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## The Chameleon as a Leech: The Costs of Mimicry for the Mimickee

**Abstract:** *Mimicry is known to produce benefits for the mimicker such as liking, increased prosocial tendencies (e.g., higher donations), and trust. Little is known about the benefits or costs to the mimickee. The aim of this study is to explore this issue. Participants were mimicked or not by a confederate. The confederate then dropped pens and checked if the participants picked them up (a proxy for prosocial behavior). Finally, questionnaires were administered that assessed each participant's liking of the confederate and self-liking, and self-esteem. As expected, mimicked participants picked up more pens and liked the mimicker more. Surprisingly, mimicked participants reported significantly lower self-like when compared to non-mimicked participants, and their self-esteem tended towards being lower. This research fills an important theoretical gap showing that there is a great cost to mimicry.*

**Key words:** *mimicry, chameleon effect, liking, interpersonal relationships*

### Introduction

The large amount of literature on the chameleon effect shows that mimicry pays off for the mimicker by, for example, enhancing the mimickee's liking of the mimicker (Chartrand & Bargh, 1999), engendering her/him greater trust (Maddux, Mullen, & Galinsky, 2008; Swaab, Maddux, & Sinaceur, 2011), and offering of help by the mimickee (Kulesza, Dolinski, Huisman, & Majewski, 2014; van Baaren, Holland, Kawakami, & van Knippenberg, 2004). The mimicker gains financially from mimicry as she/he earns more money (Kulesza, Dolinski, Wicher, & Husiman, 2015; Kulesza, Szypowska, Jarman, & Dolinski, 2014; Tanner, Ferraro, Chartrand, Bettman, & van Baaren, 2008; van Baaren, Holland, Steenaert, & van Knippenberg, 2003), and thanks to the mimicry she/he is perceived as more physically attractive (Guéguen, 2009). Taken all together it is clear that mimicry is beneficial for the mimicker. The question arises: does mimicry hold its positive impact for the mimickee as well?

On the one hand, we might expect that mimicry would be beneficial for both parties of the interaction, thus the

mimickee should benefit as well. That interaction would imply a win-win scenario, and this impression might be drawn from the literature review. It is postulated that mimicry is of great importance for humans; mimicry has been referred to as 'social glue' (Dijksterhuis, 2005; Lakin, Jefferis, Cheng, & Chartrand, 2003), which means that mimicry is responsible for starting and maintaining satisfying social interactions with others. People mimic many social behaviors, such as emotions (Hatfield, Cacioppo, & Rapson, 1994); laughter (Young & Frye, 1966); facial expressions (Hsee, Hatfield, Carlson, & Chemtob, 1990); mood (Neumann & Strack, 2000); postures and mannerisms (Chartrand & Bargh, 1999). After being mimicked, the mimickee starts to like and help the mimicker, which in turn leads to the creation of a social bond with the mimicker. Mimickers define themselves more in relation to others in a more interdependent way than non-mimickers (Redeker, Stel, & Mastop, 2011). The same has been shown for mimickees (Ashton-James, van Baaren, Chartrand, Decety, & Karremens, 2007). Their self-construals shift to being more other-oriented when being

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mimicked. Also their feeling of physical proximity to the mimicker increased.

Interestingly, to the best of our knowledge, there is only one empirical study that partially supports aforementioned notion (Stel & Vonk, 2010), who showed that mimicry is beneficial for the two parties of the interaction. In an experiment purporting to test communication skills, one of a pair of participants was assigned the role of target, the other the role of observer. The target was asked to watch a video fragment. Targets were asked to briefly summarize the film to the observer: what they had seen and how it made them feel. Observers could ask questions, but importantly, half were instructed to mimic the facial expressions of the target/second person, whereas the other was asked to suppress facial mimicry. The results showed that mimickers and mimicees reported greater feelings of being attuned to each other, greater bonds with each other, and perceived the interaction as smoother (a recent study, however, did not replicate this effect: Kulesza, Cislak, Vallacher, Nowak, Czekiel, Bedynska, 2015). Keeping in mind that in Stel's (Stel & Vonk, 2010) study the authors did not measure the self-perception of the mimicee (consequently, the costs/benefits to the mimicee could not be assessed), from this perspective one might assume that the aforementioned line of argument seems to be reasonable: there is no cost or harm to the mimicee.

On the other hand, however, the true situation might be just the opposite: the mimicker gains at the expense of the mimicee. In this case, mimicry would result in a win-lose scenario. Parallel to the review above there are a few studies showing that indeed the mimicee is at some certain loss after being mimicked, and mimicry can lead to losses for the mimicker.

Willemuth (2012a) conducted a study on destructive obedience that partially addressed this issue, finding that the mimicee does not lose; however, he/she caused some kind of a loss for others. In that study, the experimenter and participant mimicked, antimimicked, or did not mimic, each other's gait. Later, the participants were asked to place bugs into a mill. People who had mimicked walking put more bugs into the mill than did people in the other conditions.

In his second study, people in groups of three were presented with 10 pieces of music while being instructed to move cups in their hands to the rhythm of the music (Willemuth, 2012b). There was one piece that was very loud. The participants were asked to choose which music would be played for the next group of participants. One of the participants was a confederate who mimicked, or not, the cup swaying of the participants. During the debate he proposed that the loud music piece should be put on top of the list as the music to be played for another group. The results showed that, when compared to the control group, mimicked people gave in to the suggestion, agreeing to the aggressive and harming to the others proposal of the confederate.

What should be pointed out here is that the both of Willemuth's research does not answer exactly whether mimicry is a win-lose situation, as this was not the main

point of his research. Willemuth showed solely that mimicry can be used to induce a person to do damage to a third party, but does not consider whether there is any direct damage inflicted upon the mimicee, thus producing a win-lose outcome.

Other work, in which a gain-loss relationship might be found is seminal work by Kouzakova and colleagues (Kouzakova, Karremans, van Baaren, & van Knippenberg, 2010) who tested how would mimicry impact the liking of the confederate and the evaluation of the participants' current romantic relationships. From their first experiment it turned out that mimicked participants rated their romantic relationship lower (5.22) compared to non-mimicked (6.07), while still liking the confederate more. The second experiment was done with 40 single people who had to assess their relationship with "someone important in their life". This assessment was done before and after the manipulation. The results showed that, once again, non-mimicked participants rated their relationship higher after the interaction, while this was not the case for mimicked participants. These experiments point out that mimicry negatively affect the mimicee's perception of his or her romantic relationship, while still rating the mimicker higher.

Taken all together that these studies do not strictly test mimicee's own perception of himself or herself. The question of how does mimicry affect the mimicee directly rather than his relations to a third party, remains unanswered. Thus to fill this theoretical gap, our study has been created. In this present study we tested two opposite possibilities. First, in a situation of mimicry, do both parties of the interaction benefit (win-win)? Second, and contrary: is it possible for mimicry to manifest in a way where one party losses and the other benefits, like for instance in a daily situation where the shopkeeper mimics the customer? Clearly there is a financial exchange, but perhaps there is a profoundly negative psychological effect. In other words maybe, on the one hand it is beneficial for the mimicker but, on the other hand, the mimicee feels worse and/or loses? If this is true, researchers would have to re-think the aforementioned dogma: 'mimicry is the social glue.'

The new topic we explored is how mimicry affects the mimicee's self-like and self-esteem rating. The reasons for testing in our study self-like, self-esteem as well as confederate-like is because there are multiple studies concerning mimicry increasing liking of the mimicker such as Kouzakova and team (Kouzakova, Karremans, van Baaren, & van Knippenberg, 2010) or Chartrand & Bargh (1999, experiment 2). Thus, this study elaborates previous research through a common comparable construct, while answering how does mimicry affect the mimicee.

## Method

The participants comprised 42 students (age:  $M = 21.24$ ,  $SD = 1.64$ ; women: 37, men: 5). Following recommendations by Simmons, Nelson and Simonsohn (2011 – in parathesis we enumerate the exact recommendations), there was a fixed number of 21 participants per experimental condition (rule 2 – at least 20 participants per group), and none of the

data were excluded from the analysis (rule 5 – report of all observations). The participants volunteered to participate in the study after being approached in person and receiving a brief description of the goal of the study.

The independent variable was (no) mimicry (for details see Chartrand & Bargh, 1999 – Experiment 2) performed by the confederate (blind to the hypothesis). In the mimicry condition, gestures and mannerisms of the participants were mimicked by the confederate. In the no-mimicry condition, the confederate sat still and straight with both hands on her lap, and both feet on the ground. The participants were randomly assigned to one of the two conditions through the confederate picking a tiny piece of paper with mimicry or no-mimicry condition written inside of it. There was a fixed amount of pieces to ensure that the sample sizes for both conditions would be equal.

The first dependent variable was prosocial behavior (the number of pens picked up, as in van Baaren et al., 2004, Experiment 1). The second dependent variable was liking the confederate, assessed by a questionnaire (Chartrand & Bargh, 1999, Experiment 2); in which Cronbach's alpha was high, at .85. The rationale for bringing these two measures into our study was to test if our method directly replicated benefits to the mimicker, thus showing that the chameleon effect occurred and providing a solid base to compare our study directly with previous ones.

The third dependent variable was self-liking (again Cronbach's alpha in the self-liking questionnaire was high at .77). To measure potential costs or benefits for the mimickee, the mimickee self-like and self-esteem questionnaires were delivered. Both liking questionnaires were based on 3 statements for each questionnaire assessed with a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). Depending on the questionnaire, the statements were: "I like the other person/myself", "I think she is/I am a nice person." "I think she is/I am a good person".

To double check the potential benefits/costs for the mimickee, the fourth dependent variable, self esteem, was assessed by the Polish adaptation of Rosenberg's self-esteem scale that contained 10 questions assessed by a scale of 1 (strongly agree) to 4 (strongly disagree) e.g., "I feel that I have a number of good qualities", and "On the whole I am satisfied with myself" (Łaguna, Laczowicz-Tabaczek, & Dzwonkowska, 2007).

### Procedure

Two chairs were positioned opposite each other in a room, 120 centimeters apart. The gap was measured with a measuring tape prior to the experiment, to ensure that the personal space of the participants would not be interfered with, which may have affected the questionnaire responses as well as the prosocial behavior. The measure has been taken from Hall's research on proxemics (cited by Brown, 2001), with social space starting from 4 feet. The participant and confederate would sit opposite each other during the manipulation stage, when the participant would be describing photographs while he/she was being, or was not being, mimicked. In a cover story, the participants were told they were taking part in a pilot study for future experiments

(in the pilot study it was discovered that such information reduced suspicion and anxiety, thus resulting in more natural nonverbal behaviors, which were crucial for the study). The ostensible goal was to find out which of the photographs presented to the participant were easier/more difficult to talk about and, therefore, which would be used for future studies (this procedure was described by Chartrand & Bargh, 1999).

Participants were asked to describe to the other person (the confederate, a woman in her 20s), 12 photographs handed to them featuring different themes such as landscapes or abstract art. Following the procedure of Chartrand and Bargh (1999, Experiment 2) the confederate mimicked (or not) participants' nonverbal behavior and mannerisms. Mimicry manipulation was carried out through mirroring movements and mannerisms, with a 1 to 2 second delay, as described by Tanner, Ferraro, Chartrand, Bettman, and van Baaren (2008). The mimicry was subtle, keeping the focus of attention upon the participant. The confederate copied four behaviors per minute, as previously shown by van Baaren, Maddux, Chartrand, de Bouter, and van Knippenberg (2003). In the non-mimicry situation the confederate sat in a neutral position, with hands on the photographs or lap, and both his/her feet on the ground. In order to keep the method comparable to that of van Baaren et al. (2004), the only mimicry used was as described in the Method section, which follows that of the other mentioned studies. Thus, when a participant laughed, his/her smile was not mimicked. The same was true for other facial expressions. A timer was used to ensure that each mimicry or non-mimicry situation lasted 10 minutes.

After the interaction, the confederate finished the interview, and said that in the next step the participant would complete a series of questionnaires. She then left the room, and on re-entering with a pile of tests and pens, appeared to accidentally drop the pens onto the floor, waiting 10 seconds before picking them up. The number of pens picked up by the participant was the first dependent variable (prosocial behavior – as described by van Baaren et al., 2004). The participants then were asked to fill out the series of three questionnaires (liking, self-liking, and self-esteem – in a random order) anonymously, which measured the remaining dependent variables.

A cardboard box with a slit on the top was positioned, at the beginning of the study, on a table away from the participants. After the pens had been picked up, the participant was asked to sit at the table and handed the questionnaires. He/she was told the confederate would leave the room and that he/she should put the questionnaires into the box after completing them. The box gave him/her the impression that the study was anonymous, with the intention of not affecting his/her questionnaire answers.

Finally, the participants were thanked and debriefed.

### Results

All three t-tests were significant. Firstly, consistent with the van Baaren (et al., 2004) study, mimicked participants picked up significantly more pens ( $M = 4.95$ ,  $SD = 2.11$ ) than non-mimicked ( $M = 1.71$ ,  $SD = 2.78$ ,  $t(37) = 4.26$ ,  $p < .001$ ,

$d = 1.31$ ). Secondly, as in Chartrand's and Bargh's (1999) second study, mimicked participants liked the confederate more ( $M = 5.54$ ,  $SD = 0.85$ ) in comparison to the non-mimicked ( $M = 4.81$ ,  $SD = 1.11$ ,  $t(40) = 2.39$ ,  $p = .022$ ,  $d = 0.74$ ). These findings replicate previously reported results. Finally and surprisingly, mimicked participants liked themselves less ( $M = 5.48$ ,  $SD = 1.0$ ) in comparison to non-mimicked ( $M = 6.03$ ,  $SD = 0.6$ ,  $t(40) = 2.17$ ,  $p = .036$ ,  $d = 0.66$ ). Self-esteem differed marginally<sup>1</sup> depending on the experimental condition, being lower after being mimicked ( $M = 28.95$ ,  $SD = 6$ ), and higher when non-mimicked ( $M = 31.76$ ,  $SD = 4.7$ ,  $t(40) = 1.69$ ,  $p = .098$ ,  $d = 0.52$ ). Responses to the Rosenberg self-esteem questionnaire correlated significantly with those to the self-liking questionnaire ( $r(40) = .89$ ,  $p < .001$ ).

A careful and critical reader probably noticed the disproportionate amount of male to female participants. Because of this lack of counterbalance between sexes, we have conducted a separate analysis, excluding men in order to replicate aforementioned analysis on a homogenous group. The goal of this analysis was to check if the pattern of the results will change or not. The results listed below are comparable to the non-homogenous sample. However in the homogenous sample the effect of mimicked participants liking the confederate compared to non-mimicked was stronger.

Even with men removed from the analysis, mimicked participants picked up significantly more pens ( $M = 5.16$ ,  $SD = 1.86$ ) than non-mimicked ( $M = 2$ ,  $SD = 2.91$ ,  $t(28.69) = 3.9$ ,  $p < .001$ ,  $d = 1.29$ ). Moreover, mimicked female participants liked the confederate more ( $M = 5.63$ ,  $SD = 0.78$ ) in comparison to the non-mimicked ( $M = 4.76$ ,  $SD = 1.14$ ,  $t(35) = 2.74$ ,  $p = .01$ ,  $d = 0.89$ ) which resulted in a higher significance level. Mimicked women liked themselves less ( $M = 5.4$ ,  $SD = 1.03$ ) in comparison to non-mimicked ( $M = 6.06$ ,  $SD = 0.65$ ,  $t(35) = 2.28$ ,  $p = .029$ ,  $d = 0.77$ ). Their self esteem was lower after being mimicked ( $M = 28.68$ ,  $SD = 6.19$ ), and higher when non-mimicked ( $M = 31.89$ ,  $SD = 5.1$ ,  $t(35) = 1.71$ ,  $p = .096$ ,  $d = 0.57$ ). Responses to the Rosenberg self-esteem questionnaire correlated significantly with those to the self-liking questionnaire ( $r(35) = .89$ ,  $p < .001$ ).

## Discussion

Liking and helping the mimicker was costly for the mimickee. This experiment brings to light the surprising finding that mimickees like themselves less, and self-evaluate at a lower level, compared to people who had not been mimicked. It seems that liking is a finite resource; the mimickee's self-liking drains from his/her reservoir to the mimicker. The mimicker can thereby be thought of a leech, taking away from the mimickee his/her self-like and gaining it himself/herself.

Another possible perspective, is that the an intensified social comparison of the mimickee to the mimicker take

places, meaning that the mimickee evaluates himself lower compared to this nice and friendly person (the mimicker).

From this perspective, the dogma by which mimicry is said to serve the social glue function (Dijksterhuis, 2005; Lakin et al., 2003) is questionable. The mimicker benefits by creating a bond with the mimickee. Astonishingly, there is a huge psychological cost to be paid by the mimickee, similarly to the ant who loses its life as the spider feeds on it. In this case, such a social chameleon acquires one more animalistic feature. The chameleon is discovered to be a social leech.

As this is a preliminary study, more studies are needed to explore in depth the field of mimicry as a win-lose situation, and the effects of mimicry on the mimickee. Concerning methodology we would recommend that future researchers assess self-like rating in ways other than declarative, for instance, through participants favoring themselves over others in certain situations or through doing positive things for themselves. An example could be ordering a more expensive meal for oneself than for the other person. Furthermore, we suggest establishing a baseline self-like rating for every participant, enabling comparisons of this with their self-like rating after mimicry. We would also recommend testing whether swapping the order of administering questionnaires with the prosocial act of picking up pens, would change the results. Another idea is removing completely the check for prosocial behavior and looking at the direct relationship between and mechanism involved in mimicry and the mimickee's self-like rating. Finally a very interesting question arises – how long does this decreased self-like rating and increased mimicker-like rating last and to what degree does it affect one's behavior? Future experiments might address these important issues.

We would also like to propose some practical uses that are based on the results of this study. We believe that it should be questioned whether mimicry is beneficial in some types of therapy. It is very common that in therapies, psychologists mimic their patients to create a bond and show empathy (e.g., Charney, 1966). However, since mimicry appears to lower self-like ratings, perhaps therapies that focus on, for example, self-improvement should reconsider this strategy. Furthermore, this finding could be implemented in marketing. Mimicry causing one's self-liking to decrease could potentially influence people to buy self-improvement goods, for instance, objects like vitamin pills or services such as skill training groups.

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<sup>1</sup> However, such significance in the literature of mimicry is still perceived as worthy of reporting (for example see: van Baaren, Holland, Steenaert, & van Knippenberg, 2003).

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