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Contagion Without Contact: Anticipatory Mood Matching in Response to Affiliative Motivation

Jeffrey R. Huntsinger
Loyola University Chicago

Janetta Lun
University of Virginia

Stacey Sinclair
Princeton University

Gerald L. Clore
University of Virginia

We investigated whether the desire to have a smooth and pleasant interaction with an anticipated interaction partner caused participants' moods to become similar to their imminent partners' moods. We found evidence of anticipatory mood matching when participants were motivated to affiliate with a partner through goal priming (Experiments 1 and 2) and outcome dependency (Experiment 3). Prior research has demonstrated mood contagion arising from actual social interaction but these experiments establish contagion without contact, an outcome evident regardless of whether mood was assessed via self-report (Experiments 1 through 3) or information-processing style (Experiment 3).

Keywords: *mood; emotional states; affiliative motivation; interpersonal convergence; mood contagion*

Successful social interaction involves, in part, the exchange of information and the synchronization of beliefs with others (Hardin & Higgins, 1996; Krauss & Fussell, 1996; Mead, 1934). In addition to conveying content, however, people also convey how they feel about that content. Thus, people talk not just about, say, a house but about “‘a handsome house,’ ‘an ugly house,’ or ‘a pretentious house’” (Zajonc, 1980, p. 154). Additionally, through adopting a conversing partner’s facial expressions, hand gestures, head nods, and shoulder shrugs, people come to feel what their partner feels in ongoing

interaction (e.g., Hatfield, Cacioppo, & Rapson, 1994) and, in the case of close relationships, the extent to which partners become similar in their moods shapes the course of the relationship (Anderson, Keltner, & John, 2003).

Although extant research has only demonstrated such social regulation of mood within ongoing interactions, we propose that the same processes occur even before people meet, a phenomenon we dub *anticipatory mood matching*. To examine this possibility, we address two interrelated questions. First, do people spontaneously regulate their moods according to how another person feels even before a social interaction begins? Second, does anticipatory mood matching require some motivation to affiliate with the other person or are people affective chameleons whose moods are colored by anyone with whom they anticipate interacting? We discuss in turn the reasons to expect or not expect each to be the case.

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Do Individuals Regulate Their Mood to Match That of an Anticipated Interaction Partner?

Do individuals' own moods spontaneously match the apparent positive or negative moods of an interaction partner—even before they actually meet? Research has already documented that actual interaction results in mood matching, especially among individuals in close relationships (Anderson et al., 2003; Hatfield et al., 1994; Neumann & Strack, 2000; Oishi & Sullivan, 2006). Neumann and Strack (2000) showed that people experienced more positive moods when they listened to a philosophical text recited in a slightly happy compared to a slightly sad voice. The authors suggested that exposure to mood-relevant vocal behaviors automatically activated corresponding behavioral tendencies (facial expressions, postures, etc.) in participants, which then led participants to experience corresponding moods themselves. This and other explanations for mood and emotional contagion emphasize direct exposure to affective cues emitted by another in creating such convergence. Indeed, the term *mood contagion* used in much of this research implies that people “catch” the moods of interaction partners in the context of ongoing interaction, just as people catch the colds of those with whom they have direct contact (e.g., Hatfield et al., 1994; Neumann & Strack, 2000).

However, the ideomotor principles underlying explanations of how people catch the behaviors and, thus, the moods of others does not require exposure to actual behavior to stimulate these consequences. According to ideomotor principles, merely entertaining mood-relevant concepts should be sufficient to evoke a particular mood (e.g., Carpenter, 1874; James, 1890; see Dijksterhuis & Bargh, 2001, for a review). This suggests that simply knowing the mood of an anticipated interaction partner may be sufficient to elicit mood matching and direct, online exposure to another person's mood-relevant cues is unnecessary. Recent models of embodied cognition also support the possibility of anticipatory mood matching. In these models, all cognitive activity, including activation and use of affective concepts, is grounded in bodily states and produces activation in related sensory-motor systems (Barsalou, 1999; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). This process of embodied simulation then produces a partial replication of the affective state. Furthermore, such embodied simulation can occur off-line, detached from actual interaction.

In sum, models of ideomotor processes and embodied cognition, which imply that merely thinking about mood-relevant concepts should be sufficient to induce related bodily states, suggest that merely knowing that a future interaction partner is in a positive or negative

mood may be enough to spontaneously catch this person's mood. Based on these ideas, we propose that mood matching can occur in anticipation of an interaction.

Does Affiliative Motivation Moderate Anticipatory Mood Matching?

Does the motivation to get along with and have a smooth interaction with someone else make one particularly apt to catch this person's mood? As in previous research investigating interpersonal convergence processes, we use the term *affiliative motivation* to refer to the desire to get along with and have a smooth interaction with another person (Chartrand, Maddux, & Lakin, 2005; Copeland, 1994; Lakin & Chartrand, 2003; Sinclair & Huntsinger, 2006; Snyder & Haugen, 1995).

Several lines of research support the hypothesis that affiliative motivation should encourage anticipatory mood matching. First, mood convergence among people in close relationships was found to be asymmetrical in that partners who were most motivated to get along with their partners (i.e., reported a high degree of outcome dependency in the relationship) were more likely to experience moods that matched those of more influential partners than vice versa (Anderson et al., 2003; Bono & Ilies, 2006). Although people in short-term interactions experience much less pressure to converge with their partners (Davis & Rusbult, 2001), we hypothesize that individuals motivated to affiliate even with a stranger for a brief interaction should engage in anticipatory mood matching.

Second, the importance of affiliative motivation in initiating anticipatory mood matching is suggested by research demonstrating that this motivation encourages other forms of interpersonal convergence, including speech accommodation (Giles, Coupland, & Coupland, 1991), behavioral mimicry (Cheng & Chartrand, 2003; Lakin & Chartrand, 2003; see Chartrand et al., 2005, for a recent review), and the social tuning of attitudes (e.g., Hardin & Conley, 2001; Sinclair, Huntsinger, Skorinko, & Hardin, 2005; Sinclair, Lowery, Hardin, & Colangelo, 2005). Thus, just as affiliative motivation leads people to behave or think like their partners, it may lead them to feel like them as well.

In summary, we ask two questions about the social regulation of mood: (a) Can people catch the mood of another person by simply being aware of the person's feelings without actual contact? (b) Is this anticipatory mood matching moderated by the desire to get along and have a smooth interaction with the person? Affirmative answers to these questions would indicate that people can catch others' moods without any actual contact, extending current research on interpersonal mood contagion.

It is worth noting that affirmative answers to these questions would also illustrate an instance in which interpersonal goals override hedonic maximization goals. A substantial body of research reveals that people endeavor to protect positive moods and eschew negative moods (e.g., Isen, 1984; Larsen, 2000; Wegener & Petty, 1994). If people are subject to a general hedonic maximization drive, we should find that anticipatory mood matching does not manifest when the imminent interaction partner is in a negative mood. If, however, affiliative motivation encourages people to preemptively catch both the positive and negative moods of another, this would suggest that the motivation to affiliate with another person can supersede the impulse to maximize good feelings and minimize bad feelings.

OVERVIEW OF EXPERIMENTS

We asked whether anticipatory mood matching occurs and whether this matching is modulated by participants' motivation to get along and have a smooth interaction (i.e., affiliate) with an interaction partner. In each experiment participants expected to interact with someone in a positive or negative mood. Affiliative motivation toward this person was manipulated via priming (Experiments 1 and 2) and outcome dependency (Experiment 3), and evidence of mood matching was assessed using self-report measures (Experiments 1 through 3) and measures of information-processing style (Experiment 3). On the basis of existing theory and research, we expected participants' moods to mirror those of their partners when affiliative motivation was high but not when it was low or absent. Across experiments efforts were made to rule out the possibility that effects were a product of strategic self-presentation intended to ingratiate oneself to the future interaction partner and the possibility that apparent anticipatory mood matching was actually produced by assumptions about the quality of the imminent interaction.

EXPERIMENT 1

In this experiment, we subtly primed participants with affiliative motivation, the motivation to create social distance, or neutral concepts and told them that they were about to interact with someone who appeared to be in a positive or negative mood. We used priming to induce affiliative motivation because it reduces the likelihood that participants will consciously attempt to ingratiate themselves to the other person. We expected anticipatory mood matching to be observed for participants in the affiliative motivation

condition but not the neutral or social-distancing motivation conditions.

Method

Participants

Forty participants (34 women) took part in the experiment for partial fulfillment of a course requirement or were paid \$5 dollars for their participation.

Procedure

An experimenter greeted participants when they arrived at the experiment room and asked them to read and sign an informed consent agreement. The experimenter then informed participants that the purpose of the experiment was to examine how people get to know others and that during the experiment they would engage in a brief, 5-minute get-to-know-you interaction with another participant. The experimenter further mentioned that another participant arrived early and was seated in an adjacent room. Before the interaction, either the participant would get to view some information about this person or this person would get to view some information about them. To randomly decide who would have a chance to view information about their partner, participants were asked to draw a number from a bowl. In all cases, the drawing was rigged and participants were informed that they would get to view some information supposedly completed by the person in the other room.

After the drawing, the experimenter told participants that it would take some time to get the other participant up to speed and have them fill out the information sheet. Participants were then informed that, while they wait, we would like them to complete a pretesting for another experiment that will begin later in the semester. This pretesting constituted the motivation-priming manipulation. Participants were randomly assigned to one of three versions of the priming task: affiliative motivation, social-distancing motivation, or neutral condition. In each condition, participants were asked to unscramble a series of words to form sentences that contained affiliative, social-distancing, or neutral concepts (described below).

After the experimenter handed participants the priming manipulation, the experimenter informed participants that he or she would have about 10 minutes to complete this. The experimenter returned to the room after 10 minutes and collected the completed priming task, and he or she then handed participants the information sheet ostensibly completed by their interaction partner. Participants were then invited to look at a brief demographics sheet ostensibly completed by Jen while

they waited for the experimenter to compile the second questionnaire. This demographics sheet included the manipulation of partner mood. After a series of demographic questions (age, year in school, major), two items asked about Jen's mood. Answers to the demographic questions were the same across conditions. The items asking about Jen's mood were completed to convey that she was in a very positive mood (i.e., happy) or a somewhat negative mood (i.e., sad) (see Erber, Wegner, & Therriault, 1996, for a similar manipulation). Experimenters never viewed this demographics sheet because there were a series of blank pages covering it; therefore, experimenters were kept unaware of the mood condition, eliminating any chance that they would act in a positive or negative manner that mirrored the ostensible mood of participants' supposed partner. The experimenter ripped the demographics sheet from the pages of the questionnaire ostensibly filled out by Jen and placed it in front of participants.

After about a minute passed, the experimenter handed participants the brief preinteraction questionnaire and informed them that their answers were purely for our records and their partner would never view their responses. The experimenter then went into the hallway to allow participants to complete the questionnaire undisturbed. This questionnaire contained the main dependent measure, mood, and a manipulation check question. After completing the final questionnaire, the experimenter announced that the experiment was over and there would actually be no interaction. Participants then were probed for suspicion via a funneled debriefing to determine whether they connected the priming task to the anticipated interaction with their partner. No participants expressed any suspicion regarding the nature of the priming task or figured out that the task was connected to the current experiment.

Materials

Priming task. Participants received one of the three versions of the priming task: affiliative-motivation primes, social-distancing primes, or neutral primes. The instructions and the basic format of the task were constructed based on the guidelines outlined by Bargh and Chartrand (2000). Each priming task was composed of 20 sentences. In the affiliative motivation version, participants generated 12 sentences involving concepts such as getting along and having smooth interactions with others and 8 neutral items. Examples of these sentences included "I want to get along with others" and "I want to have a smooth interaction with him." In the social-distancing motivation version, participants generated the 12 critical sentences involving concepts such as not getting along and having social distance with others.

Examples of these sentences included "Jane feels distant from Adam" and "I cannot relate to him today." Finally, in the neutral condition, all 20 sentences participants generated were about neutral concepts such as "neatly wrap the gift" and "he saw the train." The scrambled-sentence tasks are available from the first author. In all cases, the experimenter was unaware of which priming task participants were given.

Participants' self-report mood. Participants indicated their current mood by responding to a single item, "How good or bad are you feeling right now?" on a scale from 1 = *very bad* to 10 = *very good* (see Neumann & Strack, 2000, for a similar measure of general mood).

Manipulation check. To assess whether the relatively novel manipulation of partner mood was successful, we asked, "How positive or negative does the person in the other room feel today?" Response alternatives ranged from 1 = *very negative* to 7 = *very positive*.

Other measures. Three items assessed participants' self-reported motivation to affiliate with their impending interaction partner. These items were "How much do you want to [have a smooth interaction, get along, cooperate] with your partner?" (1 = *not at all* to 10 = *very much*). A composite measure of self-report affiliative motivation was created with higher numbers indicating greater motivation ($\alpha = .82$).

Results

Manipulation Checks

We submitted participants' judgments about their interaction partner's mood to a 2 (partner mood: positive vs. negative) \times 3 (priming task: affiliation, social distancing, neutral) between participants analysis of variance (ANOVA). This analysis revealed a significant main effect of partner mood, $F(1, 34) = 127.02$, $p < .0005$, $\eta^2 = .79$. Participants perceived the positive mood partner to be in a more positive mood ($M = 6.10$, $SD = 0.94$) than the negative mood partner ($M = 3.00$, $SD = 0.67$). No other significant effects were found, both $F_s < 1$.

Anticipatory Mood Matching

We expected to find that anticipatory mood matching was regulated by affiliative motivation; participants primed with affiliative motivation should exhibit greater mood matching than participants primed with social distancing motivation or neutral concepts should. We examined whether this was the case by submitting participants' reported mood to the same ANOVA described

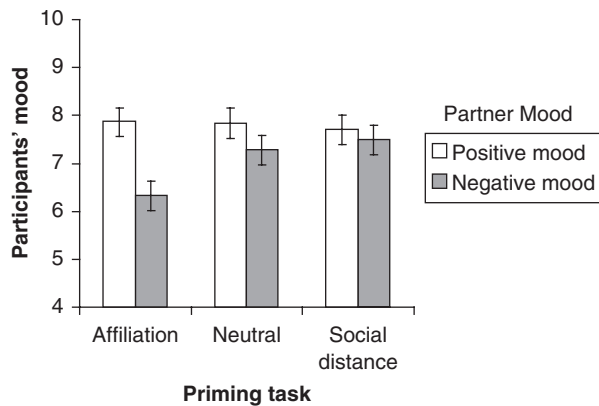


Figure 1 Participants' mood as a function of motivation priming task and interaction partner mood (Experiment 1).

NOTE: Higher numbers indicate a more positive mood. Error bars represent standard errors.

above. The interaction between partner mood and priming was marginally significant, $F(2, 34) = 2.54, p = .09, \eta^2 = .13$ (Figure 1).

Decomposing this interaction via simple effect tests revealed that, consistent with predictions, when participants were primed with affiliative motivation, their mood matched their partner's mood, $t(34) = 3.62, p = .001, d = 1.24$. Those who expected to interact with a person in a negative mood reported feeling more negatively than did those who expected to interact with a person in a positive mood. In contrast, when participants were primed with neutral concepts, their mood was not reliably different when anticipating an interaction with someone in a negative mood versus a positive mood, $t(34) = 1.24, p = .22, d = 0.43$. Similarly, participants primed with social distancing motivation did not differ in their self-report mood as a function of the mood of the person they were about to meet, $t(34) = 0.49, p = .63, d = 0.17$.

This analysis also yielded a significant main effect of partner's mood, $F(1, 34) = 9.26, p = .004, \eta^2 = .21$. Participants' moods were more negative when they anticipated interacting with a partner in a negative than in a positive mood. The main effect of priming task was not significant, $F(2, 34) = 1.65, p = .21, \eta^2 = .09$.

Other Measures

Submitting the self-reported measure of affiliative motivation to the same ANOVA as above revealed no significant effects, including the key main effect of priming condition, $F(2, 34) = 0.61, p = .55, \eta^2 = .03$, other $F_s < 2.2, p_s > .15$. In past research, a failure to find self-reported differences in motivation as a consequence of goal-priming is taken to indicate that the goal operated

outside of conscious awareness (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001).

Discussion

Experiment 1 establishes that anticipatory mood matching occurs and affiliative motivation moderates it. Participants' moods spontaneously matched the ostensible mood of someone they were about to meet when they were motivated to affiliate with that person. When not so motivated, participants' moods were unaffected by the partner's ostensible mood. However, these findings could be attributed to a more mundane explanation than the one we propose. Perhaps participants did not experience anticipatory mood matching but rather their mood fluctuated in response to suppositions about the quality of the imminent interaction. In particular, it could be that participants did not absorb the somewhat negative mood of the person they were going to interact with but were simply dejected over the prospect of wanting to have a pleasant interaction with someone who claimed to be feeling a bit grumpy. Experiment 2 sought to tackle this alternative interpretation by comparing participants' moods in response to anticipating an interaction with a person in a poor mood with anticipating that an interaction would go poorly. We also fortified our assessment of mood in this experiment by including both the single item used previously and a multi-item measure.

EXPERIMENT 2

It could be that participants who were motivated to affiliate with a negative-mood partner felt worse because they had a negative expectation of the upcoming interaction with the person. To counteract this alternative interpretation, we created three experimental conditions. In doing so, we focused on negative-mood partners because a construal-based explanation was most applicable to this circumstance and evidence of anticipatory mood matching was strongest. In the first condition, participants were primed with the motivation to affiliate prior to receiving information about the upcoming partner's negative mood (i.e., the affiliation motivation/negative-mood partner condition). The second condition was the same as the first one but with a neutral motivation prime (i.e., the neutral motivation/negative-mood partner condition). Finally, in the third condition, the critical condition of this experiment, participants were primed with the motivation to affiliate but instead of being made aware of the upcoming partner's mood they were explicitly told that the interaction would go poorly (i.e., the affiliation motivation/negative interaction

condition). If the construal-based explanation is true, participants' moods in this third condition should be similar to participants' moods in the first condition. However, if participants in the critical third condition experience moods similar to those of participants in the neutral condition, it would suggest that our finding in Experiment 1 was not due to negative views of the upcoming interaction with a negative mood partner. In other words, an anticipatory mood matching account would predict participants who wanted to affiliate with a negative-mood partner would be the only group to show more negative mood.

Method

Participants

Forty-one (30 women) participants completed the experiment for partial fulfillment of a course requirement for their participation.

Procedure

An experimenter greeted participants when they arrived at the experiment room. Participants read and signed an informed consent agreement and were then told that the purpose of the experiment was to examine how people get to know others. The experimenter then told participants that during the experiment they would engage in a brief, 5-minute get-to-know-you interaction with another participant who had yet to arrive to the experimental session. Participants were further told that they would exchange background information with their partner and that they would receive similar information from their partner. The experimenter then asked participants several mundane questions (i.e., what their year in school was, where they grew up, whether they lived on or off campus, etc.).

The experimenter then told participants that because their partner was late, it would take some time to get this person up to speed and to answer the background questions. Participants were then asked if they would like to complete some pretesting for another experiment that will begin later in the semester. As in Experiment 1, this pretesting constituted the motivation priming manipulation: affiliative motivation or neutral condition.

After participants completed the priming task, the experimenter returned to the room where the participant was seated and told participants about their partner. In all cases, participants were told that their partner, Jen, was in her 3rd year, grew up in Pennsylvania, and lived off campus. Then, in an off-hand fashion, the experimenter told participants one of two things about their partner or the upcoming interaction depending on experimental condition. In the affiliation prime/

negative-mood partner and neutral prime/negative-mood partner conditions, the experimenter stated the following: "I'm not sure if I should be saying this, but when I was talking to your partner, Jen, she seemed to be in pretty down mood today—kind of sad." In the affiliation prime/negative interaction condition, the experimenter stated the following: "I'm not sure if I should be saying this, but when I was talking to your partner, Jen, I got the sense that the upcoming interaction with her probably won't go well at all."

Once participants were told this information, the experimenter handed participants the brief preinteraction questionnaire and informed them their answers were purely for our records and their partner would never view their responses. This questionnaire contained the main dependent measure and a series of manipulation checks and other measures. After completing the final questionnaire, participants were told that the experiment was over and no interaction would actually take place. They were then probed for suspicion via a funneled debriefing to determine whether they connected the priming task to the anticipated interaction with their partner. No participants expressed any suspicion regarding the nature of the priming task or figured out that the task was connected to the current experiment.

Materials

Participants' self-report mood. The main dependent measure, participants' mood, was assessed via the same single item as in Experiment 1. In addition, participants were asked four unipolar mood items: "How happy [positive, sad, negative] do you feel right now?" on a scale from 1 = *not very happy* [positive, sad, negative] to 10 = *very happy* [positive, sad, negative]. After appropriate rescoring, these last four items were averaged to form a composite measure of positive mood ($\alpha = .91$).

Manipulation checks. To assess whether the manipulation of partner mood was successful, we asked, "How happy [sad] does the person in the other room feel today?" Response alternatives ranged from 1 = *not very happy* [sad] to 7 = *very happy* [sad]. These two items were highly correlated ($r = .61, p < .0005$). Therefore, after rescoring the second item, a composite measure of partner mood was constructed. Higher values indicate greater positive mood. One participant failed to complete one of the two items, thus the degrees of freedom for the test of the mood manipulation check differed from that of the other measures.

To measure participants' impressions of the upcoming interaction, we asked, "How likely do you think it is that the upcoming interaction will go poorly?" Response

alternatives ranged from 1 = *not at all likely* to 10 = *very likely*.¹

Other measures. The same three questions from Experiment 2 were included to assess participants' self-reported motivation to affiliate with their partner ($\alpha = .91$).

Results

Manipulation Checks

We submitted the manipulation checks to one-way ANOVAs with condition as the between-participants variable. As expected, an effect of condition on perceived partner's mood was found, $F(2, 37) = 3.52$, $p < .05$, $\eta^2 = .16$. Participants in the affiliation prime/negative-mood partner ($M = 3.73$, $SD = 2.01$) and the neutral prime/negative-mood partner ($M = 4.39$, $SD = 1.38$) conditions reported that their partner was in a more negative mood than did those in the affiliation prime/negative interaction ($M = 5.46$, $SD = 1.60$) condition, $p < .05$ and $p < .10$, respectively.

Expectations about the upcoming interaction also differed across condition as expected, $F(2, 37) = 3.65$, $p < .05$, $\eta^2 = .17$. Participants in the affiliation prime/negative-mood partner ($M = 3.14$, $SD = 1.35$) and the neutral prime/negative-mood partner ($M = 3.15$, $SD = 1.95$) conditions reported that they thought the interaction would go better than those in the affiliation prime/negative interaction ($M = 4.69$, $SD = 1.75$) condition, both $ps < .05$.

Anticipatory Mood Matching

We expected participants in the affiliation motivation/negative-mood partner condition to display more negative mood than did participants in both the neutral motivation/negative-mood partner and affiliation motivation/negative expectation conditions. To test this prediction, we submitted the single item and composite measures of mood to separate one-way ANOVAs. Results revealed significant variation in participants' responses on both measures, $F(2, 38) = 5.79$, $p = .006$, $\eta^2 = .23$ (single item) and $F(2, 38) = 6.06$, $p = .005$, $\eta^2 = .24$ (composite measure).

Single item. As can be seen in Figure 2, participants in the affiliation motivation/negative-mood partner condition reported more negative mood than did participants in both the affiliation motivation/negative expectancy and the neutral motivation/negative-mood partner conditions, $t(38) = 3.18$, $p = .003$, $d = 1.03$ and $t(38) = 2.62$, $p = .012$, $d = 0.85$, respectively. Participants in the latter two conditions did not differ, $t(38) = 0.60$, $p = .55$, $d = 0.20$.

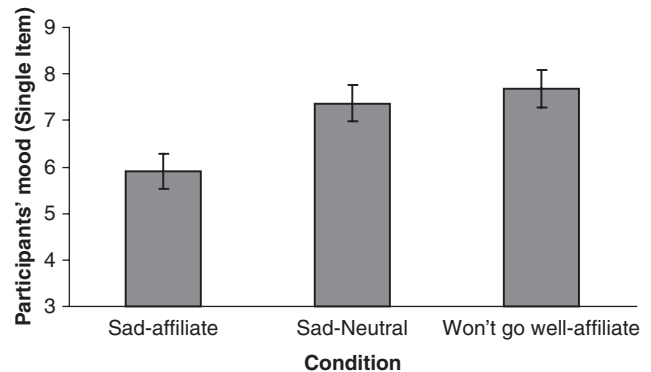


Figure 2 Participants' mood as a function of experimental condition: Single item (Experiment 2).

NOTE: Higher numbers indicate a more positive mood. Error bars represent standard errors.

Composite measure. As can be seen in Figure 3, and consistent with results from the single item, participants in the affiliation motivation/negative-mood partner condition reported more negative mood than did participants in both the affiliation motivation/negative expectancy and the neutral motivation/negative-mood partner conditions, $t(38) = 2.70$, $p = .01$, $d = 0.88$ and $t(38) = 3.26$, $p = .002$, $d = 1.06$, respectively. Participants in the latter two conditions did not differ, $t(38) = 0.54$, $p = .60$, $d = 0.17$.

In sum, this experiment provided converging evidence of anticipatory mood matching and contradicted a construal-based explanation of this phenomenon. Participants motivated to affiliate with a negative-mood partner exhibited significantly more negative mood than did participants who were motivated to affiliate with their partner but thought the interaction would go poorly or participants who were unmotivated to affiliate with a negative-mood partner.

Other Measures

Again, participants did not differ in self-reported affiliative motivation toward their partner as a consequence of experimental condition, $F(2, 38) = 0.83$, $p = .45$, $\eta^2 = .04$.

EXPERIMENT 3

We next sought to demonstrate anticipatory mood matching using a very different basis of affiliative motivation—outcome dependency—to illustrate the robustness of this effect. Past research has shown that the moods of individuals who experience a sense of outcome dependency on their interaction partner are

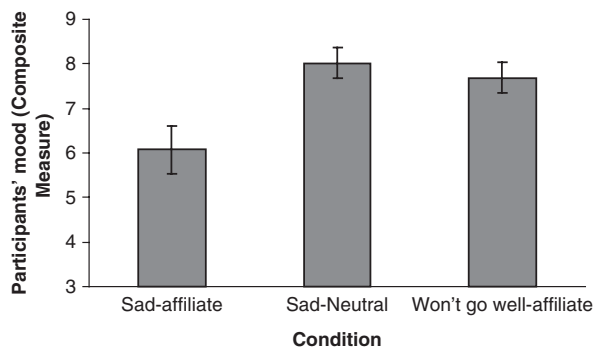


Figure 3 Participants' mood as a function of experimental condition: Composite measure (Experiment 2).

NOTE: Higher numbers indicate a more positive mood. Error bars represent standard errors.

more likely to adjust toward those of the partner (e.g., Anderson et al., 2003). We suspect that this is because the partner with greater outcome dependency experiences stronger affiliative motivation toward their partner and thus greater adjustment of mood. The assumption that outcome dependency can spur affiliative motivation is not new—a wealth of existing research and theory assumes individuals are motivated to get along with and have smooth and pleasant interactions with those who control their outcomes (e.g., Claire & Fiske, 1998; Copeland, 1994; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Snyder & Haugen, 1995; see Klein & Snyder, 2003, for a review). Additionally, in our own research on affiliative social tuning, outcome dependency has yielded spontaneous adjustment of beliefs and behaviors to get in tune with the ostensible beliefs of others comparable to other manipulations of affiliative motivation, such as telling participants that they were about to have a long interaction with someone sharing their birthday versus a short interaction with someone not sharing their birthday or having an experimenter behave in a pleasant versus an unpleasant manner (e.g., Sinclair, Huntsinger, et al., 2005, Experiment 3; Sinclair, Lowery, et al., 2005). Based on this research, we predicted that anticipatory mood matching would be observed when participants experienced a sense of outcome dependency toward the person they were about to meet but it would not be observed when participants did not experience a sense of outcome dependency toward their partner.

Experiment 3 was originally run as two separate experiments with the same experimental procedure but with different measures of mood. In each experiment, participants were randomly assigned to partner mood (positive vs. negative) and outcome dependency (yes vs. no) conditions. For one experiment ($n = 53$),

self-reported mood served as the measure of participants' moods, and for the other experiment ($n = 52$), participants' information-processing style was used as the measure of participants' moods (Gasper & Clore, 2002). Because the procedures of the two experiments were identical, they were conducted within the same academic semester, and because combining them would not violate random assignment to experimental condition, we chose to combine the experiments for economy of presentation. The two mood measures were standardized for comparability. There was no main or interactive effect of experiment type on any outcome measures; thus, this factor will not be discussed further.²

Method

Participants

One hundred and five undergraduates (79 women) participated in this experiment for partial fulfillment of a course requirement.

Procedure

Participants were run one at a time. They were greeted by an experimenter outside a door with an "experiment in progress" sign posted on the door. Here participants read and signed an informed consent form. They were then informed that they had the opportunity to participate in a screening process for a series of discussion groups that would take place later in the semester and they could win \$50 if selected for one of the groups. The experimenter then walked participants to an adjacent room. While doing so, the experimenter casually informed participants about a female undergraduate named Jen who was ostensibly in the room in front of which they had initially met. Participants were previously randomly assigned to one of the two outcome dependency conditions that we used to elicit high versus low affiliative motivation. In the outcome dependent condition (high affiliative motivation), Jen was the discussion leader who would decide whether participants could join the discussion groups. Thus, whether participants received a desirable outcome was dependent on Jen. In the outcome independent condition (low affiliative motivation), Jen was another participant who had the same status as the participant. In this condition, the nameless discussion leader would make her decisions later in the day. Thus, in this condition, whether participants received a desirable outcome was not directly dependent on Jen.

Participants were then informed that they would complete a brief questionnaire that would be the basis for entrance into the discussion groups, complete a longer questionnaire about themselves, and then engage

in a short get-to-know-you interaction with Jen. The experimenter then gave participants the first questionnaire. This questionnaire contained a series of ambiguous open-ended questions and was included only to create a period of time in which it would seem appropriate to (appear to) check in on the person in the other room. Before participants began to complete the first questionnaire, the experimenter informed them that he or she was going to go check on Jen to see how she was doing. They were told to find the experimenter in the hall when they were finished completing the first questionnaire.

After participants completed the first questionnaire, the experimenter said that he or she had yet to compile the second questionnaire. The experimenter then informed participants that in some conditions participants are allowed to view some information about the person in the other room prior to interacting with him or her. Participants were then informed that because the experimenter had yet to compile the second questionnaire they might as well take a look at the information their partner completed while they waited. This sheet constituted the manipulation of partner's positive or negative mood as in Experiment 1. As before, the experimenter was kept unaware of partner's mood condition. Participants were given about 1 minute to read over this sheet while the experimenter compiled the second, longer questionnaire behind them.

Once the minute passed, the experimenter handed participants the second questionnaire and informed them that their answers would be looked at only if they were chosen for a discussion group and not until the discussions had taken place. Participants were also told that after they finished completing this questionnaire they would engage in a 5-minute unstructured interaction with Jen. The experimenter then went into the hallway to allow participants to complete the questionnaire undisturbed. This questionnaire first asked participants to take 2 minutes to recall and write about something that happened to them in the past week. We included this writing task to create a delay between the manipulation of partner mood and participants' responses to the main dependent measure to decrease the likelihood that participants would determine the purpose of the experiment. Next, participants completed the main dependent measures and a series of manipulation checks. After completing the final questionnaire, participants were told that the experiment was over and they would not meet the other person. Finally, they were probed for suspicion and debriefed.

Materials

After participants read their partner's information, including how the partner was feeling, they were asked

to complete a questionnaire in which we assessed their moods via self-report or information processing style. The questionnaire also included a manipulation check and other measures that tap onto participants' construal of the upcoming interaction.

Self-report mood. As mentioned before, half of the participants were simply asked to report their mood. They indicated their current mood by responding to the single item measure of mood same as Experiments 1 and 2. We standardized (z scored) scores on this measure to make it comparable to scores on the information-processing task (see below).

Information-processing task. Previous research demonstrated that people in a happy or neutral mood tend to process information integratively or globally (seeing the forest but not the trees) but those in a sad mood tend to process information by piecemeal or locally (seeing the trees but not the forest) (Gasper & Clore, 2002). To assess relative global versus local information-processing style, we borrowed a task originally developed by Kimchi and Palmer (1982) that has been used to demonstrate information-processing differences among individuals in positive and negative moods (Gasper & Clore, 2002). This measure provides an indirect measure of participants' moods and eliminates concerns regarding similarity between partner's mood manipulation and self-report mood. In each of the 24 trials, participants were asked to choose one of two figures that they thought most similar to a target figure. One of the figures is similar to the global and overall shape of the target figure, whereas the alternative figure is similar to the local, detail feature of the target figure. When a participant chose the figure that matched the overall shape of the target figure, it suggested that the participant had a global processing style and vice versa for local processing style (see Gasper & Clore, 2002; Kimchi & Palmer, 1982, for a more detailed description of this task).

Participants' overall global focus was computed by summing the total number of times participants matched the shapes based on global features. Thus, a higher number indicates greater global processing style. In addition to participants' actual performance on this task, they were asked two questions assessing their global-local focus by self-report (see Gasper & Clore, 2002). "When you did the shape task, to what extent did you say that the shapes go together based on the overall similarity in the form of the pictures [individual elements in them] (a square of triangles goes with a square of squares)?" Both of these items were measured on a scale from 0 = *not at all* to 10 = *always*, with 5 = *half of the time*. The last item was reverse coded. Participants'

actual performance and responses to the two self-report performance items were highly correlated (r s ranged from .76 to .94, all p s < .0005). Therefore, we standardized participants' responses to these three items and formed a composite measure of global-local task performance ($\alpha = .93$) with higher numbers indicating that participants relied more heavily on global features than local features when making their similarity judgments.

Manipulation check. We assessed the success of the partner mood manipulation with the same item as in Experiment 1.

Other measures. We also included items that assessed participants' construal of the interaction that they would have with the partner and how generally anxious they felt: "How positive or negative do you think the interaction will turn out?" (1 = *very negative* to 7 = *very positive*) and "How anxious do you feel right now?" (1 = *not at all* to 7 = *very much*). These questions were used to test whether the expectations of how well the interaction would go and anxiety about the interaction relates to participants moods.

Results

Manipulation Check

We submitted participants' judgments about their interaction partner's mood to a 2 (partner mood: positive vs. negative) \times 2 (outcome dependency: high vs. low) between-participants ANOVA. The manipulation of partner mood was successful, $F(1, 101) = 217.61$, $p < .0005$, $\eta^2 = .68$. The positive-mood partner was perceived as being in a more positive mood ($M = 5.91$, $SD = 0.79$) than was the negative-mood partner ($M = 3.35$, $SD = 0.99$). There was also a main effect of outcome dependency, $F(1, 101) = 4.00$, $p = .05$, $\eta^2 = .04$. However, of most importance for interpreting the results below, the interaction was not significant, $F < 1$.

Anticipatory Mood Matching

When we submitted the measure of participants' mood to the same ANOVA used above, consistent with the expectation that outcome dependency moderates anticipatory mood matching, there was a significant interaction between partner mood and outcome dependency, $F(1, 101) = 9.27$, $p = .003$, $\eta^2 = .08$ (see Figure 4). When participants experienced outcome dependency toward a person with whom they were about to interact, their moods were more negative when this person was perceived to be in a negative mood versus a positive mood, $t(101) = 4.27$, $p < .0005$, $d = 0.85$. In contrast, when participants did not experience outcome dependency toward

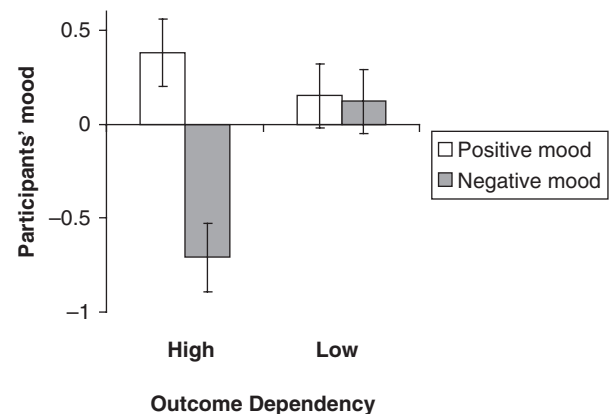


Figure 4 Participants' mood as a function of outcome dependency and interaction partner mood (Experiment 3). NOTE: Higher numbers indicate a more positive mood. Error bars represent standard errors.

this person, their moods did not differ as a function of their anticipated interaction partners' apparent mood, $t(101) = 0.12$, $p = .90$, $d = 0.02$. The ANOVA also yielded a significant main effect of partner mood, $F(1, 101) = 10.33$, $p = .002$, $\eta^2 = .09$. Participants had a more negative mood when they expected to interact with a partner who was perceived to be in a negative mood ($M = -0.26$, $SD = 1.05$) than a positive mood ($M = 0.26$, $SD = 0.81$).

Other Measures

We sought to evaluate the possibility that participants' moods stemmed from their expectations and worries about the imminent interaction in two ways. We first correlated participants' moods with how anxious they felt and their expectations about how positive or negative the interaction would be. If the alternative explanation is true, participants' moods should correlate positively with these measures. However, this was not the case; participants' moods were not related to anxiety, $r(105) = -.09$, $p = .35$, or their expectations about the interaction, $r(105) = .07$, $p = .47$.

To further examine whether anxiety and expectations about the interaction accounted for the findings on participants' mood described above, we repeated the ANOVAs described above controlling for the main and interactive effects of these measures (Yzerbyt, Muller, & Judd, 2004). Controlling for anxiety and expectations in addition to their interactions with outcome dependency did not eliminate the target interactions, $F(1, 99) = 9.52$, $p = .003$, and $F(1, 99) = 9.17$, $p = .03$, respectively.

Consistent with the findings of Experiment 2, we did not find evidence for the notion that our effects stemmed from participants' construal of the upcoming interaction.

Discussion

This experiment replicated findings of anticipatory mood matching and showed that outcome dependency, a different instantiation of affiliative motivation from the manipulation used in the previous experiments, moderates it. It should also be noted that by using both self-report and information-processing measures of mood we were also able to further leverage against the notion that these findings represent strategic acts of self-presentation intended to curry favor with the upcoming interaction partner. Auxiliary analyses also suggested that negative mood matching was not due to feeling anxious or worried that the interaction would go poorly.

GENERAL DISCUSSION

We began this research with two questions. First, is the mere anticipation of interaction with a stranger sufficient to trigger mood matching? The results of Experiments 1 through 3 clearly demonstrate anticipatory mood matching among strangers prior to actual social interaction. Participants' moods shifted to be more similar to the apparent mood of the partner, an effect shown on both self-report (Experiments 1 through 3) and information-processing (Experiment 3) measures of mood. Second, we asked whether affiliative motivation regulates anticipatory mood matching. The results of Experiments 1 through 3 reveal that mood matching only occurs when individuals are sufficiently motivated to get along with and have a smooth interaction with their imminent interaction partner. Revealing the robustness of this effect, two very different instantiations of affiliative motivation were shown to moderate anticipatory mood matching in identical fashion.

This research makes several contributions to the understanding of the interpersonal regulation of mood. It demonstrates that the absorption of others' moods is not limited to close or on-going social interactions and can occur without exposure to mood-relevant behaviors of others. Showing that this anticipatory mood matching occurs when people are motivated to get along with and have a smooth interaction with another person also provides the first experimental evidence supporting the critical role of motivation in any form of mood convergence.

Alternate Explanations

Some might argue that the anticipatory mood matching observed in these experiments resulted from efforts at strategic self-presentation. There are two versions of this account. One is that participants manipulated their reported mood to ingratiate themselves to the anticipated

partner. This is not compelling because we found an identical pattern of mood shift on both self-report and indirect, information-processing measures of mood (Experiment 3). It seems unlikely that participants could have appreciated the meaning of the indirect mood measure or attempted to regulate their performance on it to appear a certain way to the interaction partner. A second version of this account is that participants consciously tried to ingratiate themselves to the partner and in doing so inadvertently caught the anticipated partner's mood. However, in Experiments 1 and 2, participants did not report differences in affiliative motivation as a function of condition and were not consciously aware of having their affiliative motivation manipulated as determined by a funneled debriefing. Thus, this second account also seems unlikely.

We also explored a construal-based interpretation of anticipatory mood matching. The idea is that participants' moods became more negative when they were motivated to get along with a person in a negative mood because they thought that the interaction would go poorly. We found little evidence to support this interpretation. Participants' perceptions and worries about the upcoming interaction were unrelated to their current mood (Experiment 3). Furthermore, explicitly telling participants who were motivated to affiliate that the upcoming interaction will go poorly did not influence their mood (Experiment 2). Of course, it is possible that there are other construal-based explanations. For instance, when anticipating interaction with a person in a negative mood, participants might imagine disliking this person, find the prospect of interacting with this person annoying, or participants might expect that this person may not like them, all of which may depress participants' moods. Each of these explanations, however, may merely be a variant of the "interaction will go poorly" alternative explanation that we explored, and found no support for, in Experiment 2. That is, presumably participants will assume the upcoming interaction will go poorly if they dislike their partner, find this person annoying, or expect this person to dislike them. Of course, this research cannot entirely rule out construal-based explanations. As such, future research is necessary to explore other possibilities of this type.

The results converged across Experiments 1 through 3 in support of the notion that anticipatory mood matching occurs when people have affiliative motivation toward another person. However, support for anticipatory mood matching was strongest for participants with affiliative motivation toward a negative-mood partner. This pattern raises the possibility that participants with affiliative motivation toward a positive-mood partner did not experience anticipatory mood matching but rather simply reported their usual positive

mood (e.g., Diener & Diener, 1996). Although certainly possible, within cell correlations between participants' ratings of their anticipated partner's mood and their own mood do not support such a conclusion. Collapsing across Experiments 1 and 3, participants' moods and their perceptions of their partner's mood were positively correlated when affiliative motivation was high (affiliation prime [Experiment 1] and outcome dependency condition [Experiment 3]), regardless of whether the partner was thought to be in a positive mood, $r = .42$, $p = .02$, or negative mood, $r = .44$, $p = .02$. However, when people were not so motivated (social distance prime [Experiment 1] and no outcome dependency condition [Experiment 3]), their moods did not correspond to their perception of the partner's mood, regardless of whether the partner was thought to be in a positive mood, $r = -.17$, $p = .34$, or a negative mood, $r = -.17$, $p = .34$. These correlations suggest that people motivated to affiliate with their partner were engaging in anticipatory mood matching when the partner was in a negative mood as well as when in a positive mood.

Anticipatory Mood Versus Emotion Matching

It would be interesting in the future to examine whether individuals match specific emotional states (e.g., anger, joy, disgust, and so forth) of anticipated interaction partners in the same way they match nebulous positive and negative mood states. Perhaps anticipatory emotion matching mirrors anticipatory mood matching. Spinoza (1667/1992, pg. 119) seemed to think so when he stated, "If we conceive anyone similar to ourselves as affected by any emotion . . . we are ourselves affected with a like emotion. If, however, we hate the said thing, we shall . . . be affected by a contrary, and not similar, emotion." Many years later, Heider (1958) and Newcomb (1953) articulated similar sentiments.

Anticipatory emotion matching, however, might not be that simple. Unlike moods, which are objectless positive or negative states, emotions reflect appraisals of objects and events relevant to one's current concerns, goals, or the self (e.g., Clore & Huntsinger, 2009; Ortony, Clore, & Collins, 1988). For anticipatory emotion matching, identifying the object or appraisal that elicits an emotion in another should be critical to understanding whether emotion matching will occur. Imagine, for example, that a partner expresses anger at a third party because of this person's blameworthy actions. If you want to get along with this person, it might make sense to share this person's anger at the other person. This represents a case of simple anticipatory emotion matching as a function of affiliative motivation. Now imagine a partner expresses anger at you because you have engaged in what

this person believes is a blameworthy action. In this situation, things become more complicated. For example, if you want to get along with the partner, then mirroring this person's anger would probably be a poor strategy. Perhaps, feeling a complementary emotion such as shame or guilt would be productive. As this discussion should make clear, emotion matching proves to be a more complicated, albeit interesting, means of signifying that one feels the world through the eyes of a partner than simple mood matching.

Possible Mechanisms

We provide consistent evidence that the perceived mood of an anticipated social interaction partner becomes intertwined with participants' own mood when affiliative motivation toward the partner is high. However, the exact mechanisms by which the perceived mood of a partner that one has not yet encountered translates into changes in participants' own mood still need to be examined. We believe that models of embodied cognition (e.g., Barsalou, 1999; Niedenthal et al., 2005) and ideomotor processes (Dijksterhuis & Bargh, 2001) offer plausible mechanisms. From our perspective, anticipating interacting with someone believed to be in a positive (or negative) mood activates a representation of this mood state and through embodied simulation sparked by affiliative motivation a partial replication of the mood state is created. Thus, when a sufficient degree of affiliative motivation is present, a person comes to feel the world in the same way as a partner by experiencing the simulation of similar mood states in oneself. Consistent with this idea, research on embodied simulation suggests that merely reading sentences implying movement or action is enough to elicit a similar motor response in oneself (Gallese & Lakoff, 2005; Glenberg & Kaschak, 2002).

In summary, being motivated to get along and have a smooth interaction with another and merely knowing this person's current mood may be sufficient to initiate mood matching via embodied simulation. The idea that motivational states modulate automatic processes is not unique to this research. For example, people who implicitly liked, as opposed to those who disliked, the elderly exhibited slowed walking speed after being subliminally primed with the category elderly (Cesario, Plaks, & Higgins, 2006). In other research, perhaps more directly related to the current research, whether individuals mirrored the emotional expression of others depended on whether they were ingroup or outgroup members—people spontaneously absorbed the emotions of ingroup members but not those of outgroup members (Weisbuch & Ambady, 2008). As in our experiments, in the research just mentioned the same mental content is

activated in all participants' minds, but whether this content informs their responses and affective states is dictated by participants' motivational stance.

Hedonic Maximization Goals

These findings are difficult to reconcile with a general drive to maximize good feelings and minimize bad feelings (e.g., Isen, 1984; Larsen, 2000; Wegener & Petty, 1994). Specifically, we found that individuals who were motivated to get along with a partner whom they were about to meet also spontaneously matched the positive or negative mood of that partner as a means of facilitating interpersonal synchrony and social bonding. The motivation to affiliate with another person seems to be a more powerful architect of one's current feelings than are other possible short-term hedonic gains of maintaining a positive mood. In sum, these results suggest that models of hedonic primacy do not paint a complete picture of the role of affective experiences in interpersonal interaction.

CODA

We believe this research complements and extends prior work on mood convergence processes in important ways. First, it shows that people spontaneously catch the moods of impending interaction partners, a phenomenon we dubbed *anticipatory mood matching*. Second, it shows that people are not affective chameleons whose moods are colored by anyone with whom they anticipate interacting. Rather, the motivation to affiliate with another provides the necessary motivational spark to trigger absorption of another person's mood. When individuals are not so motivated, they do not adopt the same affective posture. Finally, the present and related (e.g., Tiedens & Leach, 2004) research highlights the importance of studying how interpersonal contexts and motivational forces influence the experience and expression of mood.

NOTES

1. In each experiment, boxplots of all measures were inspected for outliers. In Experiment 2, one extreme observation (outside of two box lengths of the interquartile range; see Hoaglin, Mosteller, & Tukey, 1983) was identified on the measure of "impressions of the upcoming interaction." This participant's response to this item was excluded from analysis. No other extreme observations were found for any other variables across experiments.

2. If the two experiments were examined individually, results are identical. Partner Mood \times Outcome Dependency interaction for self-report experiment, $F(1, 49) = 5.35, p = .025, \eta^2 = .10$, and for information processing experiment, $F(1, 48) = 3.66, p = .06, \eta^2 = .07$. These results are available from the first author.

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