

When Do Incidental Mood Effects Last? Lay Beliefs versus Actual Effects

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In a series of studies we examine how incidental mood present only at the time of an experience affects judgments made several days later, and compare this to lay beliefs about how mood affects memory-based judgments. We find that memory-based judgments are only affected by incidental mood when there is an external prompt to evaluate the stimulus in real-time. This is contrasted with lay beliefs about the effects of mood, which are not sensitive to delay or to the presence of real-time evaluations. The mis-match between lay beliefs and actual effects leads consumers to distort previously unbiased judgments when they are reminded of the source of the incidental mood.

Many (if not most) consumer decisions involve memory-based judgments, where the decision is based on the evaluation of earlier experiences. These could be consumers' own past experiences or other's experiences communicated by word-of-mouth. For example, when consumers decide whether to come back to the restaurant they visited last week or heard about from a friend, buy a DVD based on their own or others' movie theater experience a couple of months ago, or decide whether to return to the same vacation destination one year later, they have to rely on memories of past experiences.

As has been documented by a large body of research in psychology and consumer behavior, such past experiences frequently occur under the influence of temporary contextual factors such as incidental mood (Schwarz and Clore 2007). Imagine, for example, that last week you went to a restaurant and consumed a well-prepared meal. Further imagine that you went into the restaurant in either a good or bad mood perhaps because it was a sunny or rainy day. Consider what happens a week later when a friend asks you for a restaurant recommendation or you are choosing a restaurant for yourself. Would you be more likely to praise the restaurant or return to it yourself if your earlier experience happened on a sunny day? What would happen if you remembered that the earlier visit was on a sunny day? Would it matter whether the waiter asked you how much you enjoyed your meal as you were leaving the restaurant?

While many studies have demonstrated the impact of incidental mood on immediate judgments, we focus on memory-based judgments that are made long after that mood has disappeared. We examine how recollection of the context of the experience affects whether and how mood influences later judgments. Drawing on previous research,

we propose that in the absence of a reminder about the context of the experience, mood effects will generally dissipate following a delay and that this dissipation depends on the absence of any evaluation during the experience. We also expect a reminder about the context of the original experience to cue lay beliefs about mood that individuals will use to try to correct perceived biases. We propose that people's lay beliefs about the effect of incidental mood on delayed judgment differ from actual effects. In particular, consistent with previous literature on duration neglect and time contraction (Kahneman et al. 1993, Read and Loewenstein 1995), we show that lay beliefs are not sensitive to the delay between incidental affect and judgment, or to the presence or absence of real-time evaluations, two factors that may have a substantial influence on the actual effect of incidental mood on later judgments. Therefore, we expect that reminders can actually introduce rather than attenuate biases in later judgments precisely because these reminders cue inaccurate lay beliefs about the effects of mood.

THE ROLE OF LAY BELIEFS IN LONG-TERM EFFECTS OF INCIDENTAL MOOD

When making a memory-based judgment one usually retrieves information about the target of the judgment and may or may not recall the context in which the target was experienced. The memory-based judgment may differ substantially depending on whether the context is recalled. First, consider memory-based judgments where the context of the earlier experience is not recalled at the time of judgment. Building on the “affect-as-

information” framework (Schwarz and Clore 1983, 2007), we expect that if real-time judgments of an experience are formed at a time when incidental mood is present, such evaluations are likely to be influenced by that mood. Once a real-time evaluation is made, this evaluation is likely to strongly influence later evaluations of the experience (Novemsky and Ratner 2003; Srull 1983, 1987) and as a result memory-based judgments are likely to incorporate incidental affect present at the time of the experience. However, when making a memory-based judgment in the absence of a real-time evaluation, one has to rely on episodic memory of the experience. Emotional experiences are not generally stored as a part of episodic memory (Robinson and Clore 2002), so people are unlikely to recall their mood state. Hence, incidental affect from the time of the experience is unlikely to be incorporated into a memory-based judgment.

The above analysis supposes that the earlier context is not specifically remembered when making a judgment after a delay, but on many occasions the previous context will be salient when making a judgment. For example, one might remember the rainy weather that cancelled their barbeque and caused them to eat at a restaurant. Additionally, as a part of telling about the experience to others, context can be a natural part of the conversation. For example, when telling a friend about a recent restaurant experience, one might be asked about dinner companions and recall that the meal was consumed with good friends. The context itself might also be quite memorable, because it was very extreme or unusual.

Previous research has shown that when the source of an unwanted influence is made salient (e.g. incidental mood), people may believe that their judgments are biased and adjust their evaluations to counteract this bias. In so doing, they rely on naïve

theories of the influence (Wilson and Brekke 1994, Wegener and Petty 1995). Therefore, consistent with previous research, we expect that participants will adjust their memory-based judgments when reminded about the source of incidental mood in accordance with their beliefs about the effect of mood on judgment.

When lay beliefs accurately capture an unwanted influence, this correction process can mitigate potential biases. However, lay beliefs often diverge systematically from past experiences (e.g. Novemsky and Ratner 2003; Ross 1980), and when they do, any adjustment based on these theories may increase rather than decrease bias in memory-based judgments. To our knowledge, lay beliefs about the effect of delay on incidental mood effects have not been explored, but past research does suggest that lay beliefs about long-term mood effects may differ from actual effects. Previous research has shown that time passage is generally not a salient factor when people are making judgments. For example, Kahneman and colleagues have shown that people are insensitive to the duration of experiences when making summary judgments (Kahneman et al. 1993, Redelmeier and Kahneman 1996, Varey and Kahneman 1992). Other research suggests that people tend to compress time intervals between consumption occasions (Read and Loewenstein 1995). Based on this literature we expect that beliefs about the effect of incidental mood will not be sensitive to time delay, even when the actual effects of incidental mood do decay over time as memories of past feelings fade. Furthermore, since people may not recognize that memory for their feelings fades, they are unlikely to realize that real-time evaluations are critical for mood to have long-term effects. Hence, people are likely to believe that incidental affect will have a prolonged effect on judgments even when there was no evaluation of the experience in real-time. Given this

discrepancy between lay beliefs and actual long-term mood effects, we expect a reminder about a past mood state to cause a bias in memory-based judgments rather than attenuate it. This should occur for judgments made following an experience that did not include a real-time evaluation. Because these judgments would not be affected by mood if context were not recalled during later judgment, any reminder about this context will cue an erroneous lay belief that the judgment is biased and induce an adjustment of an unbiased judgment.

In sum, we predict that long-term effects of mood will depend on whether the context of the experience is recalled at the time of judgment. We propose that when there is no reminder about a prior incidental mood, that incidental mood will have a fleeting effect on judgments in the absence of real-time evaluations. However, when real-time evaluation takes place, the effect of incidental mood becomes a part of the long-term memory of the experience and is present in later memory-based judgments. When the prior mood is salient at the time of judgment, these judgments will be adjusted in accordance with lay beliefs about how mood influenced those judgments. We propose that lay beliefs about incidental mood are not sensitive to delay or to the presence of real-time evaluations, both of which substantially influence mood effects. This mis-match between lay beliefs and actual effects may lead to distortions of previously unbiased judgments in the presence of a reminder of the source of the incidental mood.

In the next section, we present experimental evidence to support our propositions. In studies 1a and 1b, we examine the effect of incidental positive and negative mood on immediate and memory-based judgments in the presence and absence of external prompts to evaluate an experience in real-time. In studies 2a and 2b, we measure people's beliefs

about the effect of incidental mood on immediate and memory-based judgments. Finally, in studies 3a and 3b we manipulate whether the context of the experience is salient at the time of judgment and examine how memory-based judgments are affected by lay beliefs about incidental mood. We conclude with a discussion of our findings and directions for future research.

STUDY 1A: NEGATIVE MOOD AND MEMORY-BASED JUDGMENTS

Study 1a examined the effect of an incidental negative mood at the time of viewing a painting on evaluations of that painting made several days later. We predicted that judgments of participants who were prompted to make real-time evaluations would be affected by incidental mood both at the time of viewing the painting as well as after a delay. This would happen because when making a memory-based judgment people will recall their real-time evaluations that were biased by incidental affect. However, in the absence of real-time evaluation, participants will rely on their memory of the features of the painting rather than their past affective state and will be more likely to have context-free memory-based judgments. Therefore, we expect negative mood to lower memory-based evaluations only when consumers make real-time evaluations. Further, we expect that memory-based judgments of neutral mood participants will not vary as a function of real-time evaluations, since relying on either the features of the painting or overall evaluation should lead to similar judgments.

We choose paintings as our target stimuli because previous research has shown that ambiguous experiences are more likely to be affected by incidental context (Ha and Hoch 1989, Hoch and Ha 1986, Prescott and Young 2002). Art enjoyment is subjective and open to multiple interpretations which makes it a rather ambiguous experience. Therefore using paintings as the stimuli in our studies raised the likelihood that we would observe effects of incidental mood at the time of experience.

Method

One hundred forty-one undergraduate students participated in this study as a part of a longer survey session. Participants were assigned to one of four conditions based on a 2 (negative mood, neutral mood) X 2 (real-time evaluation, no real-time evaluation) design. During the survey session (time 1), participants in the negative mood conditions completed two seemingly unrelated studies: a mood manipulation and an art study. Participants in the neutral mood conditions only completed the art study. The mood manipulation involved reading and answering questions about a story about the inhumane treatment of pregnant horses to produce drugs for humans.

The story was pre-tested on a separate group of participants ($N = 31$). In the pre-test, half of the participants read the story and then reported their mood using the Positive and Negative Affectivity Schedule (PANAS, Watson, Clark, and Tellegen 1988), and the other half only completed the PANAS. After reading the story, participants reported significantly lower positive affect than control (19.69 vs. 26.50; $t(29) = 2.71, p < .05$) and significantly higher negative affect (17.85 vs. 13.72; $t(29) = 2.19, p < .05$).

After the mood manipulation participants saw a reprint of a painting by Cezanne, which depicted a family in a house, labeled “Family”. Participants in the real-time evaluation conditions were asked how much they would enjoy having the poster of this painting hanging on their wall at home on a seven-point scale from “not at all” to “very much”. Participants in the no real-time evaluation conditions were asked to rate how much they enjoy art¹. Five days later (time 2), all participants were contacted via email and asked to rate how much they would enjoy having a poster of the painting “Family” hanging on their wall at home (without being re-exposed to the painting).

Results

Replicating prior research on immediate mood effects, participants in a negative mood rated the painting lower in real time ($M = 1.73$) than did participants in a neutral mood ($M = 2.43$, $t(70) = 2.34$, $p < .05$). A 2X2 ANOVA on ratings of the painting at time 2 revealed a significant interaction of mood and real-time evaluation ($F(1,137) = 5.21$, $p < .05$, see figure 1). Simple effects analyses confirmed that the effect of mood appeared at time 2 for those participants who gave real-time ratings ($M_{\text{negative mood}} = 1.84$, $M_{\text{neutral mood}} = 2.7$, $F(1,137) = 7.05$, $p < .01$)². However, participants who did not make a real-time evaluation showed no effect of mood at time 2 ($M_{\text{negative mood}} = 2.63$ vs. $M_{\text{neutral mood}} = 2.44$, $F < 1$).

Insert figure 1 about here

¹ Mood did not affect this rating in any of our studies.

² On average across our studies, 62.6% of participants gave a different rating at time 2 than at time 1. Thus, at time 2 most participants who made real-time evaluations were not simply reproducing the exact number that they reported at time 1, but likely reporting the basic gist of their initial evaluations.

Discussion

As expected, we found that the evaluations of the painting assimilated to ambient mood at the time of viewing. A few days later, only those participants who made real-time evaluations had context-dependent judgments. Interestingly, incidental mood had no effect on the judgments of participants who made no real-time evaluations, suggesting they retrieved a context-free memory of the painting.

Perhaps a lack of motivation caused participants to be susceptible to the effect of incidental mood in the real-time evaluation conditions because they did not bother to recall the stimulus, but rather relied on an already formed judgment. It is possible that choices that carry consequences for participants, might increase effort and alter the pattern of results of Studies 1a. To test this idea, we conducted a separate study using two critical cells from Study 1a: negative mood/real-time evaluation, and negative mood/no real-time evaluation. Unlike Study 1a, at time 2 participants were asked to choose among various products including a poster of the painting they saw at time 1. Participants were told that we would randomly select one out of every ten participants to give a product based on their stated choices. As expected, we found that participants chose the poster over other products more often in the no real-time evaluation condition (72%) than in the real-time evaluation condition (55%, $t(75) = 2.43, p < .05$). These results are consistent with the results of Study 1a showing that when participants have an experience in a negative mood, the incidental affect had a prolonged effect on memory-based choices only in combination with real-time evaluations.

STUDY 1B: POSITIVE MOOD AND MEMORY-BASED JUDGMENTS

Previous research has found significant differences in the way people process information while in positive vs. negative mood. For example, compared to negative mood, positive mood results in more global rather than local processing (Gasper and Clore 2002) and higher reliance on scripts (Bless et al. 1996). Therefore, we wanted to extend our findings to the effect of positive mood on memory-based judgments. Study 1b is similar to study 1a, except the mood manipulation used an uplifting story rather than a negative one.

Method

Sixty-seven undergraduate students participated in this study as part of a longer session. Since in study 1a we found that the presence or absence of real-time evaluations did not affect memory-based judgments of participants in the neutral mood condition, in study 1b we ran a three cell design: neutral mood/real-time evaluation, positive mood/real-time evaluation, and positive mood/no real-time evaluation. The procedure was very similar to study 1a, except study 1b used a positive mood inducing story and a painting by Monet labeled “Haystacks”. A pretest confirmed that the story increased positive mood as measured by the PANAS (28.78 vs. 22.56; $t(28) = 2.08, p < .05$).

Results and Discussion

As expected, participants in a positive mood rated the painting more positively at time 1 ($M = 5.69$) than participants in a neutral mood ($M = 4.19, t(54) = 2.54, p < .05$).

More importantly, a one-way ANOVA on time 2 ratings was significant ($F(2,57) = 4.34$, $p < .05$). Planned contrasts show that for participants who made real-time ratings, mood-congruent judgments persisted over time ($M_{\text{neutral mood, real-time rating}} = 4.25$, $M_{\text{positive mood, real-time rating}} = 6.0$, $F(1, 57) = 8.12$, $p < .01$; see figure 2). Consistent with our predictions, the effect of incidental mood was not present in the memory-based judgments of participants in the positive mood, no real-time evaluation condition ($M = 4.58$). Their evaluation was significantly lower than of those who made an online rating under the influence of mood ($M = 6.0$, $F(1, 57) = 4.45$, $p < .05$), but not significantly different from the neutral mood condition ($M = 4.25$, $F < 1$).

Insert figure 2 about here

One possible alternative explanation for the results of studies 1a and 1b is that in the absence of real-time ratings, individuals' memory for the painting is weak and hence their ratings tend to gravitate towards some general evaluation of paintings. To rule out this explanation we ran a separate study where we compared memory-based ratings of two different paintings, while manipulating whether the participants made real-time evaluations. The purpose of this study was to show that memory-based evaluations will reflect the differences between the paintings whether or not there are real-time evaluations, indicating that participants hold equally accurate memories of the quality of these paintings regardless of the real-time evaluations.

One hundred and eight undergraduate students were randomly assigned to one of four conditions based on the following design: 2(real-time rating, no real-time rating) X

2(painting #1, painting #2). In this study we used two paintings: “Family” (the same one that we used in study 1a) and a painting called “Fields” with a similar country theme as “Haystacks”. We substituted “Fields” for “Haystacks” because the latter is a fairly famous painting, and we wanted a conservative test for memory of the paintings.

The procedure was similar to that used in the neutral mood conditions of study 1a. Examining real-time ratings, we found that painting #1 was evaluated more positively ($M = 5.22$) than painting #2 ($M = 3.69$, $\text{diff} = 1.53$, $t(52) = 2.25$, $p < .05$). Consistent with our predictions, an ANOVA of memory-based ratings revealed only a significant main effect of the painting ($F(1,104) = 11.8$, $p < .01$). Simple effects analyses showed that the difference between the paintings remained significant and was nearly identical in the real-time ($M_{\text{painting \#1}} = 5.53$ vs. $M_{\text{painting \#2}} = 4.02$, $\text{diff} = 1.51$, $F(1,104) = 5.54$, $p < .05$) and no real-time evaluation conditions ($M_{\text{painting \#1}} = 5.01$ vs. $M_{\text{painting \#2}} = 3.45$, $\text{diff} = 1.56$, $F(1,104) = 6.49$, $p < .05$). Therefore, observed effects in studies 1a and 1b are unlikely to be accounted for by weaker memories of the paintings for participants who did not make real-time judgments.

In two studies we showed that incidental mood at the time of an experience does not generally affect memory-based judgments. We suggested that this happens because the source of the incidental affect is not retrieved spontaneously at the time of judgment. We further propose that if the source of incidental mood is made salient when making a memory-based judgment, people are likely to adjust their memory-based judgments based on the lay theories they hold about the effect of incidental mood. We believe these theories are not sensitive to the delay between experienced incidental mood and the

memory-based judgment, nor to the presence or absence of real-time evaluations. In studies 2a and 2b we measure lay beliefs directly to test these propositions.

STUDY 2a: LAY THEORIES ABOUT LONG-TERM EFFECTS OF INCIDENTAL MOOD

Method

Two hundred fourteen participants from an online subject pool participated in this study. Participants were assigned to one of six conditions based on a 2 (negative mood, positive mood) X 3 (concurrent evaluation; delayed evaluation preceded by concurrent evaluation; delayed evaluation not preceded by concurrent evaluation) design.

Participants were asked to imagine themselves in the position of participants in study 1a or study 1b. Next one third of the participants were asked to imagine making a real-time evaluation of the painting. The rest were asked to imagine making a judgment after a five day delay. Half of these participants were told that they had made a real-time evaluation whereas the other half were told that they had not made a real time evaluation.

Next, participants were shown the evaluation scale used in studies 1a and 1b. Further, participants were told that in a neutral mood they would have rated the painting as 2 on the seven-point scale, corresponding to the actual mean observed in study 1a. All participants were then asked for the rating they would have given to the same painting, provided that at the time of the exposure they read either a positive or a negative mood-inducing story (manipulated between subjects).

Results and Discussion

We categorized participants into three categories: participants who believe in assimilation (rating increased (decreased) under the influence of positive (negative) mood), those who believe in contrast (rating decreased (increased) under the influence of positive (negative) mood) and those who do not believe that mood would have an effect on their judgments. Next we compared the proportion of these three groups across our six conditions. The majority of participants believed that incidental mood would have an effect on their judgments, and this belief did not differ by the timing of the judgment (immediate = 64.9% vs. delayed = 63%, $\chi^2(1) < 1$). Further, people did not intuit the role of real-time evaluations in extending the effect of incidental mood and believed that mood would affect delayed judgments regardless of real-time evaluations (delayed with no real-time evaluations = 60.4%, delayed with real-time evaluations = 65.6%, $\chi^2(1) < 1$).

Since we did not observe any significant differences in participants' beliefs between the two delayed evaluation conditions (with and without real time evaluations), we collapsed those two cells in the following analysis. We did not find reliable differences between the two mood conditions in the belief that mood would have an effect on either immediate (positive mood immediate judgment = 68.4%, negative immediate judgment = 61.1%, $\chi^2(1) < 1$) or delayed judgments (positive mood delayed judgment = 67.6%, negative delayed judgment 59.4%, $\chi^2(1) = 1.08$, ns). Interestingly, though the majority of participants in positive mood conditions believed that mood would have an assimilating effect on judgments (65.6%), only one third of participants in the negative mood conditions had a similar belief (25.8%, $\chi^2(1) = 43.7$, $p < .001$). Significantly more participants believed that negative mood would have a contrasting

effect on judgment (34.1%) than positive mood (0.8 %; $\chi^2(1) = 50.6, p < .001$). This difference in beliefs occurred despite the fact that neither positive nor negative mood produced any actual contrast effect.

An analysis of the difference between the rating stated by the participants and what they were given as the neutral mood rating revealed only a main effect of mood ($F(1,208) = 24.1, p < .001$). Consistent with the analysis presented above, participants believed that positive mood would have a bigger impact on ratings than negative mood, and both would bias judgments upward ($M_{\text{positive mood}} = 1.55$ vs. $M_{\text{negative mood}} = .58$). Predictions about immediate judgments did not differ from the predictions about delayed judgments for either positive ($M_{\text{positive mood, immediate}} = 1.61$ vs. $M_{\text{positive mood, delayed}} = 1.5, F < 1$) or negative mood ($M_{\text{negative mood, immediate}} = .68$ vs. $M_{\text{negative mood, delayed}} = .54, F < 1$). Finally, varying whether a real-time evaluation was made prior to delayed judgments did not reliably affect the predicted judgments in the positive mood condition ($M_{\text{positive mood with real-time evaluation}} = 1.64$ vs. $M_{\text{positive mood without real-time evaluation}} = 1.39, F < 1$), or the negative mood condition ($M_{\text{negative mood with real-time evaluation}} = .28$ vs. $M_{\text{negative mood without real-time evaluation}} = .79, F(1,208) = 2.34, p > .1$).

The results of Study 2a show that naïve theories of the effect of incidental mood are not sensitive to a delay between the experienced incidental affect and the judgment. Further, participants did not believe that real-time evaluations influence long-term mood effects. Interestingly, the present study reveals a belief among many participants that negative mood will increase evaluations, even though we observed assimilation in real-time judgments for both positive and negative mood. We return to this finding later.

STUDY 2b: UNDERSTANDING LAY THEORIES OF LONG-TERM EFFECTS OF INCIDENTAL MOOD

Study 2a provided us with initial evidence that people believe their memory-based judgments are biased by incidental mood in contrast to results of the studies 1a and 1b. To explore why people hold lay beliefs that diverge from actual effects of incidental mood, we conducted another study. In study 2b we used a design similar to study 2a and asked participants to imagine themselves in the position of participants in either Study 1a or 1b. In this study we asked participants to express their agreement with several statements reflecting how incidental affect could influence judgments made after a delay. Those statements gauged participants' belief in long-term association of incidental mood with the painting, spread of the mood to the painting and comparison of feelings related to the painting with current mood. We designed these statements to get some insight into the beliefs underlying the lay theories revealed in Study 2a.

Method

Two hundred and twenty six participants took part in this study as part of a course requirement. First, participants were asked to indicate how their rating of a painting would change if at the time of exposure they read either a positive or negative mood inducing story as in study 2a. Unlike study 2a, all participants were told that they were not asked to make immediate judgments of the painting at the time of viewing. Further, unlike study 2a the rating of the painting in the neutral mood was 3. Participants were then asked to indicate their agreement with three statements that expressed different ways

that mood might affect judgments. The statements measured agreement with 3 ideas: 1) feelings at the time of viewing would be associated with the painting affecting judgments 5 days later 2) feelings at the time of viewing would spread to the reaction to the poster affecting judgments 5 days later and 3) feelings arising from the poster would be compared to one's current mood influencing judgments 5 days later.

Results and Discussion

Consistent with the results of Study 2a, we found that the majority of participants (66.8%) think that positive mood would have a prolonged effect on judgment. Similarly, the majority of participants (58.6%) believe that negative mood would have a prolonged effect on judgment. As in study 2a, more participants believed there would be assimilation for positive mood (66.1%) than negative mood (31.5%, $\chi^2(1) = 26.98, p < .001$). Again, more participants believed in contrast in the negative mood condition (27%) than in the positive mood condition (7%, $\chi^2(1) = 16.27, p < .001$). Consistent with the analysis above and the results of study 2a, an analysis of the mean difference between the rating stated by the participants and what they were given as the neutral mood rating revealed a stronger belief that positive mood would have an effect on evaluations after a time delay ($M = .89$) than negative mood ($M = .04, t(221) = 6.32, p < .001$).

To further explore the underlying mechanism for the observed lay beliefs, we focused on the participants who believed in either assimilating or contrasting effects of mood on judgment. Due to the small size of the group of participants who believed in contrast for positive mood ($n = 8$), we focused our analysis on the remaining three groups: positive mood assimilation, negative mood assimilation and negative mood

contrast. We compared participants' agreement with the three statements related to lasting mood effects. We found that participants who believe in assimilation tend to agree more with the statement that one would associate feelings with the poster five days later than participants who believed in contrast ($M_{\text{assimilation positive mood}} = 4.71$ vs. $M_{\text{contrast negative mood}} = 3.8$, $t(136) = 4.0$, $p < .001$ and $M_{\text{assimilation negative mood}} = 5.0$ vs. $M_{\text{contrast negative mood}} = 3.8$, $t(136) = 4.6$, $p < .001$). Similarly, the assimilation groups tend to agree more with the statement that mood would spread to the poster than participants who believed in contrast ($M_{\text{assimilation positive mood}} = 4.47$ vs. $M_{\text{contrast negative mood}} = 3.97$, $F(138) = 2.23$, $p = .028$ and $M_{\text{assimilation negative mood}} = 5.0$ vs. $M_{\text{contrast negative mood}} = 3.97$, $F(138) = 3.8$, $p < .001$). However, participants who believed in assimilation were less likely to agree that feelings about the painting would be compared to one's current mood ($M_{\text{assimilation positive mood}} = 3.17$ vs. $M_{\text{contrast negative mood}} = 3.64$, $F(133) = 1.96$, $p = .053$ and $M_{\text{assimilation negative mood}} = 2.97$ vs. $M_{\text{contrast negative mood}} = 3.64$, $F(133) = 2.47$, $p < .05$).

These results suggest that there is similarity in lay beliefs for participants in the positive and negative mood conditions who hold a view that incidental mood has an assimilating effect on judgments. These participants think that incidental mood will spread to the object they are evaluating and will generate mood-congruent associations that affect judgments even after a delay. However, participants who believe in contrast are more likely to think that they would compare their feelings towards the target object with the incidental mood they are experiencing thus leading to an increase in evaluation with an incidental negative mood. Moreover, they believe this increase in evaluation due to comparison processes will be reflected in their delayed judgments. These findings suggest that participants are more likely to believe that positive mood will spread to

unrelated objects than negative mood. Conversely, participants are more likely to believe that a negative mood will be compared to feelings arising from an object than a positive mood.

Across 2a and 2b, a substantial fraction of participants believed that negative mood would produce contrast in their delayed judgments. This effect is particularly interesting considering that there was no contrast in either immediate or delayed judgments. To explore the breadth of this erroneous lay belief, we ran another study where we varied the pleasantness of the judgment target. Two hundred fifteen participants completed a study similar to Study 2a with two exceptions. First, all participants were asked to imagine making delayed judgments and we did not specify whether they made a prior real-time evaluation or not. Second, we varied whether the rating of the painting in a neutral mood was bad (3 out of 7), average (4), or good (5). The results showed that for bad and average paintings, people reliably predicted that being in a negative mood would produce a contrast effect ($M_{\text{bad}} = .97$, $t(29) = 2.96$, $p = .006$; $M_{\text{average}} = .55$, $t(46) = 2.92$, $p = .005$ tested against zero). However for more pleasant paintings, being in a negative mood was expected to produce to assimilation ($M_{\text{good}} = -.59$, $t(21) = 2.2$, $p = .056$). For good mood, assimilation was expected regardless of the quality of the target ($M_{\text{bad}} = 1.58$, $t(42) = 10.83$, $p < .001$; $M_{\text{average}} = .76$, $t(38) = 4.09$, $p < .001$; $M_{\text{good}} = .23$, $t(34) = 1.06$, ns). These results replicate our findings that lay theories about the effect of incidental mood are not sensitive to time delay, and suggest that they are sensitive to the object of evaluation. In particular, participants tend to believe that negative mood will have a contrasting effect on neutral and negative stimuli

but an assimilating effect on positive stimuli. Positive mood, however, is believed to only produce assimilation.

STUDY 3A: “CORRECTING” FOR PERCEIVED EFFECTS OF POSITIVE MOOD ON MEMORY-BASED JUDGMENTS

Studies 2a and 2b show that participants believe that their memory-based judgments are biased by incidental mood after a delay even though our results suggest no such effect exists. Consistent with previous research (Wegener and Petty 1995), we expect that participants will adjust their context-free memory-based judgments when reminded about the context of their experience to correct for the *perceived* influence of mood. We also predict that when the target of judgment is an unpleasant painting, participants in the positive mood condition will be more likely to adjust in a direction consistent with assimilation than the participants in the negative mood condition because belief in assimilation is less consistent for negative mood. Ironically, any adjustment of delayed (context-free) judgments would bias rather than correct them.

In study 3a, we test whether individuals will use their lay beliefs about positive mood to adjust memory-based judgments downward. Since these lay beliefs do not account for the fact that the delay between experience and judgment has already removed the influence of mood, we expect participants to adjust their context-free judgment, and introduce a downward bias.

Method

Fifty-six participants were randomly assigned to one of two conditions. We replicated the procedure of Study 1b's no real-time evaluation positive mood condition with one addition. At time 2 (five days later) before completing the memory-based judgment, half of participants were reminded that they read a story at time 1. Specifically, they were told: "Last time you completed several studies. The first one asked you to read a story about foals. The second one showed a painting." The reminder was presented as though it were meant to aid participants' recall of the survey conducted at time 1.

Results and Discussion

Memory-based ratings in the reminder condition ($M = 3.38$) were significantly lower than in the no reminder condition ($M = 4.46$, $t(55) = 2.2$, $p < .05$), suggesting that participants corrected for the perceived influence of incidental mood on their memory-based evaluations by adjusting them downwards. This correction was consistent with the lay theories measured in studies 2a and 2b. The results of study 1b suggest that participants in the no reminder condition in this study made context-free judgments. Therefore, the reminder seemed to have the ironic effect of inducing participants to bias an otherwise unbiased judgment in an attempt to correct that judgment.

STUDY 3B: "CORRECTING" FOR PERCEIVED EFFECTS OF NEGATIVE MOOD ON MEMORY-BASED JUDGMENTS

In our next study we further tested this correction mechanism by looking at corrections for negative mood. The results of study 3a suggest that a reminder about the context prompted participants to apply their lay theories. It is also possible, however, that a reminder helped participants better remember the experience and their feelings arising from the mood manipulation. Hence, participants may recall that the painting seemed particularly good after the story and correct for the influence of mood on their evaluations. Since people hold correct lay theories for the real-time effect of positive mood, we cannot tell whether the results of study 3a are due to better memory of the experience or the use of lay theories. In the case of negative mood, however, lay theories and actual incidental mood effects differ in direction: lay theories presume contrast effects whereas actual real-time experiences included assimilation. Therefore, testing the effect of a reminder on negative mood can tease apart these two accounts. If participants adjust their judgments downward after being reminded of an earlier negative mood, this would strongly suggest that their adjustments are based on lay beliefs rather than memories of any real-time effects.

Method

One hundred four participants were assigned to one of two conditions. We replicated the procedure of study 1a's no real-time evaluation negative mood condition with one addition. At time 2 (five days later) before completing the memory-based judgment, half of the participants were reminded that they read a story at time 1.

Results and Discussion

The reminder caused participants to adjust their ratings downward, such that memory-based evaluations in the reminder condition (3.77) were lower than those in the no reminder condition (4.51, $t(102) = 2.09$, $p < .05$). As in study 3a we found that participants corrected for the presumed biasing influence of incidental mood when reminded about it.

In studies 3a and 3b, we found that for both positive and negative mood, participants who were reminded of the context of their prior experience corrected for the perceived influence of incidental mood. Interestingly, participants adjusted their evaluations downward to correct for the influence of both positive and negative mood. These adjustments are consistent with the lay theories we observed in studies 2a and 2b, and inconsistent with the actual effect of negative mood on real-time judgments observed in study 1a.

Since we find that incidental mood generally does not affect judgments made after a delay, participants in studies 3a and 3b should not be correcting for the influence of mood, as they already hold context-free memory of the experience. However, because lay theories do not incorporate the fact that mood effects dissipate over time, participants correct their delayed judgments. Thus, ironically, by correcting for the influence of mood they are in fact introducing a context-related bias into their unbiased judgments. This suggests that when the context of an experience is salient while making a memory-based judgment, that judgment may be biased by beliefs about the context, even if the judgment was not biased prior to the activation of those beliefs.

GENERAL DISCUSSION

Conclusions and Theoretical Implications

In a series of studies we examined the effect of incidental affect on memory-based judgments. We proposed that lay theories would play an important role when the context of a prior experience is recalled during later judgment. In the first two studies we found that in the absence of a reminder about the context of the experience incidental mood dissipated following a delay. However, we also found that real-time evaluations extend mood effects into delayed judgments. All observed mood effects were assimilative.

Next, we examined lay theories about the effect of incidental mood on delayed judgments. In two studies we showed that there is a mis-match between lay beliefs and actual effects. Consumers do not intuit the impact of delay on mood effects and believe that their judgments will be equally biased by incidental affect immediately and several days later. Further, they do not intuit the role of real-time evaluations in extending mood effects. They believe delayed judgments will be equally biased following experiences with and without real-time evaluations. While participants predominantly expected assimilation for positive mood, a substantial portion of participants thought that negative mood would lead to contrast effects. These beliefs are based on a stronger belief that comparisons will occur between current mood and judgment targets for negative mood than for positive mood. This belief in contrast also seems not to extend to fairly positive judgment targets.

In the final two studies we found that when reminded about the context of an experience, people tend to rely on their lay theories about incidental mood effects and correct for the perceived bias in their memory-based judgments. Because participants falsely believe that mood influences delayed judgments, they adjust these judgments in

accordance with these beliefs, thereby introducing rather than attenuating bias in these judgments.

Future Research

Future research could provide important insights into the lay beliefs that people hold about the effect of incidental mood on delayed judgments. In the studies reported in this paper we began this inquiry and found that majority of consumers believed that positive moods produce assimilation while a substantial portion of consumers believed that negative moods produce contrast. This effect is interesting, considering that in real time both types of incidental affect produced assimilation. Such a difference in beliefs seems to stem from the fact that people believe that positive mood is more likely to generate long-term associations with the target of the judgment than negative mood, and that negative mood is more likely to be compared to feelings arising from an object than positive mood. However, this belief in contrast for negative mood seems more pronounced when the target of the judgment is unpleasant or mildly pleasant, and seems to revert to assimilative beliefs for fairly positive target objects. Future research could further explore the drivers of lay beliefs in contrast and assimilation effects to better understand when lay theories will diverge from actual effects, in both direction and duration.

Another important issue that has not been explored in the present research is whether immediate judgments have to be explicit to carryover the effect of context to memory-based judgments. If you note to yourself that the movie you saw was fun, is this enough to encode this evaluation in memory and later retrieve this potentially context-

dependent judgment? Or if you see a piece of art and think to yourself, “nice painting”, is this the same as explicitly reporting to someone else, “I like this painting!”? An interesting question for future research is exactly what types of real-time evaluations are necessary to influence later evaluations.

Marketing Implications

Our findings seem particularly relevant to the area of advertising. For years advertising dollars have been invested in the hope that positive affect induced by advertising improves brand evaluations at the time of choice, which typically takes place long after the affect from the ad has dissipated. Most studies within the persuasion literature support the proposition that affect will influence immediate judgments (eg., Batra and Stayman 1990, Batra and Ray 1986, Homer 2006, Petty and Cacioppo 1986), but few examine judgments made after a substantial delay. The present research suggests that the carryover effect of exposure to positive mood advertising may be moderated by the presence of real-time evaluations and recollection of context of the experience. Therefore, it might be beneficial to encourage consumers to make immediate judgments when watching commercials, perhaps by embedding a prompt to evaluate the product in the ad. Under these conditions, increased liking of the product produced by a positive mood will have a more lasting effect. Advertisers would also be better off not reminding the consumers about the context in which they have experienced the product so that consumers would not engage in correction processes which would shift product evaluations even further away from the desired effect of positive mood advertisements.

In summary, our findings suggest that incidental mood is not generally incorporated into memory-based judgments made after the mood has dissipated. In the absence of the reminder about the context of the experience, we find that evaluation at the time of experience results in the “lock in” of mood effects and leads to biased memory-based judgments. However, lay beliefs about mood are not sensitive to delay or the presence of real-time evaluations. Therefore, reminders of the context at the time of judgment lead to “correction” of context-free judgments through the application of these incorrect naïve theories. Since a multitude of consumer situations involve judgments based on recollections of prior experiences, it is important to understand when such judgments will be context-dependent versus context-free. Considering the fact that contexts can have both negative and positive effects on product evaluation and these contexts are frequently not under the control of marketers, knowing how to include or exclude such contexts from consumers’ evaluations is an important topic for further study.

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FIGURE 1
STUDY 1A: THE EFFECT OF NEGATIVE MOOD ON MEMORY-BASED
JUDGMENTS

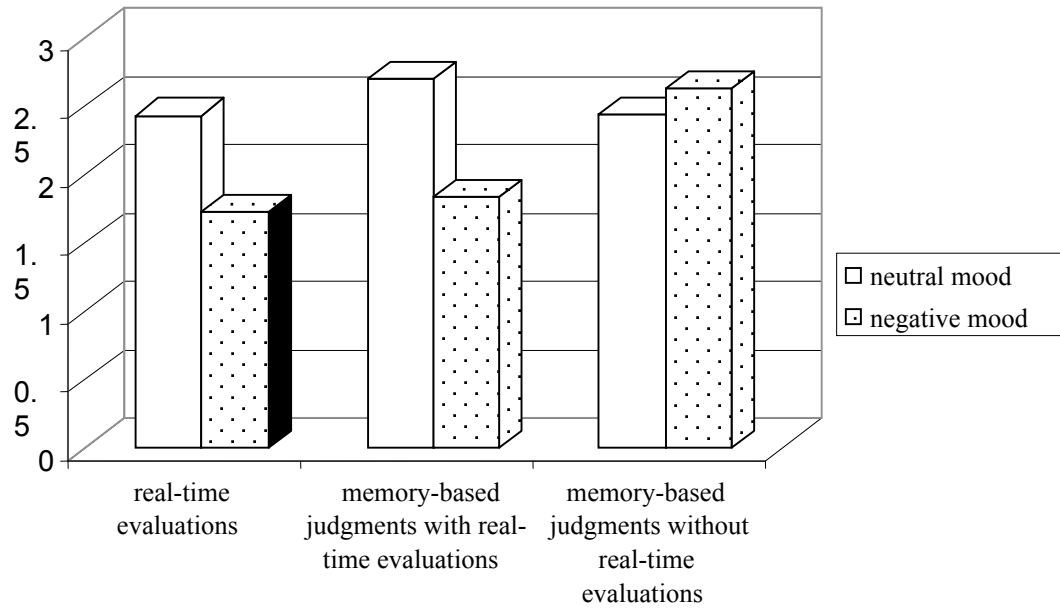


FIGURE 2
STUDY 1B: THE EFFECT OF POSITIVE MOOD ON MEMORY-BASED
JUDGMENTS

