EFFECTS OF EMOTIONAL INTELLIGENCE ON INHIBITING RETALIATION FOR OSTRACISM IN CYBERBALL

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Emotional intelligence plays an important role in coordinating social interaction. This study investigated the effects of emotional intelligence on inhibiting retaliation for ostracism. Seventy-six university students (44 men and 32 women) played an online ball-tossing game called Cyberball (Williams, Cheung, & Choi, 2000) with three other players. In the first session, each participant and another player were either ostracized or included by the other two players. In the second session, the participant had to decide whether to ostracize the other two players, who were the ostracism offenders in the ostracism condition, by throwing back the ball to the other player or not. The results show that those who have high regulation of emotions in the self, one of the subscales of emotional intelligence, better inhibited retaliation for ostracism. This finding suggests that regulation of emotions in the self can function as an inhibitor of inappropriate emotional behaviors in interpersonal situations.

Key words: emotional intelligence, ostracism, retaliation, Cyberball

Emotions serve communicative and social functions, conveying information to others and eliciting their reactions (Keltner & Kring, 1998). Because of this social function of emotions, abilities to appraise and regulate emotions appropriately play an important role in building successful interpersonal relationships. Individuals markedly differ, however, in the extent to which they appropriately recognize and regulate their own or others' emotions and behaviors facilitated by emotions. The construct of emotional intelligence has been proposed to account for this individual difference (Salovey & Mayer, 1990). Previous studies have revealed that those who have higher emotional intelligence have better quality of social interactions with peers (e.g., Lopes, Salovey, Côté, & Beers, 2005).

An experimental paradigm is needed to investigate how individual differences in emotional intelligence influence differences in reactions or behaviors in different situations. However, Mikolajczak, Roy, Verstrynge, and Luminet (2009, p. 700) indicated that “most studies have examined EI’s (emotional intelligence’s) correlates using cross-sectional designs and very few published studies (less than 10%) have employed longitudinal or experimental paradigms to test causal/explicative models.” Moreover, previous studies of emotional intelligence which have employed the experimental paradigm have not investigated the social function of emotional intelligence by setting up interpersonal situations. For example, these studies set up situations in which participants

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felt stress caused by experiences of failure in answering difficult test questions (Mikolajczak & Luminet, 2008) or through watching a video containing emotion-laden stimuli (Petrides & Furnham, 2003). To clarify the social function of emotional intelligence, it is necessary to investigate the effects of emotional intelligence on behaviors by setting an interpersonal situation and employing an experimental paradigm.

When people confront interpersonal problems, they have to appraise and regulate their own or others' emotions and inhibit inappropriate behaviors to coordinate social relationships. One severe interpersonal problem that can occur is ostracism. Ostracism can be defined as "being ignored and excluded, and it often occurs without excessive explanation or explicit negative attention" (Williams, 2007, p. 429). Previous studies have suggested that experience of ostracism increases the experience of negative emotions in ostracized people such as anger and sadness, and decreases the experience of positive emotions such as enjoyment (Chow, Tiedens, & Govan, 2008; Zadro, Williams, & Richardson, 2004). Ostracism is also one of the precursors to retaliation (Leary, Twenge, & Quinlivan, 2006). For example, ostracized people blasted their playing partners with higher levels of aversive noise than did included people (Twenge, Baumeister, Tice, & Stucke, 2001) and were more likely to choose unappealing snacks for their playing partners than were included people (Chow et al., 2008).

Given that retaliation is related to emotions such as anger or aggression, emotional intelligence could be related to retaliation for ostracism. The interpersonal consequences of retaliation are generally destructive in that retaliation can escalate conflict and lead to a long-lasting reciprocal chain of retaliatory and counter retaliatory behaviors (Kim & Smith, 1993; Lickel, Miller, Stenstrom, Denson, & Schmader, 2006). At least in the case that offenders stop behaving aggressively, people should inhibit retaliation to avoid escalating conflict and facilitate an appropriate attempt at alternative behaviors such as forgiveness or negotiation. Regulation of emotions in the self, which is a subcomponent of emotional intelligence, is the ability to regulate one's own inappropriate behaviors caused by emotions. This subcomponent could function as an inhibitor of retaliation for ostracism.

To investigate the effects of ostracism on retaliation, previous studies have usually set up a situation in which one participant is ostracized and has an opportunity to retaliate against offenders. Williams (2009) indicated further research should investigate individuals' reactions or behavior when more than one person was simultaneously ostracized. In this case, the ostracized others are more related to the participant than offenders of ostracism. One of the difficult challenges to coordinate in social relationships is that people must choose and perform appropriate actions according to a variety of others. If researchers try to reveal the social function of emotional intelligence close to daily situations, they have to set up interpersonal situations consisting of others of differing kinds of relationships.

In this study, we experimentally set up conditions in which two of four people were ostracized simultaneously by the other two people or not. Drawing on the preceding literature, we tested the prediction that those who have higher emotional intelligence (especially, regulation of emotions in the self) would better inhibit retaliation for ostracism.

METHOD

Participants

Seventy-eight university students participated in the experiment. Two participants were subsequently excluded because one of them already knew about Cyberball before the experiment and the other did not comply with task instructions. This resulted in a final sample of 76 participants. They were randomly assigned to either an ostracism condition (22 males, 16 females, mean age = 21.3, $SD = 2.36$) or an inclusion condition (22 males, 16 females, mean age = 21.4, $SD = 2.25$), while at the same time ensuring that the conditions were matched for gender ratio.

Materials

Cyberball. We used an online ball-tossing game called Cyberball (Williams, Cheung, & Choi, 2000) to manipulate ostracism. Although most previous studies used Cyberball played by three individuals, we used Cyberball played by four individuals. Participants, who did not know each other, were told they were playing the game with the other three players in the same room who were also participating in this experiment. In reality, the computer controlled the three agents involved in the game. Participants were informed that they would be represented by an animated hand at the bottom of the screen whereas the other three players would be represented by animated figures located above and to the left, right and opposite side of the participant's animated hand. When the ball was tossed to the participants, they were instructed to press "1" to throw the ball to the left player, "2" to the opposite player and "3" to the right player by using a key board.

In the practice session, participants were thrown the ball roughly one fourth of the time by the other "players" in both the ostracism and the inclusion conditions. In the first session, participants who were assigned to the ostracism condition were given an experience in which they and the opposite player received the ball twice at the beginning of the game, and for the remaining time, never received the ball again. Participants assigned to the inclusion condition received the ball one fourth of the time from the other "players" like in the practice session. In the second session, the left and right players threw the ball to the other players equally and the opposite player always threw the ball to the participant in both the ostracism and the inclusion conditions. If the participant continued to throw the ball to the opposite player in this situation, the participant and the opposite player could ostracize the left and right players. The game ended after 10 throws in the practice session, 40 throws in the first session, and 50 throws in the second session. We set the higher number of throws for the second session than for the first session because we analyzed how the participants threw the ball in the second session.

Emotional intelligence. We used a 16-item self report scale used in Nozaki (2012) to assess the participants' emotional intelligence. Nozaki (2012) partially revised the Wong and Law Emotional Intelligence Scale (WLEIS; Wong & Law, 2002; for Japanese, Toyota & Sakurai, 2007) because the WLEIS had been criticized for having items in "use of emotion," one of the subscale of the WELIS, including contents that were not related to emotions, and for having no items referring to the management of others' emotions (McEnrue, Groves, & Shen, 2010). This revised scale consisted of four subscales, self-emotion appraisal (e.g., I have a good understanding of my own emotions), regulation of emotions in the self (e.g., I have good control of my own emotions), other-emotion appraisal (e.g., I have a good understanding of the emotions of people around me), and regulation of emotions in others (e.g., I am good at alleviating someone's anxiety, when they feel it). Each subscale contained four items and a 6-point Likert-type scale (1 = totally disagree to 6 = totally agree). Cronbach's alpha coefficients were .77, .76, .76, and .83 for self-emotion appraisal, regulation of emotions in the self, other-emotion appraisal, and regulation of emotions in others, respectively.

Manipulation check. To check that the ostracism manipulation was successful, we asked participants to rate their agreement with the following statements, "What percent of the throws were thrown to you?" (Zadro et al., 2004), "To what extent were you included by the participants during the game?" (Zadro et al., 2004), and "To what extent was the opposite player included by the participants during the game?" The last two questions were rated on a 9-point Likert-type scale (1 = not at all, and 9 = very much so).

Emotions felt during Cyberball. To measure participants' appraisal of emotions felt during Cyberball by each player, they rated their agreement with the following 12 statements, "You (the left/right/opposite player) felt anger during the game," "You (the left/right/opposite player) felt sadness during the game," and "You (the left/right/opposite player) enjoyed playing the game." All questions were rated on a 9-point scale (1 = not at all, and 9 = very much so).

Fig. 1. The layout of the experimental room
Note. The room size is 16 m². The height of partitions is 180 cm.
Participants cannot see each other due to partitions.

Intention to throw the ball. To measure participants’ intention not to throw the ball to the left or right players in the second session, they rated their agreement with the following four statements, “You preferred not to throw the ball to the left player,” “You preferred not to throw the ball to the right player,” “You preferred to throw the ball to the opposite player,” “You tried to make all players receive the ball equally (reversed item).” All questions were rated on a 9-point scale (1 = not at all, and 9 = very much so; $\alpha = .77$).

*Procedure*¹

Four Participants who did not know each other were introduced to an experimental room and were seated in front of a computer. They could not see each other after starting the experiment due to partitions separating them from each other (for details of the layout of the experimental room, see Fig. 1). After completing a written and verbal informed consent process, participants answered the emotional intelligence scale.

Next, participants were told that this study examined the effects of mental visualization and that they would be playing an Internet ball-tossing game on the computer. They were asked to visualize the situation, themselves and the other players. They were instructed to put on ear muffs during the game to concentrate on playing the game. The actual purpose was to prevent the participants from hearing the sound caused by the other participants pressing keys. They carried back used ear muffs after the experiment for hygienic reasons. Participants started playing Cyberball according to the experimenter’s instruction. They engaged in the practice session followed by the first session. After finishing the first session, they answered the questions about manipulation check and emotions felt during Cyberball. After answering them, they were instructed to play the same game again and started playing the second session according to the experimenter’s instruction. After finishing the game, they answered the questions assessing manipulation check, emotions felt during Cyberball, and intention to throw the ball.

¹ The procedure of this research was approved by the Ethic Committees of Graduate School of Education, Kyoto University.

When the experiment was completed, participants were given a thorough debriefing. They were told the exact purpose of the study. Importantly, they were told that other players were not the participants in the same room but controlled by the computer and the ostracism/inclusion episode they experienced was bogus and randomly assigned.

Index of retaliation

We calculated the rate of throwing the ball to the opposite player after catching it from him/her in the second session as index of retaliation (the number of throwing the ball to the opposite player after catching it from him/her was divided by the number of catching the ball from the opposite player and multiplied by 100). We used only tosses after catching the ball from the opposite player because tosses to the opposite player after catching it from the left or right player could be regarded as fair rather than retaliation. In this experiment, the number of catching the ball from the opposite player during the second session differed between participants because they differently chose the target of throwing the ball. To equalize the number of throwing the ball between participants, we used nine throwing after catching the ball from the opposite player from the start of the second session, when calculating the index of retaliation, because it was the minimum number among participants.

RESULTS

None of the analyses below were qualified by gender. Therefore, gender as a factor was omitted from the reported analyses.

Manipulation check

To check an adequacy of manipulation, we conducted a 2 (condition: ostracism, inclusion; between) $\times$ 2 (time: first session, second session; within) ANOVA on each rating score to the questions of manipulation check. The results revealed significant interactions for all questions, $F_s(1, 74) > 36.00$, $p_s < .001$, partial $\eta^2_s > .33$. Simple main effects showed that participants in the ostracism condition ($M = 2.45$, $SD = 1.41$) felt significantly less included than those in the inclusion condition ($M = 6.00$, $SD = 2.17$) in the first session, $t(74) = 8.47$, $p < .001$, $d = 1.94$, but there was no significant difference between the ostracism ($M = 7.29$, $SD = 1.78$) and the inclusion condition ($M = 7.29$, $SD = 2.10$) in the second session, $t(74) = 0.00$, $n.s.$, $d = 0.00$. Participants in the ostracism condition ($M = 12.11\%$, $SD = 7.23$) also reported that they significantly received the ball tosses fewer times than those in the inclusion condition ($M = 24.50\%$, $SD = 9.22$) in the first session, $t(74) = 6.52$, $p < .001$, $d = 1.50$. In the second session, those in the ostracism condition ($M = 50.24\%$, $SD = 20.73$) reported that they significantly received the ball tosses more frequently than those in the inclusion condition ($M = 39.29\%$, $SD = 14.63$), $t(74) = 2.66$, $p < .01$, $d = 0.61$. Participants in the ostracism condition ($M = 2.34$, $SD = 1.55$) also reported that the opposite player was significantly less included than those in the inclusion condition ($M = 6.32$, $SD = 1.93$) in the first session, $t(74) = 9.89$, $p < .001$, $d = 2.27$, but there was no significant difference between ostracism ($M = 6.63$, $SD = 1.87$) and inclusion condition ($M = 6.21$, $SD = 2.34$) in the second session, $t(74) = 0.87$, $n.s.$, $d = 0.20$. These results suggested that our manipulation was successful.

Table 1. Means and standard deviations (in parentheses) of emotions felt during Cyberball

	1st session				2nd session			
	Ostracism (N = 38)	Inclusion (N = 38)	<i>t</i>	<i>d</i>	Ostracism (N = 38)	Inclusion (N = 38)	<i>t</i>	<i>d</i>
Anger								
Participant	4.18 (2.79)	3.08 (2.19)	1.92 [†]	0.44	2.42 (2.11)	3.26 (2.37)	1.64	0.38
Opposite player	4.97 (2.74)	3.13 (1.98)	3.37**	0.77	3.08 (2.22)	3.87 (2.37)	1.50	0.35
Left player	3.29 (2.29)	2.87 (1.89)	0.87	0.20	3.58 (2.24)	3.55 (2.14)	0.05	0.01
Right player	3.66 (2.39)	3.00 (1.77)	1.37	0.31	3.03 (1.79)	4.45 (2.16)	3.12**	0.72
Sadness								
Participant	4.29 (2.63)	3.45 (2.23)	1.51	0.35	1.95 (1.69)	3.00 (2.12)	2.39*	0.55
Opposite player	5.79 (2.42)	4.05 (2.47)	3.10**	0.71	2.47 (1.56)	3.89 (2.32)	3.13**	0.72
Left player	1.79 (1.12)	2.61 (1.55)	2.63*	0.61	2.76 (1.50)	3.13 (2.00)	0.90	0.21
Right player	1.66 (1.15)	2.53 (1.59)	2.73**	0.63	2.68 (1.34)	3.79 (2.07)	2.77**	0.64
Enjoyment								
Participant	3.58 (2.49)	5.97 (2.21)	4.43***	1.02	6.63 (2.12)	6.13 (2.18)	1.01	0.23
Opposite player	2.53 (1.41)	5.82 (1.64)	9.37***	2.15	6.18 (1.59)	5.16 (2.48)	2.15*	0.49
Left player	6.68 (2.21)	6.61 (1.44)	0.18	0.04	5.63 (1.75)	5.53 (1.83)	0.26	0.06
Right player	6.55 (2.52)	6.39 (1.85)	0.31	0.07	5.50 (1.50)	5.08 (2.03)	1.03	0.24

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Differences in the rating of emotions felt during Cyberball between conditions

We examined differences in emotions felt during Cyberball between conditions (for all means and standard deviations, see Table 1).

Anger. A 2 (condition: ostracism, inclusion; between) $\times$ 2 (time: first session, second session; within) $\times$ 4 (player: participant, opposite, left, right; within) ANOVA on anger rating revealed a significant three-way interaction, $F(3, 222) = 2.81$, $p < .05$, partial $\eta^2 = .04$. This three-way interaction was unpacked by conducting a t test on differences between conditions within each player and each time (c.f., Table 1). In the first session, ostracized participants rated their anger marginally significantly higher than did included participants ($p = .058$). Ostracized participants also rated opposite players' anger significantly higher than did included participants. There were no significant differences in participants' rating of left or right players' anger. In the second session, ostracized participants rated right players' anger significantly lower than did included participants. There were no significant differences in participants' rating of their own, opposite players', or left players' anger.

Sadness. A 2 (condition: ostracism, inclusion; between) $\times$ 2 (time: first session, second session; within) $\times$ 4 (player: participant, opposite, left, right; within) ANOVA on

sadness rating revealed a significant three-way interaction, $F(3, 222) = 9.79, p < .001$, partial $\eta^2 = .12$. This three-way interaction was unpacked by conducting a t test on differences between conditions within each player and each time (see Table 1). In the first session, ostracized participants rated opposite players' sadness significantly higher and left and right players' sadness significantly lower than did included participants. There was no significant difference in participants' rating of their sadness. In the second session, ostracized participants rated their own, opposite players', and right players' sadness lower than did included participants. There was no significant difference in participants' rating of left players' sadness.

Enjoyment. A 2 (condition: ostracism, inclusion; between) $\times$ 2 (time: first session, second session; within) $\times$ 4 (player: participant, opposite, left, right; within) ANOVA on enjoyment rating revealed a significant three-way interaction, $F(3, 222) = 15.46, p < .001$, partial $\eta^2 = .17$. This three-way interaction was unpacked by conducting a t test on differences between conditions within each player and each time (see Table 1). In the first session, ostracized participants rated their own and opposite players' enjoyment lower than did included participants. There were no significant differences in participants' rating of left or right players' enjoyment. In the second session, ostracized participants rated opposite players' enjoyment higher than did included participants. There were no significant differences in participants' rating of their own, left players', or right players' enjoyment.

Effects of emotional intelligence on the rating of emotions felt during Cyberball

We conducted a hierarchical multiple regression analysis to investigate the possibility that emotional intelligence might be related to the rating of emotions felt during Cyberball. We centered all continuous predictors to reduce potential problems of multicollinearity among variables (Aiken & West, 1991). We examined separately each player's emotions in the first or the second session (3 types of emotions, 2 types of time, 4 types of players; altogether 24 kinds of variables) as dependent variables in each analysis². In the first step, predictor variables were self-emotion appraisal, regulation of emotions in the self, other-emotion appraisal, regulation of emotions in others, and condition (ostracism = 1, inclusion = -1). In the second step, we added interactions between self-emotion appraisal and condition, other-emotion appraisal and condition, and regulation of emotions in others and condition. In the third step, we added an interaction between regulation of emotions in the self and condition. Results revealed no interaction or main effects of each subscale of emotional intelligence were significant. They suggested that emotional intelligence was not related to the rating of emotions caused by ostracism.

² Unlike the analyses for differences in the rating of emotions felt during Cyberball between conditions, we analyzed the factors of time and player separately. If we used four-way interactions, emotional intelligence (four types of subscales) $\times$ condition (one dummy variable) $\times$ time (one dummy variable) $\times$ player (three dummy variables) as independent variables in multiple regression analysis, the total number of independent variables would be 79 (nine one-way predictors, 27 two-way interactions, 31 three-way interactions and 12 four-way interactions). In this case, parameter estimation was not stable due to too many independent variables. To avoid unstable parameter estimation, we focused on only emotional intelligence $\times$ condition interaction and analyzed other factors separately.

Confirming the meaning of index of retaliation

To confirm the meaning of the index of retaliation, we conducted several analyses. First, the rate of throwing back the ball to the opposite player after catching it from him/her was positively correlated with the total score of four items to assess intention to throw the ball ($r = .59, p < .001$). This result suggested that participants intentionally threw back the ball to the opposite player. Next, we examined the correlation between the rate of that and the total score of rating of the left and right players' emotions during the second session. These results indicated that the index of retaliation was positively related to anger ($r = .45, p < .01$) and sadness ($r = .33, p < .05$), and negatively related to enjoyment ($r = -.34, p < .05$) of the left and right players. No significant correlation was observed between the index of retaliation and participants' emotions or the rating of the opposite player's emotions. These results suggested that participants intended to retaliate against the left and right player by increasing their negative emotions and decreasing positive emotions, but they did not intend to increase the opposite player's positive emotions or decrease their negative emotions.

Effects of emotional intelligence on retaliation for ostracism

We examined difference of conditions in the rate of throwing the ball to the opposite player after catching it from him/her in the second session by conducting a t test. The result revealed that the rate in the ostracism condition ($M = 31.87\%$, $SD = 25.98$) was significantly higher than in the inclusion condition ($M = 19.59\%$, $SD = 20.08$), $t(74) = 2.31, p < .05, d = 0.53$.

To examine the effects of emotional intelligence on retaliation during the second session, we used a hierarchical multiple regression analysis. We centered all continuous predictors to reduce potential problems of multicollinearity among variables. In the first step ($\Delta R^2 = .19, p < .01$), we regressed the rate of throwing the ball to the opposite player after catching it from him/her on self-emotion appraisal ($B = 2.59, p < .01$), regulation of emotions in the self ($B = -0.87, n.s.$), other-emotion appraisal ($B = -1.06, n.s.$), regulation of emotions in others ($B = 1.72, n.s.$), condition (ostracism = 1, inclusion = -1; $B = 7.01, p < .05$). In the second step ($\Delta R^2 = .01, n.s.$), we added interactions between self-emotion appraisal and condition ($B = 0.80, n.s.$), other-emotion appraisal and condition ($B = 0.07, n.s.$), and regulation of emotions in others and condition ($B = -0.27, n.s.$). In the third step ($\Delta R^2 = .05, p < .05$), we added an interaction between regulation of emotions in the self and condition; this interaction was significant ($B = -1.79, p < .05$). We tested simple slopes of emotion regulation in the self by separating conditions. As Fig. 2 reveals, the simple slope ($B = -2.51, p < .05$) was negative and significant in the ostracism condition, though it was not significant in the inclusion condition ($B = 1.07, n.s.$). These results supported the prediction that "those who have higher emotional intelligence (especially, regulation of emotions in the self) better inhibit retaliation for ostracism."

Fig. 2. The interactive effect of regulation of emotions in the self and conditions in predicting the rate of throwing the ball back to the opposite player
* $p < .05$

DISCUSSION

Through the experimental paradigm we employed, we revealed that those who had higher regulation of emotions in the self, one of the subscales of emotional intelligence, inhibited retaliation for ostracism. Interpersonal consequences of retaliation are generally destructive in that retaliation can escalate conflict and lead to a long-lasting reciprocal chain of retaliation and counter retaliation behaviors (Kim & Smith, 1993; Lickel et al., 2006). The results of this study suggest that regulation of emotions in the self functions as an inhibitor of inappropriate behaviors such as retaliation in an interpersonal situation. Emotional intelligence plays an important role in interpersonal situations (Salovey & Mayer, 1990). This research extends the previous research employing experimental paradigm to examine the effects of emotional intelligence (e.g., Mikolajczak et al., 2009; Petrides & Furnham, 2003) by demonstrating a social function of emotional intelligence in the interpersonal situation consisting of others of differing kinds of relationships.

We set up the situation in which ostracized others attempted retaliation. In this situation, participants determined whether they also retaliate in accordance with the ostracized others or not. Thus, it remains unclear whether people with low emotional intelligence retaliate against offenders in the absence of others who attempt retaliation. Further research is needed to establish the boundary conditions on the relationships we observed.

Emotional intelligence was not related to the rating of each player's emotion. Emotions have a function of facilitating useful reactions in daily life. For example, anger defends people from the threat around them (Levenson, 1999) and sadness alert people that something wrong is happening to them (Schwarz & Clore, 2003). Because negative

emotions function adaptively right after experiencing ostracism, participants did not have to regulate negative emotions in this situation even though they had high emotional intelligence. Moreover, we set up the situation of ostracism by employing the Cyberball paradigm as an extreme situation in which the left and right players continued to throw the ball to each other. In this extreme situation, participants easily inferred that the other ostracized person felt more negative emotions and less positive emotions, even if participants' emotional intelligence was not high.

In this study, two people were ostracized simultaneously. Some people might regard this situation as a conflict between pairs of people rather than ostracism. However, the definition of ostracism by Williams (2007) is that "ostracism is typically defined as being ignored and excluded, and it often occurs without excessive explanation or explicit negative attention" (p. 429) and does not contain isolation as prerequisite. In fact, Williams (2007, 2009) indicated that further research should investigate individuals' reaction or behavior when more than one person was simultaneously ostracized. Moreover, the Cyberball paradigm itself was a task for manipulating ostracism. For these reasons, the situation we set up could be regarded as ostracism rather than a conflict between pairs of people. To examine this point further, future research shall use indexes specific to ostracism such as lowering a feeling of belonging.

Corresponding to previous studies in which only one person was ostracized (e.g., Williams et al., 2000; Zadro et al., 2004), participants rated that they and the opposite player who experienced ostracism felt more anger and less enjoyment than those who did not experience ostracism during the first session. However, though the rating of opposite players' sadness was higher in the ostracism condition than in the inclusion condition, no significant difference in the rating of participants' sadness was observed between conditions. This result may reflect that participants achieve somewhat a sense of connectedness with the opposite players because they were simultaneously ostracized. If an individual was ostracized with another person, the ostracized person may build a sense of connectedness with another ostracized person and feel less sadness, though they assessed that another ostracized person felt sad. Future research shall compare the situation in which one person is ostracized with more than one person are ostracized in order to reveal the effects of the presence of other ostracized people.

We did not assess participants' intention to retaliate during the second session directly. For this reason, it is possible that participants threw the ball to the opposite player during the second session in order to compensate the opposite player rather than to retaliate against the left and right players. However, we do not think this possibility is valid because of the following two reasons. Firstly, the opposite player was compensated by the left and right player in the second session because the left and right player threw the ball to the opposite player. There was no reason participants had a motivation to compensate the opposite player. Secondly, if participants tried to compensate the opposite player by throwing back the ball to the opposite player, they expect that the opposite player felt positive emotions by doing so. However, the rate of throwing back the ball to the opposite player was not related to the enjoyment of the opposite player, though this rate was positively related to the anger and sadness of the left or right player and

negatively related to the enjoyment of them. For these reasons, participants threw back the ball to the opposite player for retaliation rather than compensation. To clarify this point, future study shall assess the intention to retaliate during the game more directly.

In conclusion, we conducted the first research which set up an interpersonal situation consisting of others who differ in their kinds of relationships by employing an experimental paradigm to investigate a social function of emotional intelligence. The results of this study suggest that regulation of emotions in the self functions as an inhibitor of inappropriate behaviors such as retaliation in an interpersonal situation.

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