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Nonconscious Mimicry Occurs when Affiliation Goals are Present

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Overview

People are social chameleons and ~~we~~ regularly engage in nonconscious behavioral mimicry. This occurs when an individual unwittingly imitates the behaviors of another person, such as crossing one's legs moments after a person sitting adjacent does so, or adjusting one's body posture to match a conversation partner. Rapport between two people increases behavioral mimicry, just as mimicry also increases rapport. Psychologists have posited that this mimicry is attributed to a perception-behavior link ~~(Chartrand & Bargh, 1999);~~[1] seeing a person engage in a behavior activates that behavioral representation, which then makes the perceiver more likely to engage in that behavior him- or herself.

The following experiment expands on these previous findings by testing whether people, without intention or awareness, "use" mimicry to their advantage. Because goals activate behavioral strategies and plans of action that help people pursue those goals,[2] ~~(Gollwitzer, 1990),~~ Lakin and~~&~~ Chartrand ~~(2003)~~ hypothesized that individuals would mimic another person more when they have a goal to affiliate than when they do not.[3]

Principles

Nonconscious activation of a mental state is often accomplished through **priming** procedures. The underlying assumption is that people have automatic associations between various stimuli (*e.g.*, words, images, or sounds) and concepts, and that activating these associations can shape how people think and behave in subsequent situations. Priming is typically accomplished by presenting people with stimuli below the threshold of sensation or consciousness, perceived by or affecting someone's mind without their being aware of it, though it can occur through more explicit procedures as well.

Procedure

1. Conduct a power analysis and recruit a sufficient number of participants and obtain informed consent from the participants.
   ~~1.~~
2. Randomly assign participants to one of three conditions:

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Commented [1]: Include a number estimate.

Commented [2]: Depends on analysis. Original article recruited 61 participants (which means about 20 in each condition, which is probably underpowered for a between-subjects analysis)

Commented [3]: I spoke with Dave Repetto about this. We need a consistent policy across papers and sections and I propose that we ask researchers to do a power analysis based on their own research goals. Anything else would be contentious.

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2.1. Nonconscious affiliation prime

2.2. Conscious affiliation goal

2.3. No goal

~~2.3.~~

3. Bring participants to a computer station and tell them that they will be completing several unrelated experiments, the first of which is a test of visual acuity (actually a subliminal priming task).

~~3.~~4. Have participants perform the priming task.[4]

~~3.1.~~4.1. Participants should be seated in front of the computer, and when sitting upright, the distance between their eyes and a fixation point in the center of the computer screen (three asterisks) should be approximately 99 cm (39 in.). This ensures that the stimuli presented are outside of the participant's foveal visual field. Marks can be made on the floor of the room and on the computer stand to ensure that the chair and monitor are the proper distance from each other.

~~4.~~5. All instructions should appear on the computer screen. Participants will read that the researchers are interested in how quickly and accurately people respond to visual stimuli, and that very brief flashes will appear on the screen at unpredictable places and times. Participants' task is to decide as quickly and accurately as possible whether the flash appeared on the right or left side of the screen.

~~5.~~6. Have participants place their index fingers on two keys labeled "left" and "right".

~~6.~~7. Emphasize to participants that because of the unpredictable timing and location of the flashes, the best way to detect all of them quickly is to keep their eyes focused on the fixation point at all times.

~~7.~~8. Have them complete six practice trials and answer any questions the participant may have to ensure they understand the task. After the practice trials the actual task will begin.

~~8.~~9. All characters presented on the computer screen should be black text on a white background. Instruct participants to focus their gaze on the three asterisks in the center of the computer screen (the fixation point) at all times during the task.

~~8.1.~~9.1. Three conditions:

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~~8.1.1.~~9.1.1. Nonconscious affiliation prime:

~~8.1.1.1.~~9.1.1.1. Participants will be primed with four words related to the concept of affiliation: *affiliate*, *friend*, *partner*, and *together*.

~~8.1.1.2.~~9.1.1.2. Have the four words each appear 20 times on the computer screen in a random order, for a total of 80 trials.

~~8.1.2.~~9.1.2. Conscious affiliation goal:

~~8.1.2.1.~~9.1.2.1. Participants will be complete a similar "priming" task (though this condition is not meant to subliminally prime any particular concept) and they will be primed with two words: *neutral* and *background*.

~~8.1.2.2.~~9.1.2.2. Have the two words each appear 40 times on the computer screen in a random order, for a total of 80 trials.

~~8.1.3.~~9.1.3. No goal:

~~8.1.3.1.~~9.1.3.1. Participants will be complete a similar "priming" task (though this condition is not meant to subliminally prime any particular concept) and they will be primed with two words: *neutral* and *background*.

~~8.1.4.~~9.1.4. Have the two words each appear 40 times on the computer screen in a random order, for a total of 80 trials

~~9.~~10. Stimulus design specifics:

~~9.1.~~10.1. Each stimulus word should flash for 60 ms and should be immediately followed by a 60-ms masking string of letters in the same location. The masking string can be "XQFBZRMQWGBX" (as originally designed)[5] to present a variety of letter patterns and therefore to be structurally similar to the preceding stimulus words.

~~10.~~11. The screen refresh rate should be 15 ms or faster, such that the presentation length of 60 ms is adequate to ensure that the stimulus words and masks are always exposed to the participants.

~~10.1.~~11.1. The stimulus word and mask should appear at one of four locations on the computer screen equidistant from the fixation point at angles of 45°, 135°, 225°, and

315° (one in each of the four quadrants).

~~10.2.~~11.2. Construct one randomized location order and give all participants the same sequence of locations. Within a particular location, place each word so that the center of the word is 7.6 cm from the fixation point. (At this distance, the stimulus words will be within the parafoveal visual field (from 2° to 6° of visual angle) and outside the foveal visual field associated with conscious awareness (Bargh, Raymond, Pryor, & Strack, 1995, Experiment 1; Rayner, 1978)).

~~11.~~12. Have the amount of time between word presentations (including the stimulus word and the mask) vary from 2 to 7 seconds to enhance the "visual acuity/reaction time task" cover story. All participants should receive one randomized order of time interval lengths.

~~12.~~13. Because (a) participants are told to focus on the central asterisks throughout the task, (b) the stimulus words are flashed for 60 ms each, and (c) 140 ms has been shown to be the minimum time required to move the eyes away from an initial fixation point toward a parafoveally presented stimulus word, it should not be possible for participants to see the stimulus words, even if they immediately looked toward the location of the flash.

Commented [4]: This is all technically Stimulus Design and would be better suited as its own section at the beginning of the Procedure.

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~~13.~~14. In this second phase of the experiment, have participants complete a memory task in which they are to remember the behaviors of another participant and the order in which they occurred (based this task on Chartrand and Bargh[4]).

~~MEMORY TASK~~

~~14.~~15. Example behaviors of another participant:

~~14.1.~~15.1. Had a party for some friends last week

~~14.2.~~15.2. Helped a woman fix her bicycle

~~14.3.~~15.3. Checked some books out of a library

~~14.4.~~15.4. Wrote an articulate letter to his congressman

~~14.5.~~15.5. Subscribes to sports magazines

~~14.6.~~15.6. Jogs every morning before going to work

~~14.7.~~15.7. Volunteered to teach a Sunday school class at his church

~~14.8.~~15.8. Went skiing in Colorado for the weekend

~~14.9.~~15.9. Caught the error in the Mechanic's calculations

~~14.10.~~15.10. Read the bible in his hotel room

~~15.~~16. Do not refer to the fact that the phrases describe behaviors, and do not mention whether the behaviors describe the same person.

~~16.~~17. Create two random orders of these various behaviors. Present participants with one of the two orders and ensure that the random orders are completely crossed with condition. Present each behavior predicate for 8 s, with a 1-s pause before the next one.

~~17.~~18. Following the presentation of the various behaviors, have participants complete a 3-min filler task to eliminate any short-~~-~~term memory effects (*e.g.*, recency and primacy effects) on free recall. As part of another ostensibly unrelated experiment, this filler task should require participants to generate arguments both for and against three controversial issues (i.e., abortion, gun control, and capital punishment).

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~~18.~~19. Following this filler task, administer the surprise free-recall test. Give participants a maximum of 4 min to recall the exact order in which the behavior predicates were presented.

VIDEO TASK

~~19.~~20. Following the memory task, participants will watch a "live feed" of the other participant (actually a confederate videotaped earlier) performing four mundane clerical tasks in an adjoining room:

~~19.1.~~20.1. Filing papers

~~19.2.~~20.2. Answering the phone

~~19.3.~~20.3. Stapling papers

~~19.4.~~20.4. Typing at a computer

~~20.~~21. For participants in the conscious affiliation goal condition, explicitly state that they would soon be interacting with the person next door on a cooperative task for which it was very important to get along and work together well.

~~21.~~22. After receiving these instructions, have participants watch the confederate, who will be touching her face during and between clerical tasks.

~~22.~~23. While participants watch the tape, surreptitiously video-record them, so that independent coders (who will be unaware of the study's purpose and participant's condition) can measure the amount of face touching that the participant engaged in.

~~23.~~24. After this final phase of the experiment, have participants complete a thorough debriefing that probes for (a) general suspicions (*e.g.*, if they did not think the "live feed" video was real or, in the conscious-affiliation goal condition, that they would be interacting with a person next door), (b) what they thought the flashes were during the vigilance task, and (c) whether they noticed any particular mannerisms exhibited by the confederate.

~~24.~~25. Interrater reliability

~~24.1.~~25.1. Have two independent judges code the amount of time participants spend touching their faces while watching the videotape and compute inter-rater reliability. (NOTE: in the original study, one judge coded 100% of the tapes, and another coded 55% of the tapes. Interjudge reliability for the overlapping ratings was significant $r(28) = .98$, $p < 0.001$. The authors therefore averaged the two judges' estimates of participants' face touching for the overlapping ratings to form a single index. For the remaining participants, the single judge's estimates of face touching were used as the primary dependent measure.)

~~25.~~26. Dependent measure is amount of time spent face touching (seconds/minute)

~~26.~~27. Analysis:

~~26.1.~~27.1. Compute a between-subjects one-way ANOVA with goal (nonconscious, conscious, no goal) as the independent variable and time spent face touching as the dependent variable.

~~26.2.~~27.2. However, because the original authors predicted no differences in mimicry between two of the three groups, a planned comparison was also run to test their a priori hypothesis that participants with a conscious or nonconscious affiliation goal would mimic more than those without such a goal.

Representative Results

The results indicate that participants in both the *nonconscious-affiliation goal* and *conscious-affiliation goal* conditions exhibit more behavioral mimicry (*i.e.*, face touching) than those in the *no-goal* condition. No significant differences exist between the nonconscious-affiliation and the conscious-affiliation conditions.

(insert figure 1)

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Summary

People mimic one another constantly, typically nonconsciously, which often results in improved feelings of rapport with another person (so long as the other person is not aware that they are being mimicked). This experiment finds evidence that nonconscious behavioral mimicry occurs when affiliation goals are present, whether those goals are subliminally primed or explicitly stated. This study also demonstrates that it is not necessary for a person to be physically present to be mimicked.

Applications

Building rapport with others is a vital aspect of effective human interaction. As goals elicit behavioral implementation strategies (*i.e.*, plans toward achieving said goal), having a goal to affiliate with others may manifest itself through increased nonconscious behavioral mimicry. To the extent that this increase in behavioral mimicry enhances rapport, priming or instructing others of goals to affiliate may enable interpersonal cohesion. These findings are applicable to nearly any social interaction, from first dates to new friendships to corporate ~~board room~~boardroom meetings. For example, mobile dating apps seeking to boost the probability of cultivating a positive connection between two people might try subliminally priming people once an online-match has been established but prior to any in-person meeting. On the other hand, companies could emphasize the importance of affiliating with clients and ensure regular in-person meetings occur to allow for nonconscious behavioral mimicry and consequent rapport building.

Legend

Figure 1. Those in both the conscious-affiliation-goal and the nonconscious-affiliation-goal condition exhibited significantly more behavioral mimicry (*i.e.*, touched their own face) than those in the no-goal condition.

References

1. Chartrand, T.L., & Bargh, J.A. (1999). The chameleon effect: The perception-behavior

link and social interaction. *Journal of Personality and Social Psychology*, 76, 893–910.

2. Gollwitzer, P.M. (1990). Action phases and mind-sets. In E.T. Higgins & R.M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 53–92). New York: Guilford Press

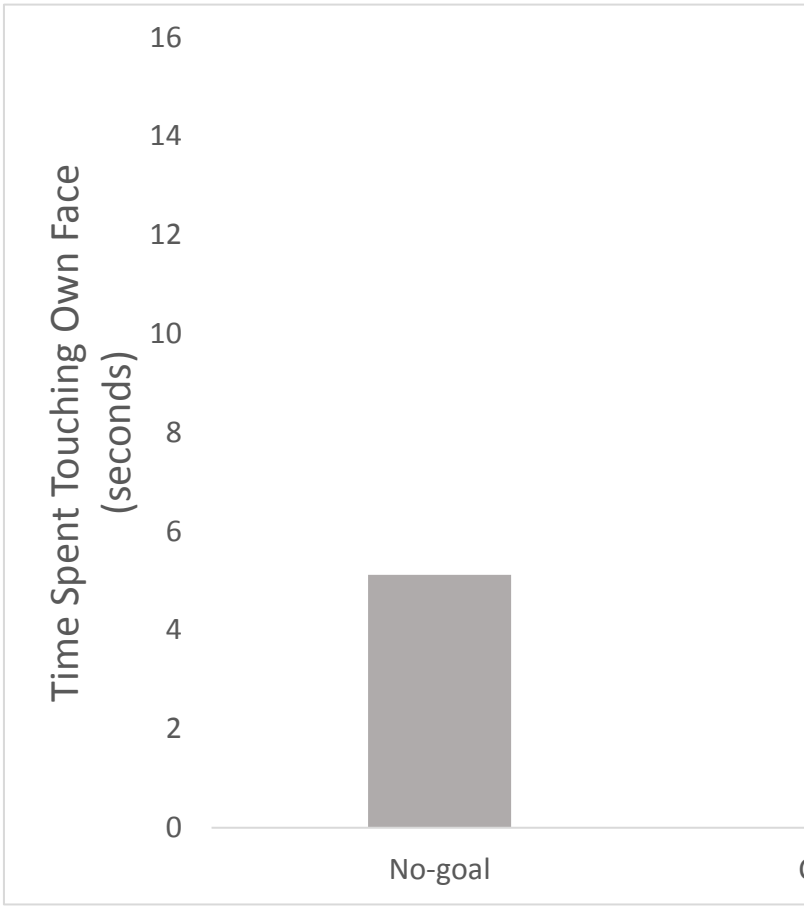
3. Lakin, J. L., & Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological science*, *14*(4), 334-339.

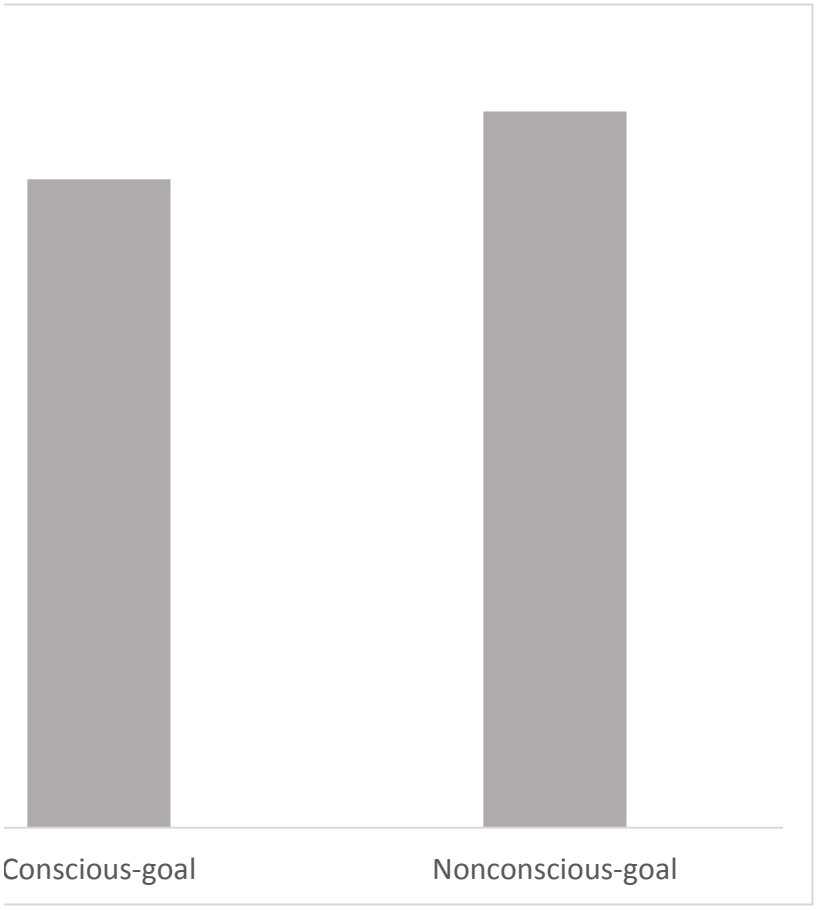
4. Chartrand, T.L., & Bargh, J.A. (1996). Automatic activation of impression formation and memorization goals: Nonconscious goal priming reproduces effects of explicit task instructions. *Journal of Personality and Social Psychology*, 71, 464–478.

5. Bargh, J. A., Bond, R. N., Lombardi, W. J., & Tota, M. E. (1986). The additive nature of chronic and temporary sources of construct accessibility. *Journal of Personality and Social Psychology*, 50, 869-878.

6. Bargh, J. A., Raymond, E, Pryor, J., & Strack, E (1995). Attractiveness of the underling: An automatic power → sex association and its consequences for sexual harassment and aggression. *Journal of Personality and Social Psychology*, 68, 768-781.

No-goal	Conscious-go	Nonconscious-goal
5.12	13.13	14.5




Conscious-goal
Nonconscious-goal