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Effects of intergroup and interpersonal context, and individuals' appraisal of their in-group on the intragroup comparison process

Chikae Isobe and Mitsuhiro Ura
Hiroshima University, Hiroshima, Japan
Koji Hasegawa
Hiroshima International University, Hiroshima, Japan

Correspondence: Chikae Isobe, Faculty of Integrated Arts and Sciences,Hiroshima University, 1-7-1, Kagamiyama, Higashi-Hiroshima,739-8521, JAPAN. Email: cisobe@hiroshima-u.ac.jp

The present study examined whether individuals' endorsement of intergroup context moderates the social comparison process not only in the intergroup upward comparison condition, but also in the downward comparison condition, by experimentally manipulating the direction of intergroup comparison and interpersonal comparison for participants who appraise their in-group as high or low. As predicted, participants who appraise their in-group as high showed reflection processes in the intergroup upward comparison condition, but comparison processes in the intergroup downward comparison condition because of their endorsement of their in-group position. In contrast, participants who appraised their in-group as low showed comparison processes in the intergroup upward comparison condition, but reflection processes in the intergroup downward comparison condition. These results imply that the interplay between intergroup context and individuals' internal factors affect intragroup comparison processes.
Key words: Intergroup comparison, interpersonal comparison, appraisal of in-group, comparison process.

Introduction

Imagine the situation in which your colleagues are doing well on their task in a competition with other organizations. Most of you would feel good and praise them lavishly, regarding them as a pride of your organization. In this type of context, individuals who do well on a task are often a pride of their in-groups, praised for their superior performance by other in-group members. However, those who perform better are not always treated this way; they may experience other in-group members' envy, and fall victim to their attempts to hinder their performance. Under what circumstances do people exhibit these seemingly contradictory reactions to a superior in-group member? People's reaction to superior in-group members is a significant issue. Although high performing in-group members are clearly an important asset that can enhance the group performance, they may also threaten group cohesiveness if people react negatively to superior in-group members. An understanding of such intragroup behavior surrounding high performing in-group members in the intergroup context has both practical and theoretical significance.

Recent research (Brewer & Weber, 1994; Schmitt *et al.*, 2000) began to shed light on the interface between the intergroup relationship and the interpersonal relationship. In particular, Blanton and colleagues (Blanton *et al.*, 2000, 2002) began to explicate the contingencies of self-esteem; namely, under what circumstances is people's self-esteem enhanced or deprecated in the face of high performing in-group members. They identified a factor that influences members' self-esteem in those belonging to the low status group in reaction to superior in-group members: individuals' endorsement of their group's low status (Blanton *et al*., 2000, 2002). Extending this research, we aim to examine the effect of endorsement of both low and high in-group status on people's reaction to high performing in-group members in terms of not only their self-esteem, but also their attitudes towards the high achievers.

Psychological reactions to better performing in-group members

Tesser's (1988) self-esteem maintenance (SEM) model suggests that people's reactions to a better performing in-group member depend on whether he or she is used as a standard of comparison or as a psychological extension of themselves. When others are used as a standard for self-evaluation, a comparison process occurs. By comparing oneself to superior others (upward comparison), one feels worse and lowers one's self-esteem; however, a comparison to inferior others (downward comparison) leads to a positive affect and higher self-esteem. When others are not perceived as standards for evaluating the self, but as representations of the self, a reflection process is activated, in which an upward comparison does not threaten self-evaluation, but enhances one's self-esteem because one can bask in the superior performer's glory, but a downward comparison lowers one's self-esteem. In other words, a superior in-group member (upward comparison) is likely to be a threat to people's self-esteem in the comparison process, but a source of higher self-esteem in the reflection process.

According to the SEM model, if a task is relevant for people, a comparison process is likely to occur; people then feel inferior to the superior in-group member, leading them to form negative attitudes toward the latter. However, we contend that depending on their self-

categorization, a comparison or a reflection process may be activated. According to Turner's (1987) self-categorization theory, people may categorize themselves as individuals or as members of a group. When people regard themselves as individuals who are distinguished from their high performing in-group members, predictions of the SEM model are likely to follow; that is, a comparison process is activated, thus resulting in people rejecting the superior in-group members or lowering their self-esteem. However, when they categorize themselves as members of the in-group, they would regard themselves as interchangeable with the superior in-group members; this is likely to activate a reflection process where the superior in-group member is regarded as a representation of themselves and, therefore, they would not be rejected, but praised by other in-group members.

Recent research has shown that the direction of the intergroup comparison; namely, whether one's in-group is performing better or worse than a relevant out-group on an important task, can influence people's self-categorizations and therefore engage in different self-esteem maintenance processes. Generally, in the intergroup upward comparison condition (i.e. out-group is superior to in-group), people identify themselves with their in-group and heighten their concern for group evaluation maintenance or enhancement through the comparison with the out-group. When this occurs, individuals activate a reflection process, willing to accept a superior in-group member who can reduce the threat for their group identity from the superior out-group. Consistent with this, in Blanton *et al*.'s (2000) experiment, female African Americans were shown to engage in a reflection process with a superior in-group member in the intergroup upward comparison condition where they were exposed to the information that Blacks (in-group) are inferior to Whites (out-group). Isobe and Ura (2002, in press) too showed that, using undergraduate students' department as an in-group, in the intergroup upward comparison condition, people with low trait self-esteem maintained their state self-esteem when they were shown superior in-group members. In contrast, when the individual's in-group is superior to their out-group (i.e. intergroup downward comparison condition), the intergroup comparison is likely to enhance their group-based self-esteem and, therefore, they would not be motivated to further enhance their social identity. Thus, in this condition, individuals would be more likely to be concerned about maintaining or enhancing their personal identity in relation to their in-group members. Indeed, Isobe and Ura (2005) showed that when a relevant out-group is inferior to their in-group, people engaged in a comparison process with the better performing in-group member.

Nonetheless, an individual difference factor may moderate the effect of the direction of intergroup comparison on interpersonal comparison processes (Schmitt *et al*., 2000). In particular, Blanton *et al*. (2002) showed that the level of individuals' endorsement of their group's stereotype moderates social comparison processes with their in-group members. After given information suggesting women's poorer math and spatial ability performance, those women who endorsed the negative stereotype about women as inferior to men in math and spatial abilities were more likely to engage in comparison processes than those women who did not endorse the negative stereotype. Even in the intergroup context with no information about the in-group's relative standing, those who endorsed the negative in-group stereotype engaged in comparison processes with regard more to an in-group member than to an out-group member. This implies that intergroup contexts are likely to heighten members' concerns for personal self-evaluation when individuals hold the belief that the in-group is inferior to the out-group.

Present study

The present study examined the joint effects of direction of intergroup comparison (upward or downward comparison) as a contextual factor and individuals' appraisal of their in-group; namely whether they generally appraise their in-group high or low, as an individual difference factor. In other words, in this experiment, participants who regarded their in-group high or low were given information that implied their in-group's superiority or inferiority to the out-group, and we examine their social psychological reactions to another superior or inferior in-group member by measuring a wide range of dependent variables including state self-esteem, mood state, and attitude toward the comparison target (i.e. whether they accept or reject the target). Recall that reactions to a superior in-group member may involve either comparison or reflection processes. When a comparison process is activated, people would lower their self-esteem, have more negative mood, and a more rejective attitude toward a superior in-group member. Conversely, when a reflection process is activated, people would report higher self-esteem, a more positive affect, and a less rejective attitude toward a superior, relative to an inferior, in-group member.

The present study differs from Blanton *et al*.'s (2000, 2002) work, which focused on women's reactions in the intergroup upward comparison condition, in that we examined both men and women's reactions to both upward and downward intergroup comparisons. Furthermore, unlike the mathematical and spatial ability used by Blanton *et al*. (2002), which is stereotypically a male-superior task, our study used the score on social intelligence tasks as the comparison domain for participants' gender-based self-categorization. We chose these criteria because there is no stereotype for the relationship between sex and social intelligence in Japan, so that we could construct both upward and downward directions of intergroup comparisons with sufficient credibility.

Thus, in the present study, the effect of people's appraisal of their in-group can therefore be hypothesized in each of the intergroup upward and downward comparison conditions. We anticipated that, in the intergroup upward comparison condition, those who appraise their in-group highly would regard the information about this intergroup comparison anomalous, and be motivated to enhance the in-group compared to the out-group. Therefore, they were hypothesized to engage in reflection processes (Hypothesis 1-a). However, as suggested by Blanton *et al*. (2002), those who appraise their in-group low would endorse the information that implies the in-group's inferiority as confirming their expectation, and further engage in comparison processes (Hypothesis 1-b).

Additionally, we suggest that there is an effect of appraisal of their in-group in the condition of intergroup downward comparison as well. We anticipate that when given some information that implies their in-group's superiority to the out-group, those who appraise their

in-group highly would regard the information as confirming their expectations, endorse the information, and not be threatened by the out-group. This results in their categorizing themselves as individuals, rather than as members of their in-group, thus engaging in comparison processes (Hypothesis 2-a). In contrast, those who appraise their in-group low would regard the information that implies their in-group's superiority as anomalous, but may regard it as an opportunity to gain further esteem through their in-group identification, thus engaging in reflection processes (Hypothesis 2-b).

Method

Participants

Participants were 100 (41 male and 59 female) undergraduate students with ages ranging from 18 to 23 (M = 18.99 years, SD = 0.848; one participant did not report his/her age).

Design

The design was a 2 (intergroup comparison; upward-downward) □ 2 (interpersonal comparison; upward-downward) □ 2 (in-group appraisal; high-low) between-subjects factorial design.

Procedure

An experimenter recruited undergraduates in psychology-related classes to participate in our experiment, which was purported to examine social intelligence, in exchange for bonus points toward academic credit. Those who agreed to participate were also asked to respond to Collective Self-Esteem (Watanabe, 1994), which was developed by Luhtanen and Crocker (1992) and includes 16 items with a five-point scale (1 = strongly disagree, 5 = strongly agree). Eight items tapped the subscales that Watanabe (1994) called positive appraisal and negative appraisal, which mix items from the subscales, private appraisal and public appraisal, of Luhtanen and Crocker's (1992) original scale. We computed the index of in-group appraisal so that the higher this score, the higher the participants' appraisal of their in-group; that is, the participants' gender category (example items are 'I feel good about the gender group I belong to', 'In general, others think that the gender group I am a member of is unworthy' (reversed)).

Two other scales were also given to be used to control for potential confounds: Trait Self-Esteem Scale (Yamamoto *et al.*, 1982), which was translated from Rosenberg (1965) and includes 10 items with a five-point scale (1 = disagree, 5 = agree), and Need for Cognitive Structure (Ura, 1999), which was developed by Bar-tal, 1994) and translated into Japanese and includes 20 items with a six-point scale (1 = completely disagree, 6 = fully agree; example items are 'It is unpleasant for me to enter a situation without knowing what to expect from it', 'I think that every problem has a clear-cut solution.'). Past research has shown that trait self-esteem (Taylor *et al.*, 1996) and need for cognitive structure (Ura, 1999) affect self-evaluation processes.

For each session, 14–16 participants, with approximately equal numbers of males and females, were invited to the laboratory. In order to make salient the gender category, males and females were asked to sit on opposite sides of the experimental room. Each seat was equipped with a display and a numerical keypad of a personal computer, and these were connected to a host computer, so we could send stimuli to their displays from the host computer and get participants' responses. Two experimenters, one male and one female, alternately gave instructions orally, the same instructions were displayed on the monitor. A female assistant operated the host computer.

At the beginning of each experimental session, an experimenter explained that the purpose of this experiment was to investigate various effects of social intelligence. In order to ensure a high level of self-relevance of the task for the participants, the experimenter also gave an explanation about social intelligence: 'This ability enables individuals to interpret personal relationships correctly. Furthermore, some studies report that the scores of the social intelligence ability test are actually related to individuals' satisfaction in the future'. After ensuring that participants had no questions, the experimenter asked them to complete a pre task-importance scale, which consisted of four items tapping the degree to which they thought social intelligence was related to the success of social life and the intuitive processing ability, and how important it was for them to get high scores in the social intelligence ability test (1 = strongly disagree, 5 = strongly agree).

We then gave a test of social intelligence that consisted of 10 questions selected from Archer (1980; translated by Kudo & Ichimur, 1988), which asked participants to guess the relationship of a few persons in a picture by selecting an option from a multiple-choice format. Each set of pictures and options was sent from the host computer, and was shown on the monitor for 10 min. In this period, participants were asked to push the key corresponding to the number they selected. The experimenter also explained that the score was calculated considering the percentage of correct answers and reaction latency. After a trial test, all participants took the test.

While the host computer purportedly computed the scores, the experimenter provided further information about social intelligence; in fact, introducing an experimental manipulation. In one condition, one instruction was given which stated that, 'Males are superior to females', thus creating the intergroup downward comparison condition for men, and the intergroup upward comparison condition for women. The instructions in this condition were as follows: 'Those who have high social intelligence ability could be good at negotiation in personal relationships, and perform highly in their business. Females are known to be inferior in their social intelligence ability to males. So, the problem may occur that more males are willing to get the jobs in which they need to negotiate, as compared to females.' In the other condition, it was said that 'females are superior to males', creating the intergroup upward comparison condition for men, but the intergroup downward comparison condition for women: 'Those who have high social intelligence ability can easily make friendly

personal relationships, and earn confidence gradually. Males are known to be inferior in their social intelligence ability to females. So, the phenomenon may occur that more females are willing to play an active role in service industries, as compared to males'.

At first, the experimenter presented the participants' own scores on each display. In fact, the score of 30 points was presented to all participants for two seconds. Then, it was explained that this study aimed not only to examine the relationship between their traits and their social intelligence, but also to find out how those who get various points are evaluated by others. Then the experimenter said, 'Now we will present everyone with information about a person (named A) who is randomly selected by the host computer. Everyone will be shown a different person 'A'. In fact, we displayed two profiles. In the interpersonal upward comparison condition, the following information was displayed, 'A is a male (or female; the same gender as the participant's own) and in the same faculty as you at your university. He/she got 42 points on the social intelligence test.' In the interpersonal downward comparison condition, participants were presented with the same text, except that A received 18 points.

Finally, the experimenter asked participants to complete the questionnaire, which included the post-task-importance scale, which was the same scale as the pretask-importance scale, at the beginning and manipulation check questions at the end. For the latter, two items checked the validity of the interpersonal comparison manipulation (1 = not excellent at all, 5 = very excellent): 'How excellent are you in social perception ability?' and 'How excellent is "A" in social perception ability?' The response for the second item was subtracted from the response for the first item to compute the manipulation check. Two items checked the efficacy the intergroup comparison manipulation on the same five-point scale: 'How excellent is males' social intelligence ability, generally?' 'How excellent is females' social intelligence ability, generally?' Again, the second item was subtracted from the first item to compute the relevant manipulation check score. The last question was, 'Did you imagine that "A" is a real person? (yes or no)'.

The dependent variables were measured by three scales: Japanese State Self-Esteem Scale (Tachi & Uno, 2000), from which we removed six items (out of the total of 20 items) that tapped the subscale of appearance dimension by Heatherton and Polivy (1991; 1 = not at all, 5 = extremely), General Affect Scales (Ogawa *et al.*, 2000), which consist of 24 items (1 = not feel at all, 4 = feel extremely) with three subscales of positive affect, negative affect and affective calmness, and Rejection-Acceptance Scale (Maeda, 1998, unpublished), which has 14 items that ask whether participants reject or accept the target person, that is 'A' (1 = agree, 7 = disagree).

Results

Preliminary analyses

We computed one of the main independent variables, in-group appraisal based on the items included in the Collective Self-Esteem Scale. Cronbach's alpha was acceptable for all participants (0.73), as well as for men (0.77) and women (0.75) separately. There was no significant gender difference in in-group appraisal ($t(98) = 1.01$, *ns*.). Participants were separated into two groups: high ($M = 3.87$, $SD = 0.301$) and low ($M = 2.94$, $SD = 0.434$) in in-group appraisal based on the mean ($M = 3.45$, $SD = 0.591$). They differed significantly on in-group appraisal ($t(98) = 12.59$, $p < 0.001$).

Three classes of dependent variables were computed. First, we calculated two scores of State Self-Esteem based on Heatherton and Polivy (1991): social (7 items, *alpha* = 0.77; 'I am worried about what other people think of me.') and performance (7 items, *alpha* = 0.83; 'I feel confident about my abilities.') dimensions. Second, we computed three scores of Affect based on Ogawa *et al*. (2000): positive affect (8 items, *alpha* = 0.92; e.g. 'vigorous', 'pleasant'), negative affect (8 items, *alpha* = 0.92; e.g. 'upset', 'frightened'), and calmness (8 items, *alpha* = 0.89; e.g. 'calm', 'peaceful'). Third, two scores of the Rejection-Acceptance Scale were computed following Maeda (1998, unpublished): rejection (8 items, *alpha* = 0.87; e.g. 'put the freeze on "A"', 'behave as though intending not to co-operate with "A"') and acceptance (6 items, *alpha* = 0.84; e.g. 'willing to speak to "A"', 'encourage "A" to recover after a failure.').

Two variables were measured for the purpose of statistically controlling for potential confounds: Trait Self-Esteem Scale and Need for Cognitive Structure (*alpha* = 0.86 and 0.80, respectively).

Manipulation checks

To check the efficacy of the manipulation of interpersonal comparisons (superior *vs* inferior in-group target), the relevant items were reverse scored and averaged, and submitted to a interpersonal comparison □ intergroup comparison □ in-group appraisal ANOVA. The main effect of interpersonal comparison was significant ($F_{1,92} = 128.19$, $p < 0.001$; interpersonal upward comparison, $M = 1.68$, $SD = 0.140$, and interpersonal downward comparison, $M = –0.54$, $SD = 0.138$). Likewise, a comparable analysis showed that the main effect of intergroup comparison was significant ($F_{1,92} = 34.63$, $p < 0.001$, intergroup upward comparison condition, $M = 0.67$, $SD = 0.149$, and intergroup downward comparison condition, $M = –0.55$, $SD = 0.142$).

Eliminating potential confounds

To check to see if the perceptions of task importance influenced the dependent variables, pretask importance (*alpha* = 0.55) and post-task importance (*alpha* = 0.65) scores were computed, and 2 (the time of answer: pre-post-task importance; within) □ 2 (interpersonal comparison) □ 2 (intergroup comparison) □ 2 (in-group appraisal) ANOVA was performed. An interaction between time and interpersonal comparison was marginally significant ($F_{1,90} = 3.18$, $p < 0.10$). Just to be sure, we conducted relevant analyses with the importance ratings as covariates, but no effects were significant.

Our last manipulation check item showed that only 19 participants thought that the target was a real person, and 81 participants did not. To see whether this had any effect, we conducted relevant analyzes with this response as a covariate; however, no main effect of the covariate was significant.

Testing the hypotheses

In order to examine our hypotheses, we conducted a 2 (interpersonal comparison) □ 2 (intergroup comparison) □ 2 (in-group appraisal) □ 2 (gender male: *vs* female) MANCOVA with trait self-esteem and need for cognitive structure as covariates. Gender did not interact with any other variables and, therefore, dropped from further analyses. A comparable analysis without gender was conducted. A three-way interaction was significant ($F_{7,84} = 2.56$, $p < 0.05$). We consequently conducted 2 (interpersonal comparison) □ 2 (intergroup comparison) □ 2 (in-group appraisal) ANCOVAs on each dependent variable, and found a three-way interaction on three variables: social dimension of state self-esteem ($F_{1,90} = 7.08$, $p < 0.01$), positive affect ($F_{1,90} = 3.60$, $p < 0.07$) [1], and accepting attitude ($F_{1,90} = 4.26$, $p < 0.05$). We describe each significant three-way interaction effect in turn.

First, on the social dimension of state self-esteem, we examined a simple interaction effect of interpersonal comparison (superior *vs* inferior in-group target) and in-group appraisal, which was significant in the intergroup upward comparison condition ($F_{1,92} = 3.15$, $p < 0.08$) and the intergroup downward comparison condition ($F_{1,92} = 4.27$, $p < 0.05$). Figure 1 reports the means and the results of Bonferroni's multiple comparison tests. Consistent with hypothesis 1-a, in the intergroup upward comparison condition, high in-group appraisers showed higher social self-esteem when the in-group target was superior ($M = 3.24$, $SE = 0.201$) than when the target was inferior ($M = 2.40$, $SE = 0.172$; $F_{1,90} = 10.45$, $p < 0.01$). Furthermore, higher appraisers' social self-esteem was higher than that of low appraisers' when they were shown a superior in-group target ($F_{1,90} = 3.16$, $p < 0.10$), implying that high appraisers engaged more in reflection processes, but low appraisers engaged more in comparison processes (hypotheses 1-a and 1-b).

In the intergroup downward comparison condition, consistent with hypothesis 2-a, high in-group appraisers exhibited marginally higher social self-esteem when the in-group target was inferior ($M = 2.97$, $SE = 0.170$) than when the target was superior ($M = 2.57$, $SE = 0.153$; $F_{1,90} = 3.14$, $p < 0.10$). In addition, low appraisers showed higher social self-esteem when compared to high appraisers. ($F_{1,90} = 4.45$, $p < 0.05$), implying that high appraisers engaged in comparison processes while low appraisers activated reflection processes (hypotheses 2-a and 2-b).

Next, in terms of positive affect, simple interaction effects between direction of interpersonal comparison and in-group appraisal were not significant in the intergroup upward comparison condition and the intergroup downward comparison condition. However, Bonferroni's multiple comparison tests showed that in the intergroup upward comparison condition, low in-group appraisers reported a slightly more positive mood when the in-group target was inferior ($M = 2.77$, $SE = 0.203$) than when the target was superior ($M = 2.21$, $SE = 0.222$) ($F_{1,90} = 3.51$, $p < 0.10$) (Figure 2). This result is in line with hypothesis 1-b. Additionally, in the intergroup downward comparison condition, when they faced a inferior in-group target, high in-group appraisers experienced a marginally more positive affect than low appraisers ($F_{1,90} = 2.91$, $p < 0.10$), implying that high appraisers engaged more in reflection processes than low appraisers (hypotheses 2-a and 2-b).

Finally, in terms of acceptance of the in-group target, simple interactions between interpersonal comparison and in-group appraisal were again not significant in the intergroup upward or downward comparison condition. However, we conducted Bonferroni's multiple comparison tests. As Figure 3 shows, in the intergroup upward comparison condition, low in-group appraisers accepted the inferior in-group target ($M = 4.90$, $SE = 0.186$) more than the superior in-group target ($M = 4.32$, $SE = 0.218$) ($F_{1,90} = 5.63$, $p < 0.05$), generally in line with hypothesis 1-b. Conversely, in the intergroup downward comparison condition, low in-group appraisers accepted the superior in-group target ($M = 4.91$, $SE = 0.203$) marginally more than the inferior target ($M = 4.33$, $SE = 0.219$; $F_{1,90} = 3.65$, $p < 0.10$). This result was consistent with hypothesis 2-b. Furthermore, in the intergroup downward comparison condition, high appraisers accepted an in-group target that performed poorly more than low appraisers ($F_{1,90} = 3.88$, $p < 0.10$); the results can be interpreted in line with hypotheses 2-a and 2-b.

No other three-way interaction effects were significant: performance dimension of state self-esteem ($F_{1,90} = 0.53$, *ns*), affective calmness ($F_{1,90} = 0.26$, *ns*), and rejective attitude ($F_{1,90} = 0.68$, *ns*). However, we found a main effect of in-group appraisal on rejection ($F_{1,90} = 6.83$, $p < 0.05$); low appraisers ($M = 2.08$, $SE = 0.116$) rejected their in-group target more than high in-group appraisers ($M = 1.63$, $SE = 0.208$). Although there was a main effect of interpersonal comparison ($F_{1,90} = 3.68$, $p < 0.10$) and an interaction of interpersonal and intergroup comparison factors on social self-esteem, these lower order effects cannot be interpreted in light of the three-way interaction effect. Therefore, these effects are not discussed.

Discussion

The present study showed that an individual difference variable of in-group appraisal moderates the social comparison processes not only in the intergroup upward comparison condition as Blanton *et al*. (2000, 2002) suggested, but also in the intergroup downward comparison condition. First, in the intergroup upward condition, both hypotheses 1-a and 1-b were supported at least on the social dimension of state self-esteem. Namely, high in-group appraisers engaged in reflection processes, but low in-group appraisers engaged in comparison processes. In addition, low in-group appraisers showed some signs of comparison processes on positive affect and acceptance. In other words, when people's in-group was said to be inferior to the out-group, people who did not think much of their in-group tended to have a more positive mood, feel better about themselves socially, and be more accepting of an in-group member who performs more poorly than

themselves. These results suggested that, in the intergroup upward comparison condition, in-group appraisal moderates people's social comparison with an in-group other. In this sense, the results of the present study generally supported Blanton *et al*.'s (2000, 2002) contention.

Additionally, the hypotheses were supported in some parts in the intergroup downward comparison condition as well. In this condition, high in-group appraisers were more likely to engage in comparison processes than low appraisers in terms of social self-esteem, positive affect, and acceptance of an in-group other. This is presumably because high in-group appraisers felt so superior to their out-group that they underestimated the possibility of an out-group threat, and experienced increased concern about their own personal identity. Conversely, low in-group appraisers appear to have engaged more in reflection processes than high appraisers. This is possibly because low appraisers regard it likely that their in-group's superior status is threatened, and may have experienced increased concern for in-group identity. Nevertheless, these results may need to be interpreted with caution as they were suggested only in post hoc comparisons.

One of the characteristics of the present study was to the inclusion of a wide range of variables including mood, self-esteem, and acceptance or rejection of an in-group other in our examination of people's reactions to a superior in-group member. First of all, it is interesting to note that the hypothesized effects were found in some variables, but not in others. The hypotheses were most clearly supported for the social dimension of state self-esteem. This may be because we used social intelligence to manipulate intergroup and interpersonal comparisons in this study. It is the social dimension of state self-esteem, rather than its performance dimension, that would be relevant to social intelligence. In contrast, the performance dimension may be affected by tasks about non-interpersonal ability as illustrated by Isobe and Ura (2002 in press). In addition, the hypothesized three-way interaction was found for positive responses of positive mood and acceptance, but not for calmness and rejection, possibly because people did not wish to exhibit negative responses. This possibility needs to be examined in the future.

Second, it is interesting to note that high in-group appraisers showed a clear pattern of responses on the social dimension of state self-esteem scale; however, in terms of acceptance, low in-group appraisers showed a clearer pattern. These results imply that people with different levels of in-group appraisal express reflection and comparison processes in different ways. This may be explained by taking into account how individuals interpret a threat that comes from a superior in-group member. High in-group appraisers may be more willing to attribute their poor performance to their internal factors, such as a lack of their ability, which may then affect their state self-esteem. In contrast, low appraisers may attribute the threat stemming from a superior in-group member to that person. This might lead them not to accept the target in order to maintain their personal identity. Nevertheless, this speculation needs to be investigated further in future studies.

It should be noted that there is an alternative interpretation of the process in which a superior in-group member is rejected by other in-group members. That is, people may consider the superior member's achievements as a deviation from their in-group norm. However, this interpretation is unlikely to hold in the current context because high in-group appraisers are likely to have the norm of high performance on the task, and low appraisers are likely to have the norm of inferior performance. Were this alternative interpretation true, high appraisers should be willing to accept the superior member, and refuse an inferior in-group member. Moreover, this is more likely to hold in the intergroup downward comparison condition, where the norm of inferiority would be threatened. Contrary to this view, the current results showed low appraisers were willing to accept a superior in-group member in the intergroup downward comparison condition, although there were no significant differences among high appraisers. This suggests that the participants in this study were not driven by their norm maintenance motivation, but by concerns for their collective or personal identity.

Theoretically, our concern in the present study was an examination of the self-categorization process; namely, which identity, collective or individual becomes salient in what contexts. Self-categorization theory (Turner, 1987) tends to emphasize contextual factors and ignore individual differences; however, as Endo (1999) noted, context alone is unlikely to be able to explain all processes of self-categorization. Like Schmitt *et al*.'s (2000) and Blanton *et al*'s (2002) recent studies, our results suggest that participants' internal factor and intergroup context both affect people's salient identity in intragroup social comparisons. However, further examination will be needed to identify other important factors and combinations between interpersonal processes and intergroup processes that influence the social comparison processes involving in-group members.

Finally, there are some practical implications of this study. Our results suggest that the endorsement of in-group's status in intergroup context, either positive or negative, lead to comparison processes in intragroup interpersonal comparison. This may be interpreted in terms of the changeability of the intergroup relationship. That is, if the intergroup relationship is considered to be unchangeable, people may engage in interpersonal and intragroup behaviors rather than intergroup behaviors. Intragroup and interpersonal comparisons could enhance not only an individuals' performance, but also their in-group's performance as a whole because these processes could facilitate the competition among individuals within a group. However, they could also negatively affect the in-group's performance besides our results that interpersonal relationships could deteriorate. For example, individuals could heighten interpersonal stresses as they could be the targets of interpersonal upward comparison for other in-group members (Juola-Exline & Lobel, 1999), or may try not to excel in order to avoid rejection from other in-group members (Pappo, 1983).

Furthermore, dynamic social changes may be inhibited due to the individuals' underestimating the changeability of the intergroup context and not be motivated to enhance their group identity. The current results imply that in-group members who did not endorse their in-group negative information and realize the changeability of intergroup status could restrain the rejection of superior in-group members and reduce the individuals' threat from in-group members. Future studies may do well to investigate not only the condition that reduces members' individual stress, but also the conditions that enhance the in-group's total performance and make society better, with focus on

the perceived changeability of intergroup context.

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Figures

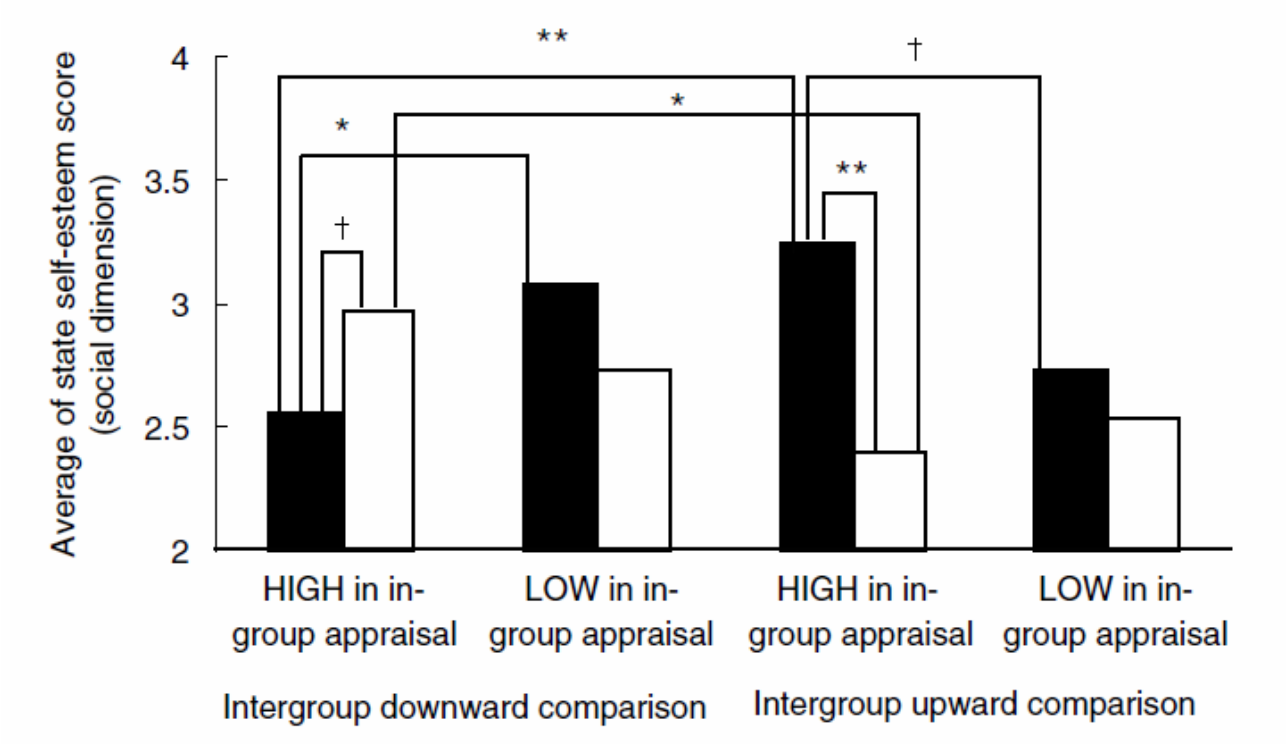

Figure 1 State self-esteem (social dimension) as a function of intergroup comparison, interpersonal comparison, and individuals' in-group appraisal. □, Interpersonal upward comparison; □,Interpersonal downward comparison. $^{**}p < 0.01$; $^{*}p < 0.05$; †$p < 0.10$.

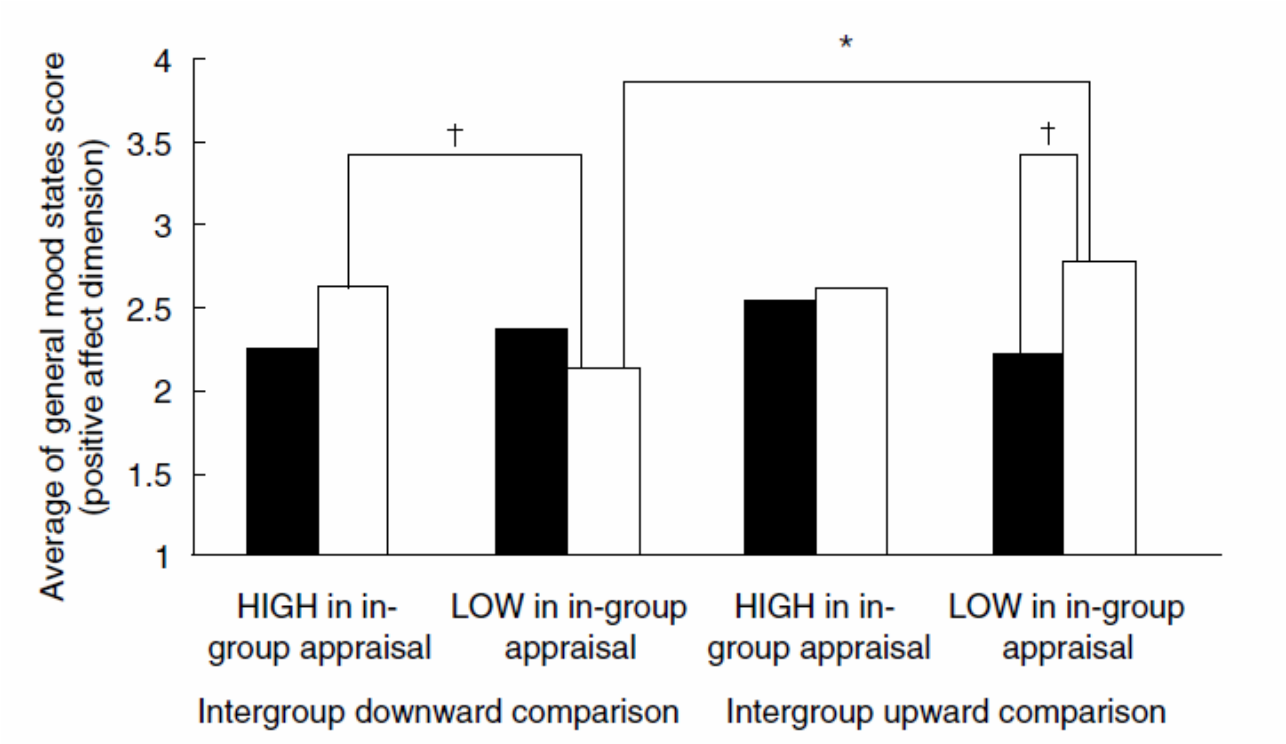

Figure 2 General mood state (positive affect dimension) as a function of intergroup comparison, interpersonal comparison, and individuals' in-group appraisal. □, Interpersonal upward comparison; □, Interpersonal downward comparison. $^{*}p < 0.05$; †$p < 0.10$.

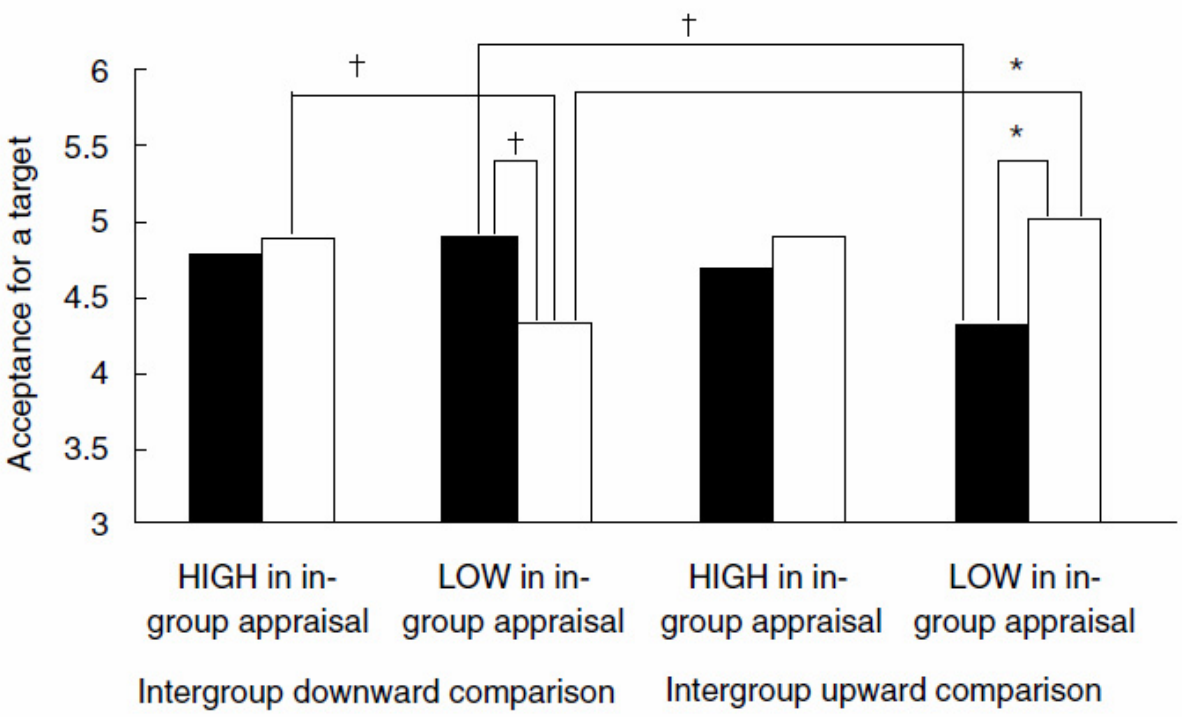

Figure 3 Acceptance for a target as a function of intergroup comparison, interpersonal comparison, and individuals' in-group appraisal. □, Interpersonal upward comparison; □, Interpersonal downward comparison. *$p < 0.05$; †$p < 0.10$.