

Research Article

I Am Too Just Like You

Nonconscious Mimicry as an Automatic Behavioral Response to Social Exclusion

Jessica L. Lakin,¹ Tanya L. Chartrand,² and Robert M. Arkin³¹Drew University, ²Duke University, and ³The Ohio State University

ABSTRACT—*Research across various disciplines has demonstrated that social exclusion has devastating psychological, emotional, and behavioral consequences. Excluded individuals are therefore motivated to affiliate with others, even though they may not have the resources, cognitive or otherwise, to do so. The current research explored whether nonconscious mimicry of other individuals—a low-cost, low-risk, automatic behavior—might help excluded individuals address threatened belongingness needs. Experiment 1 demonstrated that excluded people mimic a subsequent interaction partner more than included people do. Experiment 2 showed that individuals excluded by an in-group selectively (and nonconsciously) mimic a confederate who is an in-group member more than a confederate who is an out-group member. The relationship between exclusion and mimicry suggests that there are automatic behaviors people can use to recover from the experience of being excluded. In addition, this research demonstrates that nonconscious mimicry is selective and sensitive to context.*

Violence (e.g., the shootings at Virginia Tech) is often assumed to be partially caused by social isolation, and as a result, recent violent incidents have increased research interest in the consequences of exclusion. The conclusion from this literature is that exclusion indeed has adverse emotional, psychological, and behavioral consequences (MacDonald & Leary, 2005; Williams, 2007; Williams, Forgas, & von Hippel, 2005). However, exclusion also increases some affiliative behaviors: Ostracism increases participants' tendency to conform (Williams, Cheung, & Choi, 2000) and their cooperation in social dilemmas (Ouwkerk, Kerr, Gallucci, & van Lange, 2005). Also, individuals attend to social information after exclusion (Pickett & Gardner,

2005), which makes them more likely to take advantage of new affiliative opportunities (e.g., to choose to work with other people rather than alone; Maner, DeWall, Baumeister, & Schaller, 2007).

The research reported here explored how people attempt to affiliate after they are excluded, by identifying an automatic nonverbal behavior that addresses threatened belongingness needs. Although excluded people are motivated to affiliate, their affiliative behaviors often are conscious, require great effort, or are high in cost (Maner et al., 2007; Williams et al., 2000). They are also risky in that they may result in additional rejection (e.g., a person who is complimented may not reciprocate). Automatic affiliative behaviors, however, are relatively low in effort, cost, and risk. Attempts to affiliate in subtle, nonverbal ways are unlikely to be met with new or continued rejection. Moreover, given that self-regulation and cognitive resources suffer after exclusion (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Baumeister, Twenge, & Nuss, 2002), automatic affiliative behaviors would be especially functional because they require few, if any, conscious resources. Understanding the automatic affiliative attempts that follow exclusion is therefore critically important. These behaviors could reduce the devastating consequences of exclusion with little risk or cost to the rejected person.

NONCONSCIOUS BEHAVIORAL MIMICRY

Research on nonconscious behavioral mimicry, or the tendency to mimic other individuals' behaviors without awareness or intent, demonstrates that people mimic others when there is no preexisting rapport and that mimicry can lead to the development of rapport (Chartrand, Maddux, & Lakin, 2005). Both conscious and nonconscious affiliation goals can be pursued successfully by mimicking others (Lakin & Chartrand, 2003). Mimicry also leads to a number of other positive consequences: liking (Chartrand & Bargh, 1999), trust (Maddux, Mullen, & Galinsky, 2008), closeness to others (Ashton-James, van Baaren,

Address correspondence to Jessica L. Lakin, Psychology Department, Drew University, 36 Madison Ave., Madison, NJ 07940, e-mail: jlakin@drew.edu.

Chartrand, & Decety, 2007), and helping (van Baaren, Holland, Kawakami, & van Knippenberg, 2004).

The studies reported here are the first to explore whether exclusion increases nonconscious mimicry. Because belongingness is important (Baumeister & Leary, 1995) and exclusion is threatening (Williams, 2007), people should be motivated to engage in affiliative behaviors after exclusion (Pickett & Gardner, 2005). Although behaving in a prosocial manner could satisfy this objective, prosocial behavior actually decreases after exclusion (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), perhaps because it is often effortful and costly (e.g., when it takes the form of monetary donations and future time commitments). In contrast, behavioral mimicry would satisfy this affiliative objective in an automatic, low-risk, low-cost way. Thus, we first tested the hypothesis that excluded people would mimic others' behaviors more than included people. This finding would show that mimicry can be an adaptive response to social exclusion (Lakin & Chartrand, 2005) and would suggest that mimicry might be the default response when a person needs an easy way to affiliate with others.

EXPERIMENT 1: MIMICRY AND EXCLUSION

Method

Participants

Forty students (25 female, 15 male) participated for course credit.

Procedure

Participants completed two tasks. First, they played on-line Cyberball with three other players who were purportedly also participants in the experiment. In reality, the participant was the only person playing the game; the other players were computer controlled (Williams & Jarvis, 2006). Participants in the inclusion condition received the ball as often as the other players; those in the exclusion condition received the ball only several times at the beginning of the game. Participants had no information about the other players and were told that they would never meet them. When the game ended, participants rated their enjoyment of Cyberball and how friendly, sociable, and likeable the other players were on 9-point scales. Participants also rated the extent to which they were experiencing each of five positive (e.g., happy) and five negative (e.g., sad) emotions, using 5-point scales.

In the second experiment, the participant's task was to describe photographs to a partner who did not view them (for a complete description of this task, see Chartrand & Bargh, 1999). The experimenter said that the partner had not played Cyberball and had not yet arrived, and then left to retrieve the partner. While the participant was alone, the experimenter surreptitiously videotaped his or her habitual foot moving, as a baseline measure. The experimenter then returned with a female con-

federate who was blind to condition and who steadily moved her foot throughout her interaction with the participant. This interaction was also videotaped. When the task was complete, the participant completed another questionnaire; the only question of interest was whether he or she had noticed anything about the partner's mannerisms. The experiment concluded with a funneled debriefing (Bargh & Chartrand, 2000).

Four participants consciously noticed the confederate moving her foot. Because the focus of this research was nonconscious behavioral mimicry, the data from these participants were removed, leaving 36 participants in the analyses reported here (23 female, 13 male).

Results

Manipulation Checks

A between-subjects analysis of variance (ANOVA) revealed a significant effect of condition on Cyberball enjoyment, $F(1, 34) = 7.05, p = .01, \eta^2 = .17$, and on a composite measure representing the evaluation of the other players ($\alpha = .86$), $F(1, 34) = 4.15, p = .05, \eta^2 = .11$. Excluded participants liked Cyberball less ($M = 5.13, SD = 1.50$) and evaluated the other players less favorably ($M = 5.85, SD = 1.43$) than did included participants ($M = 6.35, SD = 1.27$, and $M = 6.65, SD = 0.89$, respectively). There was no effect of condition on a composite measure of mood, $p = .28$.

Behavioral Mimicry

Two independent judges coded the number of seconds each participant spent moving his or her feet during the baseline and while interacting with the confederate. These measurements were then divided by the total length of the baseline period and the interaction, respectively. Interjudge reliability was high for both the baseline proportions, $r(34) = .97, p < .001$, and the mimicry proportions, $r(34) = .90, p < .001$, so the two estimates of foot moving at each time were averaged.

Excluded participants were expected to mimic the foot-moving behavior of the confederate more than included participants. A between-subjects analysis of covariance (ANCOVA) was conducted on the mimicry proportion (with baseline foot moving as the covariate). A reliable covariate effect indicated individual differences in foot moving during the baseline period, $F(1, 33) = 34.62, p < .001, \eta^2 = .51$. There was also a significant effect of condition, $F(1, 33) = 4.27, p = .05, \eta^2 = .12$; excluded participants (covariate-adjusted $M = .28, SD = .20$) mimicked the confederate's foot-moving behaviors more than included participants (covariate-adjusted $M = .17, SD = .12$).

Discussion

Excluded participants mimicked their subsequent partner more than included participants, which suggests that participants may have recovered from exclusion by affiliating with a new

individual. Although some mimicry occurred in the inclusion condition (a finding consistent with the idea that mimicry is standard behavior in social interactions; Chartrand & Dalton, in press), excluded participants used this automatic behavior strategically. This is the first demonstration that automatic attempts at affiliation occur after exclusion. Notably, this increase in mimicry occurred even though participants reported no conscious awareness of the confederate's behaviors or of the confederate's effect on their own behaviors. Use of mimicry when a person wants to affiliate is functional and low cost, as it provides an opportunity to pursue affiliation without spending limited cognitive resources. It would be especially important to engage in automatic affiliative behaviors after exclusion, when cognitive resources are already taxed. The importance of mimicry in social interactions is demonstrated by the fact that even its strategic use has become automatized (see Bargh, 2007; Hassin & Bargh, 2007; Stapel & Koomen, 2006).

Mood was not affected by exclusion and therefore cannot be responsible for the observed increase in behavioral mimicry. Although this seems surprising, there is increasing evidence that mood does not mediate the effect of exclusion on behavior (Baumeister et al., 2002; Buckley, Winkel, & Leary, 2004), and is perhaps not even affected by certain types of exclusion (Baumeister et al., 2002; Twenge, Catanese, & Baumeister, 2003; Zadro, Williams, & Richardson, 2004).

Experiment 1 demonstrated that being excluded by unknown others increases nonconscious behavioral mimicry. Because excluded participants had no information about their excluders, they pursued a logical course of behavior, even if they did so automatically, by affiliating with a subsequent interaction partner. Experiment 2 was conducted to explore whether excluded individuals will mimic the behaviors of *any* interaction partner. This would be consistent with excluded individuals having an increased desire to affiliate, and would suggest that automatic mimicry occurs whenever the need to affiliate exists and the opportunity arises. However, another possibility is that mimicry is more selective: Perhaps excluded people use this automatic behavior only under particular circumstances.

EXPERIMENT 2: IS NONCONSCIOUS MIMICRY SELECTIVE?

In Experiment 1, participants had no information about the other Cyberball players. Presumably, a need to affiliate was activated by exclusion, and the confederate was someone with whom participants could develop a positive relationship. But when individuals have more information about the people who exclude them, mimicry may increase only when threatened identities can be reestablished. That is, mimicry may increase only if the person who can be mimicked shares a salient characteristic with both the person who was excluded and members of the excluding group. Increased mimicry under these circumstances would illustrate the sensitivity of this nonconscious behavior:

Although social interactions may always trigger some mimicry (Chartrand & Dalton, in press), selective mimicry following exclusion would mean that mimicry is flexible and strategic despite the fact that it occurs without conscious awareness or intent.

Thus, we had two goals for Experiment 2. First, we wanted to test whether nonconscious mimicry is selective. Toward this end, participants were given information about the people who excluded them (if exclusion occurred). Because they had this information in combination with information about their next interaction partner, we were able to test whether increases in mimicry always follow exclusion, or whether mimicry increases selectively only in particular circumstances. Second, we explored possible mediators of the relationship between exclusion and behavioral mimicry by measuring each of four needs hypothesized to be threatened by exclusion: belongingness, self-esteem, meaningful existence, and control (Williams, 2007). Because of the relationship between nonconscious mimicry and the development of rapport (Lakin, 2006), we expected a threat to belongingness needs (rather than threats to the other three needs) to be related to increases in mimicry.

Female participants were excluded by females or males while playing a Cyberball game (or did not play Cyberball) and then completed the photo task from Experiment 1 with either a female or a male. Thus, Experiment 2 had a 3 (condition: in-group exclusion, out-group exclusion, or no exclusion) \times 2 (confederate: in-group or out-group) design. We hypothesized (a) that elevated mimicry would occur when participants were excluded by the in-group and the confederate was also a member of the in-group and (b) that a belongingness threat, but not a threat to any of the other measured needs, would be related to this increase.

Method

Participants

One hundred sixty-four female students participated for course credit.

Procedure

Except as noted, procedures for the exclusion conditions were identical to those of Experiment 1. The procedure for the no-exclusion control condition is detailed at the end of this section.

During the Cyberball game, participants knew the sex of the other players. In the in-group-exclusion condition, female names appeared next to the players' icons; in the out-group-exclusion condition, male names appeared. The post-Cyberball questionnaire contained a manipulation check to ensure that participants noticed this information. Following Williams et al. (2000), we also asked participants to rate how much they felt they belonged to the group playing Cyberball (belongingness), the extent to which the other Cyberball players valued them as people (self-esteem), the extent to which life was meaningful (meaningful existence), and the extent to which they felt in

control of their lives (control). Participants then completed the same photo task as in Experiment 1, but the sex of the confederate was manipulated.

In the no-exclusion control condition, participants did not play Cyberball. They completed affect items and answered the questions about the meaningfulness of life and the extent to which they felt in control of their lives (the belongingness and self-esteem items were not relevant to participants who did not play Cyberball). Then they completed the same photo task as participants in the exclusion conditions.

The funneled debriefing was similar to the one used in Experiment 1.

Again, 4 participants were removed from analyses because they noticed the confederate's foot moving.

Results

Manipulation Checks

Nine participants incorrectly identified the sex of at least one of their Cyberball partners. Additionally, 2 participants failed to answer all three of the questions asking them to identify the sex of the other players, which suggests that they did not remember this information. Given the importance of this information for the manipulation, data from these 11 participants were removed. All participants correctly identified the sex of their photo-task partner. Thus, the analyses reported are based on 149 participants.

Behavioral Mimicry

Sixty-seven of the videotapes were coded by two judges, and proportions of foot moving were calculated for both the baseline and the interaction periods, as in Experiment 1. Interjudge reliability was high for both the baseline proportions, $r(65) = .96$, $p < .001$, and the mimicry proportions, $r(65) = .95$, $p < .001$. Therefore, the two judges' estimates of foot moving in each period were averaged. For the remaining participants, a single judge's estimates of foot moving were used.

In-group-excluded participants who interacted with an in-group confederate were expected to mimic the confederate's foot-moving behavior more than other participants. A 3 (condition: in-group exclusion, out-group exclusion, or no exclusion) \times 2 (confederate: in-group or out-group) between-subjects ANCOVA was conducted on the mimicry proportion (with baseline foot moving as the covariate). A reliable covariate effect indicated individual differences in foot moving during the baseline period, $F(1, 139) = 57.97$, $p < .001$, $\eta^2 = .29$. There was also a significant interaction, $F(2, 139) = 3.00$, $p = .05$, $\eta^2 = .04$ (see Fig. 1). Simple-effects tests revealed that participants in the in-group-exclusion condition mimicked the in-group confederate more than the out-group confederate, $F(1, 44) = 8.09$, $p = .01$, $\eta^2 = .16$, but mimicry of in-group and out-group confederates did not differ in either the out-group-exclusion or the control condition, $ps > .65$. A planned contrast

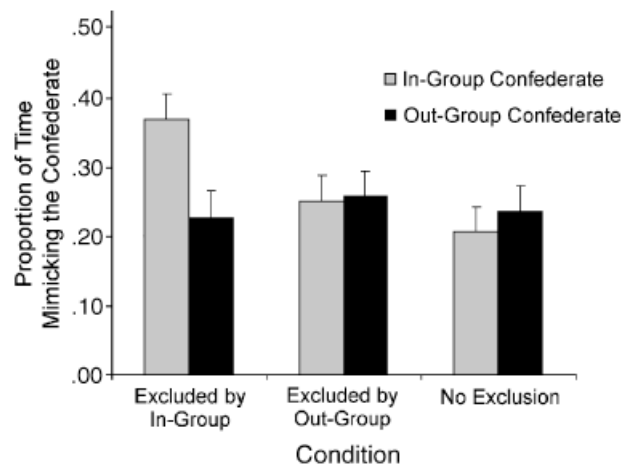


Fig. 1. Results from Experiment 2: covariate-adjusted mean proportion of behavioral mimicry as a function of condition and confederate. Error bars show standard errors of the means.

comparing the in-group-exclusion/in-group-confederate combination with the other five combinations of condition and confederate was also significant, $t(140) = 3.14$, $p = .002$.

Needs

Belongingness. Excluded participants indicated the extent to which they felt they belonged to the Cyberball group. A one-sample t test revealed that participants in both the in-group-exclusion condition, $t(46) = -4.99$, $p < .001$, and the out-group-exclusion condition, $t(48) = -11.63$, $p < .001$, scored significantly below the midpoint of the 9-point scale, which suggests a belongingness threat (in-group-exclusion condition: $M = 3.72$, $SD = 1.75$; out-group-exclusion condition: $M = 2.69$, $SD = 1.39$). A one-way ANOVA revealed a significant difference between the in-group- and out-group-exclusion conditions, $F(1, 94) = 10.22$, $p = .002$, $\eta^2 = .10$; despite the overall threat, participants felt that they belonged to the in-group-exclusion group more than to the out-group-exclusion group.

The increase in mimicry when participants interacted with an in-group confederate after being excluded by their in-group was hypothesized to result from a threat to belongingness needs. If that is correct, belongingness should have been related to increases in behavioral mimicry, but only when participants interacted with an in-group confederate. A traditional mediational analysis was inappropriate in this situation; the interaction of condition and confederate could not predict participants' responses to the belongingness question because this question was answered before the confederate manipulation occurred. Therefore, following guidelines outlined by Cohen and Cohen (1983), we used a hierarchical regression to compare the relationship between belongingness and mimicry in the in-group-exclusion/in-group-confederate combination with the relationship between these two variables in the other three combinations of condition (in-group exclusion, out-group exclusion) and confederate (in-group, out-group). As predicted, belongingness

was significantly related to mimicry in the in-group-exclusion/in-group-confederate combination, $\beta = .35, p = .03$, but was not related to mimicry in the other three combinations, $\beta = .00, p = .98$. The difference between these coefficients was reliable, $\beta = -.29, p = .06$.

Self-Esteem, Meaningful Existence, and Control. Excluded participants indicated the extent to which they felt that the other participants in Cyberball valued them as people. Participants in the in-group-exclusion condition did not score significantly lower than the midpoint of the 9-point scale, $t(46) = -1.31, p = .197$, but participants in the out-group-exclusion condition did, $t(48) = -2.27, p = .028$ ($M = 4.62, SD = 2.01$, vs. $M = 4.27, SD = 2.27$, respectively). However, a one-way ANOVA revealed that the difference between these conditions was not significant, $p = .42$. The self-esteem measure was unrelated to mimicry among participants who were in the in-group-exclusion condition and interacted with an in-group confederate, $\beta = .18, p = .27$.

All participants answered the questions about meaningful existence and control, but one-way ANOVAs with type of exclusion as the independent variable revealed no differences among conditions, $ps > .60$. Given that these needs were not threatened, they cannot be responsible for elevated mimicry among the participants who were in the in-group-exclusion condition and interacted with an in-group confederate.

Mood

A one-way ANOVA on the composite mood measure (scores could range from -5 to 5) with type of exclusion as the independent variable revealed a marginally significant effect, $F(2, 146) = 2.53, p = .08, \eta^2 = .03$. Participants who were not excluded were in a better mood ($M = 1.43, SD = 1.05$) than participants in either of the exclusion conditions (in-group-exclusion condition: $M = 0.98, SD = 1.42$; out-group-exclusion condition: $M = 0.98, SD = 1.04$). However, a hierarchical regression revealed no relationship between mood and mimicry among participants who were in the in-group-exclusion condition and interacted with an in-group confederate, $\beta = .08, p = .67$.

Discussion

In-group-excluded participants showed heightened mimicry of an in-group confederate's behaviors. Note that it was only in this condition that mimicry directly addressed threatened belongingness needs. Although the participants experienced belongingness threat in both the in-group- and the out-group-exclusion conditions, they reported more belonging to the Cyberball group in the in-group-exclusion condition than in the out-group-exclusion condition. Thus, the belongingness question measured both exclusion and in-group status: Participants in the in-group-exclusion condition acknowledged feeling excluded (as did participants in the out-group-exclusion condition), but they also acknowledged that they belonged to the group they played

Cyberball with more than did the participants who played Cyberball with out-group members. The mimicry data support this interpretation: It was only when participants were excluded by female players and interacted with a female confederate that belongingness correlated with mimicry. In other words, although all excluded participants experienced belongingness threat, the participants who felt that they belonged to the excluding group the most were the participants who mimicked the behaviors of a confederate sharing that group membership.

The results of Experiment 2 also suggest that needs other than belongingness were not threatened by exclusion. This is not surprising given recent findings. Different types of exclusion may have different effects (Williams, 2007), and it is possible that the nature of the exclusion in this experiment was particularly related to belongingness. Alternatively, our results might be explained by Williams and Zadro's (2005) model of two stages of coping with exclusion, according to which excluded individuals experience threats to belongingness and self-esteem immediately, but experience threats to meaningful-existence and control needs only after persistent exclusion. Given the relatively brief exclusion in Experiment 2 and the immediate introduction of a new task, it seems reasonable that threats to belongingness would have been most salient.

Although mood became somewhat more negative after exclusion, there was no evidence that mood mediated the relationship between exclusion and increases in behavioral mimicry. It is also important to note that even though ostracism by an out-group created as much negative affect as ostracism by an in-group (Gonsalkorale & Williams, 2007), out-group exclusion resulted in no increased affiliative efforts.

In-group exclusion might not always motivate mimicry of a confederate sharing that group membership; there are a number of theoretically interesting variables that could moderate this relationship. For example, in the current study, gender was used as the basis for group membership. Although it is likely that the effects observed here would also be observed for non-gender-based groups, gender may have unique characteristics that are associated with potential moderating variables. For example, gender is a nonpermeable group (i.e., people cannot readily switch memberships). In this study, it made sense for people to mimic a fellow in-group member not associated with the original exclusion as a way to reestablish themselves in a group that could not be changed. When group boundaries are permeable, it might make sense for excluded individuals to switch groups, rather than attempt to affiliate with an in-group member. Our results may also reflect the fact that the context in Experiment 2 was neutral, so the female participants who were excluded by males probably assumed that they had been excluded simply because of their sex. However, because of the unique type of relationship that exists between females and males more generally, one can imagine contexts in which females would be threatened by male exclusion (e.g., if romantic relationships were primed prior to exclusion or if participants felt they had

been excluded for more personal reasons); such circumstances could lead to increases in mimicry of an out-group member following exclusion. Variables not directly associated with gender (e.g., status of the excluding group, individual differences in need to belong or group identification) could also moderate the relationship between exclusion and mimicry. These variables can be profitably explored in future research.

GENERAL DISCUSSION

This research extends previous work by demonstrating that participants who have recently been excluded exhibit increased nonconscious behavioral mimicry of a new interaction partner (Experiment 1). Moreover, mimicking others' behaviors does not simply create rapport; it may also directly address threatened belongingness needs. In Experiment 2, individuals excluded by an in-group exhibited increased mimicry of the behaviors of a subsequent interaction partner, but only if this partner was also an in-group member.

The increase in mimicry observed in both Experiments 1 and 2 was not a result of affect, or of threatened self-esteem, meaningful-existence, or control needs. As predicted, however, belongingness was related to mimicry, but only when participants were excluded by their in-group and interacted with a member of that in-group. This suggests that individuals' desire to be reincluded in their in-group motivated their increased mimicry and that people are selective with their use of mimicry. Rather than simply mimicking the first person they encounter after being excluded by known persons, individuals increase their mimicry of people who can restore their status within the in-group. Thus, mimicry can be used flexibly and strategically; it occurs to a greater extent in those situations in which it is most beneficial.

Implications for the Literature on Exclusion

The current research reinforces the idea that the need for belonging is fundamental; individuals routinely engage in behaviors (e.g., mimicry) that help them to address this need. The fact that mimicking happens automatically, without conscious awareness or intention, is evidence of the evolutionary criticality of the need to belong; this need is so pervasive that if belongingness could not have been pursued automatically, human ancestors might not have had enough cognitive resources to accomplish other important tasks.

Although previous research has documented that exclusion reduces certain prosocial behaviors (which may be affiliative; Twenge et al., 2007), other work has demonstrated an increase in affiliative behaviors that may be intentional or effortful (Maner et al., 2007; Williams et al., 2000). The current research is relevant to this inconsistency in suggesting that nonconscious mimicry might be particularly beneficial following exclusion: It is an easy prosocial behavior that is not an intentional act of

regaining favor, and it is an efficient and effective attempt to readjust a perceived drop in one's status with members of one's in-group.

Implications for Nonconscious Behavioral Mimicry

This research extends past research by demonstrating that mimicry addresses threatened belongingness needs. The nature of the relationship among exclusion, belongingness, and mimicry suggests that individuals may be able to establish themselves in desired groups by mimicking the behaviors of group members and to reestablish themselves in groups from which they have been excluded by mimicking representative group members. In other words, regulating group identity is another adaptive consequence of nonconscious mimicry (see also Yabar, Johnston, Miles, & Peace, 2006).

Finally, this research also contributes to an ongoing debate within psychology: How "smart" are unconscious processes? Mimicry of other individuals has been conceptualized as resulting from an automatic link between perceiving an action and engaging in that same behavior (Dijksterhuis & Bargh, 2001). However, automatic does not necessarily mean inflexible (Hassin & Bargh, 2007). People whose need to belong is threatened do not necessarily mimic the first person they see; they take into account aspects of the situation and act accordingly, all unconsciously. Conceptualized in this way, automatic mimicry certainly is a useful addition to the human behavioral repertoire.

Acknowledgments—This research, supported by an Ohio State University Distinguished Fellowship, is based on a doctoral dissertation submitted by the first author under the supervision of the second and third authors. We thank Marilyn Brewer for serving on the dissertation committee and Sarah Abramowitz for providing statistical advice.

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(RECEIVED 8/17/07; REVISION ACCEPTED 1/21/08)