

# **Mimicry in Social Interaction: Its Effect on Human Judgment and Behavior**

**Nicolas Gueguen**

*Business Department, University de Bretagne-Sud  
IUT De Vannes, 8 Rue Montaigne  
5600 Vannes-France*

E mail: nicolas.gueguen@univ-ubs.fr  
Tel: +33297012663; Fax: +33297676537

**Celine Jacob**

*Business Department, University de Bretagne-Sud  
IUT De Vannes, 8 Rue Montaigne  
5600 Vannes-France*

E-mail: celine.jacob@univ-ubs.fr  
Tel: +33297012663; Fax: +33297676537

**Angelique Martin**

*Business Department, University de Bretagne-Sud  
IUT De Vannes, 8 Rue Montaigne  
5600 Vannes-France*

E-mail: angelique.martin@univ-ubs.fr  
Tel: +33297012663; Fax: +33297676537

## **Abstract**

In this paper the effect of mimicry on social behavior and judgment in social interaction is examined. When a stranger mimics the verbal and nonverbal expressions of somebody, higher positive judgment of the mimicker is found. It was also found that various positive social behaviors such as spontaneous helping behavior, compliance to a request addressed by the mimicker... are more favorably displayed by the person who is mimicked. This paper examines social behaviors that are influenced by mimicry (e.g. helping behavior, consumer behavior, courtship behavior). In the second part of the review, two theoretical explanations of the effect of mimicry are examined. One of them supports the hypothesis that mimicry from an evolutionary perspective is used in social communication to create greater feelings of affiliation and rapport between two individuals. The second hypothesis supports the notion that mimicry enhances familiarity of the mimicker that in return leads the person mimicked to evaluate the mimicker more favorably, to help him/her more favorably and to enhance the compliance rate to his/her request.

**Keywords:** Mimicry, Chameleon effect, Social interaction, Nonverbal behaviors, Social perception, Influence.

## **1. Introduction**

As the saying goes “Monkey see, monkey do”. This “Chameleon effect” (Chartrand & Bargh, 1999) refers to the unconscious mimicry of postures, facial expressions, mannerisms and other verbal and

nonverbal behaviors. Today, research on this paradigm has shown that mimicry has the power to influence social judgment and behavior toward the mimicker. Recent experimental studies conducted in field settings show that using mimicry could influence compliance towards a mimicker's request. The objective of this paper is to present to readers the various influences exerted by mimicry on people's judgment and behavior and to present the theoretical explanations used by scientists to explain the social influence of mimicry.

## **2. Social influence Effects of Mimicry**

Research on mimicry is not recent in psychology literature but the effect of mimicry on judgment and people's behavior is recent. The research found that the verbal and nonverbal expression of a counterpart is mimicked in social interaction. Giles and Powesland (1975) found that people mimic the accents of their counterparts. Speech rate (Webb, 1972) and speech rhythms (Cappela & Panalp, 1981) are also mimicked unconsciously by human beings in their social interactions. The contagious effect of laughter has been found in several studies (Bush, Barr, McHugo & Lanzetta, 1989; Provine 1992) and many experiments have found that the use of canned laughter causes an audience, in return, to laugh longer, more often and to rate the humorous material as funnier (Cialdini, 2001). It has been found that posture and mannerism are also mimicked in social interaction, (Bernieri, 1988, Lafrance, 1982). Chartrand and Bargh (1999, study 1) found that participants were more likely to touch their own faces when they interacted with a face touching confederate who was a stranger than when they interacted with a foot shacking confederate. Similarly, the reserve effect was found when the confederate shook his foot: then the participants were more likely to shake their own feet than to touch their own faces. When confederates were instructed to smoke in a bar lavatory, it was found that participants imitate the smoking behavior of the confederates (Harakeh, Engels, Van Baaren & Scholte, 2007). Quigley and Collins (1999) found that alcohol consumption is influenced by our counterpart in social interaction and the type of drink selected, the drinking rate and the volume of beverage for each sip is imitated..

People mimic verbal and nonverbal expressions and behavior of their counterparts in various social interactions, but research also found that mimicry is associated with higher positive evaluation of the mimicker. Chartrand and Bargh (1999, study 2) engaged participants in a task with a confederate who was instructed to either mimic the mannerism of the participant or to exhibit neutral, nondescript mannerisms. Compared to those who were not mimicked, participants who were mimicked by the confederate reported a subsequent higher mean of liking of the confederate and described their interaction with the confederate to be smoother and more harmonious. This result is congruent with the previous work of Maurer and Tindall (1983) who found that when a counselor mimicked the arm and leg position of a client this mimicry enhanced the client's perception of the counselor's level of empathy than when the counselor did not mimic the client. Social interaction between humans is not necessary to show the impact of mimicry on judgment. Interacting with an embodied artificial agent in immersive virtual reality that mimicked our own behavior is sufficient in influencing the rating of the agent. In a recent experiment of Bailenson and Yee (2005), a virtual agent verbally presented a persuasive argument (a message advocating a campus security policy) to a participant who interacted with the agent. In half of the cases, the virtual agent mimicked the participant's head movements at a 4 seconds delay, whereas for another group of participants, the agent mimicked the prerecorded movement of another participant. After the interaction, the participant indicated his/her agreement with the message delivered by the agent and gave his/her impression about the agent. It was found that the mimicking virtual agent was more persuasive and received more positive trait ratings than nonmimickers.

Rapport and affiliation is also associated with mimicry. Lafrance (1979) conducted a longitudinal design to explore the relation between a measure of nonverbal synchrony and self-report indications of rapport with college students. She found that posture sharing between the instructor and the students was positively related with rapport. For this author, postural mimicry may be influential in

establishing rapport. This link between affiliation and rapport was recently demonstrated by Lakin and Chartrand (2003). In their experiment, participants performed a first task where they were exposed to a priming procedure in which they were primed with words related or not to the concept of affiliation (friend, partner...). In a second unrelated task on memory, participants watched a videotape of a female-confederate who was touching her face. It was found that during this second task that the participants who were primed with the unconscious concept of affiliation mimicked more favorably the confederate displayed on the video tape than when no affiliation priming was used. Then it seems that affiliation and mimicry are related. This effect was recently confirmed by two studies of Yabar, Johnston, Miles and Piles (2006) who found that participants more favorably mimicked nonverbal behavior of members of their in-group than members of their out-group. Again, the link between the desire of affiliation and mimicry was attested. In courtship relationships, the positive effect of mimicry is also observed. In a recent study (Guéguen, 2007a), an experiment was carried out during real sessions of speed-dating in order to test the behavioral effect of mimicry in a courtship context. Young confederate women who interacted with men during such sessions were instructed to mimic some verbal expressions and nonverbal behaviors of the men, verbal expressions alone, nonverbal behaviors alone or not to mimic at all. Data showed that men evaluated more positively the dating interaction and the women-confederates when they mimicked them. At the end of the dating session, men expressed greater desire to meet again the women-confederates who mimicked them than the same women-confederates who did not. Furthermore, no difference given the nature of mimicry used (verbal alone, nonverbal alone or combined) was found arguing that expression of one source of mimicry is sufficient to have a positive effect on the counterpart's judgment.

If mimicry is associated with higher liking of the mimickers and greater affiliation, several studies have found that mimicry leads to enhancing pro-social behavior toward the mimickers. Van Baaren, Holland, Steenaert and Van Knippenberg (2003) found in two experiments that mimicking the verbal behavior of customers in a restaurant increased the size of the tips. In their first experiment, a waitress was instructed to mimic verbal behavior of half of her customers by literally repeating their order. It was found that the waitress received significantly larger tips when she mimicked the patrons than when she did not. In a second experiment, it was found that compared to a baseline condition, mimicry was associated with a higher rate of customers who gave a tip and was also associated with larger amount of tips. Spontaneous helping behavior is also affected by mimicry. Van Baaren, Holland, Kawakami and Van Knippenberg (2004) mimicked the posture (position of their arms, of their legs...) of half of their participants who participated in a task where they had to evaluate different advertisements. The experimenter, who was seated in front of the participant, mimicked the participant's posture or not. When the task finished the experimenter "accidentally" dropped six pens on the floor. It was found that participants in the mimicry condition picked up the pens more often (100 %) than participants in the nonmimicry condition (33 %). Behavioral mimicry can also facilitate negotiation outcomes. In a recent study of Maddux, Mullen and Galins (2008) it was found that mimicry facilitated the negotiator's ability to uncover underlying compatible interests and also increased their likelihood of obtaining a deal in a negotiation where a prima facie solution was not possible. The consumer's behavior is also affected by mimicry. In a recent experimental study conducted in a real commercial context (Guéguen, 2007b), four sellers who interacted with customers (the experiment took place in the section where various MP3 players were sold.) were instructed to mimic or not some verbal expressions and nonverbal behaviors of the customers. When leaving, customers were solicited to evaluate the sellers and the store. Results showed that mimicry is associated with greater compliance to the sellers' suggestions during the selling process (the customers bought more favorably the MP3 player recommended by the seller) and with greater positive evaluations of the sellers and the store.

Above all, these studies show that mimicry seems to enhance social relationships, increases affiliation and rapport and enhances pro-social behavior. Later recent studies also showed that mimicry was associated with greater persuasive effect and compliance toward the mimicker's suggestions. So

the question that remains is why mimicry is so efficient in influencing social behavior and judgment? Recent, yet scarce, studies proposed several theoretical explanations of the mimicry effect.

### **3. Social influence Effects of Mimicry**

One of the most famous explanations of why mimicry influences social behavior and judgment is explained by the desire of human beings to create affiliation and rapport when they interact with somebody else. This desire would be explained by our evolution. For Lakin, Jefferis, Cheng and Chartrand (2003) the relationship between mimicry and liking or pro-social behavior could be explained in terms of human evolution. For these authors, mimicry could serve to foster relationships with others. This behavior could serve as a “social glue” function, binding people together and creating harmonious relationships. The authors argue that, historically, mimicry had survival value for human beings by helping them to communicate. For these authors, success in social interaction was necessary and individuals who were “on their own” were not able to survive and to have success in their reproduction strategies. Thus, individuals were obliged to interact and to collaborate with each other to survive and to reproduce. Social communication was therefore necessary to collaborate with somebody. In this perspective, before the development of language between human beings, mimicry and coordination were the main forms of communication offered to humans. For Condon and Sanders (1974) mimicry was perhaps the first step of the development of abilities to communicate that ends today with verbal communication. Thus, if mimicry was one of the first means of social communication it is not surprising that today this behavior is automatic and unconscious given that evolution has fixed these abilities in our brain. For Lakin et al. (2003), with the evolution of social groups, it would be necessary for members of human groups to feel a sense of psychological connection between themselves. Thus, individuals who were able to mimic each other had more opportunities to experience this psychological connection and would have more probabilities to be kept in the community. The fact is that previous research found that behavioral or verbal mimicry created affiliation, rapport and interpersonal closeness (Chartrand & Bargh, 1999). The connection between mimicry and closeness of social interaction was shown by a study conducted by Jefferis, van Baaren and Chartrand (2009). A participant and a confederate in a dyad answered to a set of scripted questions that were impersonal or more personal (e. g. some questions about their relationship with their parents). During the session, the confederate shook her foot and the behavior of the participant was measured. It was found that personal questions increased the behavioral mimicry of the participant compared to the situation where impersonal questions were asked. For these authors the relationship between mimicry and closeness would be an empirical demonstration that mimicry is produced when affiliation and rapport between two people increase. For some authors, the automatic activation of mimicry is explained by this link between mimicry and affiliation. In a first study by Lakin and Chartrand (2003), a unconscious affiliation goal obtained by subliminal exposition with words related to affiliation (e.g. friend, together) was associated with greater mimicry of the participants exposed to these words. In a second study by these authors, it was found that a recent failure when participants tried to affiliate with somebody else was associated with greater mimicry in a second social interaction with another confederate. The relationship between the role of mimicry in creating affiliation and rapport between individuals is also found in a recent study by Yabar, Johnston, Miles and Peace (2006). In their experiment, female participants viewed videotapes of two female-targets. One was presented as a member of an in-group or as a member of an out-group: the participants were not Christian and the confederate in the video was presented as a Christian (out-group) or a non Christian (in group). The confederate on the video described a picture to the participant and during this period she touched/rubbed her face. The degree of mimicry of the participant was measured during this period relative to a baseline period. It was found that compared to this baseline period, participants touched/rubbed their faces more frequently when viewing the target of their in-group, whereas the frequency of this behavior decreased when the target was a member of the out-group. For the authors,

again, the link between mimicry and the desire of affiliation could explain these results. With the member of the in-group, the desire to affiliate would be high and then mimicry increase in order to inform the counterpart that the participant had the desire to maintain the relation. With the member of the out-group, the decrease in mimicry would be used in order to inform the confederate that the participant did not want to interact with her and with members of her group in the future.

Given together, the results of these studies support the theoretical explanation of Lakin, Jefferis, Cheng and Chartrand (2003) that mimicry is associated with the desire to create affiliation and rapport and that automatic mimicry is the result of an evolution process when mimicry was used in social communication between humans. Furthermore, most of the experimental studies on mimicry are recent (less than 5 years) and additional information is necessary to evaluate the link between mimicry and rapport.

Another theoretical explanation to explain the effect on mimicry on judgment and social behavior that has been put forward is the familiarity theory (Guéguen, 2005; 2007). For this author mimicry is associated with greater feelings of familiarity with the mimicker. Research on helping behavior has showed that when a solicitor seemed to be familiar with the subject solicited, he/she agreed more favorably to help the solicitor. In these studies, similarity was manipulated in various ways: congruence versus non-congruence of race, status, apparel appearance, attitudes... between the solicitor and the person solicited. A solicitor was helped more favorably when he/she was of the same race as the subject (Bickman & Kamzam, 1973; Gaertner & Bickman, 1971; Wegner & Crano, 1975). The same effect was obtained when the solicitation of help was made by phone and when ethnicity was manipulated by the accent of the solicitor (Harris & Klingbeil, 1976). People of high status more favorably help solicitors who are of high status and need help than those of low status (Goodman & Gareis, 1993). Keasey and Keasey (1971) found that same apparel appearance between helper and solicitor led to increase compliance to the solicitor request. This effect is also observed on spontaneous helping behavior (Suedfeld, Bochner & Matas, 1971). Attitude congruence toward capital punishment between a solicitor and a person solicited is a factor influencing helping behavior (Karabenick, Lerner & Beecher, 1975). In the same vein, Suedfeld, Bochner and Wnek (1972) found that similar political attitudes increased altruism. In a computer-mediated communication context between two strangers, familiarity also enhances helping. Guéguen, Pichot and Le Dreff (2005) have carried an experiment where students received an e-mail containing a 40-question survey on their food habits which required 15-20 minutes of their time to respond. This questionnaire came from a hypothetical student of the university in which the subjects were registered. In half of the cases, the surname of the solicitor, which appeared in his/her electronic address, was the same as the surname of the target. Results show that compliance to the request was significantly higher in the same surname condition than in the different surname condition and that the response delay was significantly shorter in the same-surname condition than in control condition. All together these studies together show that familiarity enhances helping behavior. Now, it has been found that mimicry is also associated with greater helping behavior (Van Baaren, Holland, Kawakami and Van Knippenberg, 2004; Van Baaren, Holland, Steenaert and Van Knippenberg, 2003). This effect is perhaps explained by the feeling of familiarity led by mimicry. In a recent study, cited above (Guéguen, 2007b), where it was found that mimicry was associated with greater compliance to a sellers' suggestion during the selling process and with greater positive evaluations of the sellers and the store (in this experiment the seller mimicked some customers), it was also found that the level of the feeling of familiarity of the customer toward the seller was statistically higher in the mimicry condition than in the non-mimicry control condition. More recently, Guéguen (in press) by using the experimental paradigm of Chartrand and Bargh (1999, study 1) found that participants were more likely to touch their own face when they interacted with a face touching confederate who possessed the same first name as their own than when they interacted with a confederate who had a different first name. The same effect occurred when familiarity with the confederate was manipulated by the help of sport interests, leisure interests or studies. Then, when a person becomes more familiar, his/her behavior is more favorably mimicked. This could explain why

mimicry is associated with greater positive perception of the mimicker and why a mimicker is more favorably helped in daily interactions.

Of course this theoretical explanation that mimicry enhances familiarity of the mimicker and then enhances one's positive judgment and helping behavior toward the mimicker is not incompatible with the theoretical explanation that mimicry creates greater desire of affiliation and rapport because familiarity is also associated with greater desire of affiliation and rapport. The question to be studied by scientists who work on mimicry is now to explore if mimicry associated to familiarity could enhance the traditional effect of mimicry found in previous studies. Mere familiarity and mimicry both have the power to enhance social interaction. It will thus be interesting to evaluate if familiarity associated with mimicry could create an interaction effect on judgment and helping behavior that would be higher than the mere enhancing effect of each social influence technique. The effect of mimicry is astonishing for social psychologists and further studies are now necessary to explain why this effect occurs and in which social situation this effect arises.

## References

- [1] Bailenson, J. N., & Yee, N. 2005. Digital chameleons: Automatic assimilation of nonverbal gestures in immersive virtual environments, *Psychological Science*, 16, pp. 814-819.
- [2] Bernieri, F. J. 1988. Coordinated movement and rapport in teacher-student interactions, *Journal of Nonverbal Behavior*, 12, pp. 120-138.
- [3] Bickman, L., & Kamzan, M. 1973. The effect of race and need on helping behavior, *The Journal of Social Psychology*, 89, pp. 73-77.
- [4] Bush, L. K., Barr, C. L., McHugo G. J., & Lanzetta, J. T. 1989. The effects of facial control and facial mimicry on subjective reaction to comedy routines, *Motivation and emotion*, 12, pp. 120-138.
- [5] Cappella, J. N., & Panalp, S. 1981. Talk and silence sequences in informal conversations: III. Interspeaker influence, *Human Communication Research*, 7, pp. 117-132.
- [6] Chartrand, T. L., & Bargh, J. A. 1999. The chameleon effect: The perception-behavior link and social interaction, *Journal of Personality and Social Psychology*, 76, pp. 893-910.
- [7] Cialdini, R. B. 2001. *Influence: Science and practice* 4th ed.. Boston: Allyn & Bacon.
- [8] Condon, W. S., & Sander, L. W. 1974 Synchrony demonstrated between movements of the neonate and adult speech, *Child Development*, 45, pp. 456-462.
- [9] Gaertner, S., & Bickman, L. 1971. Effects of race on the elicitation of helping behavior: The wrong number technique, *Journal of Personality and Social Psychology*, 20, pp. 218-222.
- [10] Giles, H., & Powesland, P. F. 1975. *Speech style and social evaluation*, London: Academic Press.
- [11] Goodman, M., & Gareis, K. 1993. The influence of status on decision to help, *The Journal of Social Psychology*, 133, pp. 23-31.
- [12] Guéguen, N. in press. *100 petites expériences en psychologie des noms et prénoms*, Paris, Dunod.
- [13] Guéguen N. 2007a. *100 petites expériences en psychologie de la séduction*, Paris, Dunod.
- [14] Guéguen, 2007b. *Psihologia consumatorului*, Bucarest, Polirom.
- [15] Guéguen N. 2005. *100 petites expériences en psychologie du consommateur*, Paris, Dunod.
- [16] Guéguen N., Pichot N. & Le Dreff G. 2005, Similarity and helping behavior on the Web: The impact of the convergence of surnames between a solicitor and a solicitee in a request made by e-mail, *Journal of Applied Social Psychology*, 35, pp. 423-429.
- [17] Harakeh, Z., Engels, R., van Baaren, R. B., & Scholte, R. H. J. 2007. Imitation of cigarette smoking: An experimental study of smoking in a naturalistic setting, *Drug and Alcohol Dependence*, 86, pp. 199-206.

- [18] Harris, M., & Klingbeil, D. 1976. The effects of ethnicity of subject and accent and dependency of confederate on aggressiveness and altruism, *The Journal of Social Psychology*, 98, pp. 47-53.
- [19] Jefferis, V. E., van Baaren, R. & Chartrand, T. L. 2009. *The functional purpose of mimicry for creating interpersonal closeness*, Manuscript in preparation, The Ohio State University.
- [20] Karabenick, S., Lerner, R. & Beecher, M. 1975. Helping behavior and attitude congruence toward capital punishment, *The Journal of Social Psychology*, 96, pp. 295-296.
- [21] Keasey, C., & Keasey, C. 1971. *Straight and hip peace petitioners*. Paper read at the Meeting of the Eastern Psychological Association.
- [22] LaFrance, M. 1982. Posture mirroring and rapport. In M. Davis Ed., *Interaction rhythms: Periodicity in commutative behavior* pp. 279-298. New York: Human Sciences Press.
- [23] LaFrance, M. 1979. Nonverbal synchrony and rapport: Analysis by the cross-leg panel technique, *Social Psychology Quarterly*, 42, pp. 66-70.
- [24] Lakin, J., L., & Chartrand, T. L. 2003. Using nonconscious behavioral mimicry to create affiliation and rapport, *Psychological Science*, 14, pp. 334-339.
- [25] Lakin, J. L., Jefferis, V. E., Cheng, C. M., & Chartrand, T. 2003. The chameleon effect as social glue: Evidence for the evolutionary significance of nonconscious mimicry, *Journal of Nonverbal Behavior*, 27, pp. 145-162.
- [26] Maddux W. W., Mullen E. & Galinsky A. D. 2008. Chameleons bake bigger pies and take bigger pieces: Strategic behavioral mimicry facilitates negotiation outcomes, *Journal of Experimental Social Psychology*, 44, pp. 461-468.
- [27] Maurer, R. E., & Tindall, J. H. 1983. Effects of postural congruence on client's perception of counselor empathy, *Journal of Counseling Psychology*, 30, pp. 158-163.
- [28] Provine, R. R. 1992. Faces as releasers of contagious yawning: An approach to face detection using normal human subjects, *Bulletin of the Psychonomic Society*, 27, pp. 211-214.
- [29] Quigley, B. M., & Collins, R. L. 1999. Modeling of alcohol consumption: A meta-analytic review, *Journal of Studies on Alcohol*, 60, pp. 90-98.
- [30] Suedfeld, P., Bochner, S., & Matas, C. 1971. Petitioner's attire and petition signing by peace demonstrators: A Field experiment on reference group similarity, *Journal of Applied Social Psychology*, 1, pp. 278-283.
- [31] Suedfeld, P., Bochner, S., & Wnek, D. 1972. Helper-sufferer similarity and a specific request for help: Bystander intervention during a peace demonstration, *Journal of Applied Social Psychology*, 2, pp. 17-23.
- [32] Van Baaren, R. B., Holland, R. W., Kawakami, K. & Van Knippenberg, A. 2004. Mimicry and prosocial behaviour, *Psychological Science*, 14, pp. 71-74.
- [33] Van Baaren, R. B., Holland, R. W., Steenaert, B., & Van Knippenberg, A. 2003. Mimicry for money: Behavioral consequences of imitation, *Journal of Experimental Social Psychology*, 39, pp. 393-398.
- [34] Yabar, Y., Johnston, L., Miles, L., & Peace, V. 2006. Implicit behavioral mimicry: Investigating the impact of group membership, *Journal of Nonverbal Behavior*, 30, pp. 97-113.
- [35] Webb, J.T. 1972. Interview Synchrony: An Investigation of Two Speech Rate Measures. In A.W. Siegman and B. Pope Eds., *Studies in Dyadic Communication* pp.115-133. New York: Pergamon Press.
- [36] Wegner, D., & Crano, W. 1975. Racial factors in helping behavior: An unobtrusive field experiment, *Journal of Personality and Social Psychology*, 32, pp. 901-905.