

Differential Responses of Independent and Interdependent People to Social Exclusion

Ken'ichiro Nakashima¹, Taishi Kawamoto^{2,3}, Chikae Isobe⁴ & Mitsuhiro Ura²

¹ Preschool Education Section, Nagasaki Women's Junior College, Nagasaki, Japan

² Graduate School of Integrated Arts and Sciences, Hiroshima University, Hiroshima, Japan

³ Research fellow of the Japan Society for the Promotion of Science, Japan

⁴ Faculty of Letters, Chiba University, Chiba, Japan

Correspondence: Ken'ichiro Nakashima, Nagasaki Women's Junior College, Preschool Education Section, 19-1, Yayoi-machi, Nagasaki, Japan. Tel: 81-95-826-5344. E-mail: nakaken@nagasaki-joshi.ac.jp

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Abstract

To what extent is a person's interpersonal network mustered after social exclusion? This was investigated in relation to self-construal: independent, or interdependent. We conducted two quasi-experimental questionnaire studies of university students (Study 1; $N = 57$, Study 2; $N = 78$). Results indicated that interdependent students lowered identification with their academic departments after remembering a time when they were socially excluded (Study 1). Their self-worth was also more highly contingent on relational harmony in the whole of their interpersonal networks (Study 2). In contrast, independent students did not exhibit these patterns. These results suggest that social exclusion caused interdependent (not independent) individuals make attempts to secure and value their entire networks, due to the possibility that such specific identification might actually serve to limit possible interpersonal networks (boundary effect). It is concluded that independent and interdependent students evidence dissimilar responses to social exclusion. The implications of this finding are discussed.

Keywords: independent-interdependent self-construal, in-group identification, interpersonal network, social exclusion

1. Introduction

People have a powerful need to belong to social groups, and they spend a great deal of time developing and maintaining social relationships (Baumeister & Leary, 1995; Leary & Baumeister, 2000; Leary, Tamber, Turdal, & Downs, 1995). Consequently, people typically have negative emotional responses to the threat of social exclusion (Smart Richman & Leary, 2009; Williams, 2007). Previous research has indicated that excluded people are often subsequently motivated to connect with others, such that belonging needs can again be met. If they cannot re-connect in this fashion, people will resort to using social symbols as a substitute for genuine connection (Derrick, Gabriel, & Hugenberg, 2009; Gardner, Pickett, & Knowles, 2005). Social symbols include not only reminiscences about previous close relationships, but also activation and amplification of specific group allegiances or identifications (Knowles & Gardner, 2008; Paolini, Harwood, & Rubin, 2010).

In the present study, we examined how much of one's interpersonal network is marshaled subsequent to real or threatened social exclusion, if indeed one is motivated to connect with others after exclusion occurs. It would seem that social exclusion leads to increased identification with a specific group and to strengthen relationships with members of that group, if the members did not participate in the social exclusion. This idea is derived from the findings of Knowles and Gardner (2008). Gaertner, Iuzzini, Witt, and Oriña (2006) have also indicated that the strengthening of bonds between group members and in-group regard have an intra-group origin, such that identification with a group depends upon factors such as degree of interaction or interdependence between

members, which can lead to psychological and emotional bonds between members. Individuals excluded in another context may therefore seek for relationships in a specific group. If an individual's interpersonal network were limited to membership in a particular in-group subsequent to social exclusion, identification with the group should remain robust and attempts to strengthen relationships with group members would be promoted.

However, it is also possible that exclusion could drive individuals to strengthen connections across the whole of their interpersonal network, of which an in-group is just one facet. With regards to this possibility, it is important to focus on *how much* of interpersonal network individuals seek to marshal when threatened by exclusion. If one seeks to mobilize the whole of their interpersonal network in order to meet jeopardized belonging needs, the person's drive to strengthen identification with a reference group may in fact *decrease*. This is because excessive identification with a specific group would be expected to narrow the person's network as a whole, a boundary effect that results in diminished potential benefits, even though such identification does serve to maintain relatively powerful connections with group members (Gaertner et al., 2006; Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The boundary effect is in line with the finding that group identification leads individuals to perceive other group members as a source of social support (Haslam, Jetten, O'Brien, & Jacobs, 2004; Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Underwood, 2000).

The present study provided a test of the above possibilities regarding the range of interpersonal networks for excluded individuals, focusing on the independent-interdependent self-construal (Markus & Kitayama, 1991). Recent research has demonstrated that the independent-interdependent self-construal influences whether people are willing to identify with their reference group to buffer threats to their self-esteem elicited by task-relevant or interpersonal stress (Nakashima, Isobe, & Ura, 2008, 2012). People with an independent self-construal (i.e., independents) view themselves as being autonomous and relatively separate from others. Independents show increased group identification in the form of a shift from a sense of personal identity to a group-based identity, and this shift appears to be well suited to them as a form of self-enhancement in stressful situations. This occurs because such identification enables individuals to experience enhanced self-esteem via group-based self-evaluation (Hogg & Abrams 1990; Tajfel & Turner, 1979; Turner et al., 1987). When self-enhancement is needed in task-relevant or interpersonal stressful situations, independents turn to and identify with an in-group, which can offer a positive social identity as a form of self-enhancement (Nakashima et al., 2008, 2012).

In contrast, people with an interdependent self-construal (i.e., interdependents) see themselves as being closely connected to others. For them, it is important to reinforce the view of self as part of an interpersonal network, which is in turn related to life satisfaction and self-esteem (Cross, Bacon, & Morris, 2000; Markus & Kitayama, 1991; Triandis, 1989). In stressful situations, interdependents exhibit less identification with specific groups, given that they are driven to secure and value their broader interpersonal networks per se in order to buffer against stress (Heine & Hamamura, 2007; Nakashima et al., 2008, 2012). Importantly, these networks do include specific groups, although identification with highly specific groups is thought to prevent interdependents from receiving social support from a broad range of interpersonal networks, given that such identification can limit the person's access to other parts of the broader interpersonal network (e.g., Haslam et al., 2004; Turner et al., 1987). Individuals have a specific reference group (for example, departments in the case of undergraduates; see Walton & Cohen, 2007) as well as other groups (e.g., clubs or peers at a part-time job) in their interpersonal networks. If undergraduates strongly identify with their departments, the self as a member of one's department is salient, while selves as members of other social groupings are relatively masked. In other words, excessive focus on membership in one reference group leads to less focus on other social connections. A similar pattern is also likely to occur for a sense of belonging to each group or connections to each member. It is thus more difficult for an individual to secure and value their "entire" interpersonal network if they overinvest in a specific reference group. In sum, the interdependent tendencies of these individuals depend on access to the whole of their interpersonal networks, such that task-relevant or interpersonal threats to their self-esteem lead to a hesitation when it comes to strong anchoring to a specific in-group, such that identification with the group is relatively weakened.

We are not implying that threatened interdependents seek to secure and value more connections with people outside of a specific reference group, relative to connections with reference group members. Rather, we argue that such individuals will seek to enhance connections with many other people in a variety of groups across the whole of their interpersonal networks, likely including members of a specific reference group. In fact, Nakashima et al. (2008) reported that interdependents treated in-group and out-group members equivalently in response to a threat to their self-esteem in a resource allocation task (e.g., Tajfel, Billig, Bundy, & Flament, 1971; Tajfel & Billig, 1974), although interdependents favored in-group members when such threats were absent. In addition, threat to self-esteem leads interdependents to spontaneously reaffirm relational and interdependent

self-views in a variety of contexts (Chen & Boucher, 2008). These results suggest that in task-relevant or interpersonal stressful situations, interdependents seek to secure the whole of their interpersonal networks (including a reference group), valuing a variety of memberships across their networks.

Given that social exclusion is a clear example of interpersonal stress (Eisenberger & Lieberman, 2004; Lazarus & Folkman, 1984; Williams, 2007), we propose that interdependents should act to secure and value their interdependent networks when presented with the threat of social exclusion, although independents will not show this pattern. In other words, excluded interdependents would reinforce relationships with many other people in a variety of groups across the whole of their interpersonal networks, likely including members of a specific reference group. This pattern of dissimilar responses to social exclusion would arise from the perspective of group identification and the extent to which individuals hold on to the whole of their interpersonal networks. With regard to our prediction for these responses, based on previous findings (e.g., Knowles & Gardner, 2008; Nakashima et al., 2008), independents should act to enhance specific in-group relationships following social exclusion. In other research, group membership or identification serves to meet a bevy of human needs, including belongingness, self-enhancement, control, meaningful existence, and recognition by others (Smart Richman, & Leary, 2009; Williams, 2007). In addition, one's reaction to social exclusion is often to take active steps to win the approval of the in-group through heightened group identification (Baumeister & Leary, 1995; Gómez, Morales, Vázquez, & Swann, 2011; Jamieson, Harkins, & Williams, 2010). In order to buffer an exclusion threat, independents seek to restore belonging needs through a heightened sense of group identity as a social symbol, through holding on to relationships with specific group members. In contrast, interdependents approach the task of restoring a sense of belonging by seeking to secure and value relationships within the larger number of groups in which these individuals are embedded (Chen & Boucher, 2008; Nakashima et al., 2008, 2012). Exclusion should motivate such individuals not to network within a particular group, but rather to shore up their interpersonal networks *per se*. This is because interdependent individuals view themselves as being closely connected with others (e.g., Cross et al., 2000; Markus & Kitayama, 1991). Excluded interdependents would therefore be expected to restore belonging needs through increasing the extent to which they maintain the whole of their interpersonal networks (including but not limited to a specific reference group). Taken together, the main prediction of the present study was that interdependents (but not independents) would hold on to their overall interpersonal networks more strongly following social exclusion, as well as weaken their identification with the specific reference in-group.

In order to test this prediction, we conducted two quasi-experimental questionnaire studies of university students, focusing on students' identification with their academic departments as well as the degree to which they maintain connections with others in their interpersonal networks. All Japanese university students are accepted into a specific academic department as part of their enrollment, much like acceptance into schools of engineering or nursing in universities in other countries. Identification with academic departments is positively associated with students' adaptation and mental health, and thus academic department can be regarded as an important social reference group (see Leary et al., 1995; Walton & Cohen, 2007). The students were also assessed in terms of self-construal: Independent versus interdependent. They were then asked to describe a past social exclusion (or acceptance) experience(s), which could (or could not) have constituted a threat to belonging needs. Students were asked *not* to describe an exclusion experience that derived from their academic departments, however, in that exclusion from one's in-group would be expected to result in decreased identification with this group and therefore more attempts to foster relationships outside of this group. After this reminder, students' degree of departmental identification (Study 1) and the degree to which they maintain their interpersonal networks (Study 2) were assessed. If interdependents were motivated to secure and value all their interpersonal networks as a result of remembering a past exclusion experience, they would be expected to decrease the levels of departmental identification and increasingly hold on to their networks.

2. Study 1

A questionnaire survey based on a quasi-experimental method was conducted to examine the following predictions. Prediction 1 is that interdependents would lower their identification with their reference in-group in response to social exclusion. Prediction 2 is that independents would show higher identification in response to social exclusion. The study designed a two (self-construal: independents, interdependents) \times two (condition: exclusion, acceptance control) between-subjects design. (Note 1) We first assessed individuals' independent-interdependent self-construal to investigate their independent tendencies. We then manipulated feelings of exclusion versus acceptance and measured subsequent identification with individuals' departments. Acceptance was used as a control condition, in order to confirm that any changes in identification with the group were not merely a consequence of making *any* previous social experience accessible (see Knowles & Gardner,

2008; Pickett, Gardner, & Knowles, 2004).

2.1 Method

2.1.1 Participants

Participants were recruited through personal contact with the experimenter. We randomly distributed a questionnaire for an exclusion or acceptance condition to over 80 undergraduate students. They enrolled in different faculties at a Japanese university. Fifty seven undergraduate students participated in the study and completed the questionnaire by the deadline date (32 females, 25 males; average age = 21.33 years, $SD = 2.02$). Unfortunately, disproportionate numbers of participants were obtained in each condition (exclusion: $n = 19$, acceptance: $n = 38$). This was presumably because some participants hesitated to complete the questionnaire, due to concerns about safeguards to protect the anonymity of their responses about exclusion, which was a painful experience to them.

2.1.2 Procedure and Materials

We initially explained how to complete the questionnaire to individual participants. After the explanation was provided, participants completed a Japanese version of the independent-interdependent self-construal scale (Takata, 2000), based on Markus and Kitayama (1991). This scale was used in previous studies (Nakashima et al., 2008, 2012), and included 20 items that are each rated on a 7-point scale (1 = strongly disagree, 7 = strongly agree; independence, $\alpha = .77$; interdependence, $\alpha = .82$). Examples of independent items (10 items) are: "I often make decisions by myself" and "I recognize what I want to do." Examples of interdependent items (10 items) are: "It is important for me to be liked by others" and "It is important for me to be in good in-group relationships." High scores on each subscale indicate a high level of either independence or interdependence. An additional scale was included, but is not described here because this scale was not related to the purpose of the present study.

Participants were next asked to complete a reliving task in which they recalled and wrote about a past experience(s) as specifically as possible. (Note 2) Such reliving tasks have been used to successfully manipulate feelings of social exclusion in previous research (Knowles & Gardner, 2008; Pickett et al., 2004; Smart Richman & Leary, 2009). Participants were assigned to either exclusion or acceptance conditions. In the exclusion condition, participants were asked to recall and write about a time in which they felt intensely rejected in some way, a time that they felt as if they did not belong. This rejection could involve one other individual (e.g., a time in which someone broke up with you or no longer wanted to be your friend), or could be a rejection or exclusion from a group (e.g., a time in which you were chosen last for a team or excluded from a clique). As noted above, participants were asked to refrain from focusing on past experiences that involved exclusion from their departments. This enabled us to rule out the possibility that participants recalled experiences in which they were excluded from a current reference group, such that they lowered identification with the specific group that was the source of their interpersonal stress. In the acceptance control condition, participants were asked to write about a time in which they felt very accepted in some way, a time that they felt as if they belonged. This acceptance could be one other individual (e.g., a time in which someone wished to date you or wanted to be your friend) or could be acceptance by a group (e.g., a time in which you were chosen for a team or included in a clique).

Finally, to measure degree of identification with one's academic department, participants completed the group identification scale (Karasawa, 1991), which includes 12 items that are each rated on a 5-point scale ($\alpha = .87$). The scale is a popular Japanese scale to assess in-group identification (e.g., Ozeki & Yoshida, 2007; Sakata, Fujimoto, & Kohguchi, 2005). Sample items are: "Would you think it accurate if you were described as a typical student of this department?" and "Are there many students in this department who influence your thoughts and behaviors?" We computed an index of group identification, such that the higher the score, the stronger the level of group identification. Participants finally provided their sex and age as demographic information.

2.2 Results

First we generated participants' scores of independent tendency, using the following method that has been validated in previous research (Nakashima et al., 2010; Nakashima et al., 2012; Walton & Cohen, 2007). Because there was a negative relationship between independence and interdependence scores ($r = -.27, p < .05$), simple regression analyses were used to generate residual scores, which represent independence scores controlling for interdependence and vice-versa. We then calculated scores by subtracting the participants' interdependence residual scores from their independence residual scores as their independent tendency scores. A high score therefore indicates greater independence than interdependence (i.e., independents), and a low score

indicates interdependence (i.e., interdependents).

Second, we conducted a series of hierarchical multiple regressions of the outcome variables as suggested by Aiken and West (1991), in order to examine our predictions. The predictors were participants' self-construal, the exclusion or acceptance manipulation, and the two-way interaction effects. The condition variable was dummy coded (acceptance: 0, exclusion: 1), and the independent tendency (self-construal) variable was standardized. Standardized independence scores and the dummy coded condition variable were entered at Step 1, and the two-way interaction values were entered into the equation at Step 2. In the results of multiple regression analysis, the main effect of exclusion versus acceptance condition tended to be significant ($B = -.33$, $t(53) = -1.71$, $p = .08$). The two-way interaction also approached significance ($B = .37$, $t(53) = -1.92$, $p = .06$; see Table 1; Note 3).

Table 1. Hierarchical multiple regression results of study 1

in-group identification					
step	predictor	β	t-value	R ² -change	F-value
1	independent tendency	0.03	0.19		
	condition	-0.23	-1.82 [†]	0.09	2.55 [†]
2	independent tendency×condition	0.30	1.92 [†]	0.06	3.70 [†]
model		$R^2=0.15$, $F(3, 53)=3.01^*$			

[†] $p < .10$, * $p < .05$

Study 1 focused mainly on a predicted pattern that interdependents, not independents, would lower their reference in-group identification in response to social exclusion, and thus this interaction effect was decomposed. With regard to the simple slopes for condition (Figure 1), for low-independent participants (-1 SD; interdependents), identification scores were lower in the exclusion condition than the acceptance condition ($B = -0.71$, $t(53) = -2.60$, $p < .05$). In contrast, for high-independent participants (+ 1SD; independents), this pattern did not emerge, $B = 0.02$, $t(53) = 0.09$, ns. With regard to the simple slopes for independent tendencies, identification scores were lower for low-independent participants than high-independent participants in the exclusion condition, $B = 0.39$, $t(53) = 2.49$, $p < .05$, although not in the acceptance condition, $B = 0.02$, $t(53) = 0.19$, ns.

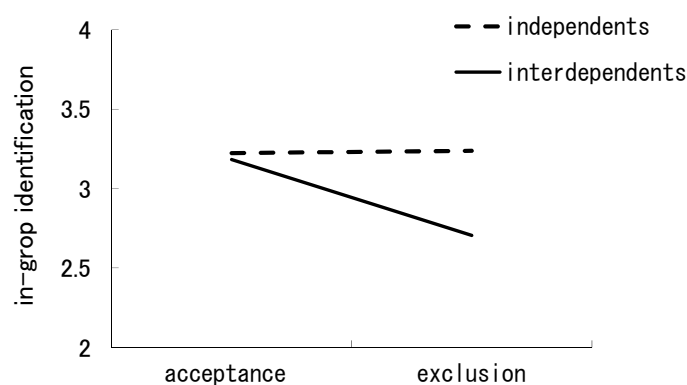


Figure 1. The change of in-group identification as a function of self-construal and exclusion

2.3 Discussion

Study 1 aimed to test the prediction that interdependents, not independents, would lower in-group identification when reminded of social exclusion. Low-independent participants identified less with their academic departments following recalling or writing about a social exclusion experience, an experience that presumably threatened their sense of belonging. When reminded of the past exclusion, the group identification level of low-independent participants was lower than that of high-independent participants. These results provided

support for prediction 1 and suggest that Nakashima et al.'s findings (e.g., Nakashima et al., 2008, 2012) regarding the relationship between group identification and interpersonal/task-relevant threat also apply to social exclusion situations. The revival of past exclusion undermines interdependents' sense of belonging (e.g., Pickett et al., 2004; Smart Richman & Leary, 2009), leading them to lowered group identification. It seems that this reduction arose because interdependents motivated to secure and value their entire networks by being excluded from others.

In Study 1, all participants were asked not to recall or write about past exclusion experiences that involved a current reference group. This state of affairs supports the view that social exclusion or interpersonal rejection by people outside of a reference group might lead individuals to strengthen their identification with a reference group, and previous research supports this possibility (Knowles & Gardner, 2008; Paolini et al., 2010). Nevertheless, interdependents in our exclusion condition showed less identification with their departments (a reference group for them), suggesting that they were not willing to maintain relatively powerful connections with group members. As noted above, such a response should be derived from increased motivation to secure and value the totality of their interpersonal networks. Interestingly, the findings of Study 1 seem to deviate from common expectations.

Although further work is needed, responses to social exclusion do appear to be understandable from an independent-interdependent self-construal perspective. Independents do not appear to change their feelings of group identification as a function of thinking about social exclusion. This pattern seems inconsistent with our prediction based on the findings of previous research (e.g., Knowles & Gardner, 2008; Nakashima et al., 2008). We should nevertheless consider the implications of the pattern, given that Study 1 did not explicitly examine the extent to which individuals thinking about exclusion hold on to their interpersonal network. To address this problem, we examined the effect of social exclusion on the degree of individuals' network-harmony contingency (Uchida, 2008) of both independent and interdependent participants in Study 2.

The results of Study 1 may be interpreted in terms of the relationship between self-esteem and the independent-interdependent self-construal. Previous studies suggest that individuals with high self-esteem basically regard themselves as independent and autonomous, behaving accordingly, whereas individuals with low self-esteem recognize themselves as interdependent (e.g., Konrath, Bushman, & Grove, 2009; Leary et al., 1995; Vohs & Heatherton, 2001). Given this relationship, less in-group identification after social exclusion for interdependents may depend on not their interdependent tendencies per se but rather their self-esteem. In Study 2 we assessed participants' self-esteem in addition to their self-construals, and examined this possibility.

3. Study 2

Our first study provided initial evidence that exclusion experiences elicit reduced levels of group identification, in the service of heightened levels of participants securing and valuing their overall interpersonal networks. In Study 2 we examined changes in interdependent network harmony from the perspective of the contingencies of self-worth (Uchida, 2008). In previous research, contingent self-worth is domain-specific, and therefore a change in individuals' self-worth depends on feedback from a specific domain that individuals perceive as important (e.g., Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Crocker & Wolfe, 2001). If self-worth were contingent upon good relationships with others in their interpersonal networks, then individuals would show interpersonal-oriented behaviors and thoughts, such as sympathy for others (Uchida, 2008). Such a correspondence also matches the proposition of self-construal theory (e.g., Cross et al., 2000; Markus & Kitayama, 1991). The degree of individuals' network-harmony contingency is thus a proxy for examining whether they are motivated to maintain relationships in their network, following social exclusion. This examination provides us with an important suggestion that excluded interdependents reinforce to secure and value their overall networks. As was done in Study 1, we first assessed participants' independent-interdependent self-construal. In addition, we measured their self-esteem as a controlled variable. This was because of complex relationships among self-esteem, self-construal, and interdependent network harmony (e.g., Konrath et al., 2009; Uchida, 2008). We subsequently measured participants' network-harmony contingency after manipulating their memory for an exclusion, or an acceptance experience. Prediction 1 of Study 2 was that the self-worth of interdependents would be more highly contingent on the harmony of interdependent networks in response to social exclusion. Prediction 2 was that independents would not display such an increased contingency. (Note 4)

3.1 Method

3.1.1 Participants

The participants were seventy eight nursing students (76 females, 2 males; average age = 18.97 years, $SD = 2.16$) enrolled in a technical school on the western side of Japan (Note 5).

3.1.2 Procedure and Materials

Participants were recruited from an introductory psychology class taken as part of general education for nursing students. They received course credit for completing the experiment. The questionnaire study was described as an experiment examining students' self-concepts and interpersonal relationships. They were told to answer all of the questions in the classroom, without discussing them with others. We used a more strict quasi-experimental method than that employed in Study 1, by asking participants to fully understand and agree with the purpose of the study, including safeguards to protect the anonymity of their responses. This was done because of the possibility that the methodology employed in Study 1 made participants reluctant to recall or write an exclusion scenario, leading to a smaller number of participants providing data in this condition. No participant exercised the option to voluntarily withdraw from the study.

Participants first completed the independent-interdependent self-construal scale (Takata, 2000; independence, $\alpha = .81$; interdependence, $\alpha = .74$), in addition to the trait self-esteem scale (Yamamoto, Matsui, & Yamanari, 1982; $\alpha = .86$). This scale was a popular Japanese version of a trait self-esteem scale based on Rosenberg (1965), and consisted of ten items each scored on a 5-point scale (1 = strongly disagree, 5 = strongly agree). We computed a self-esteem index such that higher scores indicated higher levels of self-esteem. An additional scale was included in the experiment but is not described here, as was the case in Study 1. Participants also provided their sex and age as demographic information. Participants took about 20 minutes to complete the scales.

We conducted the subsequent experimental session at the end of the same class one week later. Participants were randomly assigned to the excluded condition ($n = 39$) or accepted condition ($n = 39$) and asked to complete the same reliving task used in Study 1. The experimenter signaled the start and end of the reliving task, which took five minutes. After the reliving task, participants completed a scale measuring the degree to which they maintain relationships with others. We used items measuring the interdependent network harmony factor included in a Japanese version of the contingencies of self-worth scale (Uchida, 2008; $\alpha = .89$). This scale consisted of four items each scored on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Examples of interdependent network harmony items are "A falling out with in-group means that I feel less self-esteem" and "My self-worth depends on whether I have good relationships with a variety of other people." For the purpose of Study 2, we explained that for participants, "in-group" membership and "other people" were not designations limited to members of a particular group. The higher the score on this scale, the more participants' self-worth is highly contingent on interdependent network harmony. As noted above, if self-worth were contingent upon good relationships with others in the interpersonal networks of the participants, they would be expected to maintain relationships in all their networks as a representation of securing and valuing their networks.

3.2 Results

3.2.1 Testing the Predictions

The analysis approach used here resembled that used for Study 1. First, because a relationship was found between independence and interdependence scores ($r = -.36, p < .001$), we subtracted the participants' residual interdependence scores from their independence scores (i.e., independent tendency scores). Second, we conducted a series of hierarchical multiple regressions of the outcome variables as suggested by Aiken and West (1991), in order to examine the prediction that interdependents' self-worth would be more highly contingent on relational harmony following being reminded of social exclusion. The predictors were participants' self-construal, the exclusion or acceptance manipulation, and the two-way interaction effects. The condition variable was dummy coded (acceptance: 0, exclusion: 1), and the independent tendency (self-construal) variable was standardized. Standardized independence scores and the dummy coded condition variable were entered at Step 1, and the two-way interaction values were entered into the equation at Step 2. The two-way interaction effect on participants' interdependent network-harmony contingency scores was significant (see Table 2), and the test of simple slopes based on Aiken and West (1991) supported our prediction. With regard to the simple slopes for condition (Figure 2), network-harmony scores of low-independent participants (-1 SD; interdependents) were higher in the exclusion condition than the acceptance condition, $B = 0.97, t(74) = 2.44, p < .05$. In contrast, for high-independent participants (+1SD; independents), this pattern did not emerge, $B = -0.30, t(74) = -0.77, ns$. With regard to the simple slopes for independent tendencies, network-harmony scores were higher for low-independent participants than high-independent participants in the exclusion condition, $B = -0.61, t(74) = 3.67, p < .01$, although not in the acceptance condition, $B = 0.02, t(74) = 0.09, ns$.

3.2.2 Supplemental Analyses

The zero-order relationships among participants' independent tendency scores, interdependent network-harmony contingency scores, and self-esteem scores were suggestive of the possibility that our results may reflect

participants' self-esteem rather than self-construal has been described previously. Self-esteem scores were related not only to interdependent network-harmony contingency scores ($r = -.41, p < .01$), but also to independent tendency scores ($r = .41, p < .01$; Note 6). We again used a hierarchical multiple regression to analyze participants' network-harmony scores. Standardized independent tendency scores and dummy coded condition scores were entered at Step 1, and two-way interaction values were entered at Step 2. In addition, participants' standardized self-esteem scores were entered as a control variable at Step 0. (Note 7) As shown in Table 2, a significant interaction effect remained after controlling for self-esteem. Simple slope test results mirrored those depicted in Figure 2. Network-harmony scores for low-independent participants were higher in the exclusion condition than the acceptance condition, $B = 0.92, t(73) = 2.44, p < .05$. This was not the case for high-independent participants, $B = -0.38, t(73) = -1.04, ns$. Network-harmony scores of low-independent participants were higher than those of high-independents in the exclusion condition, $B = -0.45, t(73) = -2.68, p < .01$, although this did not occur in the acceptance condition, $B = 0.02, t(73) = 0.89, ns$. Our results do not appear to depend on participants' self-esteem. (Note 8)

We next conducted an additional analysis of participants' interdependent network-harmony contingency scores to examine the extent to which such scores could indeed reflect maintaining relationships with members of a specific in-group as opposed to members of interpersonal networks more broadly, although we did explain this distinction to participants. A hierarchical multiple regression analysis was performed on the mean scores for the two items that directly assess the degree to which participants' self-worth are highly contingent on relational harmony in the whole of their interpersonal networks ("My self-worth depends on whether I have good relationships with a variety of different people", "I think my self-worth decreases whenever my relationships are undermined"; $r = .81$). As predicted, the two-way interaction was significant, and the same pattern of results as that described above emerged (see Table 2). The scores of low-independent participants were higher in the exclusion condition than the acceptance condition, $B = 0.92, t(74) = 2.26, p < .05$, but this did not occur for high-independent participants, $B = -0.28, t(74) = -0.73, ns$. In the exclusion condition, the scores of low-independent participants were higher than those of high-independent participants, $B = -0.54, t(74) = 3.18, p < .01$. This pattern did not emerge in the acceptance condition, $B = -0.06, t(74) = -0.25, ns$. Moreover, a significant interaction effect remained, controlling for the effect of self-esteem (see Table 2), mirroring the results shown in Figure 2. These results suggest that the larger network-harmony scores observed for the low-independent participants cannot be interpreted as reflective only of greater interdependent network harmony with members of a particular group, but also other members of participants' various interpersonal networks. (Note 9)

Table 2. Hierarchical multiple regression results of study 2

network-harmony contingency (4 items)					
step	predictor	β	t-value	R ² -change	F-value
1	independent tendency	0.02	0.09		
	condition	0.13	1.26	0.12	5.13**
2	independent tendency×condition	-0.40	-2.23*	0.06	4.99*
model	$R^2=0.18, F(3, 74)=5.26^{**}$				
network-harmony contingency (4 items) controlling for self-esteem					
step	predictor	β	t-value	R ² -change	F-value
0	self-esteem	-0.33	-2.98**	0.17	15.37**
1	independent tendency	0.16	0.89		
	condition	0.11	1.06	0.04	1.79
2	independent tendency×condition	-0.41	-2.41*	0.06	5.83*
model	$R^2=0.27, F(4, 73)=6.59^{**}$				

network-harmony contingency (2 items)					
step	predictor	β	t-value	R ² -change	F-value
1	independent tendency	0.02	0.09		
	condition	0.13	1.16	0.09	3.71*
2	independent tendency×condition	-0.38	-2.08*	0.05	4.31*
model		$R^2=0.14, F(3, 74)=4.01^{**}$			
network-harmony contingency (2 items) controlling for self-esteem					
step	predictor	β	t-value	R ² -change	F-value
0	self-esteem	-0.33	-2.87**	0.15	13.36**
1	independent tendency	0.19	1.02		
	condition	0.10	0.96	0.03	1.10
2	independent tendency×condition	-0.40	-2.24*	0.05	4.00*
model		$R^2=0.23, F(4, 73)=5.36^{**}$			

* $p < .05$, ** $p < .01$

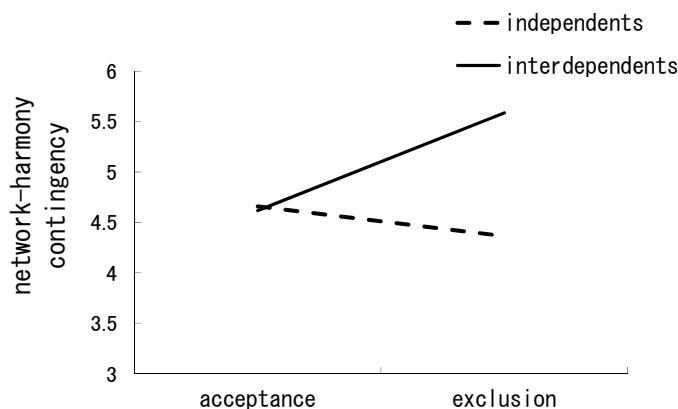


Figure 2. The change of interdependent network-harmony contingency as a function of self-construal and exclusion

3.3 Discussion

The results of Study 2 confirmed our prediction that interdependents' self-worth (but not independents) would be highly contingent on interdependent network harmony in response to being reminded of social exclusion. These results showed that independents and interdependents display dissimilar responses to social exclusion, suggesting that interdependents approach the task of restoring a sense of belonging by holding on to their relationships in higher esteem, not just relationships with members of a particular in-group but relationships across many different interpersonal networks. Considering the fact that there was no difference between independents and interdependents in the acceptance condition, only interdependents respond to a threat of social exclusion in this network holding manner; it seems highly unlikely that such individuals have a lower baseline level of maintaining relationships in their interpersonal networks as compared to independents (Cross et al., 2000; Markus & Kitayama, 1991). In addition, supplemental results suggest that self-esteem or selectively keeping harmony with members of a particular group do not explain these findings. Being excluded by others appears to undermine individuals' belonging needs (e.g., Baumeister & Leary, 1995; Williams, 2007). To avoid this threat, interdependents appear to be highly contingent on their entire network harmony as a reflection of securing and valuing their networks.

In contrast, independent participants did not change their levels of social motivation as a function of reporting about social exclusion. Indeed, independents provided slightly lower indicators of network-harmony contingency under these conditions. These results support prediction 2 and correspond with the finding that some people are reluctant to strengthened relationships with others for the purpose of restoring a sense of belonging in exclusion situations (e.g., those who mind negative appraisals of others; Maner, DeWall, Baumeister, & Schaller, 2007). It is possible that independents show more immediate or effective responses to exclusion than just holding on to a broad network of other individuals in increased regard. For instance, excluded independents may use another social symbol as reminders of a romantic partner or intimate friends (Derrick et al., 2009; Gardner et al., 2005). Alternatively, the revival of past exclusion experience may have little impact on independents, and therefore they need not react to it. Further research should compare the immediate and selective use of social symbols and trivial impact of social exclusion accounts.

4. General Discussion

The present study revealed that independents and interdependents display dissimilar responses to social exclusion, from the perspective of group identification, and interdependent network harmony which was included in the contingencies of self-worth. Interdependents lowered their identification with academic departments (regarded as a specific reference group; Study 1), and interdependents' self-worth was highly contingent on interdependent network harmony (Study 2) after being reminded of a social exclusion experience. Psychological responses to social exclusion for interdependents can thus be summarized as follows. First, social exclusion triggers a drive to restore interdependents' sense of belonging. Excluded interdependents then seek to secure and value connections across their overall networks, at the minor expense of specific connections with members of a particular in-group (but do not derogate the in-group). As a result, identification with this group decreases even as these individuals hold on to their interpersonal networks as a whole. If interdependents encounter social exclusion, they choose to meet belonging needs by developing interpersonal relationships across a range of networks or situations, as opposed to using social symbols such as amplified identities with a particular group.

Previous studies did not fully consider how much of one's interpersonal network is marshaled subsequent to social exclusion, and by what type of individuals the range is regulated (see Gardner et al., 2005). In addition, research has not directly focused on maintain interpersonal networks, which reflects secure and value individuals' entire interpersonal networks, although responses to social exclusion have been approached from the perspective of group-identification processes (Nakashima et al., 2008; 2012). When individuals are excluded, the presence of or connections with a family group or romantic partner should help to modulate the resulting emotional pain, and it therefore may not be necessary to secure and value the whole of one's interpersonal network (e.g., Gardner et al., 2005; Twenge, Zhang et al., 2007). However, it seems that interdependents do not seek to meet jeopardized belonging needs by limiting their emphasis to specific aspects of their interpersonal networks. Rather, interdependents appear to prefer maintaining and enhancing a fairly wide range of interpersonal connections, which is consistent with a self-concept that primarily emphasizes membership in the community and in many other social groups, in preference to alternative choices for fulfilling belonging needs, such as strengthening close relationships with specific reference group members.

The findings of the present study also have implications for organizational administration and employees' mental health. Given that an organization or a company is the specific reference in-group of its employees, a high level of organizational identity would lead to higher well-being and mental health (Bizumic, Reynolds, Turner, Bromhead, & Subasic, 2009; van Dick & Wagner, 2002). However, employees with interdependent self-construal may have difficulties in attaining the benefit of organizational identity, because they are likely to decrease their in-group identification in response to incidents of social exclusion that people often experience in their daily life. Thus, if an employer wants to successfully maintain the mental health of employees through a high level of organizational identity, the employer has to consider not only the relationships between the employees, but also the relationships between all their interpersonal networks. This would be a puzzling and a difficult approach for an employer. We hope that future studies would propose a better approach for maintaining the mental health of employees with an interdependent self-construal.

The present studies are of course not without their limitations, and it is necessary to conduct further research in order to confirm and expand upon the present findings. First, other measures should be used in addition to the interdependent network harmony subscale of the contingencies of self-worth scale used here. For instance, this scale includes items measuring approval from others (Uchida, 2008). Considering that social exclusion often motivates individuals to obtain the approval or acceptance of others (e.g., Baumeister & Leary, 1995; Williams, 2007), interdependents may be inclined to seek approval from others across their interpersonal networks

following social exclusion. Moreover, the degree to which individuals act in order to connect with others outside of a specific in-group in addition to members of this group should be assessed. We postulated that if exclusion triggers a sense of threat regarding belonging needs, interdependents should be motivated to secure and value their entire interpersonal networks. If so, they would behaviorally connect with and commit to not only members of their specific in-group but also many other people across a variety of other groups in their interpersonal networks. In addition, the level of connection with and commitment to this in-group seems to be equivalent to levels expressed for others outside of the in-group in social exclusion situations (see Nakashima et al., 2008). However, we did not directly examine whether exclusion leads individuals to enhance or develop such connections (or commitment) at the behavioral-level. Further research should examine these possibilities to further reinforce the present conclusions.

Second, an experimental approach in which social exclusion can be directly manipulated is needed for broader samples, in order to avoid methodological problems such as an imbalance of participants between conditions (Study 1) or having predominantly female participants (Study 2). We have provided evidence against the notion that our results were an artifact of methodological problems. It is also difficult to explain our findings from the perspective of gender effects. Nevertheless, future research should clearly avoid these methodological problems by assigning female and male participants equally to each condition of acceptance and exclusion, and then examining the responses of independents and interdependents. To accomplish this, it is suggested that an experimental approach such as a cyber-ball task should be used. (see Eisenberger & Lieberman, 2004). In this setting, a within-person design, where participants are asked to complete relevant measures after either a rejection or acceptance paradigm, would also provide a strong replication of our findings. In addition, including a third condition where participants are asked to remember a non-social, neutral situation may help to clarify whether either acceptance or exclusion influences individuals' attitudes (e.g., a misfortune control condition: Baumeister, DeWall, Ciarocco, & Twenge, 2005). This is because the acceptance condition used in the present study may have an effect on the likelihood that individuals' relational or collective self will activate. Although remembering a past exclusion experience certainly threatens individuals' belonging needs (e.g., Knowles & Gardner 2008; Pickett et al., 2004), further studies should examine how independents and interdependents respond to explicit social exclusion, or to interpersonal rejection in an experimental setting, by using a within-person design and a more representative sample.

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Notes

Note 1. We treated participants' self-construal as a continuous variable (independent tendency score), decreasing potential statistical problems in the form of Type 1 errors. High levels of the score reflected greater independence than interdependence, while low levels were taken to reflect the opposite pattern (see Results section for details).

Note 2. In the present study, concerns about anonymity and ethical conduct precluded us from insisting that participants provide a detailed written description, which means that not all of them did so. We could not conduct a meaningful content analysis of exclusion experiences, for this reason and because of small sample sizes. Although our participants did recall a variety of experiences (e.g., breakup of a romantic relationship, bullying, and neglects from friends or peers), we acknowledge the need for more research to address this issue.

Note 3. Participants' gender was entered as a control variable in an additional analysis (male: 0, female: 1). Similar results emerged even though the gender effect was significant ($B = 0.51$, $t(52) = 3.01$, $p < .05$).

Note 4. In a narrow sense, independents may maintain interpersonal relationships in a reference group (such as an academic department) following social exclusion, based on the previous findings (e.g., Knowles & Gardner, 2008). However, Study 2 did not directly focus on their relationships within a group. We thus predicted that independents would show different responses from interdependents, considering only that excluded interdependents would hold on to their overall interpersonal networks more strongly, as proposed in the Introduction.

Note 5. Three participants did not provide their age. The mean and standard deviation for participant age were calculated using the remainder of the responses.

Note 6. Two participants did not complete the self-esteem scale. The linear interpolation method was used to compensate for this ($M = 2.86$, $SD = .66$).

Note 7. Entering standardized self-esteem scores at step 0 was done on the basis that there was only a main effect of self-esteem, even when a hierarchical multiple regression that included self-esteem and acceptance/social exclusion condition was performed ($B = -0.56$, $t(74) = -2.82$, $p < .01$).

Note 8. The analysis showed a similar pattern except for two participants that did not complete the self-esteem scale.

Note 9. The analysis also indicated the same pattern except for two participants that did not complete the self-esteem scale.