Research Report

Mimicry and Prosocial Behavior

Rick B. van Baaren, Rob W. Holland, Kerry Kawakami, and Ad van Knippenberg

University of Nijmegen, Nijmegen, The Netherlands

ABSTRACT—*Recent studies have shown that mimicry occurs unintentionally and even among strangers. In the present studies, we investigated the consequences of this automatic phenomenon in order to learn more about the adaptive function it serves. In three studies, we consistently found that mimicry increases prosocial behavior. Participants who had been mimicked were more helpful and generous toward other people than were nonmimicked participants. These beneficial consequences of mimicry were not restricted to behavior directed toward the mimicker, but included behavior directed toward people not directly involved in the mimicry situation. These results suggest that the effects of mimicry are not simply due to increased liking for the mimicker, but are due to increased prosocial orientation in general.*

> When people are free to do as they please, they usually imitate each other.
>
> —Demotivators© 2000 calendar (Despair, Inc., http://www.despair.com)

By now, there is substantial evidence that humans mimic a wide range of behaviors. People not only mimic several speech-related behaviors, such as accents (Giles & Powesland, 1975), tone of voice (Neumann & Strack, 2000), pauses (Cappella & Planalp, 1981), rate of speech (Webb, 1969, 1972), and syntax (Levelt & Kelter, 1982), but they also mimic postures, mannerisms (Chartrand & Bargh, 1999), and even moods (Neumann & Strack, 2000) and emotions (Hatfield, Cacioppo, & Rapson, 1994). This mimicry often occurs automatically. Chartrand and Bargh (1999) observed that participants in their experiment unconsciously took over the mannerisms of a confederate, even though the confederate and the participants were not acquainted. Further evidence for the automaticity of mimicry comes from neuroscientific research on mirror neurons (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996; Iacoboni et al., 1999). This research shows that within the human brain, there is an intimate link between observing an action and performing the same action oneself.

Why do humans have this innate tendency to mimic? One way to examine this question is to look at the consequences of mimicry. It has been hypothesized that mimicry, by increasing empathy, liking, and rapport, plays an important role in social interactions (Chartrand, Maddux, & Lakin, in press). For example, Chartrand and Bargh (1999, Study 2) instructed a confederate to take over the posture (e.g., leaning forward or backward) and mannerisms (face rubbing) of half the participants. Their results demonstrated that participants who had been mimicked by the confederate liked the confederate better and perceived the interaction as running more smoothly than did participants who had not been mimicked.

In addition to increasing liking and rapport, mimicry should have consequences at a behavioral level for it to be truly adaptive (Dijksterhuis & Bargh, 2001). Preliminary evidence for the beneficial behavioral consequences of mimicry comes from a recent study (van Baaren, Holland, Steenaert, & van Knippenberg, 2003) in which waitresses either verbally mimicked or did not verbally mimic their customers. The waitresses received larger tips when they used the exact same words as their customer than when they simply paraphrased the order.

It is unclear, however, how diffuse or specific these effects of mimicry are. Does mimicry make a person more prosocial only toward the person who mimics, or does mimicry lead to a more general prosocial orientation that is not directed at a specific target? To investigate whether people other than the mimicker benefit from a more prosocial orientation of individuals who are mimicked, we conducted three studies. Each study utilized Chartrand and Bargh's (1999) procedure, in which a confederate mimics the posture and mannerisms of half the participants. In Experiment 1, we examined whether mimicry makes people more helpful toward the mimicker. In Experiments 2 and 3, we examined whether mimicry increases helpfulness toward people other than the mimicker. Assuming that mimicry makes people more prosocial in general, we hypothesized that compared with participants who were not mimicked, those who were mimicked would be more helpful not only toward the confederate who mimicked them, but also toward people who were not involved in the mimicry.

EXPERIMENT 1

Method

Participants and Design

Seventeen (9 men and 8 women) undergraduate students from the University of Nijmegen, The Netherlands, were randomly assigned to the two conditions and paid 2 euros for their participation. The experiment had a single factor (experimenter behavior: mimicry vs. nonmimicry) between-subjects design.

Procedure

Upon arrival at the laboratory, each participant was led into a room by the experimenter and seated behind a desk so that the participant's

Address correspondence to Rick van Baaren, Department of Social Psychology, University of Nijmegen, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands; e-mail: r.vanbaaren@psych.kun.nl.

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chair half-faced the experimenter's chair. The experimenter seated herself behind a desk and explained that the experiment was a marketing study examining the reactions of people to certain types of advertisements. The task of the participant was to verbally describe his or her opinion toward each of 10 specific advertisements for approximately 30 s. During the task, the experimenter mimicked the posture of half the participants, copying their body orientation (e.g., leaning forward), the position of their arms, and the position of their legs. The experimenter did not mimic the other half of the participants. The experimenter was trained to keep the rest of her behavior, with the exception of the behavioral mimicry, the same across conditions. The interaction lasted for approximately 6 min.

After participants completed the first task, the experimenter informed them that they would perform another, unrelated task after she retrieved material from an adjacent room. The experimenter left the experimental room and reentered after 30 s. Upon passing the participant, she "accidentally" dropped six pens that were on top of several papers (see Macrae & Johnston, 1998). If the participant did not pick up the pens within 10 s, the experimenter picked up the pens herself. Finally, the participant was given a mood scale and instructed to indicate on three 7-point bipolar scales (bad-good, sad-happy, cheerful-gloomy; $\alpha = .89$) how he or she felt at that specific moment.

Results and Discussion

Participants in the mimicry condition picked up the pens more often (100%) than participants in the nonmimicry condition (33%), $\chi^2(1, N = 17) = 8.24$, $p < .01$. Additional analyses showed that mimicry had no effect on mood, $F(1, 15) = 0.58$, n.s. Furthermore, there was no relationship between mood and the number of pens participants picked up, $r = -.22$, n.s.

The results thus confirmed the hypothesis that mimicry increases helpfulness. Participants whose behavior had been mimicked by a confederate were more likely to help pick up pens than were participants who had not been mimicked. These results are a conceptual replication of our previous results (van Baaren et al., 2003) and provide further evidence that mimicry promotes prosocial behavior.

It is unclear from these results, however, whether mimicry simply creates a special bond between the mimicker and the mimicked or whether it leads to a more social orientation in the mimicked person. We addressed this question in Experiment 2, in which the dependent variable was not helpfulness toward a confederate who had or had not mimicked the participant, but rather was helpfulness toward another person not involved in the mimicry situation. If mimicry leads to a more prosocial orientation in general, mimicked participants should help not only the mimicker, but other people as well.

EXPERIMENT 2

Method

Participants and Design

Forty-two (11 men and 31 women) undergraduate students from the University of Nijmegen were randomly assigned to the two conditions and paid 2 euros for their participation. The experiment had a single factor (experimenter behavior: mimicry vs. nonmimicry) between-subjects design.

Procedure

The procedure for the first part of the experiment was similar to the procedure in Experiment 1 except for the dependent variable. Specifically, after mimicking or not mimicking the participant during the supposed marketing study, a naive experimenter explained that a new experimenter would come and give the participant a second, unrelated task. Shortly after the first experimenter left the room, a new experimenter entered the room and, upon passing the participant, "accidentally" dropped six pens she was carrying on top of several papers.

Results

Participants in the mimicry condition picked up the pens more often (84%) than did participants in the nonmimicry condition (48%), $\chi^2(1, N = 42) = 6.00$, $p < .02$. These results, therefore, suggest that people other than the mimicker can profit from the prosocial behavior of a mimicked individual and that mimicry can produce a diffuse prosocial orientation that transfers to people in general.

Donating money is a behavior that is especially dependent on prosocial orientation. If mimicry increases general prosocial orientation, people should donate more money to charity when they have been mimicked than when they have not been mimicked. In Experiment 3, we examined this hypothesis by investigating the amount of money donated to an organization that visits and entertains seriously ill children in hospitals (CliniClowns). Because it was conceivable that a new experimenter who called attention to the CliniClowns would be less effective than the original experimenter in transferring the prosocial orientation developed in the interaction to the donation situation, we also manipulated whether the same or a new experimenter pointed out the donation possibilities.

EXPERIMENT 3

Method

Participants and Design

Forty-one[1] (7 men and 34 women) undergraduate students from the University of Nijmegen were randomly assigned to the four conditions and paid 2 euros for their participation. The experiment had a 2 (experimenter behavior: mimicry vs. nonmimicry) × 2 (experimenter: same vs. new) between-subjects design.

Procedure

For the most part, the procedure was similar to the procedure in Experiment 2 except for the dependent variable. As in Experiment 2, the mimicker was naive regarding the hypothesis. After being mimicked or not during the first task, the participant was told that this task was finished and that he or she would work on a second, unrelated task. The experimenter explained that he would pay the participant now for participation in the entire session and that the participant was free to go after finishing the second task. He then gave the participant four 50-cent coins (i.e., 2 euros in total).

Half the participants received the instructions for the second task from the same experimenter, and the other half received the instructions from a new experimenter. In either case, the experimenter

[1]Three participants were excluded from the analyses because they were visiting students who were not native Dutch speakers.

(the same one or the new one) seated the participant behind a desk in the corner of the room. The participant was shown a collection box and a second, white box on the desk. Before leaving the room, the experimenter informed the participant that "the University of Nijmegen is conducting research for the CliniClowns. We would like you to fill out a form, which contains several questions about this charity. After filling out this form, you can donate money, if you want to. When the questionnaire is completed, please place it in the white box." The participant was then left alone in the room and was not asked to identify him- or herself on the questionnaire. Furthermore, both the collection box and the white box were locked with a padlock to foster the impression that the data would be treated anonymously. The questionnaire consisted of four filler questions regarding the CliniClowns, so that the cover story would be credible.

Results and Discussion

Participants in the mimicry condition donated money more often (76%) than did participants in the nonmimicry condition (43%), $\chi^2(1, N = 41) = 4.84$, $p < .03$. Furthermore, the amount of money donated to the CliniClowns was subjected to a 2 (experimenter behavior: mimicry vs. nonmimicry) × 2 (experimenter: same vs. new) analysis of variance. The only significant effect was a main effect of behavior, $F(1, 37) = 4.26$, $p < .05$. The results indicated that participants in the mimicry condition donated more money ($M = 0.79$ euro) than participants in the nonmimicry condition ($M = 0.38$ euro). Furthermore, the Behavior × Experimenter interaction was not significant, $F(1, 37) = 1.52$, $p = .23$. Participants gave more money to the CliniClowns in the mimicry condition than in the nonmimicry condition both in the new-experimenter condition ($M = 0.72$ euro vs. $M = 0.56$ euro) and in the same-experimenter condition ($M = 0.91$euro vs. $M = 0.25$ euro).

GENERAL DISCUSSION

These three studies provide strong evidence that mimicry increases prosocial behavior and that these behavioral consequences of mimicry are not restricted to behavior directed toward the mimicker. Other people can also benefit from a mimicked person's more prosocial orientation. In Experiment 1, participants whose behavior had been mimicked by an experimenter were more helpful when she dropped pens on the floor than were nonmimicked participants. In Experiment 2, participants who had been mimicked by a first experimenter were more helpful toward a second experimenter who dropped her pens. Finally, in Experiment 3, participants in the mimicry condition donated more money to a charity than participants in the nonmimicry condition. Mimicry led to enhanced donations irrespective of whether the possibility of donation was mentioned by the experimenter who had mimicked the participant or by a new experimenter. Taken together, these results illustrate the important role mimicry plays in creating prosocial behavior.

The finding that it is not only the mimicker who benefits from a more prosocial orientation in the mimicked person suggests that the effects of mimicry are not simply due to "something special" between the mimicker and the mimicked, but rather are due to a more general change in the mimicked person's orientation. Consistent with this idea is the recent finding that being mimicked induces a more field-dependent cognitive processing style (van Baaren, Horgan, Chartrand, & Dijkmans, in press). Specifically, this study shows that being mimicked can alter the way in which people perceive their environment and interact with others.

Although an alternative explanation for the present results may be that mood mediated the observed effects, the findings in Experiment 1 did not demonstrate either an effect of mimicry on mood or an effect of mood on participants' helpfulness. Future research, however, needs to examine the effects of mimicry on more implicit mood measures.

Mimicry may have adaptive value, enhancing the chances of successful procreation of those members of a species who adopt this specific behavior. Most of the arguments in favor of the survival value of mimicry (specifically, the behavioral imitation of conspecifics) are, however, mainly hypothetical. First, it has been argued that mimicry fosters safety in groups of animals (e.g., Dijksterhuis, Bargh, & Miedema, 2000). Second, imitating others may be a potent mechanism in learning and acculturation (de Waal, 2002). Third, mimicry may function as a social glue, holding the group together. The present finding that mimicry enhances prosocial behavior suggests that it serves to strengthen social bonds. When you mimic someone, it becomes more likely that this person behaves more prosocially not only toward you, but also toward other people. This person may be more inclined to lend you a helping hand or maybe even help raise your children, or your neighbor's children. These behavioral consequences provide suggestive support for an evolutionary explanation of mimicry, because, in the end, natural selection works on a behavioral level.

In conclusion, the current research has provided additional evidence for the functionality of mimicry. In studying its consequences, researchers learn more about the adaptive role mimicry plays in people's daily lives. Because doing what others do is so beneficial in such a diverse array of social situations (e.g., job interviews, romantic affairs, networking and selling products), it is no wonder that people imitate each other, even when they are free to do as they please.

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