

The Cute Chameleon: The Effect of Attractiveness Level on Behavioral Mimicry Within Same-Sex Dyads

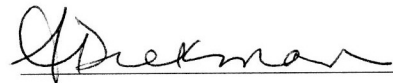
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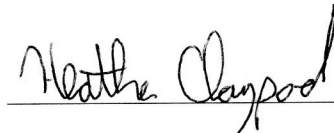
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Sex Dyads

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### **Abstract**

Behavioral mimicry is the changing of movements or mannerisms to match that of an interaction partner. The phenomenon occurs nonconsciously and has been shown to increase the level of liking between interaction partners (Chartrand & Bargh, 1999). Moderators of mimicry include in-group membership (Lakin, Chartrand, & Arkin, 2008), desire to be liked (Lakin & Chartrand, 2003), and social exclusion (Lakin, Chartrand, & Arkin, 2008). Attractiveness level has been shown to have a substantial effect on how individuals perceive a person (Ahola, Angela, Christianson, & Hellstrm, 2009). The current study addressed whether attractiveness level of a female in a projected video would impact the amount of mimicry exhibited by females participating in the study. Additionally, this study compared two interactions for each participant to determine not only a baseline comparison for each action performed, but also to determine which action performed by the confederate was more likely to be mimicked. Finally, this study investigated whether using a video projection of a confederate as an interaction partner would be as effective as a live confederate in the room through the comparison of the results of the current study with previous work.

## The Cute Chameleon: The Effect of Attractiveness Level on Behavioral Mimicry Within Same-Sex Dyads

As social beings, humans have an innate tendency to mimic each other's behavior. Be it crossing one's legs, yawning, or checking a cell phone, these actions can all be categorized as behavioral mimicry. Behavioral mimicry occurs when an individual modifies their motor movements, like postures, mannerisms or gestures, to be more synchronized with those of an interaction partner (Chartrand & van Baaren, 2009). This phenomenon was noticed as early as the 1960s when studies found that over the course of a clinical psychology session, the postures of the client and psychotherapist would become more similar by the end of their session (Charney, 1966). Recent research has investigated different moderators of mimicry, specifically what types of variables can impact the amount of mimicry exhibited in interactions. The current research examines the role of attractiveness level of a confederate in order to determine whether it moderates the amount of mimicry exhibited by the participant.

### **The Importance of Behavioral Mimicry**

Behavioral mimicry, also known as the chameleon effect, is when individuals nonconsciously change their postures, mannerisms, speech, and facial expressions to match that of their interaction partner. Behavioral mimicry is important because it allows for the formation of interpersonal connections without our conscious knowledge. Early research regarding behavioral mimicry was correlational in nature (Schefflen, 1964). Behavioral mimicry was first experimentally demonstrated by Chartrand and Bargh (1999). In their first study, participants were paired with a confederate who shook his/her foot, scratched his/her face, smiled, or sat in a neutral position. Participants shook their foot, scratched their face, or smiled more when in the presence of the confederate performing that particular action than when they were with the

confederate that was not performing any action. Researchers have continued to study the chameleon effect and the outcomes it produces. Behavioral mimicry has been found to increase prosocial behavior (van Baaren, Holland, Kawakami, & van Knippenberg, 2004), positive evaluation of experiences (Ramanathan & McGill, 2008), and persuasion (Bailenson & Yee, 2005).

Behavioral mimicry has likely been an important social tool throughout the history of human interaction because of its ability to facilitate affiliation and bonding (Lakin, Jefferis, Cheng, & Chartrand, 2003). In their second study, Chartrand and Bargh (1999) found that mimicry increases liking. Participants reported liking the confederate more in the mimicry conditions than in the conditions where mimicry did not occur. The participant also rated the smoothness of interaction as higher in the mimicry condition than the non-mimicry condition. Liking and smoothness of interaction are two important characteristics in the formation of friendships and therefore inclusion in the in-group over the course of time (Lakin, Jefferis, Cheng, & Chartrand, 2003).

### **Moderators of Behavioral Mimicry**

There are situations in which conscious or nonconscious goals are activated and impact the amount of mimicry that occurs in these situations. Oftentimes, individuals tend to respond to affiliative goals in their environment by increasing the degree to which they mimic others (Lakin & Chartrand, 2003). Individuals who are excluded from a group tend to increase the amount they mimic in-group members as a way to re-affiliate with the group. Lakin, Chartrand and Arkin (2008) found that individuals who were excluded from an online game (i.e. Cyberball) mimicked the confederate more than individuals who were included. If individuals needs to feel wanted or

a part of the group, or want to get interaction partners to like them (Lakin & Chartrand, 2003) then they are more likely to mimic the people with whom they interact.

Research has shown that we can not only increase the amount of mimicry that occurs in a situation but the amount of mimicry can be decreased in a given situation. This can be seen as a potential social mechanism because, when individuals are interacting with a member of the out-group (Dalton, Chartrand, & Finkle, 2010), or a member of a stigmatized group who is performing an action associated with that stigma (Johnston, 2002), they are less likely to mimic their interaction partner(s). Additionally, when an individual is in a romantic relationship, he/she will mimic an attractive opposite-sex individual less compared to his/her single counterparts (Karremans & Verwijmeren, 2008).

### **Attractiveness**

Another potential moderator of behavioral mimicry is the attractiveness level of an interaction partner. There has been much research in the past addressing the attractiveness level of different individuals and how it can influence the actions or perceptions of others. Dion, Berscheid, and Walster (1972) empirically studied the theory of “what is beautiful is good.” This theory states that physical attractiveness impacts perceptions of individuals and that those individuals who are more attractive are more likely to be viewed more positively than those individuals who are less attractive. In a research study that examined attractiveness and prison sentences, participants gave more attractive women a slightly lesser punishment for crimes than the less attractive women (Ahola, Christianson, & Hellstrom, 2009).

Sigall and Aronson (1969) found that a female confederate’s appearance could influence the amount that a participant liked her. In this study, one female confederate was made to look attractive or unattractive. She did this by wearing tasteful makeup and her natural hair or no

makeup and a blonde wig that was made to look like her natural hair, except frizzier. The attractive version of the confederate was rated significantly more attractive than the unattractive version of the confederate. Participants were shown to like the attractive version of the confederate more than the unattractive version.

Together, these studies suggest that the attractiveness level of an interaction partner could moderate the amount of mimicry exhibited by participants. Specifically, I believe that as a result of the “what is beautiful is good” theory (Dion, Berscheid, & Walster, 1972), participants would mimic the attractive confederate more than the unattractive confederate. This research used two different behaviors (face touching and foot tapping) to measure mimicry because the participant interacted with both the attractive and unattractive confederate.

## **Method**

### **Participants**

Forty-seven female undergraduate students from a small Midwestern university participated in this study. Because research by Karremans and Verwijmeren (2008, Study 2) found that women mimicked more than men, only females were used in this particular study. Participants were recruited from the introductory psychology courses and lower level psychology courses. Participants were given course credit for their participation. These students signed up for the study using a university research sign up program online.

### **Design**

This research compared the amount of mimicry exhibited by participants interacting with an attractive confederate to the amount exhibited with an unattractive confederate. A within-subjects 2 (action performed: baseline, face touches) X 2 (attractiveness level: attractive, unattractive) ANOVA was used to calculate the differences in amount of mimicry for face

touches. Additionally, a within-subjects 2 (action performed: baseline, foot tapping) X 2 (attractiveness level: attractive, unattractive) ANOVA was used to calculate the differences in amount of mimicry for foot movements.

### **Apparatus and materials**

The experiment room had a chair set up about a yard away from the computer monitor at a forty-five degree angle to the projection screen. The projector was at an appropriate distance so that the individual on the screen looked life-sized. Additionally, the video was recorded in a way that, when projected onto the screen, the video looked as though it was sitting at a forty five degree angle to participant's chair. This meant that the person in the video and the participant were at a ninety degree angle from each other and partially faced the computer screen where the slideshow of pictures was presented. This was important so that the participant could clearly see the movement of the confederate in the video projection while still looking at the pictures.

Sixteen color photographs of different scenes were chosen for the photo description task, eight for each task. These photos were chosen for their lack of human subjects so that participants do not make up stories about individuals in relationships.

Video recordings were taken of one female confederate in eight different conditions. Attractiveness was varied in these videos. In the attractive condition, the female confederate wore a tasteful, yet form fitting, outfit. Her hair was down and she wore tasteful amounts of makeup (figure 1). In the unattractive condition, the female wore baggy sweatpants and a large baggy sweatshirt. She had her hair in a pony tail and wore no makeup (figure 2). The videos were also counterbalanced as to the type of behavior (face-touching vs. foot-shaking) exhibited by the confederate, and the set of photos that she described (Picture Set 1 vs. Picture Set 2). See figure 3 for visual aid of counterbalancing.



The two videos that were presented to the participant were completely orthogonal. That is, if the first video was “unattractive confederate, foot tapping, picture set one,” then the second video would be “attractive confederate, face touching, picture set two.” These videos were also counterbalanced so that if one participant had the videos in the order previously mentioned, then another participant would have the videos in the reverse order (figure 4). Baseline measures for a particular action were taken from the photo description session where this action was not performed by the confederate. For example, if the first video in the experiment showed the confederate touching her face, this session would be coded for the baseline of foot movements, since the confederate exhibited zero foot movements during this video. Because of the nature of the study, the second video would then show the confederate tapping her foot. This second video would be the baseline for the face touches, since zero face touches occurred in the video. These conditions were also initially randomized and then the order was repeated.

A filler task was used as a break between the two photo description tasks in order to ensure the participants were not bored or ego depleted from their participation. In the filler task, the participants were asked to write directions from their home to the student center, the student center to the psychology building, and the psychology building to the recreational facility. This task lasted five minutes. Finally a series of questionnaires were used at the end of the study to measure a variety of opinions that the participant possessed about the study and their experience.

### **Procedure**

Upon arrival to the laboratory, participants were given an informed consent form and were asked to read and sign the bottom. They were then reminded that they could leave the study at any time without penalty. The female participant was then asked to sit in a room with a projection screen and a computer monitor. Research by Kühn and colleagues (2010) found that

when participants watched a video recording of a confederate mimicking a pseudo-first-person perspective, they liked that confederate more than when they watched a video of the confederate who did not mimic the pseudo-first-person perspective. In the current study, I chose to use a projection of a confederate instead of a live confederate to determine the effectiveness of the use of videos.

The participant was told by the experimenter that the research was investigating storytelling and description. In order to research this, the participant was told that a video was going to appear on the projection screen. In this video, a female described the first four pictures that appeared on the slideshow that was played on the computer monitor. The participant was then asked to describe the second four photographs that were present on a slideshow. Each picture was presented in the slide show for one minute, meaning that the participant listened to the video describe the photos for the first four minutes, and then described the next photos for the second four minutes. In reality, the task was an opportunity for the participant to interact with the video of the confederate and observe the confederate's foot tapping or face touching movements. The experimenter then started the projection and slide show so that they were in sync, and left the room as to not put undue pressure on the participant and confederate.

After completing the photo description task, the participant was asked to complete a five minute filler task in a separate room. After completion of the filler task, the participant was then asked to enter the main room once again and complete another photo description task. The participant was told that the individual in the video would be a different individual, and that the pictures would be different to prevent boredom. In reality, the female in the video was the same person, only dressed differently with hair and makeup different than the first photo description task. Once the participant completed the second photo description task, she was given a

demographic questionnaire to complete. Finally, the participant was debriefed by the experimenter using a funneled series of questions to determine if the participant was aware of the true nature of the study. After the funneled debriefing questions were answered, the experimenter explained the hypothesis and purpose of the study and asked the participant if she had any other questions regarding her experience. She was also asked to sign a video consent form to allow the video to be coded for her movements.

### Results

Based on the previous research in the fields of attractiveness and behavioral mimicry, I thought that participants would mimic the attractive confederate more than the unattractive confederate. This would result in a main effect of attractiveness in both the face touching and the foot tapping conditions. I did not predict a main effect for action performed or any interactions.

The videos were coded by a coder who was not blind to the hypothesis of the study. Because of the organization of the study, however, the videos were completely counterbalanced with regard to type of behavior exhibited, attractiveness level of the individual in the video, and photos that the individuals were describing. Additionally, because of the way the video equipment was set up, it was impossible for the coder to know what condition the participant was being presented with. The coder recorded the number of foot movements and face touches for each participant for each photo description task.

A 2 (action performed: baseline, face touches) X 2 (attractiveness level: attractive, unattractive) within-subjects ANOVA was conducted with number of face touches as the dependent variable. There was an unexpected main effect for action performed such that when the confederate performed the baseline condition ( $M=10.022$ ,  $SD=10.065$ ) participants touched their faces significantly more than when the confederate performed the face touching condition

( $M=7.304$ ,  $SD=6.779$ ),  $F(1,45) = 5.472$ ,  $p=.024$ . There was no significant main effect for attractiveness level such that when the confederate was attractive ( $M=7.795$ ,  $SD=1.639$ ) participants did not differ on their face touching compared to when the confederate was unattractive ( $M=9.458$ ,  $SD=1.569$ ),  $F(1,45) = .537$ ,  $p=.468$ . The interaction between action performed and attractiveness level was not significant,  $F(1,46) = .001$ ,  $p=.977$ . For a complete table of means see *Table 1*.

A 2 (action performed: baseline, foot tapping) X 2 (attractiveness level: attractive, unattractive) within subjects ANOVA was conducted with number of foot movements as the dependent variable. There was no significant main effect for foot tapping such that when the confederate performed the baseline condition ( $M=173.915$ ,  $SD=168.874$ ), participants showed no significant difference in foot movement compared to when the confederate performed the foot movement condition ( $M=175.085$ ,  $SD=147.370$ ),  $F(1,46) = .000$ ,  $p=1.000$ . There was no significant main effect for attractiveness level such that when the confederate was attractive ( $M=172.432$ ,  $SD=31.622$ ), participants did not differ on their foot movements compared to when the confederate was unattractive ( $M=176.320$ ,  $SD=29.664$ ),  $F(1,46) = .008$ ,  $p=.929$ . The interaction between action performed and attractiveness level was not significant,  $F(1,46) = 1.000$ ,  $p=.323$ . For a complete set of means see *Table 2*.

### Discussion

Based on the previous literature, particularly Dion, Berscheid and Walster's (1972) "what is beautiful is good" hypothesis, I predicted that participants would mimic the attractive confederate more than the unattractive confederate across both the face touching and foot tapping conditions. Additionally, based on previous research, I anticipated that the use of the

video projection would be effective and produce results similar to those of Kühn and colleagues (2010).

The results of this research were counter to the predicted results. For both foot movements and face touches, participants engaged in the particular action less during the experimental (mimicry) condition than during the baseline condition, this decrease was significant for the face touching condition. Also, descriptively, participants tended to mimic the unattractive confederate more than the attractive confederate, which is counterintuitive. It is important to note that participants did not notice the behaviors of the confederate in the video and did not express any discomfort during the funneled debriefing at the end of the experiment.

This research shows that the use of a projection screen was not successful in influencing the amount of mimicry exhibited by participants in a way that is similar to previous studies. This is important because it suggests that the use of a video projection instead of a live confederate should be used with caution and extensively pre-tested to ensure that the results are similar to what would have occurred in real interaction. It is possible that there may be a level of discomfort for the participant when she has to interact with a video, despite participants saying they had no problems interacting with the video projection. Potential use of the projection screen in the future may require that the participant be an observer and not have to interact with the video recording. The interaction may need to be with a live confederate or some kind of interactive software that responds directly to the participant, not simply based on a predetermined time frame, like the methodology for this study.

The results of this research are so unexpected that it may be useful to reassess the hypothesis of the study. Because participants tended to mimic the unattractive confederate descriptively more than the attractive confederate, it may be that participants felt more at ease

with an unattractive person and were therefore less likely to subconsciously worry about what their actions were “saying” to their interaction partner. If this is the case, then participants could have potentially feel more subconscious anxiety about interacting with an attractive person, and experience more worry, leading them to inhibit more of their actions. If this new theory is correct, then it would make sense to hypothesize that participants would mimic an unattractive confederate more because there would be less pressure to be liked compared to the mimicry levels present in an interaction with an attractive confederate. On the other hand, it has been shown that a desire to be included can increase mimicry (Lakin, Chartrand, & Arkin, 2008), which would go against this new theory. A future study may try to tease apart the differences in mimicry levels when a participant feels the need to be liked, as when he/she had been excluded from a game (i.e. cyberball) and when a participant is interacting with an attractive or unattractive confederate. This study could have a participant either be excluded from or included in a game (i.e. cyberball) and then interact with either an attractive or unattractive confederate to complete a task.

Future research on this subject could investigate the impact that attractiveness level has on male participants. Because research has shown that individuals in romantic relationships mimic attractive opposite-sex others less than their single counterparts (Karremans & Verwijmeren, 2008), the use of male participants and a female confederate could impact mimicry levels. Since mimicry has been shown to increase liking (Chartrand & Bargh, 1999), it is feasible that male participants would mimic an attractive female confederate more than female participants as a way to increase liking and potentially lead to a romantic relationship. The fact that this study used female participants may have erased this potential moderator because of a lack of romantic attraction.

Furthermore, a future study may compare the use of a live confederate to the use of a video projection to try to delve into the reasons for why there was such a decrease in mimicry. This proposed study could use the same methodology as the study presented in this paper, but compare it to two other conditions: a live confederate and a video condition exactly like that used in the Kühn and colleagues (2010) publication. The results of this proposed study could help determine whether it was the use of the video projection in general that was a problem, or whether it was this particular type of projection that was an issue.

Overall, this study shows that research into attractiveness as a potential moderator for mimicry needs to be studied further. There was an unusual impact of attractiveness on mimicry in this study, and further research should delve into the potential explanations for this finding. If future research follows this trend towards unattractive individuals, it may have adverse implications for the widely accepted “what is beautiful is good” hypothesis. It may be that individuals are now drawn towards a “comfortable” and “relaxed” individual as opposed to a dressed up individual.



*Figure 1:* The video confederate tastefully made up to represent the attractive condition.





*Figure 2:* The video confederate in baggy clothing with no makeup to represent the unattractive condition.

Condition number	Attractiveness level	Action performed	Picture set
1	Unattractive	Foot tapping	One
2	Unattractive	Face touching	One
3	Unattractive	Foot tapping	Two
4	Unattractive	Face touching	Two
5	Attractive	Foot tapping	One
6	Attractive	Face touching	One
7	Attractive	Foot tapping	Two
8	Attractive	Face touching	Two

*Figure 3:* The counterbalancing that occurred when creating videos of the female confederate.

Video set condition	First video	Second video
A	1	8
B	2	7
C	3	6
D	4	5
E	5	4
F	6	3
G	7	2
H	8	1

*Figure 4:* The counterbalancing of video presentation to the participants.

	Average movements	Attractive	Unattractive
Average movements	--	7.795	9.458
Baseline	10.028	9.136	10.833
Face touches	7.304	6.455	8.083

*Table 1:* Means associated with each condition of the face touches data.

	Average movements	Attractive	Unattractive
Average movements	--	172.432	176.320
Baseline	173.915	181.546	167.200
Foot taps	175.085	163.318	185.440

*Table 2:* Means associated with each condition of the foot movement data.

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