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CONFORMITY AND DISSENT IN COMPUTER-MEDIATED GROUP DECISION-MAKING: INTEGRATING INDIVIDUAL DIFFERENCES IN SOCIAL IDENTITY RESEARCH

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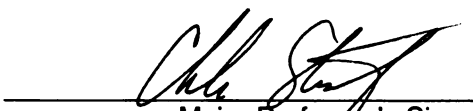

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CONFORMITY AND DISSENT IN COMPUTER-MEDIATED GROUP DECISION-MAKING: INTEGRATING INDIVIDUAL DIFFERENCES IN SOCIAL IDENTITY RESEARCH

BY

JUNGHYUN KIM

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ABSTRACT

CONFORMITY AND DISSENT IN COMPUTER-MEDIATED GROUP DECISION-MAKING:
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BY

JUNGHYUN KIM

The present study addressed critiques on manipulations and conceptual confusion surrounding anonymity and group identity in most of social identity research. It also relaxed the tacit assumption of the undifferentiated individuals and broke new ground regarding the role of individual differences in social identity processes. Moreover, this study compared Social Identity model of Deindividuation Effects (SIDE) and the compromise view (i.e. uniqueness theory and optimal distinctiveness theory) to see if the latter provided a better explain for some of the social identity research findings that were inconsistent with SIDE.

Findings suggested that the similarity in self-representation with others, one of the confounding concepts of anonymity, contributed to amplified group identity even without a salient social identity shared by group members. This study also found that perceived deindividuation and conformity intention showed a negative curvilinear relationship, which supported the compromise view (i.e. uniqueness theory and optimal distinctiveness theory). Finally, this study indicated that personality traits had a stronger impact on conformity intention when there was an intense situational pressure. This research takes the interactionist framework, which looks at the interplay between situational factors – avatar conditions - and personality traits - Need for Uniqueness (NFU) and Interdependent Self-Construal (ISC) - in explaining human behavior. Findings suggested

that the relationships between these two personality traits and conformity intention were moderated by the degree of similarity in the way people were represented in computer-mediated groups.

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INTRODUCTION

Developments in communication technology have extended human communication in many ways. Communication mediated by electronic computing technology not only extends human communication by helping overcome limitations of time and space, but also alters the ways in which people interact with each other. Indeed, the rapid dissemination of computer-mediated communication (CMC) technologies has generated many research questions, especially, related to how CMC might produce different interaction patterns in group processes (Walther & Burgoon, 1992).

One of the most important factors that affect human interactions in CMC is the lack of social cues (Sproull & Kiesler, 1991). Text-based CMC lacks physical cues, such as gesture, voice tone and facial expressions, which can supplements interactions between people in face-to-face (FtF) communication. In the past, this lack of social cues in CMC was expected to reduce social influences coming from social norms and standards, and in turn, encourage uninhibited behavior (Sproull & Kiesler, 1991). Additionally, the lack of such cues was associated with a democratization of hierarchical relationships, enabling people to express themselves more openly due to their anonymity and depersonalization (Kim, 2000). However, a prominent theory, the social identity model of deindividuation effects (SIDE) argues that the reduced social cues afforded by CMC can actually make people be more responsive to a computer-mediated group's norm rather than behaving in anti-normative ways. A precondition of this conformity to group norms is that people should identify with other members of the computer-mediated group. According to SIDE, reduced individual differences caused by the limited social

cues in CMC heighten the feeling of group membership (i.e. group identity) and lead to increased conformity to group norms.

Much CMC research on group identity and conformity focuses on effects linked to the lack of social cues and anonymity, but has not paid attention to the influence of individual differences on group identity and conformity (Postmes, & Jetten, 2006). However, several social identity researchers has argued for relaxing the assumption that computer-mediated features have affect all people in the same way in computer-mediated groups, without regard for individual differences (Brewer, 1993; Lee, 2004; Postmes & Jetten, 2006). They suggested that peoples' perceptions of the situation and their inherent personality traits would affect group identity and conformity in computer-mediated groups.

Therefore, the purpose of this dissertation is to investigate how computer media features, people's perception of the situations in which they are located and their inherent personality traits might affect group identity and conformity in group discussions. This study expands previous social identity research in CMC contexts, which mainly focused on the impact of computer-mediated features and environments on human behaviors, into the realm of looking at the interaction between human factors and situational factors. It also points out challenges to the existing social identity research - to clarify confusions in operationalizing core concepts, anonymity and group identity, and to integrate individual differences in social identity research – and suggests solutions.

In attempts to resolve these issues, first of all, this study distinguishes between confounding constructs of anonymity, unidentifiability (i.e. no release of personal information) and similarity (i.e. uniform self-representation among group members)

(Baron, 1971; Lee, 2004; Snyder & Fromkin, 1980), and focuses on the latter rather than the former. "Avatars," icons or representations of a person in a shared virtual space (Wikipedia.com, 2006), are used as a way to vary the level of similarity in virtual self-representation while holding absolute unidentifiability across different similarity conditions. This study also distinguishes a stable group identity from a transient group identity (Lea, Spears, Watt, & Rogers, 2000) in order to focus on the impact of similarity in self-representation on the transient group identity.

In order to find a better theoretical framework integrating individual differences in computer-mediated group discussions, this study compares two different theoretical frameworks, SIDE and the "compromise view" offered by Blanton and Christie (2003). As with other social identity theories, like self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), SIDE exaggerates inter-group contrasts while minimizing intra-group differences (Brewer, 1993; Postmes & Jetten, 2006). However, assimilation within an in-group has received less empirical support (Brewer, 1993). On the contrary, some research has indicated that people who were made highly similar to others within the in-group pursued higher differentiation from others (Codol, 1984; Cooper & Jones, 1969; Kim, 2006; Lee, 2004; Maslach, 1974). These research results highlight the existence of different individual needs that could exhibit diverse reactions to a highly deindividuated condition (Lee, 2004). They diverge from SIDE, but conform more to the compromise view (Blanton & Christie, 2003), which consists of uniqueness theory (Snyder & Fromkin, 1980) and Optimal Distinctiveness Theory (ODT) (Brewer, 1991). The compromise view promotes individual uniqueness within intensely standardized conditions. Thus, the present study seeks to compare SIDE with this

compromise view in order to see if the latter is able to provide a better argument for such inconsistent findings and integrating individual differences into social identity research.

Based on these theoretical frameworks, hypotheses are introduced and tested to assess the effect of situational factors, people's perception of the situation in which they are located, and individual personality traits (i.e. need for uniqueness and need for similarity) on conformity intention in a group discussion. Moreover, this study examines interactions between situational factors and human factors in affecting conformity intention.

Research methods and results are discussed in detail, which is followed by the theoretical implications and contributions of this study. This dissertation found that not only computer media features, reduced individual cues and uniform representation of people, but also people's perception of how indistinguishable they were from others and their desire to be different from or similar to others could affect conformity intention in computer-mediated group discussions. In addition, it was found that people could dissent more rather than conform when their uniqueness was oppressed within standardized self-representation formats in computer-mediated environments. Such findings suggest the existence of the effect of individual differences in social identity process and contradict to SIDE, which puts limits on individual differences allowed in social identity research and focuses more on environmental factors' effects on human interaction in group settings. This study compared the dominant theoretical framework in social identity research, SIDE, with competing theoretical frameworks, uniqueness theory and optimal distinctiveness theory, hoping to improve our understanding in conformity or dissent behavior in computer-mediated group processes.

LITERATURE REVIEW

Concepts

Computer-Mediated Communication (CMC)

"Computer-mediated communication", CMC means communication mediated by machine, computer, which is relatively indirect means of interaction. Usually the medium in existing CMC studies is text based rather than visual or verbal communication channels. According to Rafaeli, CMC could be either interpersonal or group, but not mass (Rafaeli & Sudweeks, 1997).

Conformity as a group norm in computer-mediated discussions

Among many human interactions, conformity has been one of the most studied behaviors in computer-mediated group contexts. Conformity or consensus reaching could be a type of group norm in the context of group decision-making. A group norm is defined as "a shared expectation about how the members of a group ought to behave" (Levine & Moreland, 1990, p.600). Members' behavior in accordance with a group norm is interpreted as conformity to the norm, while irregular behavior is considered as deviance from the norm. Group norms are situationally and locally defined, so they tend to be independent from existing social norms (Postmes & Spears, 1998). Computer-mediated groups tend to build up new rules and norms, since the formation of those groups are not always based on the predefined social norms. The most common way to compensate for the absence of preexisting norms is to infer latent group norms from the common or predominant behavior of other members (Postmes & Spears, 2000; Turner,

1982). Therefore, computer mediated group norms are formed through the interaction among group members and the observation of other members' behavior.

The influence of norms on group decision-making has not been investigated in many studies (Postmes, Spears, & Cihangir, 2001). However, it is possible to infer the functions of norms on a group decision-making based on some of the previous small group decision-making literature in both social psychology and some of group decision-making support system (GDSS) studies. Most of the GDSS literature is based on the assumption that group decision-making performance would be improved when any kind of social influences is diminished through anonymity. All the factors that are thought to prevent individual members from freely expressing their opinions are named as "dysfunctions" in the group decision-making process. For this reason, pressure to achieve consensus or conformity in the group decision-making process has been considered as one of the negative dysfunctions (Steiner, 1972).

On the other hand, a group of social psychology research (Baron, Kerr & Miller, 1992; Levine & Moreland, 1990; Postmes, Spears, Sakhel, & de Groot, 2001) perceives the regulatory function of group norms as a positive element. For example, some groups promote consensus and emphasize members' conformity to achieve members' agreement on issues central to the group (Turner, 1991). In addition, norms promoting consensus and conformity can facilitate group performance, such as willingness to invest effort on achieving group's goal and augmented group identity (Postmes & Lea, 2000). The present research used consensus as a group norm in order to create an environment that can highlight individuals' conformity and dissent decision. Even though these two groups of research focus on contradictory effects of CMC, they both focus on the "reduced social

cues", which has been known as the most important factor in accentuating or decreasing individual voices in CMC research.

Deindividuation Theory and Social Identity model of Deindividuation Effects (SIDE)

Deindividuation is defined as a psychological state of decreased self-awareness that reduces the influence of social norms and induces an antinormative behavior (Diener, 1977; 1980; Lee, 2004; Zimbardo, 1969). Following such definition, deindividuation theory (Zimbardo, 1969) argues that individuals behave in anti-normative ways when they are located in an anonymous environment. Based on this theoretical framework, some of early studies on computer-mediated groups showed that a lack of social context cues in CMC led to an anonymous environment in which people's apprehension for evaluation decreased and finally led to uninhibited behaviors (Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1986).

However, Reicher et al. (1995) proposed that the lack of individuating cues or anonymity should reduce the focus on individual differences while increasing identification with a situational group, which became a foundational idea of the social identity model of deindividuation effects (SIDE). Postmes and Spears's meta-analysis (1998) supported Reicher et al.'s research by showing that people who were deprived of their individuating cues conformed to situational norms (i.e. norms of the group to which people were assigned), which did not necessarily conform to general social norms.

SIDE is based on social identity theory (Tajfel, 1978; Tajfel & Turner, 1986) and self-categorization theory (Turner, 1981). According to the social identity theory, a

person's self-conception consists of two parts: social and personal identities (Tajfel, 1978). The social identity refers to self-descriptions related to group memberships, while the personal identity refers to personality traits and attributes of individuals. Personal identity and social identity are different levels of self-categorization and these two levels relate to each other in an antagonistic way. If people focus more on one level of the two, the less they focus on the other (Turner et al., 1987). This is why the social identity theory defines the group identification as a "shift toward the perception of self as an exemplar of some social category and away from the perception of self as a unique person" (Turner et al., 1987, p.50). Once people categorize themselves as group members, similarities among ingroup members are accentuated and they seek to favor their ingroup identities (Terry & Hogg, 2001).

SIDE explains social identity and social influences in groups. It has been applied to computer-mediated communication (CMC) in group settings (Lea & Spears, 1991; Postmes & Lea, 2000; Postmes & Spears, 1998; Postmes, Spears, & Cihangir, 2001; Postmes, Spears, & Lea, 1998; Postmes, Spears, & Lea, 1999; Postmes, Spears, Sakhel, & de Groot, 2001) where reduced contextual cues accentuate conformity to group norms when a social identity is salient (Postmes et al., 1999; Reicher, 1987; Reicher, Spears, & Postmes, 1995; Spears, Lea, & Postmes, 2000). However, SIDE has been criticized for confusion in operationalizing core variables, anonymity and group identity (Lea, Spears, Watt, & Rogers, 2000; Lee, 2004; Snyder & Fromkin, 1980), and for its failure to integrate individual differences in in-group settings (Brewer, 1993; Postmes & Jetten, 2006).

Challenges to SIDE and Social Identity Research

Anonymity Manipulations

Visual anonymity, which is caused by a lack of social context cues (Kiesler et al., 1984), has been the most important predictor of social influence in SIDE research. There are two different constructs in anonymity: unidentifiability and similarity (Baron, 1971; Snyder & Fromkin, 1980; Lee, 2004). Most social identity studies have focused on the unidentifiability aspect of anonymity, but their manipulations of anonymity tended to confound unidentifiability and similarity aspects. For example, one of the most popular anonymity manipulations of social identity research involved dressing participants in the same mask or overall while leaving participants in their normal clothing for an individuated condition (Zimbardo, 1969). In CMC studies, anonymity was manipulated by allowing participants to communicate with each other only through standardized text-only CMC environments. However, these anonymity operationalizations not only deprived people of their individual information (i.e. unidentifiability) but also presented them in visually similar forms (i.e. similarity).

Therefore, in order to distinguish the effects of unidentifiability from those of similarity, the present study used avatars, as a way to vary the level of similarity in virtual self-representation, while holding absolute unidentifiability across different similarity conditions. Given that avatars can play the role of clothing in cyberspace, being represented by the same avatar as other members should decrease group members' individualities while increasing the level of deindividuation. However, if people are distinguished by their unique virtual self-representations, they can preserve more individuality in CMC. Participants in most of the previous CMC experiments were

destined to lose their individualities, since they were placed in text-only CMC conditions and did not use any unique virtual symbols differentiating them from others. Studies by Lee (2004) and Lee & Nass (2002) found that the similarity in visual representation contributed to accentuated deindividuation in computer-mediated groups. In keeping with this distinction, this study manipulated three different avatar conditions in order to vary the degree of situational deindividuation: 1) the same-avatar condition: a group in which all members share the same avatar, 2) the no-avatar condition: a group in which members do not use any avatar, and 3) the different-avatar condition: a group in which each member has unique avatar.

Certain visual cues that reflect social categories, such as gender or ethnicity, are known to facilitate social identification processes (Postmes et al., 1998). However, the present study excluded such socio-categorical information from avatars, as was done in Lee's study (2004). Uniform self-representation in cyberspace might not be as explicit or as powerful as labeling people according to their common social category (i.e. a salient social identity), but the similarity in the way people are represented can be a basis for psychological group formation and might still trigger identification with ad-hoc groups (Lee, 2004; Turner, 1984).

H1: People in the same-avatar condition will show the highest group identify, followed by those in the no-avatar condition and then by those in the different-avatar condition.

The Ambiguity of Group Identity

SIDE predicts that a lack of individual cues will heighten conformity to group norms only when there is a common social identity shared among group members

(Postmes et al., 1999). However, the mediation effect of the salient social identity connecting anonymity and conformity needs further clarification and investigation (Lea et al., 2000; Postmes, 1997; Postmes et al., 1999). Group identity refers to cognitive identification with a social category without being dependent upon interactions between individual group members (Reicher et al., 1995; Turner, 1982). This definition implies that the formation of group identity does not necessarily require actual interaction of group members. For example, one of the manipulation methods was to tell one group of participants that researchers were interested in them as members of certain groups (i.e. departments or schools) vs. to tell another group of participants that researchers were interested in them as individuals (Spears, Postmes, Lea, & Watt, 2001).

Social identity studies in CMC have included a wider level of social categorization as a factor mediating the impact of anonymity on conformity to group norms. In such cases, whether anonymity in CMC had a primary effect on people's identification with their common social category (i.e. a stable group identity such as nationality, gender, political association, etc.) or with an immediate interacting experimental group (i.e. a transient group identity) was not clear[1].

In attempts to resolve these issues, Lea et al. (2000) discerned the effect of a stable group identity from that of a transient group identity. They had one group in which the stable group identity (i.e. German nationality) was aligned with the experimental group identity (i.e. all Germans in the same group) and the other group in which the stable group identity cut across the experimental group identity (i.e. participants of diverse nationalities in the same group). The stable group identity did not have a

[1] While a stable group identity, or a pre-existing longstanding category, refers to an identity that is likely to endure and less likely to be affected by contextual conditions, a transient group identity can be easily formed and changed depending on changes in communication environments (Lea et al., 2000).

significant effect on participants' identification with the experimental group (Lea et al., 2000). Meanwhile, Lee and Nass (2002) also found that people could associate with others who shared the same visual self-representation (i.e. avatar) as theirs without a common prior group identity. That is, a group composed of participants from different schools nevertheless showed a greater group identity and conformity to group norms than another group composed of participants from the same school (Lee, 2004; Lee & Nass, 2002). According to these studies, the transient group identity could even overcome the social categorical differences (Lee, 2004), which challenges the notion that a salient common group identity shared by participants is a necessary condition for increased conformity.

H2: Group identity that is formed by visual self-representations without a salient social identity will promote conformity intention.

Deindividuation and Perceived Deindividuation

Deindividuation has been treated as a categorical variable in most social identity research (Kim, 2006; Lee, 2004). This is because participants in an identifiable group are assumed to feel the same level of lower deindividuation and those in an unidentifiable group are assumed to feel the same level of higher deindividuation. However, such an indiscriminate effect of deindividuation on individuals, one of the tacit assumptions made by SIDE, was challenged by a group of studies indicating that even identical deindividuation manipulations could induce various psychological states for different individuals (Cooper & Jones, 1969; Kim, 2006; Lee, 2004; Maslach, 1974). In attempts to explain these findings, which were inconsistent with SIDE, this study used a

"perceived deindividuation." It was derived from Maslach's (1974) definition of deindividuation as "a state in which people feel indistinguishable from other people." Perceived deindividuation is clearly distinct from avatar conditions, since the former reflects individual differences in perception while the latter refers to the level of objective similarity in the way participants are represented.

The Compromise View

SIDE focuses on communication contexts and their effects on a social identification process but limits individual differences that might affect the process (Postmes & Jetten, 2006). On the other hand, uniqueness theory (Snyder & Fromkin, 1980) and Optimal Distinctiveness Theory (ODT) (Brewer, 1991) accept the existence of individual differences and take them into consideration in explaining the social identity process. These two theoretical frameworks are called the "compromise view" (Blanton & Christie, 2003) and suggest that a person feels uncomfortable if the situation in which he/she is located either boosts or oppresses his/her individuality too much. According to this perspective, a person would resist against the situation in which he/she loses too much of his/her individualities and tries to be distinguishable from others. As Maslach (1974) said, "being similar or different is all right up to a point, but beyond that it is considered deviant and bad" (Maslach, 1974, p.413). In line with Maslach's argument, Snyder and Fromkin (1980) proposed that there is an appropriate level of uniqueness, which differentiates people not too much or not too little from others. Based on such principle, Snyder and Fromkin came up with uniqueness theory that defined "unique" as

a moderate degree of similarity instead of extreme differentiation from others (Blanton & Christie, 2003).

Uniqueness Theory

While SIDE suggests that increased deindividuation, through unidentifiablity or similarity, promotes identification with a group and eventually conformity to the group norms, uniqueness theory argues that people show the most positive emotional reactions or conformity to others when they feel a moderate amount of similarity relative to others (Snyder & Fromkin, 1980). This is because uniqueness theory considers deindividuation, or undistinctiveness of self, as an attack on ego identity (Duval & Wicklund, 1972; Snyder & Fromkin, 1980; Zimbardo, 1969). Loss of identity can occur by being in a crowd, disguised, masked, or dressed in a uniform (Zimbardo, 1969). In those conditions, people try to manifest their uniqueness by disagreeing with others if they perceive a large amount of similarity relative to others. This results in an inverted U-shaped curve between their similarity to others and their positive reactions (i.e. agreement) to others (See Figure 2 in Snyder & Fromkin, 1980, p. 35).

Optimal Distinctiveness Theory (ODT)

Optimal Distinctiveness Theory (ODT) is an "amalgamation of self-categorization theory and uniqueness theory" (Brewer, 1991, p. 3). Brewer (1991) developed the optimal distinctiveness theory based on uniqueness theory and tried to find out why people looked for equilibrium between extreme deindividuation and extreme

personalization. According to ODT, there are two conflicting human motivations that drive people's conformity behavior: the need to belong (Baumeister & Leary, 1995; Maslow, 1968) and the need to be different (Snyder & Fromkin, 1980). The former refers to "a need for inclusion of the self into larger social collectives", while the latter refers to "a need for differentiation of the self from others" (Brewer, 1993, p.3). The need for intimacy or belonging is universal and primitive, so to be rejected or ostracized by other people is one of the highly negative experiences for human beings (Williams, 2001). On the other hand, there is another polar of the need to see oneself as a distinctive being. Upholding the sanctity of the self and being true to the self have been cultural norms in Western society (Baumeister, 1991). So, if people submerge their individualities in order to fulfill group responsibilities or maintain the peace within the group, such behaviors have been considered as negative elements to personal growth (Baumeister, 1991; Wallach & Wallach, 1983). When people are located in a group, the existence of such opposing forces creates tension in constructing social identity in the group, so they try to find the optimal point where they can satisfy both needs (Brewer, 1991). The person is not comfortable if he/she is too distinctive from others or too assimilated to others. Thus, he/she tries to find the optimal point where he/she can satisfy both needs for similarity and uniqueness at an appropriate level (Brewer, 1991).

Then how can a person find a balance between the two conflicting needs? Hornsey and Jetten (2004) suggest several ways to balance the needs to belong and the needs to be different. One way is to identify with a unique group that is different from other mainstream groups. By joining the group that is clearly distinctive from other groups and has a strong sense of cohesiveness, people can experience their sense of

(ingroup) belonging and promote (intergroup) distinctiveness at the same time. Another way is to use subgroups within a subordinate group. For example, a large group can be divided into smaller subgroups based on profession, socioeconomic status, gender, religion, or ethnicity, etc., which can promote individual members' sense of distinctiveness while maintaining subordinate group identification. These two strategies of balancing the two conflicting needs are based on ODT (Brewer, 1991) arguing that people can achieve the need for inclusiveness by being a member of a certain group while maintaining the need for distinctiveness by selecting a group that is distinctive from other groups. Thus, ODT's solution for balancing the need to belong and the need to be different is to achieve distinctiveness in the group level rather than in the individual level within a group. However, in reality, people would not have many choices if balancing need for distinctiveness and inclusiveness can be resolved only through finding and identifying with a unique group (Hornsey & Jetten, 2004). This group level solution in balancing the two conflicting needs misses an important research area: How do individuals satisfy their need to be different from others within their own groups?

Even though ODT is rooted in self-categorization theory and uniqueness theory, ODT is different from these two theories. Both ODT and uniqueness theory predict that people pursue moderate levels of differentiation from and similarity to others. However, ODT indicates that the need for differentiation is met through increasing inter-group distinctiveness (Brewer, 1991), while uniqueness theory applies the same logic to individual levels of self-representation (Vignoles, Chryssochoou, & Breakwell, 2000). Meanwhile, ODT is also different from self-categorization theory in the sense that the former concentrates on motives or drives (i.e. the need for differentiation and the need for

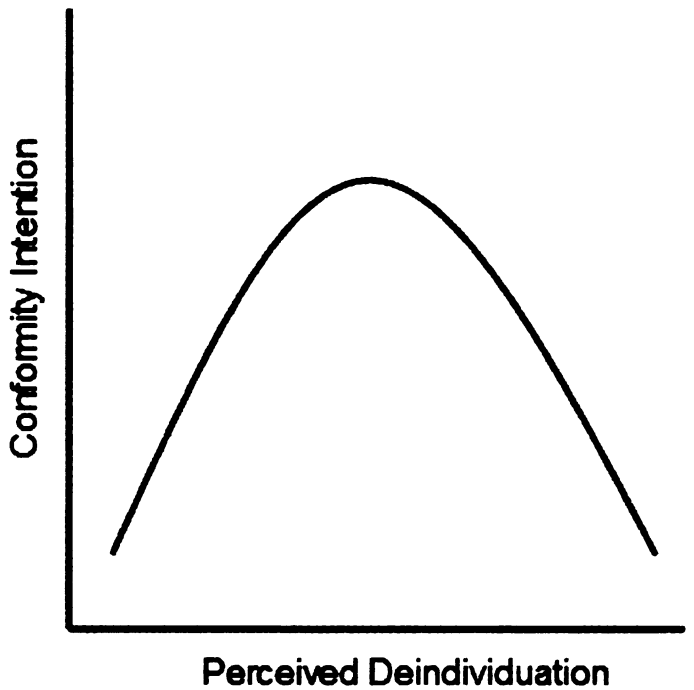
inclusion), rather than personal identity and social identity. According to SIDE, personal identity refers to the perception of one's self as a unique individual, while social identity corresponds to the perception of one's self as an example of some social category (Turner et al., 1987, p.50; Reicher et al., 1995). According to ODT, personal identity represents maximal satisfaction of the need for differentiation, while social identity indicates satisfaction of the need for inclusion (Brewer, 1993, p. 3).

The Inverted U-shaped curve

Uniqueness theory and ODT are termed as the "compromise view" (Blanton & Christie, 2003) because they suggest that people feel most comfortable when they achieve equilibrium between their conflicting needs for inclusion (similarity) and for uniqueness (difference). Applying the compromise view to a group decision-making, people experience two competing influences: conformity and dissent (Baumeister, 1982; Guerin, 1986; Snyder & Fromkin, 1977). Conformity is a type of behavior reflecting a person's desire to be similar to others, while dissent is a type of behavior reflecting a person's desire to be different. Therefore, according to the compromise view, if people perceive extremely high or low levels of deindividuation in a situation, they should not show as much conformity intention as they would if they are to perceive a moderate level of deindividuation (Vignoles et al., 2000). This results in an inverted U-shaped curvilinear relationship between people's perceptions of how similar they are to others and their positive reactions to others (Figure 1). In this study, conformity intention was used to measure peoples' positive reactions to others.

H3: The relationship between perceived deindividuation and conformity intention will be an inverted U-shaped curve.

Figure 1. The inverted U-shaped curve between perceived deindividuation and conformity intention



Interactions between Perceived Deindividuation and Avatar Conditions

Similarity in self-representation and perceived deindividuation are treated as two different variables, provided that the former is an objective situational condition given to participants, while the latter is participants' perceptions on how similarly they are represented to others in the condition. Therefore, it is possible to look at the moderating effect of avatar conditions on the relationship between perceived deindividuation and conformity intention. That is, the inverted U-shaped curve between perceived

deindividuation and conformity intention can be altered in its shape and direction as situational conditions change.

Because the intensity of objective similarity is highest in the same-avatar condition, participants should be more sensitive toward the highly deindividuated situation and try to differentiate themselves from others more than those in conditions of less similarity (i.e. the different-avatar condition or the no-avatar condition). Therefore, while people should show an increase in their conformity intention as their perceived deindividuation increases up to a moderate level, as shown in Figure 1, those who are in a condition of intense objective similarity among participants will rather show a decrease in their conformity intention, even with the slight increase of their perceived deindividuation.

> H4: The relationship between perceived deindividuation and conformity intention will be modified by avatar conditions such that the inverted U-shaped curve will be clearest in the least deindividuated condition (the different-avatar condition) and become less manifest as the level of objective similarity increases in the no-avatar condition and in the same-avatar condition.

Personality Variables

In Lee's (2004) study, both being represented by the same virtual uniform and being members of the same social group led participants to differentiate themselves from the rest of the group instead of increasing conformity among in-group members. Participants' conformity decreased because of the heightened objective similarity, but such situational pressure could have also intensified participants' needs for uniqueness

(Lee, 2004). This logic is in accordance with uniqueness theory suggesting that striving for uniqueness is influenced by both perceptions of similarity between self and others and dispositional individual differences in uniqueness motivation (Breakwell, 1987; Fromm, 1941; Maslow, 1968; Snyder & Fromkin, 1980, p. 77). Therefore, this study took into consideration inherent differences in motivation, an aspect which has been restricted in most social identity research (Brewer, 1993; Lee, 2004; Postmes & Jetten, 2006).

Need for Uniqueness (NFU)

Need for Uniqueness (NFU) is also called a 'distinctiveness principle,' which is defined as "a motive within identity pushing toward establishing and maintaining a sense of differentiation from others" (Vignoles et al., 2000, p.337). Researchers such as Breakwell (1987), Fromm (1941), Maslow (1968), and Snyder and Fromkin (1980) argue that a person has a need to realize and express his/her unique and individual self. In this argument, distinctiveness or uniqueness is considered as a fundamental human need as it is. On the other hand, the distinctiveness principle has been also considered as one of the antecedents of self-enhancement, in which positive self-esteem is achieved by establishing individual distinctiveness (Breakwell, 1987; Wills, 1991). Either as a mean of self-enhancement or as a fundamental human need, distinctiveness is an important property of self-definition (Vignoles, et al., 2000). In order to fulfill this distinctiveness need, people try to differentiate their appearance and behavior from those of others, which is believed to attract attention and enable them to stand out from the crowd. People who have higher need for uniqueness (NFU) (Fromkin & Snyder, 1980; Snyder, 1992) get satisfaction from the perception that they are unique, special, and separable from the

masses (Fromkin & Snyder, 1980). Therefore, individuals with high NFU tend to be more sensitive to the degree to which they are seen similar to others and want to exhibit behaviors that could establish their distinctiveness from others (Snyder, 1992).

H5: Need for uniqueness will have a negative relationship with conformity intention.

Interdependent Self-Construal (ISC)

As much as people of high NFU pursue a dissonance with others by resisting highly standardized situations, there must be those who want to be assimilated. Interdependent Self-Construal (ISC) measures people's need to belong. Self-construal refers to "the extent to which people view themselves either as individuated entities or in relation to others" (Markus & Kitayama, 1991, p. 226). There are two types of self-construals: independent and interdependent self-construals. Independent self-construal is a trait that makes people view themselves as autonomous, unique and distinctive beings, which encourages unique attributes of individuals and the pursuit of one's own goals (Markus & Kitaymama, 1991; Singelis, 1994). On the other hand, interdependent self-construal emphasizes one's connectedness with others and sensitivity to situation or social contexts (Singelis, 1994). Therefore, while NFU is a trait urging uniqueness and difference from others, ISC emphasizes people's connectedness with others and their acceptance by others (Singelis, 1994). People with strong ISC define themselves by their reference groups and try to behave in accordance with the thoughts and behaviors of

others. Therefore, people high in ISC should show a higher conformity intention than those low in ISC.

H6: Interdependent self-construal will have a positive relationship with conformity intention.

ISC was chosen as a personal trait opposing to NFU. While NFU emphasizes the individuality and uniqueness of individuals that rather promotes dissonance with others, the core characteristic of ISC emphasizes the relatedness of individuals to others and attachment to others. As a proof of the contradictory relationship between the two scales, the Pearson correlation between NFU scale and ISC scale turned out to be significantly negative ($r = -.45$, $p < .01$). Then why was not the independent self-construal scale used as the opposing personality trait to ISC? According to Markus and Kitayama (1991), independent self-construal and ISC are viewed as orthogonal scales rather than opposing ones. In the present study's data analysis, the Pearson correlation between independent self-construal and ISC scales turned out to have no significant relationship in either positive or negative direction. Since the present research had to find opposing personality traits to each other, independent self-construal was not a proper choice considering its orthogonal relationship with ISC.

Interactions between Personality Traits and Avatar Conditions

The notion that people's reactions are not uniform, even under the same highly deindividuated situation, and that such discrepancy could be caused by both situational influences and differences in individual dispositions leads to the possibility of interaction

between situational factors and personality traits. Both situational factors (i.e. avatar conditions) and personality traits (i.e. NFU and ISC) are crucial predictors of a person's conformity intention in a computer-mediated group decision-making. Naturally, there has been an ongoing debate between the situationalist model and the trait model (Monson, Hesley, & Chernick, 1982, p. 385) concerning which factor is more influential in predicting a person's behavior. The situationist model advocates that human behavior can be best predicted by situations in which a person is momentarily located, while the trait model argues that human behavior is best predicted by a person's innate personalities or characteristics that are not changed by external factors (Endler & Magnusson, 1976; Monson et al., 1982). However, recognizing that both elements are important in predicting human behavior, recent social psychology studies have been focusing on the interaction between situations and personality traits in predicting human behavior (Endler & Magnusson, 1976; Magnusson & Endler, 1977; Monson et al., 1982).

In response to the promotion of the interactionist perspective, a considerable amount of research evidence showed the existence of the interaction between situations and personality traits. However, most of them investigated the interaction in a post-hoc manner instead of specifying the pattern of the interaction before analyzing data (Mischel, 1973; 1977; Monson, et al., 1982: p.386). Among many efforts to find principles of the interaction between situations and personality traits, Mischel (1973) focused on the intensity of situations and the predicting the influence of personality traits under various situational pressures. According to Mischel, people should show little variance in their behavior, which is affected by their personality traits, in a situation of high-level constraints (e.g. church or job interview), since there is much pressure to behave in a

certain way. In addition, Price and Bouffard (1974) argued that when there was a little situational constraint (e.g. in a person's own room), people would exhibit more wide range of behavior according to their inherent personality traits. Monson et al.'s study (1982) also supported these two arguments, showing that the variance of a person's behavior explained by his/her personal characteristics decreased when situational pressure was strong.

On the contrary, Santee and Maslach (1982) found that personality traits explained more variance of people's conforming or dissenting behavior in the situation with a strong group pressure rather than in the situation with a weak group pressure. In their study, Santee and Maslach (1982) predicted that people's decision to dissent in a group discussion might be explained not only by individual differences in willingness to call attention to themselves, but also by situations in which people were motivated to stand out from the crowd. The research results were consistent with their prediction proving that personal characteristics were more influential predictors of dissent and conformity behavior when there was a strong situational pressure of reaching consensus in the group (Santee & Maslach, 1982).

Even though the interaction between situations and personality traits has been studied in the traditional social psychology research, most of the CMC studies did not pay attention to the interaction between situations and personality traits. Rather, those CMC studies had the assumption that people in the same computer-mediated environment would react to the condition in the same way. This perspective focuses mainly on the effects of situations created by computer media, which is based on technological determinism. SIDE is an example of the framework assuming that

individuals who are stripped of their personal attributes in computer-mediated environments automatically show high degree of group identity and conformity to group norms.

The direction of this interaction could be inferred from the predictions of the interactionist model of social psychology (Monson et al., 1982; Santee & Maslach, 1982) and uniqueness theory. In predicting the interaction between personality traits and avatar conditions in the computer-mediated group, this study borrows the interactionist framework of the traditional social psychology research. If applying Mischel (1973; 1977)'s argument, the impact of personality traits might be more explicit when the level of situational deindividuation is low (i.e. the different-avatar condition). However, if applying Santee and Maslach's argument (1982), the impact of personality traits might be stronger when the level of situational deindividuation is high (i.e. the same-avatar condition). Between the two contradictory perspectives, the present study adopts Santee and Maslach's perspective, which suggests that a strong situational pressure makes people reveal their personality traits more clearly than a weak situational pressure does.

Uniqueness theory predicts that people who are high in NFU will experience greater negative affects and exhibit greater changes in their direction of dissimilarity under high situational similarity than those who are low in NFU (Snyder & Fromkin, 1980). This prediction is in accordance with Santee and Maslach's finding (1982) that personality traits explain more variance of a person's conforming or dissenting behavior in a situation with strong situational pressure than in a situation with weak situational pressure. This finding was based on the interactionist model, which was a dialectic combination of the situationist model and the trait model (Monson et al., 1982, p. 385).

The situationist model advocates that human behavior can be best predicted by situations in which a person is momentarily located, while the trait model argues that human behavior is best predicted by a person's innate personality or characteristics that are not changed by external factors (Endler & Magnusson, 1976; Monson et al., 1982).

According to the interactionist model and uniqueness theory, people with high levels of NFU are expected to exhibit more dissent when they are located in conditions of high objective similarity (i.e. the same-avatar condition). In the same way, if people high in ISC are placed in the same-avatar condition, they are expected to agree with other members more than if they are placed in the conditions of lower similarity. To agree with others sharing the same avatar as theirs would be a more conspicuous expression of people's desires to belong to a group than to agree with others represented by different avatars.

H7a: Need for uniqueness will show a stronger negative relationship with conformity intention in the same-avatar condition than in the different-avatar condition or in the no-avatar condition.

H7b: Interdependent self-construal will show a stronger positive relationship with conformity intention in the same-avatar condition than in the different-avatar condition or in the no-avatar condition.

METHODS

Procedure

A total of 557 students at a large Midwestern university voluntarily participated in an online experiment. All participants were directed to visit the online experiment

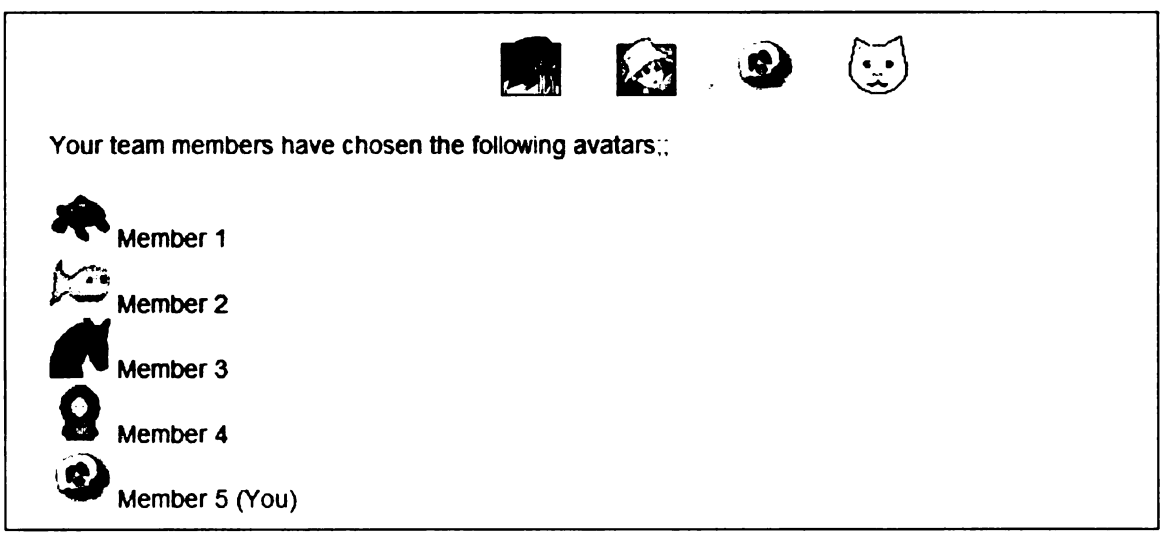
website and participate in a discussion on resolving a controversial issue. The discussion took place in an online chat room that was specifically set up for the experiment. All participants participated in the discussion with the same topic and with the same format. The only difference was in the way they were represented in the discussion chat room; 1) the same-avatar condition: a condition in which participants were represented by the same avatar as other discussants, 2) the different-avatar condition: a condition in which participants were represented by different avatars from other discussants, and 3) the no-avatar condition: a condition in which all participants were represented by text identities without any avatar image. In order to control the effects of unidentifiability, no personal or autobiographic information was released within experimental groups (Lee, 2004). With the help of a random assignment program placed in the log-in page, participants were randomly assigned to one of the three conditions.

Those who were assigned to the same-avatar condition and the different-avatar condition were asked to choose their own avatars from four possible choices. A focus group and several computer graphic designers were asked to choose virtual images that would not contain negative cultural or social connotations. This process resulted in eight different avatar images – animals that did not have any negative cultural or social stereotypes, cartoon and movie characters, and other images that were perceived as "cute" or "neutral" without causing any negative reaction.

In the different-avatar condition, each of the five avatars representing five discussants was different from each other, no matter what avatar was selected by each participant. This was possible because four of the discussants were not real people but programmed ones. Whatever avatar was chosen by a real participant, the other avatars

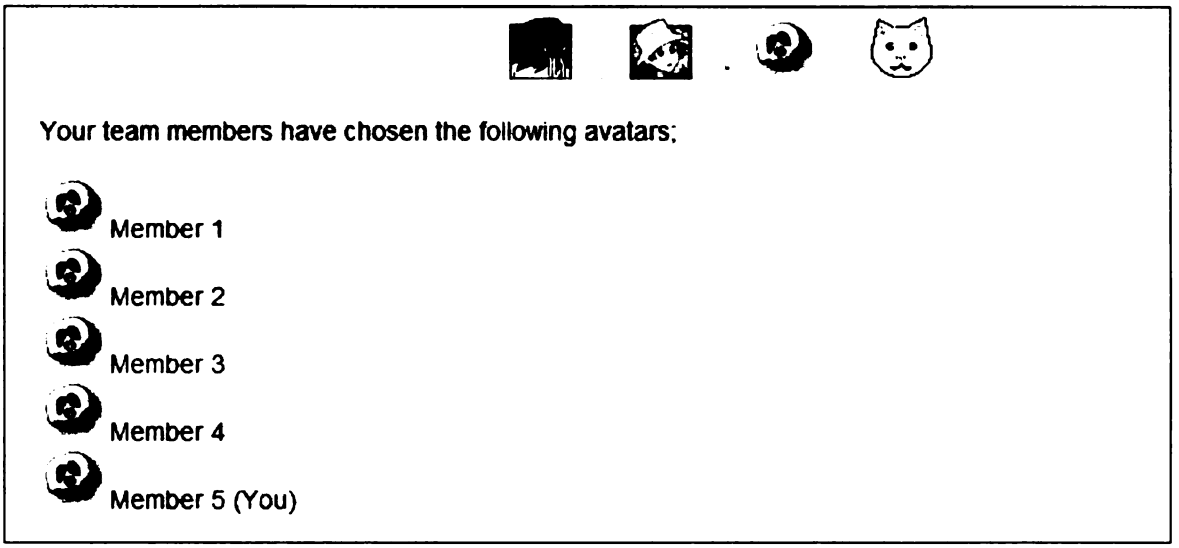
chosen by the other four virtual discussants were programmed to be different from each other as well as from that of the one real participant. Once participants had chosen their avatars, they were able to see what avatars had been chosen by the four other discussants (See Figure 2). In order to reduce any confounding effects from virtual nicknames, all discussants were assigned with uniform textual identities: Member 1, Member 2, Member 3, Member 4, and Member 5 (a real participant).

Figure 2. A screenshot of the different-avatar condition



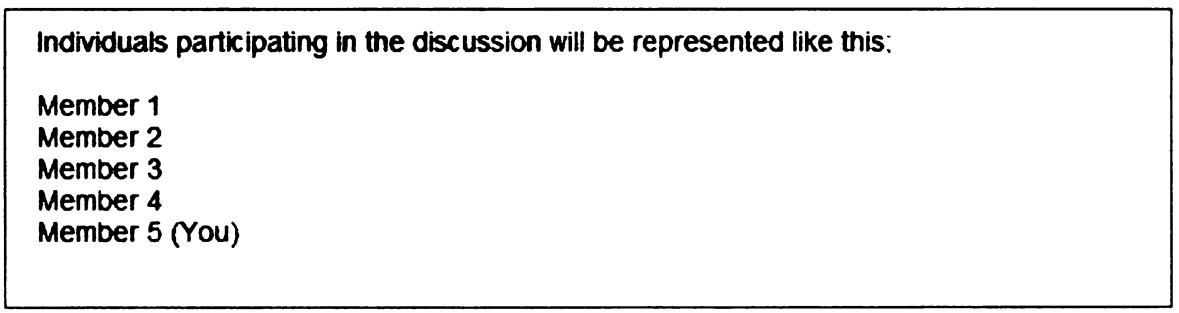
A participant who was assigned to the same-avatar condition was also allowed to choose one avatar. Again, whatever avatar was chosen by the participant, the four avatars chosen by the other discussants in this condition were programmed to be the same (See Figure 3).

Figure 3. A screenshot of the same-avatar condition



Finally, participants who were assigned to the no-avatar condition were assigned to uniform textual identities (i.e. Member 1, Member 2, Member 3, Member 4, and Member 5) without any avatar image. In this no-avatar condition, as well as the other two avatar conditions, all five discussants were to maintain absolute anonymity (i.e. unidentifiability) and no personal or autobiographic information was released.

Figure 4. A screenshot of the no-avatar condition



Before they moved to the discussion page, participants were asked to answer how much they felt similar to other discussants in the way that they were represented (i.e. perceived deindividuation) and how much they could identify with other discussants as members of the same group (i.e. group identity).

On the next page, participants were asked to read a hypothetical scenario in which a person was faced with a dilemma and had to choose one option out of two. The scenario was borrowed from Lee's (2004) experiment.

> Ms. E, a college senior, has studied the piano since childhood. She has won amateur prizes and given small recitals, suggesting that she has considerable musical talent. As graduation approaches, she has the choice of taking a medical school scholarship to become a physician, a profession which would bring certain financial rewards, or entering a conservatory of music for advanced training with a well-known pianist. She realizes that even upon completion of her piano studies, success as a concert pianist would not be assured (p.240).

After reading, participants were asked to join a discussion with four other discussants in a chat room. The conversation window was designed like a typical online chat room that showed participants in the discussion at the right side of the chat room with the only real participant's avatar (Member 5) at the top of the chat room box (Figure 4).

Once participants had finished reading the scenario, they were asked to read the four other discussants' opinions. At the time estimated for participants to be finished reading the scenario, one of the other four virtual discussants presented its opinion on what the person in the scenario should do, followed by the other discussants. Four virtual discussants were programmed to take turns in order to give the impression that each discussant was expressing its own opinion after reading the prior discussant's opinion

(Lee, 2004). All the opinions presented by the programmed discussants were taken from the previous focus group.

The four programmed discussants shared the same opinion, which implied the existence of a conformity norm within the group. Once participants were finished reading the other discussants' opinions, a pop up questionnaire appeared asking them to choose what they would like to say to the other four discussants out of seven possible answers: I strongly agree with you, I agree with you, I slightly agree with you, not sure, I slightly disagree with you, I disagree with you, and I strongly disagree with you. The participants were also asked to provide reasons for their decisions in a text box. Next, both the participants' selected answers and typed explanations were shown up in the chat room window following the other four programmed discussants' answers.

Figure 5. A Screenshot of the chat room window of the different-avatar condition

Ms. E, a college senior, has studied the piano since childhood. She has won amateur prizes and given small recitals, suggesting that she has considerable musical talent. As graduation approaches, she has the choice of taking a medical school scholarship to become a physician, a profession which would bring certain financial rewards, or entering a conservatory of music for advanced training with a well-known pianist. She realizes that even upon completion of her piano studies, success as a concert pianist would not be assured.

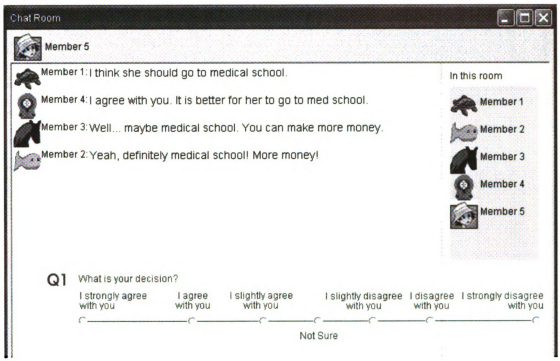
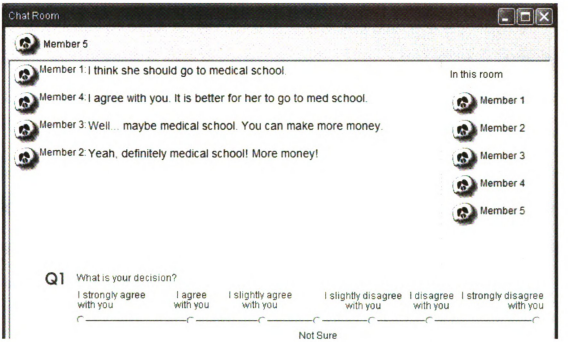


Figure 6. A Screenshot of the chat room window of the same-avatar condition

Ms. E, a college senior, has studied the piano since childhood. She has won amateur prizes and given small recitals, suggesting that she has considerable musical talent. As graduation approaches, she has the choice of taking a medical school scholarship to become a physician, a profession which would bring certain financial rewards, or entering a conservatory of music for advanced training with a well-known pianist. She realizes that even upon completion of her piano studies, success as a concert pianist would not be assured.



Finally, under the assumption that the first discussion would be followed by other discussion sessions, participants were asked whether they would be willing to conform to other discussants in coming discussions (i.e. conformity intention), under the assumption that all the other four discussants were to share the same opinion as in the first discussion.

Measures

Six newly invented items were used to measure the perceived deindividuation construct.[1] Need for Uniqueness (NFU) was measured by eight items[2] selected from the original NFU scale developed by Snyder and Fromkin (1980). Interdependent Self-

Construal (ISC) construct was measured by six items[3] from the original ISC scales (Markus & Kitayama, 1991; Singelis, 1994). Group identity was measured by three modified items[4] from Cheney's organizational identification scale (1983). All of the items were rated on seven-point Likert-type scales (scored 7 for strongly agree and 1 for strongly disagree). Finally, conformity intention[5] consisted of four items measuring participants' intentions to agree to a dominant opinion promoted by the other discussants. The inter-scale correlations and reliability of all five scales are presented in Table 1.

All the constructed scales were tested for measurement model using confirmatory factor analysis (CFA) of the structural equation modeling (SEM). The data analysis using EQS program ver. 6.1 (Bentler, 2004) showed a good fit of the measurement model (Chi-square 8.54, df = 4, p = .07). Other goodness-of-fit indices also showed a strong fit of the measurement model: NFI = .98, NNFI = .94, CFI = .99, RMSEA = .05.

Table 1:Inter-scale correlations and reliability of five scales

	1	2	3	4	5
1. Perceived Deindividuation	.90				
2. Group identification	.01	.88			
3. Conformity Intention	-.17**	.24**	.75		
4. Need for Uniqueness	.01	-.08	-.28**	.77	
5. Interdependent self-construal	-.04	.17**	.30**	-.45**	.75
Mean	3.78	4.58	4.67	4.24	4.40
Standard Deviation	1.52	1.12	1.19	.94	.90

Note: Diagonal numbers show reliability (Cronbach alpha), N = 516
*$p < .05$, **$p < .01$

FINDINGS

Out of 516 valid data collections, 173 participants were assigned to the same-avatar condition, 172 participants were assigned to the different-avatar condition, and 171 participants were assigned to the no-avatar condition.

Main Effect of Avatar Conditions on Group Identity

Hypothesis 1 predicted that participants in the same-avatar condition would show a higher level of group identity than those in the different-avatar condition as well as those in the no-avatar condition. A one-way ANOVA showed a significant effect of the three different avatar conditions on participants' levels of group identity, $F(2, 513) = 32.67$, $p < .001$. The level of group identity was highest in the same-avatar condition ($M = 4.96$, $SD = 1.13$), which was significantly higher than that of the different-avatar condition ($M = 4.07$, $SD = 1.08$, $p < .001$) but was not significantly different from that of the no-avatar condition ($M = 4.72$, $SD = .95$, p = n.s.). The reason why there was no significant difference between the same-avatar condition and the no-avatar condition was that the standardized text-only self-representation could induce as high level of similarity as the same-avatar condition. In short, increased similarity in self-representation reduced the focus on individuality and led to an elevated group identity, which follows the logic of SIDE.

Table 2: Mean values of group identity of three different avatar conditions

Condition	Mean	Std. Deviation	N
1.00	4.96	1.13	173
2.00	4.07	1.08	172
3.00	4.72	.95	171
Total	4.58	1.12	516

Table 3: The significance test of group mean differences in group identity across three different avatar conditions

		Experimental Method				
		Sum of Squares	df	Mean Square	F	Sig.
Avatar conditions	Between groups	72.75	2	36.38	32.67	.00
	Within groups	571.27	513	1.11		
	Total	644.02	515			

Moderated Multiple Regression (MMR)

While avatar condition is a categorical variable, perceived deindividuation is a continuous variable. One way to analyze the interaction between categorical variables and continuous variables is using ANOVA, in which continuous variables are divided into two or more groups at certain score points that were randomly assigned by researchers (e.g. median as a dividing point for high and low group). However, artificially divided continuous variables are known to reduce the power of statistical tests and affect the tests of main effects and interaction effects. In case there are two or more continuous variables in a model, dividing continuous variables into categories makes it

difficult to detect any curvilinear effects of the continuous variables on the dependent variable (West, Aiken & Krull, 1996; Aiken & West, 1991).

Because of such problems, moderated multiple regression (MMR) method has increasingly replaced the ANOVA in analyzing the interaction between continuous variables and categorical variables. In MMR, categorical variables are represented by one or more code variables that assign a unique value to each group. This study used a dummy coding for categories. Three experimental conditions – the same-avatar condition, the different-avatar condition, and the no-avatar condition - were dummy- coded in order to see if there was any effect of different avatar conditions on people's conformity intention. Dummy coding is useful when a researcher is interested in comparing one reference group with the other groups. The present study was interested in two comparisons: 1) comparison between the same-avatar condition and the different-avatar condition, and 2) comparison between the same-avatar condition and the no-avatar condition. Therefore, the same-avatar condition was set as the reference group and received a value 0, whereas the other two groups were assigned a value 1 on the code variable that contrasted each of the groups with the comparison group and a value 0 otherwise (Aguinis, 2004; p. 119). That is, when the different-avatar condition was compared with the same-avatar condition, the different-avatar condition was assigned 1 while the no-avatar condition was assigned 0. When the no-avatar condition was compared with the same-avatar condition, the assigned number was converted. The first comparison was represented in Z1 code variable, while the second comparison was represented in Z2 code variable.

Interactions terms were represented as the products of independent variables involved in the interactions (e.g. the interaction between X and W is X*W) and the curvilinear relationship with a dependent variable were expressed through higher order functions of the independent variables (e.g. X^2 for the quadratic term of X) in MMR (West et al., 1996). The present study used a hierarchical MMR method that started from main effect terms of each predictor in the first block, followed by the second block with two-way interaction terms, and the third block with three-way interaction terms (Stone & Hollenbeck, 1984).

Conformity Intention as a Function of Group Identity and Perceived Deindividuation

Hypothesis 2 predicted that the transient group identity without any salient common social identity shared by participants would have a positive effect on conformity intention. On the other hand, Hypothesis 3 predicted that perceived deindividuation and conformity intention would show an inverted U-shaped curve. A hierarchical regression analysis was done for conformity intention with group identity, the linear term of perceived deindividuation and the quadratic term of perceived deindividuation. As shown in Table 2, the transient group identity contributed to an increase in conformity intention ($\beta = 2.61, p < .01$), which supports Hypothesis 2. The linear term of perceived deindividuation was a significant predictor of conformity intention ($\beta = -.10, p < .01$) and accounted for 2.8% of the variance in conformity intention. The quadratic term of perceived deindividuation was also significant in predicting conformity intention ($\beta = -.05, p < .05$) and accounted for an additional 0.8% of the variance in conformity

intention. In other words, perceived deindividuation and conformity intention showed a negative curvilinear relationship.

Table 4: Conformity intention as a function of group identity and perceived deindividuation

Variables	Conformity Intention	
	β	t value
Transient Group Identity	2.61**	5.82
Perceived Deindividuation	-.10**	-2.70
Perceived Deindividuation^2	-.05*	-2.16

Note. Total R^2 = 3.4% (F = 9.02**); ΔR^2 of the transient group identity = 5.7% (ΔF = 31.12**); ΔR^2 of perceived deindividuation = 2.8% (ΔF = 15.98**); ΔR^2 of the squared perceived deindividuation = .8% (ΔF = 4.68*)
*p < .05, ** p < .01

Perceived Deindividuation and Avatar Conditions

Hypothesis 4 tested the moderating impact of avatar conditions on the curvilinear relationship between perceived deindividuation and conformity intention. For the avatar conditions, dummy coding was used and the same-avatar condition was set up as a reference group with Z_1 for the comparison between the same-avatar condition and the different-avatar condition and Z_2 for the comparison between the same-avatar condition and the no-avatar condition. The interaction terms were represented by the products of independent variables involved in the interactions (e.g. the interaction between X and W is X*W) (West et al., 1996). A squared term of perceived deindividuation was also added to reflect the curvilinear relationship with conformity intention. The present study used a

hierarchical regression analysis that started from main effect terms of avatar conditions in the first block, followed by the second block with the linear and squared terms of perceived deindividuation, and the third block with interaction terms between avatar conditions and perceived deindividuation;

$$Y = a + b_1Z_1 + b_2Z_2 + b_3PD + b_4PD^2 + b_5Z_1*PD + b_6Z_2*PD + b_7Z_1*PD^2\ b_8Z_2*PD^2 \quad (1)$$

(Y: Conformity intention, PD: perceived deindividuation, PD^2: squared perceived deindividuation)

As shown in Table 3, the perceived deindividuation turned out to be the only significant predictor ($\beta = -.28$, $p < .01$) in main effect blocks. As predicted in Hypothesis 4, avatar conditions moderated the curvilinear relationship between perceived deindividuation and conformity intention. Interaction terms with avatar conditions and squared perceived deindividuation were significant predictors of conformity intention. The incremental R^2 by the entire interaction term block was marginally significant ($\Delta R^2 = 1.6\%$, $p < .1$).

Table 5: Interaction between perceived deindividuation and avatar conditions

Variables	Conformity Intention	
	β	t value
Step 1		
Z_1	-.23	-1.29
Z_2	.17	.94
Step 2		
Perceived Deindividuation	-.28**	-3.16
Perceived Deindividuation^2	.05	1.00
Step 3		
Z_1× Perceived Deindividuation	-.04	-.23
Z_2× Perceived Deindividuation	.19	1.66
Z_1× Perceived Deindividuation^2	-.17**	-2.17
Z_2× Perceived Deindividuation^2	-.16**	-2.58

Note. Total R^2 = 6.6% (F = 4.48**); R^2 of the avatar condition block (Step 1) = 0.3% (ΔF = .83); R^2 of the perceived deindividuation block (Step 2) = 4.7% (ΔF = 12.59**); R^2 of the interaction terms block (Step 3) = 1.6% (ΔF = 2.17†)
† $p < .1$, * $p < .05$, ** $p < .01$

In order to make it easier to interpret this interaction, this study used graphical presentations. For the graphical display of multiple regression analysis results, this study followed the procedures suggested by West, Aiken, and Krull (1996). Inserting all the unstandardized coefficients of the <Table 5> in to the equation (1), the MMR model with conformity intention as a dependent variable turned out to be:

$$Y = 4.777 - .233Z_1 + .168Z_2 - .283X + .045X^2 - .035Z_1X + .191Z_2X - .172Z_1X^2 - .160Z_2X^2 \quad (1.1)$$

This equation should be differed according to the three different avatar conditions;

1) The same avatar condition (Z1, Z2 = 0): $Y = 4.777 - .283X + .045X^2$ *(1.1.1)*

2) Different avatar condition (Z1=1, Z2 = 0): $Y = 4.544 - .318X - .127X^2$ *(1.1.2)*

3) No avatar condition (Z1=0, Z2 = 1): $Y = 4.945 - .092X - .115X^2$ *(1.1.3)*

Figure 5 is a graphical representation of the three equations (1.1.1), (1.1.2.), and (1.1.3). It shows that the multiple regression analysis supported Hypothesis 4, since the shape of the inverted U-shaped curve between perceived deindividuation and conformity intention was sharpest in the different-avatar condition and became less manifest as the level of objective similarity in self-representation increases. As predicted in Hypothesis 4, people in the same-avatar condition showed a decrease in their conformity intention even with the slight increase of their perceived deindividuation. Both in the no-avatar condition and the different-avatar condition, people showed a mild increase in their conformity intention when they perceived low or moderate level of deindividuation from their situations. However, when they perceived more than a moderate level of deindividuation, people showed a drastic decrease in their conformity intention.

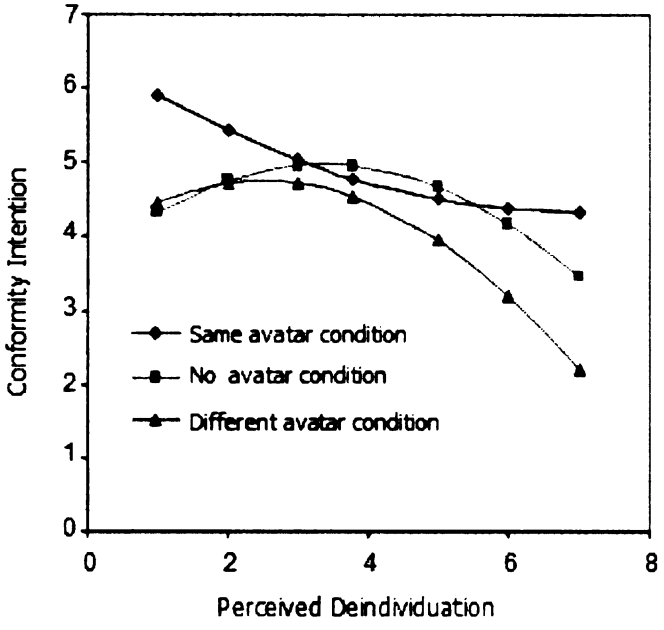
In the different-avatar condition, when people's perceived deindividuation is at its lowest (score 1), the score of the conformity intention was predicted to be 4.45. As the perceived deindividuation increased, participants' conformity intention increased to 4.74 at the point of 2.48 in the perceived deindividuation. After this point, people's conformity intention started to decrease as their perceived deindividuation increased. When the

perceived deindividuation was at its highest (score 7), the score of participants' conformity intention was predicted to decrease to 2.20.

In the no-avatar condition, people started from the score of 4.31 on conformity intention at the lowest point of the perceived deindividuation (score 1). As the perceived deindividuation increased, participants' group identification with other members increased to 4.96 at the point of 3.38 in the perceived deindividuation. After this point, people's conformity intention started to decrease with increasing perceived deindividuation. When the perceived deindividuation is at its highest (score 7), the score on people's conformity intention was predicted to increase to 3.45.

On the other hand, people in the same-avatar condition showed an almost negative relationship between perceived deindividuation and conformity intention. People in the same-avatar condition showed a decrease in their conformity intention even with the slight increase in their perceived deindividuation. However, people's conformity intention continued to decrease even when they perceived an intense deindividuation in their situation.

Figure 7. Conformity intention by perceived deindividuation and avatar conditions



Personality Traits and Avatar Conditions

Hypothesis 7a predicted that avatar conditions would moderate the relationship between NFU and conformity intention. The MMR equation with NFU as the independent variable is expressed as:

$$Y = a + b_1Z_1 + b_2Z_2 + b_3NFU + b_4Z_1*NFU + b_5Z_2*NFU \qquad (2)$$

However, the multiple regression analysis failed to detect a significant interaction between avatar conditions and NFU. While the main effect of NFU turned out to be significant ($\beta = -.48, p < .01$), supporting Hypothesis 5, the increased R^2 by interaction

terms NFU × avatar conditions (0.7 %) was not significant (F (2, 510) = 1.90, p = .15). More specifically, the relationship between NFU and conformity intention in the same-avatar condition was marginally different from that of the different-avatar condition (β = .23, p < .1) but was not significantly different from that of the no-avatar condition (β = .20, p = .12).

Table 6: Interaction between NFU and avatar conditions

Variables	Conformity Intention	
	β	t value
Constant	4.64**	4.07
Step 1		
Z_1	-.04	-.31
Z_2	.11	.91
Step 2		
NFU	-.48**	-5.46
Step 3		
Z1× NFU	.23†	1.76
Z2× NFU	.20	1.56

Note. Total R^2 = 8.5% (F = 9.47**); R^2 of the avatar condition block (Step 1) = 0.3% (ΔF = .83); R^2 of the perceived deindividuation block (Step 2) = 7.5% (ΔF = 41.6**); R^2 of the interaction terms block (Step 3) = 0.7% (ΔF = 1.90)
† p < .1, *p < .05, ** p < .01

In order to present the MMR results into a graphical representation, unstandardized coefficients of all the elements in <Table 8> were inserted into the equation (4):

$Y = 4.64 - .04Z_1 + .11Z_2 - .48X + .23Z_1X + .20Z_2X$ *(2.1)*

(X = NFU, Y = Conformity Intention)

Then, the equation (2.1) was divided into three equations according to the three different avatar conditions:

1) The same-avatar condition (Z1, Z2 = 0): Y = 4.641 -.482X *(2.1.1)*

2) The different-avatar condition (Z1=1, Z2 = 0): Y = 4.641 -.038 -.482X + .23X *(2.1.2)*

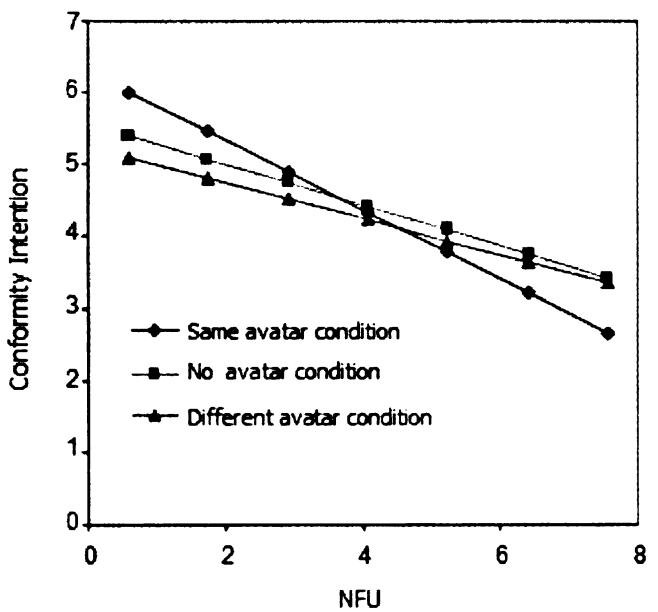
3) The no-avatar condition (Z1=0, Z2 = 1): Y = 4.641 + .113 -.482X + .2X *(2.1.3)*

Figure 6 is a graphical representation of the relationship between NFU and conformity intention across the three different avatar conditions. Even though the R^2 increased by the interaction term block was not statistically significant, Figure 6 supports the pattern of the interaction predicted in Hypothesis 7a. Participants in the same-avatar condition showed a stronger negative relationship between NFU and conformity intention than those in the different avatar-condition or in the no-avatar condition. At the lowest score of NFU (score 1), people in the different-avatar condition and people in the no-avatar condition were predicted to have 5.42 and 5.67 respectively in their conformity intention. At the same score of NFU, people in the same-avatar condition showed 6.2 point. Meanwhile, at the highest score of the NFU (score 7), people in the different-avatar condition and people in the no-avatar condition were predicted to have 3.91 and 3.98

respectively in their conformity intention. At the same score of NFU, people in the same-avatar condition showed 3.31 point.

In short, Even though the interaction term block was not statistically significant, participants in the same-avatar condition showed a stronger negative relationship between NFU and conformity intention than those in the different-avatar condition and in the no-avatar condition (Figure 6). That is, as the situational deindividuation intensified, a person's NFU showed a clearer negative linear relationship with his/her conformity intention. Even though the interaction between NFU and avatar conditions did not turn out to be significant, if there were more samples, the non-parallel pattern caused by the interaction might have been much clear and statistically significant.

Figure 8. Conformity intention by NFU and avatar conditions



Hypothesis 7b predicted that avatar conditions would moderate the relationship between ISC and conformity intention in such a way that the high level of objective similarity caused by sharing the same avatar with others increased the effect of ISC on conformity intention. The MMR equation with ISC as the independent variable is expressed as:

$$Y = a + b_1Z_1 + b_2Z^2 + b_3ISC + b_4Z_1*ISC + b_5Z_2*ISC \quad (3)$$

(Y = Conformity Intention)

As shown in Table 5, the main effect of ISC was significant ($F(1, 512) = 50.55$, $p < .01$), as was predicted by Hypothesis 6. The interaction terms were also significant predictors of conformity intention and increased 1.9% of the variance in conformity intention ($F(2, 510) = 5.55$, $p < .01$). The relationship between ISC and conformity intention in the same-avatar condition was significantly different from that of the different-avatar condition ($\beta = -.44$, $p < .01$) and from that of the no-avatar condition ($\beta = -.33$, $p < .01$).

Table 7: Interaction between ISC and avatar conditions

Variables	Conformity Intention	
	β	t value
Constant	4.65**	4.07
Step 1		
Z_1	-.04	-.31
Z_2	.08	.64
Step 2		
ISC	.66**	6.76
Step 3		
Z1× ISC	-.44**	-3.20
Z2× ISC	-.33*	-2.43

Note. Total R^2 = 11% (F = 12.88**); R^2 of the avatar condition block (Step 1) = 0.3% (ΔF = .83); R^2 of the perceived deindividuation block (Step 2) = 9.3% (ΔF = 50.55**); R^2 of the interaction terms block (Step 3) = 1.9% (ΔF = 5.55**)
† $p < .1$, * $p < .05$, ** $p < .01$

Based on the unstandardized coefficients of all the elements in Table 7, the MMR model turned out to be:

$$Y = 4.65 - .04Z_1 + .08Z_2 + .66X - .44Z_1X - .33Z_2X \qquad (3.1)$$

(X = ISC, Y = Conformity Intention)

This equation should be differed according to avatar conditions;

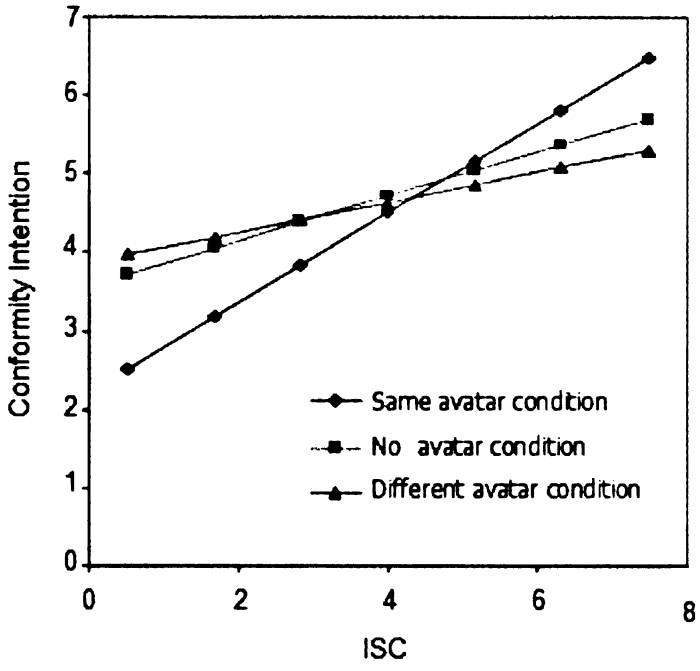
1) *The same avatar condition (Z1, Z2 = 0): Y = 4.65 +.66X* *(3.1.1)*

2) Different avatar condition (Z1=1, Z2 = 0): Y = 4.65 -.04 +.66X -.44X *(3.1.2)*

3) No avatar condition (Z1=0, Z2 = 1): Y = 4.65 + .08 +.66X -.33X *(3.1.3)*

The positive relationship between ISC and conformity intention was strongest when people were represented by the same avatar (Figure 7). Participants were more conspicuous about their desire to be accepted in a highly deindividuated situation than in a less deindividuated situation (Santee & Maslach, 1982).

Figure 9. Conformity intention by ISC and avatar conditions



DISCUSSION

The present study tried to address critiques on manipulations and conceptual confusion surrounding important concepts of social identity research. It also relaxed the tacit assumption of the undifferentiated individuals seen in most social identity research and broke new ground regarding the role of individual differences in perception and personality traits. Moreover, using the compromise view, this study tried to explain some of the social identity research findings that have been inconsistent with SIDE. In short, the present paper made contributions towards expanding the theoretical perspectives on social identity research in CMC in several respects.

First of all, this study focused on similarity, one of the confounding constructs of anonymity, rather than unidentifiablity, which has been the main independent variable in most social identity studies. It also distinguished between a salient social identity and a transient group identity that coexisted in the "group identity" concept of social identity research. Avatars were used in this study for two purposes: in order to focus on the effect of similarity in self-representation while holding the same level of unidentifiability across different experimental conditions and in order to induce the transient group identity (i.e. experimental group identity) without introducing any salient common social category. This study found that the similarity in self-representation with others contributed to amplified group identity even without a salient social identity shared by group members. This suggests that identification with pre-existing social groups in the off-line world can be overcome by transient online group memberships, instead of being fortified as SIDE indicates.

This study also acknowledged the existence of "a consensus that limits the different selves" (Postmes & Jetten, 2006) in social identity research. However, the assumption of uniform individuals could not explain the existence of different identity needs and defiant reactions against group norms in a group of social identity studies (i.e. Codol, 1984; Cooper & Jones, 1969; Maslach, 1974; Lee, 2004). This could mean that prior social identity studies employing the assumption of standardized individuals within the same group had incomplete and erroneous findings. Thus, in order to supplement the denial of individual differences and explore the roles of differentiated perceptions and needs at an intra-group level, uniqueness theory and ODT were used.

In regard to deindividuation, this study distinguished between objective similarity conditions and individual perceptions of the situation. While the former was operationalized by the three different avatar conditions (a categorical variable), the latter was measured by a continuous variable that appraised people's perceptions of how deindividuated or similar they were to others. These two variables have been considered equal in most social identity research and have been treated as a dichotomous variable, since SIDE assumes a uniform level of deindividuation to be perceived by people when they are under the same anonymity manipulation. On the other hand, the compromise view assumes that people use their perceptions of the conditions in which they are located in order to judge whether they are too distinctive from others or too similar to others. In short, SIDE predicts that intensified *situational* deindividuation caused by reduced social cues can *encourage* a person's positive reaction to group norms, while the compromise view suggests that heightened *perceived* deindividuation can *discourage* a person's positive reactions toward a group. Therefore, this study's finding that perceived

deindividuation and conformity intention showed a negative curvilinear relationship supports the compromise view and tends to undermine the assertions of SIDE.

In addition, the present study suggests that the curvilinear relationship between perceived deindividuation and conformity intention should differ depending on the level of similarity with others in self-representation. This is based on the assertion that objective situational similarity was a different variable from participants' perception of the given similarity condition. The curve became less manifest and even changed from an inverted U-shape to a slight U-shape as the objective similarity in self-representation increased. In general, heightened perceived deindividuation seemed to depress people's conformity intention across the all three avatar conditions. When the level of objective similarity was low, conformity intention increased as people felt low or moderate level of similarity between them and other group members. On the other hand, conformity intention decreased even with the slight increase in perceived deindividuation when the objective similarity was high. This is because expressing dissent or giving different opinions can be used as a way to promote people's individualities when they feel that their unique self-concepts are threatened by being made highly similar to others (Cooper & Jones, 1969; Fromkin, 1970).

Finally, this study integrated individual needs and motivations into the social identity research domain and investigated how these individual differences would interact with situational factors. As Santee and Maslach (1982) predicted, personality traits had a stronger effect on human behavior when there was a high level of situational pressure - similarity in the way people were represented. Even though the interaction was not statistically significant, NFU showed a stronger negative relationship with conformity

intention in the same-avatar condition than in the different-avatar condition or in the no-avatar condition. As indicated by uniqueness theory and ODT, intensely deindividuated conditions made people more concerned about their unique self-presentations (Cheek & Hogan, 1983) and led them to behave in ways in which they could establish and define their unique selves (Alexander & Lauderdale, 1977; Maslach, Santee, & Wade, 1987). Such concerns about their unique selves matter more to people inherently high in NFU than to those low in NFU. If people high in NFU perceive an intensified similarity from the same visual representation shared with other discussants and the existence of a dominant opinion, the only way for them to prove their unique selves is to express dissent. Meanwhile, in a situation where people high in NFU can be distinguished from others by representing themselves with distinctive self-representations, they will not feel such a strong urge to express dissent and prove their uniqueness as they would in the same-avatar condition. In the same way, the influence of ISC on conformity intention was more explicit when people were represented by the same avatar than when they were represented by different avatars or no avatar. When the pressure to conform was already high both from sharing the same avatar with other members and from the existence of a dominant opinion promoted by the entire group, the only option left for participants who were high in ISC and wanted to express their desire for acceptance was to conform to the dominant opinion.

CONCLUSIONS

Summary and Implications

The present study started with describing the increasing use of computers as a communication channel and how computer media features could change interpersonal and group communication patterns. This study focused on group identification and conformity in computer-mediated group discussion settings, addressing critiques on manipulations and conceptual confusion surrounding the important concepts of anonymity and group identity. In addition, this study acknowledged that social identity research should take individual differences into consideration.

Using three different avatar conditions as a way to manipulate the level of similarity in self-representation, this study found that the similarity in self-representation with others contributed to amplified group identity even without a salient social identity shared by group members. This suggests that identification with pre-existing social groups in the off-line world can be overcome by transient online group memberships, instead of being fortified as SIDE indicates. When an online community is built based on a salient group identity, the existing social identities are replaced by the situational group membership. For example, many online communities composed by people who are suffering from the same disease focus on sharing information and comforting each other while minimizing their social or cultural backgrounds.

This study further investigated how individual differences, which were not taken into consideration in most social identity research, could affect people's intention to conform. The two individual differences taken into account were perceptions of similarity to others in the group, and individuals' needs to be either similar or different from others.

Perceptions regarding the level of similarity, termed perceived deindividuation, was invented and distinguished from objective similarity in the way people were represented. The significance of perceived deindividuation in this study relies on the fact that it measures what degree of similarity with others in a CMC group participants perceive, enabling its use as continuous variable that could be regressed with a continuous dependent variable, intention to conform. The regression curve turned out to be negative curvilinear (i.e. inverted U-shaped curve), which implies that people agreed with others most when they perceived a moderate similarity between themselves and others. On the other hand, it also suggests that people can disagree more if they perceive high level of similarity with others, which is contradictory to SIDE but in accordance with uniqueness theory and optimal distinctiveness theory. In practice, this suggests that anti-normative behavior or "flaming" in cyberspace might be explained by people's pursuit of their individualities as well as resistance against highly standardized self-representation online, not necessarily due to freedom from the norms and regulations of the off-line world. Therefore, one way to reduce this flaming in online communities might be to allow a certain amount of individual choice in peoples' virtual self-representations so that they are less likely to choose a strategy of disagreeing with others simply to demonstrate their uniqueness.

This study also integrated individual needs and motivations into the social identity research domain and investigated how these individual differences interacted with situational factors. The results showed that intensified similarity among group members magnified the influence of personal traits – people with a high need for uniqueness in a high similarity condition disagreed more while people with a high need for acceptance in

such conditions agreed more. This could be interpreted as an indication that contributors who have an inherent need to be different on online discussion boards (e.g. political blogs), where there is a high degree of situational pressure both from standardized self-representation and consensus norms, might disagree with a dominant opinion in order to preserve their unique self-concepts and not necessarily because they disagree with the dominant opinion itself. On the other hand, those who have an inherent need to be similar to others could agree with the dominant opinion in order to assimilate and be accepted, but not necessarily because they agree with the opinion. Therefore, increasing conformity among online communities could be hindered by standardizing the way people are represented in cyberspace, a implication that directly conflicts with the SIDE model. Instead, allowing a moderate degree of individually customized self-representation can reduce the possibility of disagreement due to the need to be different from others as well as agreement due to the need to be similar to others in cyberspace. In cyberspace where people's identities can be detached from their existing social status and easily replaced by situational group membership, virtual self-representation plays an important role in affecting people's perception and attitude toward others in group discussions.

Collectively, the findings suggest revisions to the SIDE model by suggesting not only that situational factors in CMC environments (i.e. the lack of social cues and anonymity) should be taken into consideration in explaining group identity and conformity, but also human factors as well (i.e. people's perception of the situation and their need to be different or similar) .

Limitations & Future Studies

This study includes some aspects that require further investigation. First of all, using a programmed discussion could have reduced the actuality of real-time conversations. In future studies, five real participants could be asked to discuss and reach a decision within a limited time. This might allow more time and interactions for participants to naturally affiliate with their own avatars and to recognize their similarity to (the same-avatar condition) or difference from (the different-avatar condition) the avatars of other discussants.

Secondly, allowing participants to choose avatars might have confounded similarity in virtual self-representation and similarity in their tastes for virtual self-representation. However, randomly imposed avatars could have created repulsion in participants, even though avatars were designed so as to reduce any negative reaction as much as possible. Therefore, the present study gave participants a limited number of choices, so that it would not allow too much variation in participants' personal preferences for avatar images. In addition, these images were created to be the same size and were similar in the impressions they gave, so participants' reactions toward avatars did not vary much due to the nature of the avatars. Still, it would be interesting to compare a condition where participants are randomly assigned to avatars and a condition where participants have choices to pick from.

Thirdly, the present study looked only at the situation in which there was one dominant opinion shared by other discussants. This might have brought a confounding effect to the same-avatar condition, since participants could have conformed to the other discussants' opinion either because they identified with those who shared the same avatar

or because they were complying with the consensus pressure coming from others. In future studies, these two potentially confounding influences could be disentangled by the dividing of experimental groups into three new conditions: a group with two equally numbered subgroups sharing different avatars (Figure 10.1), a group with a larger subgroup of one opinion sharing the same avatar as that of the participant and a smaller subgroup of the other opinion with a different avatar (Figure 10.2), and a group with a larger subgroup of one opinion with a different avatar from that of the participant and a smaller subgroup of the other opinion with the same avatar as that of the participant (Figure 10.3). These groups can distinguish the influence of the same avatar from that of the majority-opinion subgroup pressure on participants' conformity decision.

Figure 10.1. A screenshot of a group with two equally numbered subgroups sharing different avatars

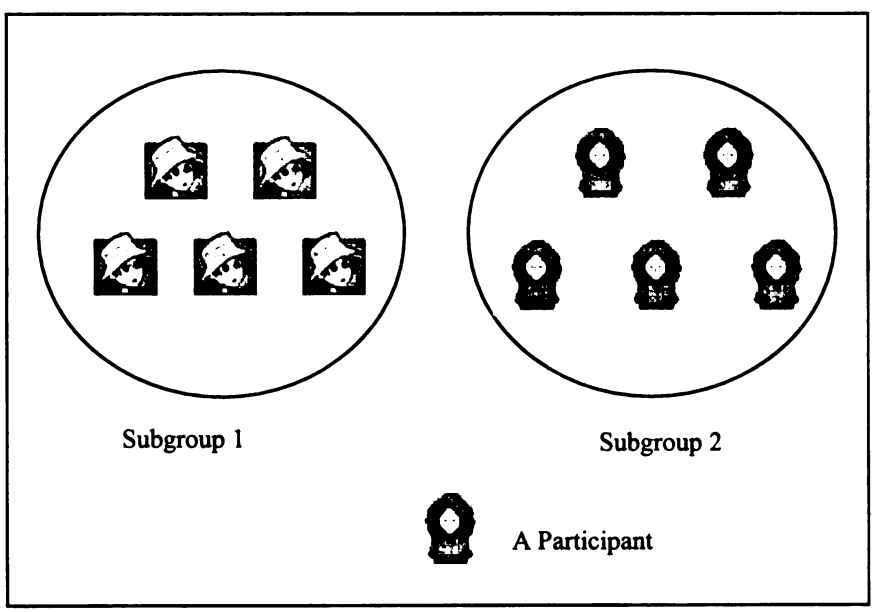


Figure 10.2. A screenshot of a group with a larger subgroup of one opinion sharing the same avatar as that of the participant and a smaller subgroup of the other opinion with a different avatar

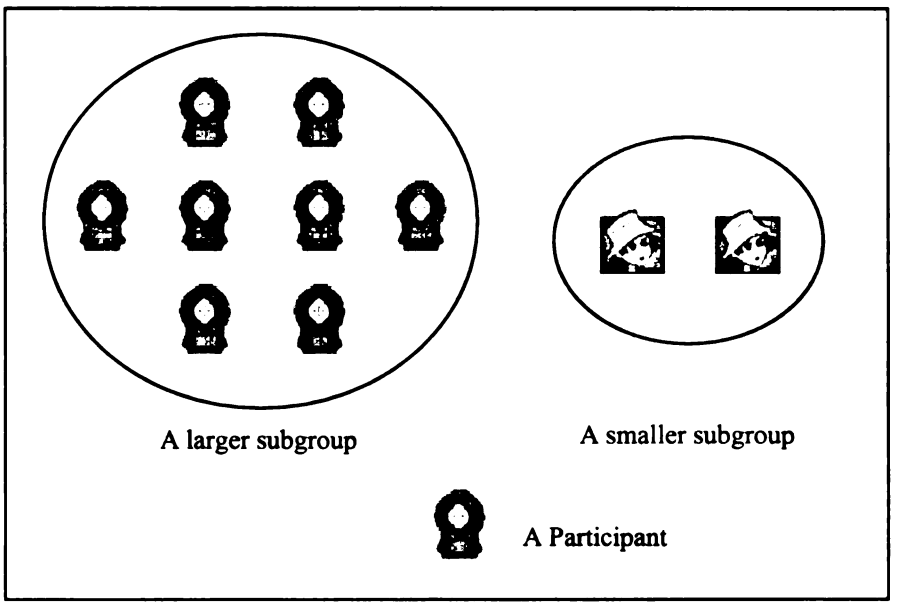
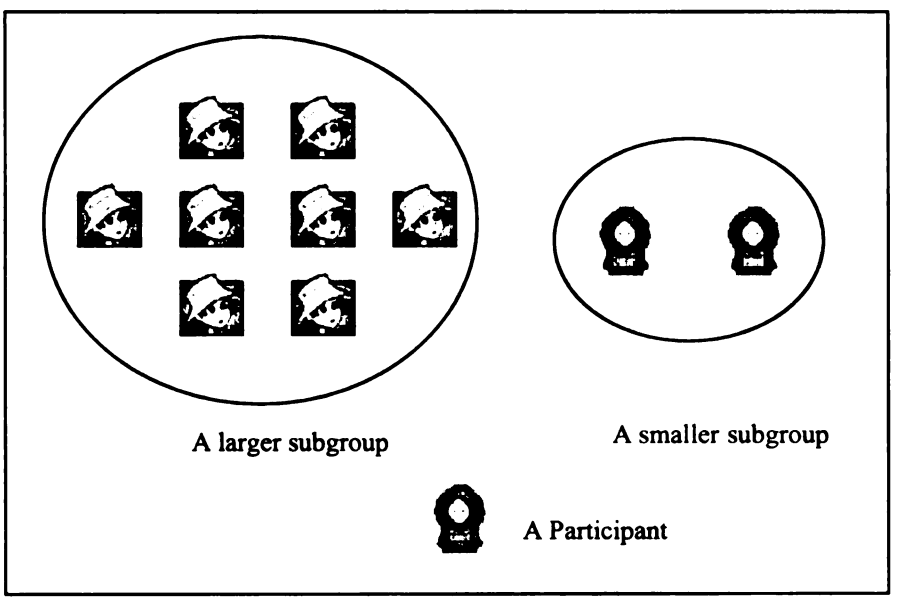


Figure 10.3. A screenshot of a group with a larger subgroup of one opinion with a different avatar from that of the participant and a smaller subgroup of the other opinion with the same avatar as that of the participant



Finally, this study used conformity intention instead of actual conformity decision as a dependent variable. Since there was only one discussion, it was difficult to use this decision as a dependent variable and generalize its finding to other decision-making cases. Thus, this study chose conformity intention as a dependent variable based on the assumption that behaviors are strongly influenced by motivations and intentions (Ajzen & Fishbein, 1980). As a solution, conformity decision could have been measured by several discussion sessions, but the reliability among different conformity decisions tended to be very low (Lee, 2004) because participants' personal involvements for each discussion topic might vary across different discussions. Other types of tasks, such as games or arriving at a group consensus on ranking a list of items (Hiltz, Johnson, & Turoff, 1986; Schroeder & Benbassat, 1975) could be used as group assignments that are relatively neutral and unrelated to personal interests.

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ENDNOTE

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[1] Perceived deindividuation items
1) I think I could be who I am in this group
2) I think I saw myself predominantly as an individual in this group
3) I think I considered myself as an individual different from other members in this group
4) I think my distinctive individuality was oppressed in this group
5) I think I was not considered as a distinctive individual in this group
6) I think members in this group were not represented as unique individuals in this group

[2] Need for uniqueness items
1) I find that criticism affects my self-esteem.
2) I sometimes hesitate to use my own ideas for fear they might be impractical.
3) Others' disagreements make me uncomfortable.
4) Feeling "different" in a crowd of people makes me feel uncomfortable.
5) I would rather be just like everyone else than be called a "freak."
6) It is better always to agree with the opinions of others than to be considered a disagreeable person.
7) I tend to keep quiet in the presence of persons of higher rank, experience, etc.
8) In most things in life, I believe in playing it safe rather than taking a gamble.

[3] Interdependent self-construal items
1) I feel uncomfortable disagreeing with my group.
2) My happiness depends on the happiness of those in my group.
3) I am careful to maintain harmony in my group.
4) When with my group, I watch my words so that I will not offend anyone.
5) It is important to consult close friends and get their ideas before making decisions.
6) The security of being an accepted member of a group is very important to me.

[4] Group identity items
1) I have a lot in common with other group members
2) I find it easy to identify with this group
3) I find that my values and the values of other group members are very similar

[5] Conformity intention items
1) I am willing to agree with them
2) I am willing to follow their opinion
3) I am willing to join them as the same group member
4) I am willing to share the same opinion as the same group member