge (Expertise) 6. I tend to act in accordance with the social norms (Social norms) 7. I have a high social position (Social Status) 1: Completely false; 2: Mostly false; 3: Partly false and partly true; 4: mostly true 5: Completely true
Cyber Self Identity	In my virtual community, I try to represent myself 1. I am satisfied with my moral behavior (Morality) 2. I make friends easily (Sociability) 3. I am smart and intelligent (Intelligence) 4. I have received a high level of education (Education) 5. I am an expert with special skill and knowledge (Expertise) 6. I tend to act in accordance with the social norms (Social norms) 7. I have a high social position (Social Status) 1: Completely false; 2: Mostly false; 3: Partly false and partly true; 4: mostly true 5: Completely true
Membership (Koh and Kim, 2003)	1. I feel belonging to my virtual community 2. I feel membership in my virtual community (removed) 3. I feel as if my virtual community members are my close friends 4. I like my virtual community members
Influence (Koh and Kim, 2003)	1. I am well known as a member in my community 2. I feel that I control the virtual community 3. Replies to my postings appear on BBS frequently
Immersion (Koh and Kim, 2003)	1. I spend much time on-line in my community 2. I spend more time than I expected, navigating my community 3. I feel as if I am addicted to my virtual community 4. I have missed classes or work because of my virtual community
Recovery (Pedersen, 1997)	1. I feel that I can protect myself from what others say in my community 2. I feel that I recover from bad social experiences in my community 3. I feel that I can take refuge from the outside world in my community 4. I feel that I can build up high self-esteem in my community.
Catharsis (Pedersen, 1997)	1. I feel that I can confide in others I trust in my community 2. I feel that I can express my emotions freely in my community 3. I feel that I can determine what I want to be in my community (removed)
Autonomy (Pedersen, 1997)	1. I feel that I do things that don't fit my usual role in my community (removed) 2. I feel that I can try out some new behaviors in my community 3. I feel that I can engage in creative activities in my community (removed) 4. I feel that I can break some social norms 5. I feel that I can loosen my inhibitions
Quality of Contribution Chiu <i>et al.</i> , (2007) Waksko and Faraj (2005)	1. I directly answer the question posted to help other people in my community, 2. I actively help other members when they request 3. I contribute myself to the development of our community 4. The knowledge that I post in my community is reliable 5. The knowledge that I post in my community is relevant to the topics 1: Never; 2: Rarely; 3: Occasionally; 4: Often; 5: Usually

Note) ¹ To measure discrepancy between actual and cyber self, we adapted and modified items from Tennessee Self-Concept Scale (TSCS) and Self-Description Questionnaire (SDQ). In the final analysis, we derived the numerical index representing self discrepancy by calculating the difference between actual self and cyber self. All items are answered with 5-point Likert Scale. The scale used for each item measures "Strongly Disagree" to "Strongly Agree" unless otherwise stated in the above table.

<Table 2> Descriptive Statistics of Respondents

Measures	Items	Frequency	Percent
Gender	Female	120	54.9%
	Male	146	45.1%
	Total	266	100%
Age	10~19	12	5%
	20~29	67	24%
	30~39	72	27%
	40~49	67	26%
	>= 50	48	18%
	Total	266	266
Membership Tenure	< 1 month	11	4%
	1~5 months	34	13%
	6~11 months	48	18%
	>= 1 year	173	65%
	Total	266	100%
Education	High School	52	20%
	College (4 years)	171	64%
	Graduate School	32	12%
	Others	11	4%
	Total	266	100%
Type of VC	Hobby	92	35%
	Socializing	82	31%
	Information	72	27%
	Business	16	6%
	Others	4	2%
	Total	266	100%

Fornell and Larcker [1981], which is a measure similar to Cronbach's alpha. When performing confirmatory factor analysis, it is possible to

compute a composite reliability index for each latent factor included in the model. This index is analogous to coefficient alpha and reflects the internal consistency of the indicators measuring a given factor [Larry, 1994]. Fornell and Larcker recommend using a criterion cutoff of 0.7 or higher. All reliability measures were 0.8 or higher, well above the recommended level of 0.7, indicating adequate internal consistency. Average Variance Extracted (AVE), which should be > 0.5 [Fornell and Larcker, 1981], is used to measure convergent validity. As shown in the <Table 3>, all AVE (average variance extracted) values in our study meet this requirement. Discriminant validity is assessed by comparing the correlation between the two constructs and the respective AVE. For each construct, the square root of the average variance extracted should exceed the construct's correlation with every other construct. This condition of discriminant validity is upheld in our study, as shown in <Table 3>.

The discriminant and convergent validity of the measurement model are confirmed when individual items load more than 0.6 on their associated factors and when the loading within constructs is higher than those across them.

<Table 3> Correlation of Constructs and Internal Consistency

	Composit Reliability	AVE	Social self-discrepancy	Personal Self-discrepancy	Sense of Virtual	Perceived Privacy Rights	Quality of Contribution
Social Self-discrepancy	0.839	0.909	0.953				
Personal Self-discrepancy	0.822	0.898	0.537	0.948			
Sense of Virtual Community	0.897	0.947	-0.230	-0.116	0.973		
Perceived Privacy Rights	0.872	0.921	-0.329	-0.293	0.590	0.960	
Quality of Contribution	0.837	0.941	-0.095	0.006	0.699	0.562	0.970

Notes) CR-Composite Reliability; AVE-Average Variance Extracted.

Square root of AVE for each latent construct is given in diagonals.

<Table 4> contains the loadings, t-statistic, indicator reliability, error variance, and variance extracted estimate for items used in this study. To assess convergent validity, we reviewed the t-statistic for the factor loadings. If all factor loadings for the indicators measuring the same construct are statistically significant (greater than twice their standard errors), this is viewed as evidence supporting the convergent validity of those indicators [Larry, 1994, p. 332]. The fact that all t-tests are significant shows that all indicators are effectively measuring the same construct [Anderson and Gerbing, 1988].

As shown in <Table 4>, we have identified two different sub-dimensions of self-discrepancy. This categorization is consistent with the theory of self-concept rooted in social psychology. The measurement items DIS 3, 4, 5 are related to a person's personal learning ability (e.g., intelligence, education, expertise). Therefore, we labeled it personal self-discrepancy, which reflected the degree of discrepancy between actual and cyber identity regarding a person's intelligence, education, and expertise. On the other hand, DIS 1, 2, 6 refer to a person's social aspects (e.g., morality, sociability, and social norms). In this regard, we labeled it social self-discrepancy, which reflected the degree of discrepancy between actual and cyber identity regarding a person's morality, sociability, and social norms. DIS 7 (social status) was not included in our final analysis because of its low loading value.

We also eliminated two items from the Autonomy scale and one item from the Membership scale. As a result, AUT 2, AUT 5, and MEM 2 were not included in our final analysis because of their loading values. In addition,

one item from the Catharsis scale (CAT3) was eliminated. <Table 4> shows the final items and loadings analyzed by confirmatory factor analysis.

We subsequently tested the common method variance in order to reinforce remedial approaches and prevent damage from single-source bias [Doty and Glock, 1998; Podsakoff and Organ, 1986]. Single source bias occurs when observed relationships between variables are caused by artifactual covariance, such as a social desirability bias [Podsakoff and Organ, 1986]. By following Podsakoff and Organ [1986], we conducted Harman's one-factor analysis. If there is common method variance in the study, we can find a single factor or greater parts of the variance in our sample. Through unrotated principal component factor analysis, we extracted four factors from among five research constructs (Personal Self-discrepancy, Social Self-discrepancy, Sense of Virtual Community, Perceived Privacy Rights, and Quality of Contributions). The first factor accounted for 32.1% of the variance, which was followed by the second factor (14.5%), the third factor (9.6%), and the fourth factor (7.5%). Therefore, we can state that there was no single general factor in the unrotated factor option [Podsakoff and Organ, 1986].

5.2 Test of Structural Model

The test of the structural model includes an estimation of the path coefficients, which indicates the strength of the relationships between the dependent and independent variables and the R^2 value, which represents the amount of variance explained by the indepen-

<Table 4> Factor Loadings, Indicator Reliability, Composite Reliability and Variance Extracted Estimate (N = 266)

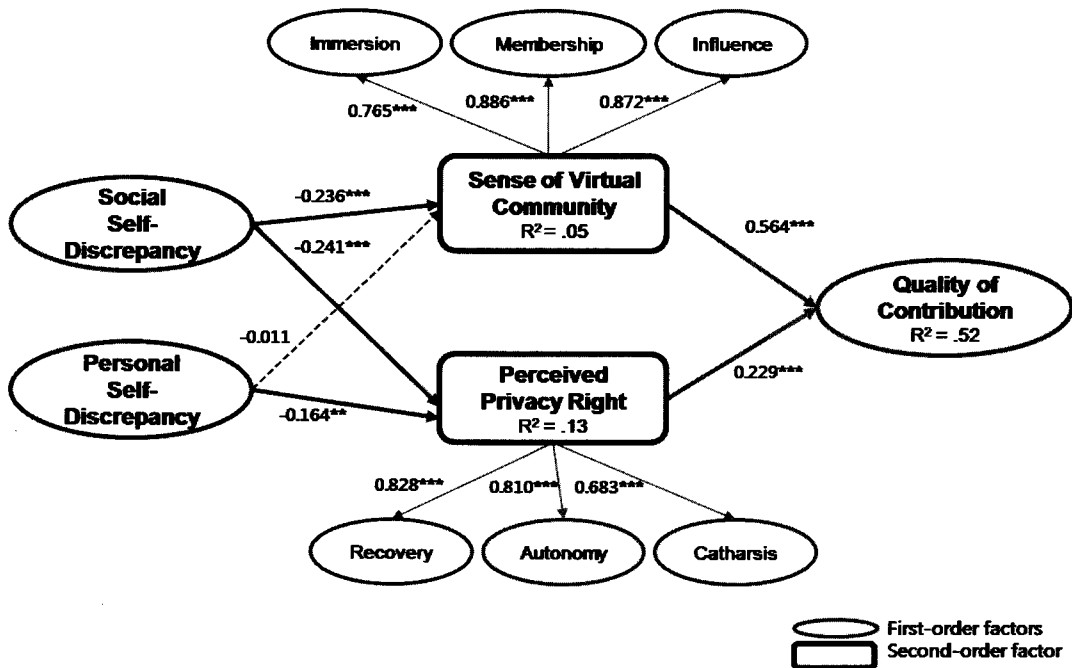
Construct and Indicators		Laadings	S.E.	T-Statistic	Indicator Reliability	Error Variance	Composit Reliability	Variance Extracted Estimate	
Self-discrepancy	Social Self-discrepancy								
	DIS1	0.699	0.068	10.351	0.488	0.512	0.839	0.909	
	DIS2	0.874	0.035	25.289	0.765	0.235			
	DIS6	0.810	0.058	14.077	0.656	0.344			
	Self-discrepancy	Personal Self-discrepancy							
		DIS3	0.752	0.094	7.994	0.566	0.434	0.822	0.898
DIS4		0.793	0.089	8.963	0.629	0.371			
DIS5		0.791	0.070	11.260	0.626	0.374			
Sense of Virtual Community	Immersion								
	IME_1	0.834	0.025	33.071	0.695	0.305	0.899	0.956	
	IME_2	0.865	0.018	47.895	0.748	0.252			
	IME_3	0.896	0.014	64.614	0.802	0.198			
	IME_4	0.818	0.027	30.626	0.667	0.332			
	Sense of Virtual Community	Membership							
		MEM_1	0.828	0.021	39.780	0.685	0.615	0.901	0.946
		MEM_2	0.888	0.012	71.959	0.788	0.212		
	MEM_4	0.886	0.014	65.291	0.785	0.215			
	Sense of Virtual Community	Influence							
INF_1		0.856	0.023	38.109	0.733	0.267	0.891	0.939	
INF_2		0.874	0.019	47.198	0.763	0.237			
INF_3		0.837	0.028	30.224	0.700	0.300			
Perceived Privacy Rights	Autonomy								
	AUT_2	0.837	0.021	40.664	0.700	0.300	0.878	0.931	
	AUT_4	0.858	0.018	48.590	0.736	0.264			
	AUT_5	0.827	0.023	35.809	0.684	0.316			
	Perceived Privacy Rights	Recovery							
		REC_1	0.813	0.024	33.699	0.661	0.339	0.875	0.946
		REC_2	0.825	0.028	29.648	0.681	0.319		
		REC_3	0.871	0.017	51.519	0.759	0.241		
	REC_4	0.851	0.020	42.110	0.724	0.276			
	Perceived Privacy Rights	Catharsis							
CAT_1		0.862	0.022	40.061	0.744	0.256	0.862	0.886	
CAT_2	0.877	0.019	47.132	0.770	0.230				
Quality of Contribution	Quality of Contribution								
	QOC_1	0.751	0.031	24.108	0.564	0.436	0.837	0.941	
	QOC_2	0.784	0.026	30.108	0.615	0.385			
	QOC_3	0.846	0.020	43.022	0.715	0.285			
	QOC_4	0.842	0.017	49.954	0.709	0.291			
	QOC_5	0.750	0.041	18.149	0.563	0.437			

Note) The variables social self-discrepancy and personal self-discrepancy were created by calculating the degree of perception about actual self minus the degree of perception about cyber self.

dent variables. Together, the R^2 and the path coefficients (loadings and significance) indicate how well the data support the hypothesized model. Following Chin [1998], bootstrapping was performed to test the statistical significance of path coefficients. As shown in <Figure 3>, Sense of Virtual Community and Perceived Privacy Rights explained considerable proportions of the variance (52%) for the quality of contribution.

Computing the path estimates in the structural model using the entire sample showed that all the hypotheses except H5 were supported. As shown in <Figure 3>, both Sense of Virtual Community and Perceived Privacy Rights positively influenced Quality of Contribution as we expected, supporting H1 and H2.

The data supported H3 by showing that there was a negative causal relationship between Social Self-discrepancy and Sense of Virtual Community. This is consistent with self-discrepancy theory, which states that individuals struggle to maintain psychological wellbeing when they experience discrepancies between their two different selves. Surprisingly, Social Self-discrepancy has a negative influence on Perceived Privacy Rights, which contradicts Hypothesis 4. With regard to Personal Self-discrepancy, the results of the analysis showed that there was no significant influence of Personal Self-discrepancy on Sense of Virtual Community. However, Personal Self-discrepancy has a significant negative influence on Perceived Privacy Rights, which contradicts H6. The-



Note) ** p < .05; *** p < .01.

→ Significant; - - - - -> insignificant.

<Figure 3> A Summary of PLS Analysis

refore, both H5 and H6 were not supported.

VI. Discussion, Implications, and Limitations

6.1 Discussion

The results of this study support the notion that taking on different identities in a virtual community negatively affects individuals' psychological states. The following lists the major findings of this research. First, Sense of Virtual Community and Perceived Privacy Rights are critical factors determining the Quality of Contribution in virtual communities. Specifically, we found that (1) the degree of Sense of Virtual Community reflecting three sub-dimensions (e.g., membership, influence and immersion) enhanced the degree of Quality of Contribution, (2) the degree of Perceived Privacy Rights reflecting three sub-dimensions (e.g., recovery, catharsis and autonomy) enhanced the Quality of Contribution.

Second, Social Self-discrepancy-which represents the difference between actual and cyber self in terms of morality, sociability, and social norms-exercises a significant negative influence on Sense of Virtual Community and Perceived Privacy Rights. The results imply that people who pretend to be different by engaging in socially undesirable behaviors under their alternative identities are more likely to suffer lower levels of psychological wellbeing and thus experience lower levels of Sense of Virtual Community and Perceived Privacy Rights than others. Based on the results of this analysis, we can explain the dysfunctions of multi-identity in virtual communities. In particular, it is most

interesting to note that social self-discrepancy negatively influences perceived privacy rights, which is contradictory to the conventional wisdom. Perhaps, people perceive a higher level of privacy rights when engaging in social behaviors without any constraints (e.g., social norms, moral pressure, and regulations) in virtual communities. Surprisingly, the results of this study showed that participants did not perceive a high level of privacy rights reflecting catharsis, recovery, or autonomy, even though they created different selves and engaged in socially undesirable behaviors in a virtual community.

Third, Personal Self-discrepancy does not influence Sense of Virtual Community, but it significantly decreases the level of Perceived Privacy Rights. This result implies that those who pretend to be a different person in terms of intelligence, education, or expertise also indirectly debase the quality of contribution by decreasing Perceived Privacy Rights.

6.2 Limitations and Future Research

However, these findings should be interpreted in the light of the study's limitations. The first limitation is related to the self-reported, perception-based measure that was employed for capturing actual and cyber identities. Future research may pursue an alternative route to the conceptualization and operationalization of multi-identity. Second, it should be mentioned that the quality of contribution is conceptualized as a latent construct with reflective indicators in this study. Although our view of quality of contribution appears reasonable and consistent with past IS research, the results of

our study should be compared carefully with those based on objective data [e.g., Peddibhotla and Subramani, 2009]. Finally, we did not include the aspect of self-attributes such as confidence, belief, and trust. We suggest that future research consider those aspects to examine the effects of multi-identity on the virtual community. Such aspects may be related to "self-esteem," which has been suggested as a critical aspect of "self." An examination of the relationship between multi-identity and self-esteem would be a worthwhile research endeavor.

6.3 Implications for Theory

This study holds several implications for the academic world. First, the concept of self-discrepancy studied in an offline environment was applied to an online setting. Furthermore, its impact on one's psychological state (e.g., sense of virtual community and perceived privacy rights) was empirically examined. Although many researchers have raised issues related to identity in cyberspace [Ma *et al.*, 2007], little research has quantified the concept and investigated it with a large sample.

Second, we theoretically synthesized the self-discrepancy and the anonymity theories into virtual community research. Empirical results show that self-discrepancy between actual and cyber identities significantly reduces both sense of virtual community and perceived privacy rights, which are critical stimulators of the quality of contribution. This understanding of the dysfunctions of multi-identity in a virtual community can potentially shed light on collaboration among virtual teams or communities of practice.

Third, this research contributes to the development of virtual community research by corroborating the fact that both the sense of virtual community and perceived privacy rights work in tandem to increase quality of contribution. Even though several scholars have argued the importance of individual member's psychological states, there is a lack of empirical evidence.

In sum, our findings of the important effects of self-discrepancy on psychological states and contribution quality in virtual communities open up rich and exciting opportunities for theoretical extensions to the present model and practical development of new virtual community features. Individuals' fundamental motivation to create different identities merits further investigation in online settings.

6.4 Implications for Practice

From a pragmatic perspective, business organizations are trying to generate value by extensively investing their resources in developing the infrastructure for virtual communities. For example, organizations rely on customer-based communities to increase loyalty and to allow them to participate in product development. In some case, organizations are eager to facilitate knowledge sharing among employees and to foster new ideas and innovations [Constant *et al.*, 1996; Teigland Wasko, 2003]. In contrast to previous research that has focused on factors such as trust, group identification, and reciprocation as drivers of contribution [Ma and Agarwal, 2007], this study focuses on the impact of having a multi-identity online. Taking on a different identity is one of the

most common features of virtual communities and the important pragmatic guidelines regarding this matter remain unclear. This research posits that the quality of contribution of community members is negatively influenced when members have too much freedom or are allowed to change their identities at a low cost. Thus, we suggest that community design supporting effective identity verification and control of identity change will lead to the success of virtual communities in terms of quality of contribution. Based on this study, we suggest that future research address how community design or technologies could support identity verification and prevent users from having too much freedom in creating false identities in virtual communities.

VII. Conclusion

Our knowledge of multi-identity in virtual

communities is severely limited compared with what we know about the dynamics of virtual communities. This study presents a conceptual framework that highlights the concept of self-discrepancy between actual and cyber identities, assuming that they may influence individuals' psychological states and contribution quality in virtual communities. Our findings help resolve the conflicting views on the effects of multi-identity in a virtual community. The results suggest that virtual community managers should pay more attention to the negative influences exercised by multi-identity on the quality of contribution, thereby controlling the need to create alternative identities in virtual communities. We hope that more research will be conducted on this underexplored area of multi-identity and that our theoretical framework will serve as a useful conceptual tool for all endeavors.

⟨References⟩

- [1] Anderson, J.C. and Gerbing, D.W., "Structural Equation Modeling in Practice: A Review and Recommended Two-step Approach," *Psychological Bulletin*, Vol. 103, 1988, pp. 411-423.
- [2] Bandura, A., *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, NJ: Prentice Hall, 1986.
- [3] Bandura, A., "Human Agency in Social-cognitive Theory," *American Psychologist*, Vol. 44, 1989, pp. 1175-1184.
- [4] Barclay, D., Higgins, C., and Thompson, R., "The Partial Least Squares (PLS) Approach to Causal Modeling, Personal Computer Adoption and Use as an Illustration," *Technology Studies*, Vol. 2, No. 2, 1995, pp. 285-309.
- [5] Boldero, J. and Francis, J., "The Relation between Self-discrepancies and Emotion: The moderating Roles of Self-guide Importance, Location, Relevance, and Social Self-domain Centrality," *Journal of Personality and Social Psychology*, Vol. 78, 2000, pp. 38-52.

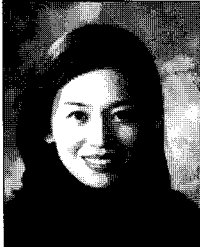
- [6] Blanchard, A. and Markus, M.L., "The Experienced "Sense" of Virtual Community: Characteristics and Processes," *Database for Advances in Information Systems*, Vol. 35, No. 1, 2004, pp. 65-78.
- [7] Carver, C.S. and Scheier, M.F., *On the Self-regulation of Behavior*: New York, Cambridge University Press, 1998.
- [8] Chin, W.W., "Issues and Opinion on Structural Equation Modeling," *MIS Quarterly*, Vol. 22, No. 1, 1998, pp. VII-XVI.
- [9] Chiu, C.M., Hsu, M.H., and Wang, T.G., "Understanding Knowledge Sharing in Virtual Communities: An Integration of Social Capital and Social Cognitive Theories," *Decision Support Systems*, Vol. 42, 2006, pp. 1872-1888.
- [10] Constant, D.L., Sproull, L., and Kiesler, S., "The Kindness of Strangers: The Usefulness of Electronic Weak Ties for Technical Advice," *Organization Science*, Vol. 7, No. 2, 1996, pp. 119-135.
- [11] Csikszentmihalyi, M., *Beyond Boredom and Anxiety: Experiencing Flow in Work and Play*, San Francisco: Jossey-Bass, 1975.
- [12] Dellarocas, C., "The Digitization of Word of Mouth: Premise and Challenges of Online Feedback Mechanisms," *Management Science*, Vol. 49, No. 10, 2003, pp. 1407-1424.
- [13] Dennis, A.R., "Information Exchange and Use in Group Decision Making: You Can Lead a Group to Information, but You Can't Make It Think," *MIS Quarterly*, Vol. 20, 1996, pp. 433-457.
- [14] DeSanctis, G. and Gallupe, R.B., "A foundation for the study of group decision support systems," *Management Science*, Vol. 33, 1987, pp. 589-609.
- [15] Donath, J.S., *Identity and Deception in the Virtual Community*, Smith, M.A., and Kollock, S.P. (eds.), *Communities in Cyberspace*, Routledge, New York, 1999, pp. 25-59.
- [16] Doty, D.H. and Glick, W.H., "Common Methods Bias: Does Common Methods Variables Really Bias Results?," *Organization Research Methods*, Vol. 1, 1998, pp. 374-406.
- [17] Flanagin, A.J., Tiyaamononwong, V., O'connor, J., and Seibold, D.R., "Computer-mediated Group Work: The Interaction of Member Sex and Anonymity," *Communication Research*, Vol. 29, 2002, pp. 66-93.
- [18] Fornell, C. and Larcker, D.F., "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, Vol. 18, No. 1, 1981, pp. 39-50.
- [19] Franzio, S.L., *Social Psychology*, Madison: Brown and Bench Mark, 1996.
- [20] Higgins, E.T., "Self-discrepancy: A theory relating self and affect," *Psychological Review*, Vol. 94, 1987, pp. 319-340.
- [21] Higgins, E.T., *Self-discrepancy Theory: What patterns of Self-Beliefs Cause People to Suffer?* In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, New York: Academic Press, Vol. 22, 1987, pp. 93-136.
- [22] Higgins, E.T., *Self-Discrepancy: A Theory Relating Self and Affect*, In R.F. Baumeister (Ed.), *The Self in Social Psychology*, Philadelphia, PA: Psychology Press, 1999, pp. 150-181.
- [23] Hong, S.Y., *Social Psychology*, SigmaPress, Seoul, 2008.
- [24] Howell, J.M. and Higgins, C.A., "Champions of Technological Innovation," *Administrative Science Quarterly*, Vol. 35, No. 2,

- 1990, pp. 317-341.
- [25] Kihlstorm, J.F. and Cantor, N., *Mental Representations of the Self*, In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, New York: Academic Press, Vol. 17, 1984, pp. 1-47.
- [26] Koh, J. and Kim, Y., "Sense of Virtual Community: A Conceptual Framework and Empirical Validation," *International Journal of Electronic Commerce*, Vol. 8, No. 2, 2003, pp. 75-93.
- [27] Larry, H., *A Step-by-Step Approach to Using SAS for Factor Analysis and Structural Equation Modeling*, Cary, NC: SAS Institute Inc, 1994.
- [28] Ma, M. and Agarwal, R., "Through a Glass Darkly: Information Technology Design, Identity Verification, and Knowledge Contribution in Online Communities," *Information Systems Research*, Vol. 18, No. 1, 2007, pp. 42-67.
- [29] Markus, H., "Self-schemata and Processing Information about the Self," *Journal of Personality and Psychology*, Vol. 17, 1977, pp. 50-71.
- [30] Marsh, H.W., Smith, I.D., and Barnes, J., "Multitrait-multimethod Analyses of the Self-Description Questionnaire: Student-teacher Agreement on Multidimensional Ratings of Student Self-concept," *American Education Research Journal*, Vol. 20, 1983, pp. 333-357.
- [31] Marsh, H.W., Parker, J., and Barnes, J., "Multidimensional Adolescent Self-concept: Their Relationship to Age, Sex, and Academic Measures," *American Education Research Journal*, Vol. 22, 1985, pp. 422-444.
- [32] McMillan, D.W. and Chavis, D.M., "Sense of Community: A definition and Theory," *Journal of Community Psychology*, Vol. 14, No. 1, 1986, pp. 6-23.
- [33] Oppenheim, A.N., *Questionnaire Design and Attitude Measurement*, Heinemann, London, UK.
- [34] Pedersen, D.M., "Psychological Functions of Privacy," *Journal of Environmental Psychology*, Vol. 17, 1997, pp. 147-156.
- [35] Peddibhotla, N.B. and Subramani, M.R., "Contributing to Public Document Repositories: A Critical Mass Theory Perspective," *Organization Studies*, Vol. 28, No. 3, 2009, pp. 327-346.
- [36] Podsakoff, P.M. and Organ, D.W., "Self Reports in Organizational Research: Problems and Prospects," *Journal of Management*, Vol. 12, No. 4, pp. 531-544.
- [37] Postmes, T. and Lea, M., "Social Pressures and Group Decision Making: Anonymity in Group Decision Support Systems," *Ergonomics*, Vol. 43, 2000, pp. 1252-1274.
- [38] Rachels, J., "Why Privacy is Important," *Philosophy and Public Affairs*, Vol. 4, 1975, pp. 323-333.
- [39] Rains, S.A., "The Impact of Anonymity on Perceptions of Source Credibility and Influence in Computer-Mediated Group Communication," *Communication Research*, Vol. 34, No. 1, 2007, pp. 100-125.
- [40] Schafer, R., Wickrama, K., and Keith, P., "Self-Concept Disconfirmation, Psychological Distress, and Marital Happiness," *Journal of Marriage and Family*, Vol. 59, 1996, pp. 167-177.
- [41] Scott, L. and O'Hara, M.W., "Self-discrepancies in Clinically Anxious and Depressed University Students," *Journal of Abnormal*

Psychology, Vol. 102, 1993, pp. 282-287.

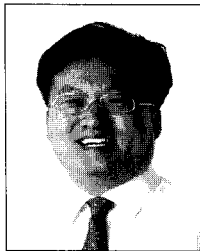
- [42] Swann, W.B., *Self-verification: Bring Social Reality into Harmony with the Self*, Suhls, J., and Greenwald, A.G. (eds.), *Social Psychological Perspectives on the Self*, Erlbaum, Hillsdale, NJ, 1983, pp. 33-66.
- [43] Teigland, R. and Wasko, M., "Integrating Knowledge through Information Trading: Examining the Relationship between Boundary Spanning Communication and Individual Performance," *Decision Science*, Vol. 34, No. 2, pp. 261-286.
- [44] Valacich, J.S., Dennis, A.R., and Nunamaker, J.F., "Group Size and Anonymity Effects on Computer-mediated Idea Generation," *Small Group Research*, Vol. 23, 1992, pp. 49-73.
- [45] Valacichi, J.S., Jessup, L.M., Dennis, A.R., and Nunamaker, J.F., "A Conceptual Framework of Anonymity in Group Support Systems," *Group Decision and Negotiations*, Vol. 1, 1992, pp. 219-241.
- [46] Wasko, M.M. and Faraj, S., "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly*, Vol. 29, No. 1, 2005, pp. 35-57.
- [47] Whitbourne, S.K. and Connolly, A., *The Developing Self in Middle: Psychological and Social Development in Middle Age*. Academic Press, New York, 1999.
- [48] Yoo, Y. and Alavi, M., "Media and Group Cohesion: Relative Influences on Social Presence, Task Participation, and Group Consensus," *MIS Quarterly*, Vol. 25, No. 3, 2001, pp. 371-390.

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