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Mood-Congruency versus Mood-Incongruency in Aesthetic Preferences:
The Role of Interpersonal Relationships

By

Chan Jean Lee

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Business Administration

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Eduardo B. Andrade, Chair
Professor Leif Nelson
Professor Cameron Anderson
Professor Stephen Palmer

Spring 2012

Abstract

Mood-Congruency versus Mood-Incongruency in Aesthetic Preferences:
The Role of Interpersonal Relationships

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Chan Jean Lee

Doctor of Philosophy in Business Administration

University of California, Berkeley

Professor Eduardo B. Andrade, Chair

Whereas negative feelings sometimes increase preference for mood-incongruent aesthetic experiences (e.g., cheerful music, comedy), they also sometimes increase preference for mood-congruent ones (e.g., sorrowful music, drama). In this paper, we address the causes of this apparent discrepancy. We hypothesize that (1) mood-congruent aesthetic experiences offer a sense of bonding and emotional sharing, akin to interacting with an empathetic friend and thus (2) they are preferred when individuals are deprived of a sense of bonding from dissolving interpersonal relationships. Consistent with our hypotheses, three experiments show that negative feelings from broken interpersonal bonds increase preferences for mood-congruent aesthetic experiences, whereas negative feelings from non-interpersonal problems increase mood-incongruent preferences. Our results also help account for the inconsistencies in the literature.

"… since most of our hurts come through relationships so will our healing…"
William P. Young (The Shack, 2008)

Music, movies, novels, and paintings give us great pleasure and comfort in our lives. Some of them make us laugh and some make us cry. How people decide what to consume for such aesthetic and emotional experiences is not well understood, however, in spite of their importance to our psychological well-being (Holbrook and Hirschman 1982). For example, why and when do individuals prefer certain aesthetic and emotional experiences to others, such as hilarious comedies versus tear-jerking dramas? More specifically, how does an individual's mood influence his/her preference for such aesthetic/emotional stimuli? Although sad people often choose pleasant experiences to cheer themselves up (Tice, Bratslavsky, and Baumeister 2001), they also often, and deliberately, expose themselves to sad music, heartbreaking dramas, gloomy paintings, and tragic stories, even though they know they will become sad as a result (Knobloch and Zillmann 2003). The paradox, put simply, is why negative feelings sometimes increase preference for mood-incongruent experiences and sometimes increase preference for mood-congruent ones.

We tackle this issue by first proposing a theoretical argument that potentially resolves the paradox. We then demonstrate how negative experiences based on broken interpersonal versus non-interpersonal problems can help explain a significant portion of the inconsistencies in the literature. Third, we systematically test our hypotheses in a series of three experiments. The paper concludes with a discussion on potential theoretical and empirical improvements as well as its implications.

THEORETICAL BACKGROUND

People need to form and maintain intimate interpersonal bonds (Baumeister and Leary 1995, Maslow 1943), which are characterized by affection, care, and mutual concern. These bonds promote a sense of intimacy, acceptance, security, and comfort and their lack results in strong negative emotions (Ainsworth 1989; Bowlby 1977). An infant who is separated from an attached caregiver becomes highly anxious. An adult who has lost a lover experiences intense grief, sorrow, and loneliness. An individual who was cheated by a close friend or loved one becomes angry, hurt, and resentful.

Emotional Support and Feelings of Bonding

Once an intimate relationship (e.g., love, friendship, or trust) is lost or broken and people experience negative feelings, they often look for a surrogate to recapture the social bond (Baumeister and Leary 1995). Although the perfect substitution of the lost bond is unlikely, people can and do try to form a bond with an empathetic other, someone with whom they can share their negative feelings and receive solace (Ainsworth 1989; Cohen and McKay 1984; Hill 1991). For example, the bereaved feel most consoled by those who share their bereavement. The betrayed seek for others who support them emotionally. With an empathetic companion, people can reveal and share feelings, as well as feel understood, validated, accepted, supported, and cared about. Even the simple presence of another person having the same mood is helpful in

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coping with negativity (Schachter 1959). Put simply, when individuals are hurt in interpersonal relationships, individuals often look for mood-congruent, empathic others, who provide emotional support, feelings of belonging, and comfort (Cohen and McKay 1984). In contrast, they typically avoid joyful, mood-incongruent others, as such people tend to be perceived as less sensitive, responsive, or respectful to their affective state and situation (Lehman, Ellard, and Wortman 1986).

Mood-Congruent Aesthetic Stimuli as Surrogates

Although the previous literature focuses on mood-congruent *others* as a source of emotional support and comfort (Ainsworth 1989; Cohen and McKay 1984; Lehman, Ellard, and Wortman 1986; Rimé 2009), we propose that mood-congruent aesthetic stimuli can also provide emotional support and comfort by signaling an empathic, mood-congruent emotional tone. We hypothesize that mood-congruent aesthetic experiences—here defined as emotional experiences of compatible emotional tone which arise from art-related stimuli, such as music, films, and paintings, in which we often find beauty—can serve as surrogates for mood-sharing interpersonal relationships.

Anecdotal and empirical evidence suggests that experiencing favored music, videos, or stories satisfies the need to bond. Anecdotally, people often acknowledge a sense of friendship or companionship in the interaction with these sorts of stimuli (e.g., "music is my friend"). Empirically, recent evidence shows that when people feel lonely or disconnected with other people, they are more likely to turn to favored TV shows, music, movies, or books (Derrick, Gabriel, and Hugenberg 2009; Gabriel and Young 2011).

Since people who feel hurt in broken or failing interpersonal relationships seek mood-sharing, empathetic experiences, they should also prefer mood-congruent aesthetic stimuli to mood-incongruent ones. In other words, stimuli whose affective tone is compatible with one's current mood and feelings, akin to an empathetic friend, would generally be more appreciated than stimuli whose affective tone is incompatible and therefore be seen as inappropriate. Our first hypothesis is therefore:

H1: Consumers' preference for mood-congruent *aesthetic/emotional stimuli* mimics their preference for mood-congruent *others*.

Further, if the desire for empathetic, emotionally connected relationships underlies the preference for mood-congruent stimuli, certain types of negative experiences are more likely to increase mood-congruent preferences than other types. Specifically, negative experiences from broken interpersonal relationships that deprive people of a sense of bonding (e.g., loss of someone) are more likely to increase mood-congruent preferences than negative feelings unrelated to broken interpersonal relationships (e.g., performance failure). The latter, in contrast, are more likely to increase mood-*in*congruent preferences, as people try to bolster positive emotions by experiencing mood-incongruent, positive stimuli.

H2: Negative experiences based on failed/broken interpersonal relationships will increase preference for mood-congruent aesthetic/emotional stimuli, whereas those based on non-interpersonal issues will increase preference for mood-incongruent aesthetic/emotional stimuli.

In the following sections, we examine whether the above hypotheses can account for the conflicting results in the published literature. We then systematically test these hypotheses in a series of three experiments.

CONFLICTING FINDINGS IN THE LITERATURE

Prior research has addressed how a perceiver's affective state influences his liking for music, videos, and stories with different emotional tones. Contradictory findings have been reported, particularly when people experience negative feelings. Whereas multiple studies have shown that people do prefer mood-incongruent positive tone stimuli while/after experiencing a negative event (Biswas, Riffe, and Zillmann 1994; Helregel and Weaver 1989; Knobloch and Zillmann 2002; Meadowcroft and Zillmann 1987; Zillmann, Hezel, and Medoff 1980), others have also shown clear evidence of mood-congruent preferences (Gibson, Aust, and Zillmann 2000; Kamins, Marks, and Skinner 1991; Knobloch and Zillmann 2003; Mares and Cantor 1992; Martin et al. 1997; Nabi et al. 2006; Strizhakova and Krcmar 2007; Wegener and Petty 1994).

Our hypotheses suggest that the extent to which negative feelings are based on broken interpersonal versus non-interpersonal experiences should account for many of the apparent discrepancies. Although a complete, systematic meta-analysis is beyond the scope of this paper, the results of the following literature review seem consistent with our hypotheses. When the negative experiences were associated with broken interpersonal relationships, such as loneliness (Gibson, Aust, and Zillmann 2000; Knobloch and Zillmann 2003; Mares and Cantor 1992), romantic/sexual cheating (Nabi et al. 2006), and death (Martin et al. 1997; Weagner and Petty 1994), preferences for mood-congruent videos, music, and stories were more frequent. This pattern is consistent with our hypotheses in that negative interpersonal events increase the person's need to bond and be emotionally connected and that such a need can be satisfied by consumption of mood-congruent, negative tone aesthetic/affective stimuli. In contrast, when negative feelings are aroused due to performance failure (Biswas, Riffe, and Zillmann 1994; Knobloch and Zillmann 2002; Zillmann, Hezel, and Medoff 1980), physiological distress (Helregel and Weaver 1989; Meadowcroft and Zillmann 1987) or mental boredom or stress (Bryant and Zillmann 1984), preferences for mood-incongruent, positive tone videos, music, and stories were more prevalent. In other words, negative feelings *not* based on broken interpersonal relationships increase preference for mood-changing experiences. For example, negative moods induced by negative performance feedback provided by a machine (i.e., a negative but non-interpersonal experience) have been found to trigger mood-incongruent positive preferences (Knobloch and Zillmann 2002), whereas the same feedback given by an insulting experimenter (i.e., a broken interpersonal relationship) have sometimes produced the opposite results (e.g., provoked participants did not like derogating comedies, Zillmann, Hezel, and Medoff 1980; insulted male participants liked negative stories more, Biswas, Riffe, and Zillmann 1994).

It is worth noting that in the previous review as well as in the present experiments, different specific emotions could be experienced in interpersonal vs. non-interpersonal events. For example, losing someone (interpersonal experience) versus losing something (non-interpersonal experience) could induce different emotions. However, regardless of whether people feel sad, angry, disappointed, or disgusted, what explains the preference changes from mood-incongruent to mood-congruent aesthetic consumption across emotions, we argue, is the degree to which interpersonal relationships were broken across experiences. Therefore, our focus

throughout the present article is on the interpersonal/non-interpersonal dimension itself rather than the specific negative emotion that arises from it.

EXPERIMENT 1: MUSIC IS MY FRIEND

In experiment 1, participants were presented with a series of 12 negative situations and asked to make a choice between a mood-congruent and a mood-incongruent friend (vs. music). The negative situations vary on whether they are associated with broken interpersonal relationships or not. In line with hypothesis H2, we expected people's preference for mood-congruency to be stronger when their negative situations are associated with interpersonal experience (e.g., losing someone close) than non-interpersonal (e.g., psychophysical distress, self-achievement failure). Crucially for hypothesis H1, we expected that the type of negative experiences would have a similar impact on people's preferences of mood-congruency, independent of whether the entity of choice is an intimate person (i.e., a friend) or an aesthetic stimulus (i.e., music).

Method

Participants and procedure. Two hundred and thirty three individuals were asked to read a short instruction and answer a series of questions. About half (n=125) were randomly assigned to the friend condition whereas the remaining were assigned to the music condition. The main instructions provided the following information: "In our lives, there are many times when we feel bad. In this survey, we are interested in what kind of friend [or music] people want to be with [or listen to] in such negative situations."
Participants in both the friend and music conditions were presented with the same twelve negative situations, which varied in the interpersonal dimension. In interpersonal scenarios (table 1, row a~c) participants were ask to think about experiences such as losing someone (e.g., "…when you lost someone close to you"). In non-interpersonal scenarios (table 1, row d~l), they were asked to think about experiences such as failing to achieve a goal (e.g., "…when you failed an exam") or being disgusted (e.g., "…when you found a bug in your meal"). The order of the items was randomly assigned across participants. After reading each negative scenario, participants in the *friend choice condition* were asked to choose who they would prefer to be with: "a funny friend who can help you get rid of your negative feelings" or "an empathetic friend who can share feelings with you." Participants in the *music choice condition* were asked what songs they would prefer to listen to: "cheerful songs" or "sad songs."

Results

Preference for friends and music. Each choice response was categorized as mood-congruent (negative) or mood-incongruent (positive). The percentages of mood-congruent choices for the 12 studied negative experiences are shown in Table 1 separately for the friends and music conditions. Consistent with hypothesis H1 that people in a negative mood will have similar preferences for affiliating with other people and engaging with aesthetic stimuli, the correlation between these percentages for mood-congruent friends and music was high (r= +.83, p < .001).

Given the high correlation between preferences for mood-congruent friends and mood-congruent music across negative situations, we further examined mood-congruency patterns across negative situations. We categorized the twelve negative situations based on the mood-congruent versus mood-incongruent choices participants made. We conducted a hierarchical agglomerative clustering analysis with the average linkage method. The result showed that the highest level categories were negative situations with broken interpersonal connection (table 1, rows a~c; α=.66) and negative situations irrelevant to interpersonal relationships (table 1, rows d~l: α=.67). This non-interpersonal cluster consisted of two subcategories— psychophysical distress (table 1, rows d~f; α=.67), and self-achievement failure (table 1, rows g~l; α=.66).

– Insert Table 1 around Here –

Preference in the Interpersonal vs. Non-interpersonal Situations: An 2 (friend vs. music: between) x 2 (interpersonal vs. non-interpersonal: within) ANOVA revealed that, as expected by hypothesis H2, within the broken interpersonal situations, participants reported much stronger preference for mood-congruent options (79.4%) relative to the non-interpersonal situations (42.1%, $F(1, 231)=251.58$, $p<.0001$). Further, whereas losing someone led to higher than chance preference for mood-congruency ($t(232) = 14.46$, $p < .0001$), the effect reversed for non-interpersonal negative events ($t(232) = -4.76$, $p < .0001$), as participants showed greater than chance preference for cheerful, mood-incongruent, options. Although there was, in general, a stronger preference for mood-congruent music compared to friends (music= 66.3% vs. friends = 56.0%; $F(1, 231) = 13.58$, $p < .0001$), the preference difference across categories was highly similar for both the friend choice and the music choice conditions (no interaction: $F < 1$, figure 1). Participants indicated significantly stronger preference for mood-congruent experiences in the contexts of broken interpersonal relationships (vs. non-interpersonal), independent of the entity of choice (music/interpersonal= 85.1% vs. music/non-interpersonal = 47.43%, $F(1,231) = 119.98$, $p < .0001$; friend/interpersonal=74.4% vs. friend/non-interpersonal = 37.51%, $F(1,231) = 132.55$, $p < .0001$). Finally, the interpersonal experience conditions showed higher than chance preference for mood-congruent friends ($t(124) = 8.05$, $p < .0001$) and music ($t(107) = 13.90$, $p < .0001$), whereas the effect reversed for non-interpersonal scenarios, as participants showed greater than chance preference for mood-incongruent, cheerful friends ($t(124) = -6.09$, $p < .0001$). Similar trend was observed for music, although it did not reach significance (music: $t(107)= -1.00$, $p >.3$).

– Insert Figure 1 around here –

Discussion

Experiment 1 provides initial evidence consistent with our hypotheses. As predicted by hypothesis H1, music preferences and friend preferences were highly similar. Importantly, the factor driving differences in friend preferences from scenario to scenario produced highly similar changes in music preferences. Further, consistent with hypothesis H2, preference for mood-congruent experiences was higher when the negative experience arises from a broken interpersonal relationship ('losing someone') than when it arises from a failure at something ('losing/failing at something') or some sort of psychophysiological distress ('exposure to aversive stimuli'). This result is consistent with our proposition that mood-congruent

aesthetic/emotional experience serves as a surrogate for empathetic, mood-sharing interpersonal relationships.

Nevertheless, experiment 1 also presents a few sources of concern. First, none of the scenarios were likely to have triggered any actual negative emotional experiences (and indeed were not intended to). It is therefore an open question whether participants' preferences for mood congruent versus incongruent stimuli would be the same if participants actually *felt* the negative affect that would have arisen had they been true. Second, the scenarios designed to tap interpersonal problems were very similar conceptually and did not encompass a broad range of possible interpersonal issues, while non-interpersonal scenarios (table 1, rows d~l) varied substantially, leaving the possibility that the differences we observed in experiment 1 were due to factors other than interpersonal versus non-interpersonal dimension of experiences. In short, a more principled and controlled manipulation of interpersonal vs. non-interpersonal dimension seemed desirable.

In experiment 2, we therefore focused on comparing the impact of interpersonal vs. non-interpersonal losses, including their actual emotional reactions, on people's preference for mood-congruent and incongruent aesthetic consumption experiences. In particular, participants were randomly assigned to write in detail about a situation in which they have lost 'someone' versus 'something' important to them. We expected this task to (a) trigger actual negative feelings in both conditions and (b) provide a better controlled manipulation of the nature of the difference in the interpersonal vs. non-interpersonal dimension. As in experiment 1, we expected people to indicate stronger mood-congruent preferences for aesthetic stimuli in the interpersonal loss condition than in the non-interpersonal loss condition.

EXPERIMENT 2: LOSING SOMEONE VS. SOMETHING

In this experiment, we examine the impact of interpersonal vs. non-interpersonal loss along with its emotional reaction, on people's preference for mood-congruent as well as mood-incongruent music, respectively. Both types of losses are expected to trigger meaningful negative reactions; however, as predicted in hypothesis 2, an interpersonal (vs. non-interpersonal) loss should result in people's stronger preference for mood-congruent aesthetic stimuli as people search for empathic, mood-sharing and comforting experiences.

Method

Participants and design. One hundred eleven people participated in this experiment. The experiment adopted a 2 (interpersonal loss vs. non-interpersonal loss; between) by 2 (cheerful vs. sad music; within) mixed design.

Procedure. In the first phase, participants were asked to write about a personal loss. In the interpersonal loss condition, participants were asked to write about a personal experience where they've lost an important relationship (e.g., breakup, lost love, death of a beloved one, etc.), whereas in the non-interpersonal loss condition, participants were asked to write about a personal experience where they lost an important competition (academic, career related, etc.). Both groups were instructed to write it as vividly and concretely as possible and make sure that their emotions and opinions would shine through. After writing their experience, participants

answered how they felt (good, bad, happy, and sad, each on a seven-point scale, where 1=not at all, and 7=very much). Then, in the second phase of the experiment, participants saw ten song titles and were asked to rate how much they would like to listen to each (1=not at all; 7=very much). Five titles implied sad songs— "Lonely days," "Crying," "Tears in my heart," "Gloomy Sunday" and "Rainy days"— whereas the other five suggested happy songs—"Don't worry be happy" "Dance dance" or "A lalala shake," "Laugh and swing," and "Banana boat and giggle". The order of the song titles was randomized across subjects. After indicating their preference for hearing the ten songs from their titles, participants indicated the extent to which they thought each song would sound cheerful or sad given the titles (1=very sad, 7=very cheerful).

Result

Manipulation checks. Describing the personal negative experience made participants feel relatively bad in both conditions. Negative feelings (bad and sad collapsed; $\alpha = .82$) were significantly higher than positive feelings (good and happy collapsed; $\alpha = .91$) for both the interpersonal ($M_{bad\_sad} = 6.25$, $M_{good\_happy} = 1.58$; $F(1, 50) = 320.39$, $p < .0001$) and non-interpersonal loss conditions ($M_{bad\_sad} = 5.44$, $M_{good\_happy} = 2.74$; $F(1, 59) = 40.57$, $p < .0001$). An interaction also emerged, such that describing an interpersonal loss produced stronger negative feelings than describing a non-interpersonal loss ($F(1, 109) = 14.36$, $p < .0001$).
Also as predicted, the five happy songs were perceived as significantly more cheerful ($M = 5.24$) than the five sad songs ($M = 3.23$; ($F(1,108) = 127.40$, $p < .0001$) and the writing of the loss experience (interpersonal vs. non-interpersonal) did not interact with this main effect ($F < 1$).

Music preference. The average rated preference for each category of songs is plotted in Figure 2 for participants in the interpersonal loss and non-interpersonal loss conditions. As expected, preference for cheerful and sad songs varied significantly with the type of loss ($F(1, 109) = 7.11$, $p < .01$). Participants in the interpersonal loss condition showed preference for mood-congruent (i.e., sad) songs ($M = 4.60$) relative to mood-incongruent (i.e., cheerful) songs ($M = 4.19$, $F(1, 50) = 3.14$, $p = .083$) and relative to mood-congruent songs among those in the non-interpersonal loss condition ($M = 4.10$, $t(1, 109) = -2.17$, $p = .032$). Further, participants in the non-interpersonal loss condition reported stronger preference for mood-incongruent songs ($M = 4.52$) relative to mood-congruent songs ($F(1, 59) = 4.04$, $p = .049$). There was no significant difference in preferences for happy songs between interpersonal and non-interpersonal loss conditions ($t(1, 109) = 1.28$, $p > .2$).

– Insert Figure 2 around here –

Discussion

Experiment 2 provides further evidence consistent with hypothesis H2. When people experience an interpersonal loss (i.e., lose *someone*), preference for mood-congruent aesthetic stimuli increases significantly relative to mood-incongruent stimuli and relative to those who experienced non-interpersonal losses (i.e., lose *something*). The effect reversed within the non-interpersonal loss condition as preference for mood-incongruent aesthetic stimuli was higher relative to mood-congruent ones. It seems that the negative *felt* experiences within this condition led participants to look for cheerful aesthetic experiences that might help them lift their mood.

Although experiment 2 addresses the limitations of experiment 1 (a well-controlled manipulation of interpersonal vs. non-interpersonal experience and an actual—rather than hypothetical—negative experience), the second experiment presents a different source of concern that must be addressed. The interpersonal vs. non-interpersonal loss manipulation varied not only qualitatively but also quantitatively. Participants felt on average worse after describing an interpersonal loss than after describing a non-interpersonal loss. In hindsight, this is not necessarily surprising, given the importance of interpersonal relationships in our lives. Although it is not clear how exactly intensity of negative feeling itself could reverse the effects, this confound is addressed the final experiment.

EXPERIMENT 3: WALL COLOR PREFERENCES

We attempted to accomplish three main goals in experiment 3. First, we tried to replicate the previous findings within the interpersonal experience condition (i.e., mood-congruency effect) with a different manipulation. Instead of writing an interpersonal loss story, participants viewed a video clip featuring a negative interpersonal situation. Second, we attempted to control for the intensity confound in experiment 2 by equating the negativity of the interpersonal and non-interpersonal negative experiences. Finally, we generalized the findings by using simpler aesthetic stimuli (colors) that were actually *experienced* during the rating task. In the previous experiments, the aesthetic consumption experience was either hypothetical (experiment 1) or expected to be experienced only after people reported their preferences (experiment 2). In experiment 3, participants reported their liking for colors while experiencing (i.e., seeing) them, and hence, had full information about the stimulus.

Colors are cognitively simple but have salient affective tone. More saturated and lighter colors are perceived to be happier, more exciting, and purer (i.e., generally positive emotions), whereas more muted and darker colors tend to be more strongly associated with sadness, distress or disgust (i.e., generally negative emotions) (Valdez and Mehrabian 1994). Such properties allow us to directly assess whether the negative experiences induced by the videos lead to stronger preferences for mood-congruent (dark-muted) or for mood-incongruent (light-saturated) colors. As in the previous experiments, we expect stronger preference for mood-congruent (dark-muted) colors in the interpersonal condition than in the non-interpersonal condition, whereas preference for mood-incongruent (light-saturated) colors should be preferred in the non-interpersonal condition.

Method

Participants and Design. One hundred and thirty seven students participated in this experiment for course credit. The experiment adopted a 2 (interpersonal vs. non-interpersonal event scene; between) by 2 (dark-muted vs. light-saturated colors; within) mixed design.

Procedure. Participants were told that they would be participating in a study about color preference. They were presented with 22 colors, one at a time and asked to indicate their color preference. After the first block of trials, they were told that due to potential eye fatigue, they would watch a five-minute black-and-white video clip (the negative experience manipulation). They were then told that they would rate their preference about "the remaining colors," which

were actually the same 22 colors that they had rated in the first block of trials. Color preference changes were the main dependent variable.

Negative Experiences. Participants were exposed to 5-6 minutes of a video clip. About half of participants watched a scene from the movie "I am Sam," in which a father with mental challenges was forced to separate from his young daughter (i.e., a powerful and difficult interpersonal experience). The other half of the participants watched a scene from "Trainspotting," in which a drug addict desperately searched for a pill in a disgustingly dirty toilet (i.e., a powerful and difficult non-interpersonal experience). This clip was chosen to create a non-interpersonal condition that would produce emotional experiences that were as intense as those in the interpersonal condition, thus addressing the confound in the experiment 2. After watching one of the clips, the participants reported their feelings (I feel good [bad, sad, and disgusted], 1=not at all, 7=very much). A pretest with a sample from the same population (n=143) showed that these videos induced relatively strong negative reactions that were virtually identical in intensity: the average ratings of how bad the participant felt on a seven-point scale (1= a little, 7= very much) were 5.51 for the interpersonal condition vs. 5.48 for the non-interpersonal condition ($F(1,142) = .53$, $p = .80$). We therefore expected the videos in the two conditions to induce similarly intense negative emotions with one representing an emotion from an interpersonal event (sadness from separation) and the other an emotion from a non-interpersonal event (disgust from disgusting objects).

Aesthetic stimuli. Twenty-two colors—11 dark-muted colors and 11 light-saturated colors—were used (Appendix A). Color preferences were measured before and after the negative experience (video clips) to control for massive individual differences characteristic of color preference (Jacobson and Bender 1996; Palmer and Schloss 2010). Participants were told to think of them as wall colors. Each color was presented on the entire computer screen, and they were asked to report their preference ("How much do you like the color?") by sliding a cursor along a 400-pixel line and clicking on the appropriate point between its ends, labeled "Not at all" (-200) on the left end and "Very much" (+200) on the right end.

After the second measure of color preference, the 22 colors' emotional tones (sad vs. happy; disgusting vs. clean) were measured through color categorization tasks. After each color presentation, participants were asked to categorize the color as sad versus happy through left/right key pressing as quickly as possible. A block of 24 trial colors preceded the main 22 color stimuli, unbeknown to participants, to prepare participants for the given sad versus happy categories. The disgusting vs. clean categorization task followed the same procedure.

Results

Manipulation check: Emotions. As in the pretest, participants in the interpersonal and non-interpersonal conditions reported similar levels of negativity: 1.88 vs. 2.47 (feel good [-] bad index; $F(1, 135) = 1.00$, $p > .3$). Also as expected, participants exposed to the interpersonal video reported higher levels of sadness (M = 4.52) than disgust (M = 3.03, $F(1, 64) = 30.25$, $p < .0001$). The opposite was true for participants exposed to the non-interpersonal video, who reported lower levels of sadness (M = 3.03) than disgust (M = 4.28, $F(1,74) = 16.96$, $p < .001$). Clearly, the emotion manipulation of watching the affectively biased videos worked as intended.

Manipulation check: Colors. Percentages of participants who categorized a color as happy vs. sad and clean vs. disgusting are shown in Appendix B for each of the 22 colors. We conducted agglomerative hierarchical clustering analyses separately for the happy/sad and clean/disgusting categorizations. The results, diagrammed in Appendix A, showed that the eleven dark-muted colors were clustered as one group (i.e., sad colors) and the eleven light-saturated colors as another group (i.e., happy colors). The analogous hierarchical analysis using the clean/disgusting categorization data showed that the same eleven dark-muted colors were grouped together (i.e., disgusting colors) and the eleven light-saturated colors were grouped together (i.e., clean colors). Our results showed, as expected, that the dark-muted colors were more strongly associated with negative reactions (sadness and disgust) and the light-saturated colors were more associated with positive reactions (happy and clean).

As is evident by inspection, the light-saturated colors (color 1~11) were reliably judged to be happier (93.5% of the participants categorized them as happy) and cleaner (87.7% participants categorized them as clean) than the dark-muted colors (color 12~22; 12.9% as happy, $F(1, 135) = 1689.1$, p=.0001; 28.1% as clean, $F(1, 135) = 336.40$, p=.0001). The light-saturated colors were also categorized more quickly than dark-muted colors (happy/sad categorization: 744.2 ms vs. 853.4 ms, $F(1,135)=9.33$, p=.003; clean/disgusting categorization: 694.5 ms vs. 810.2 ms, $F(1,135)=10.85$, p=.001) perhaps the corresponding keys were in the right hand side. Interestingly, a perceiver's emotional state (i.e., interpersonal vs. non-interpersonal condition) did not interact with their categorizations of emotional tones of colors (happy/sad: $F(1, 135) = .78$, p>.3; clean/disgusting: $F(1, 135) = 1.02$, p >.3) or categorization respond times (happy/sad: $F(1, 135) = .003$, p>.9; clean/disgusting: $F(1, 135) = .65$, p>.4). That is, across conditions, dark-muted colors are mood-congruent colors and light-saturated colors are mood-incongruent stimuli.

Color Preferences. Average differences in preference were computed as post-video ratings minus pre-video ratings for each of the 22 colors. These data were averaged for the mood-incongruent (positive tone) and mood-congruent (negative tone) color categories and are plotted in Figure 3 separately for participants in the interpersonal and non-interpersonal manipulation conditions. A 2x2 mixed design ANOVA revealed that there was a significant interaction between the type of negative experience and changes in color preference by color tone ($F(1, 135) =13.62$, p = .0001; see figure 3). As expected, participants who watched the interpersonal video increased their preference for mood-congruent (i.e., dark-muted) colors (M = +1.71) relative to mood-incongruent (i.e., light-saturated) colors (M = -12.63; $F(1, 64) = 4.36$, p =.041) and relative to participants who watched the dirty toilet ($F(1, 135) = 7.26$, p=.008). Further, those exposed to the dirty toilet scene (i.e., non-interpersonal condition) increased their preference for mood-incongruent (i.e., light-saturated) colors (M= 9.99) relative to mood-congruent (i.e., dark-muted) colors (M = -18.54; $F(1, 71) = 9.76$, p = .003) and relative to participants in the interpersonal condition ($F(1, 135) = 9.43$, p < .003).

– Insert Figure 3 around here –

Discussion

Experiment 3 accomplished its three main goals. First, it replicates the previous findings using video clips to manipulate people's negative experiences. When negative feelings were

associated with broken interpersonal relationships (vs. non-interpersonal events), participants increased preference for mood-congruent vs. mood-incongruent stimuli. However, when negative feelings were not from social disconnect, participants increased preference for mood-incongruent vs. mood-congruent stimuli, probably in an attempt to repair their mood. Second, it rules out the alternative hypothesis that the effects observed in the previous experiment were driven by differences in emotional intensity across conditions. In this experiment, both the interpersonal and non-interpersonal conditions caused negative emotions that were no different in their levels of intensity. Finally, experiment 3 generalizes the previous findings by using a simpler aesthetic stimulus (colors) and recording preference statements while people were experiencing (seeing) the stimuli.

GENERAL DISCUSSION

Whereas negative feelings sometimes increase preference for mood-incongruent aesthetic/emotional experiences (e.g., cheerful music, comedy), they also sometimes increase preference for mood-congruent ones (e.g., sorrowful music, drama). In this article, we address this apparent discrepancy. We hypothesize that mood-congruent aesthetic experiences provide something akin to a sense of bonding and emotional sharing, and thus are preferred to mood-incongruent aesthetic experiences, when people are deprived of the sense of bonding. In the three experiments, consistent with our hypotheses, broken interpersonal relationships (e.g., relationship loss, separation) increased preference for mood-congruent aesthetic experiences with music and colors, whereas non-interpersonal negative experiences (e.g., failure, physiological distress) increased preference for mood-incongruent aesthetic experiences.

Our account helps resolve many inconsistencies in the literature. As expected, when negative experiences were associated with negative interpersonal relationships, such as loneliness (Mares and Cantor 1992; Gibson, Aust, and Zillmann 2000; Knobloch and Zillmann 2003), regret about cheating (Nabi et al. 2006), or separation due to death (Weagner and Petty 1994; Martin et al. 1997), mood-congruent preference was more frequent. In contrast, mood-incongruent preference is more prevalent, when negative feelings arise from non-interpersonal events, such as failure (Knobloch and Zillmann 2002; Zillmann, Hezel, and Medoff 1980; Biswas, Riffe, and Zillmann 1994), physiological or mental distress (Helregel and Weaver 1989; Meadowcroft and Zillmann 1987; Bryant and Zillmann 1984).

Our experimental results and reinterpretation of previous findings suggest that further attention to the *interpersonal vs. non-interpersonal* dimension would be enlightening when investigating an emotion's impact. For example, researchers often induce negative mood from participants by asking them to recall personal experiences, exposing them to emotion-laden stimuli, or giving negative feedback. Yet, depending on the interpersonal vs. non-interpersonal experiences that individuals recalled or were exposed to (e.g., separation vs. failure), similar emotions (e.g., sadness about separation vs. sadness about failure) could result in different attitudes and behaviors. Unlike hurt feelings from threat to self-esteem or physiological pain, hurt feelings from losses of, or threats to, social connection lead people to make mood-congruent choices, as it enables them to re-experience a sense of bonding and connectedness.

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Types of Interpersonal Experiences

At the core of our theoretical proposal lies the notion on broken interpersonal experiences. Both aspects, "broken" and "interpersonal" deserve further scrutiny. Although we focused mainly on interpersonal losses (e.g., loss of or separation from a person) to induce negative interpersonal experiences, we argue that other types of damaged interpersonal relationships can also lead to mood-congruent preferences, as long as the damage reduces/threatens the sense of belonging and therefore encourages people to look for empathetic surrogates. For example, it is quite possible that the betrayal of a friend or a violation of social norm could increase liking for consumption of mood-congruent, anger-toned, aesthetic stimuli (e.g., heavy metal music, violent videos). By doing so, the betrayed individual can reveal his anger and feel that his anger is shared, validated, supported, and cared about. To shed initial light into this proposition, we examined the impact of broken or violated relationships due to others on preference for heavy metal relative to dance music. Consistent with the above conjectures, people's preference for mood-congruent stimuli (i.e., heavy-metal music) was stronger in the broken interpersonal situations (e.g., betrayal of friends) than in the non-interpersonal situations (e.g., slow work progress). Therefore, it seems that our findings might extrapolate beyond the realm of relationship losses/sadness and also be observed in the realm of social violations/anger.

Although the definition of interpersonal may seem rather straightforward at first blush, we suspect that our findings may not be constrained to situations in which the broken relationship necessarily involves two (or more) individuals. Interpersonal experiences might also incorporate relationships with personified entities, as long as they offer a sense of bonding. For example, losing a loved pet seems likely to increase preference for mood-congruent aesthetic consumption. Along similar lines, it is well established that people bond and form strong relationships with products and brands (Fournier 1998). The extent to which these bonds are broken might also correlate with preference for mood-congruent aesthetic experiences.

Although we expect that our theoretical propositions go beyond the context of losses and personal relationships, we should also mention some potential boundary conditions. Some negative interpersonal interactions (e.g., rejection, expulsion) hurt not only a sense of bonding but also self-esteem. The need to bond would heighten preference for mood-congruent consumption, but a need to feel better about one's self could well increase mood-incongruent preference ('I want to forget about this'). How these potentially opposing forces interact is, we believe, an interesting question for future research.

Aesthetic Experiences

What distinguishes the pleasure people get from music from the pleasure they get from ice-cream? Unlike sensory stimuli such as ice-cream, aesthetically pleasing stimuli such as music, movies, and painting, express salient positive or negative emotional tones. Pleasure from positive tone stimuli, such as cheerful music or happy colors might be more comparable with pleasure from ice-cream, in the sense that people can enjoy the mood-changing properties of the stimuli (e.g., cheerfulness of music, sweetness of ice-cream). In contrast, our enjoyment of sad music, heartbreaking dramas, gloomy paintings, and tragic stories seems paradoxical, given their negativity and direct impact on our feelings. However, once we focus on our interaction or emotional connection with the negative tone of stimuli, we can understand why negative tone stimuli might be preferred.

The role of empathy has been recognized in the appreciation of films (Oliver 1993, 2008; Mills 1993), paintings and sculptures (Freedberg and Gallese, 2008), and novels (Mar et al 2011). This paper suggests that enjoyment in the aesthetic/emotional experiences lies in part in the empathetic, communal experience between the stimuli's emotional tone and a perceiver's mood state.

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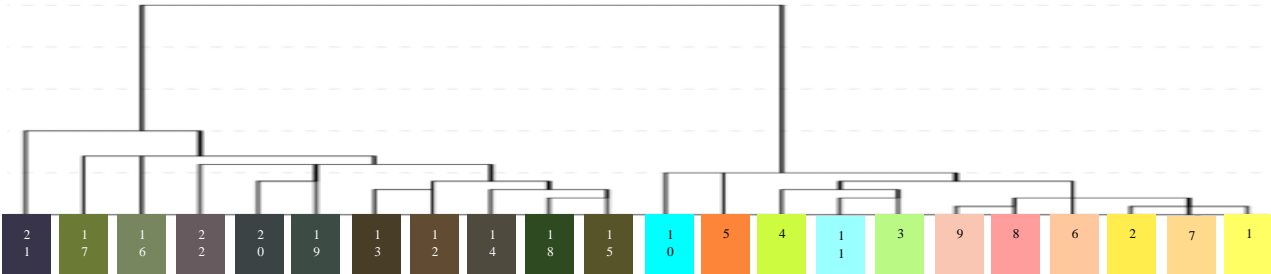
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APPENDIX A: COLOR TONE CLUSTERING (EXPERIMENT 3)

1. Sad versus Happy Colors
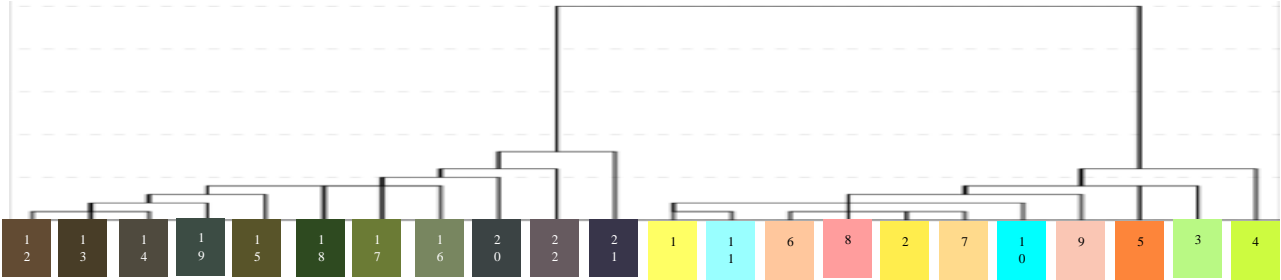
2. Disgusting versus Clean Colors

APPENDIX B: COLOR STIMULI (EXPERIMENT 3)

Color Stimuli				% of people who categorized the color as		Categorization response time (millisecond)	
No.	R	G	B	Happy (vs. sad)	Clean (vs. disgusting)	Sad vs. Happy	Disgusting vs. Clean
1	255	255	100	97.1	89.8	592.6	708.4
2	255	237	77	95.6	86.1	627.7	655.8
3	185	249	132	91.2	85.4	736.3	715.9
4	205	251	64	87.6	80.3	763.5	689.1
5	253	133	58	90.5	84.7	950.8	885.7
6	255	199	157	94.9	90.5	779.2	641.0
7	255	218	140	91.2	86.9	802.1	685.6
8	255	157	157	94.9	86.9	766.8	642.7
9	250	198	180	94.2	89.1	714.6	642.1
10	0	255	255	95.6	84.7	732.1	747.7
11	153	255	255	95.6	94.2	721.0	624.9
12	98	75	51	7.3	24.1	780.6	733.1
13	72	61	39	6.6	14.6	711.9	710.8
14	79	74	62	8.0	25.5	806.4	802.6
15	88	84	41	4.4	13.5	723.9	677.3
16	120	134	96	13.9	29.2	902.6	837.0
17	107	123	53	8.0	20.4	988.9	638.1
18	46	74	32	13.1	21.2	916.5	808.1
19	60	76	68	15.3	36.5	830.3	887.1
20	59	67	68	17.5	36.5	785.3	979.9
21	56	53	74	26.3	45.3	991.3	1005.2
22	102	90	95	21.9	42.3	950.4	833.1

TABLE 1: Twelve Negative Experiences (Experiment 1)

Items	Preference for MC* option (%)		Clustering	Type of Negative Situation	
"When you…"	Friend	Music			
a) lost someone you love	72.0	88.0		Interpersonal	
b) lost someone close to you	80.0	86.1			
c) lost someone significant	71.2	81.5			
d) were disgusted by dirty objects (e.g., stool)	24.0	35.2		Psycho physiological distress	Non-interpersonal
e) found a bug in your meal	14.4	38.9			
f) saw disgusting objects (e.g., vomit)	26.4	43.5			
g) fell behind your competitors	52.0	29.6		Self-achievement failure	
h) were ashamed about your laziness/procrastination	30.4	46.3			
i) lost an important competition or contest	45.6	52.8			
j) were ashamed about your bad decision/performance	52.0	56.5			
k) failed an exam/promotion test	45.6	57.4			
l) were ashamed of your selfishness	47.2	66.7			

*MC = Mood-Congruent

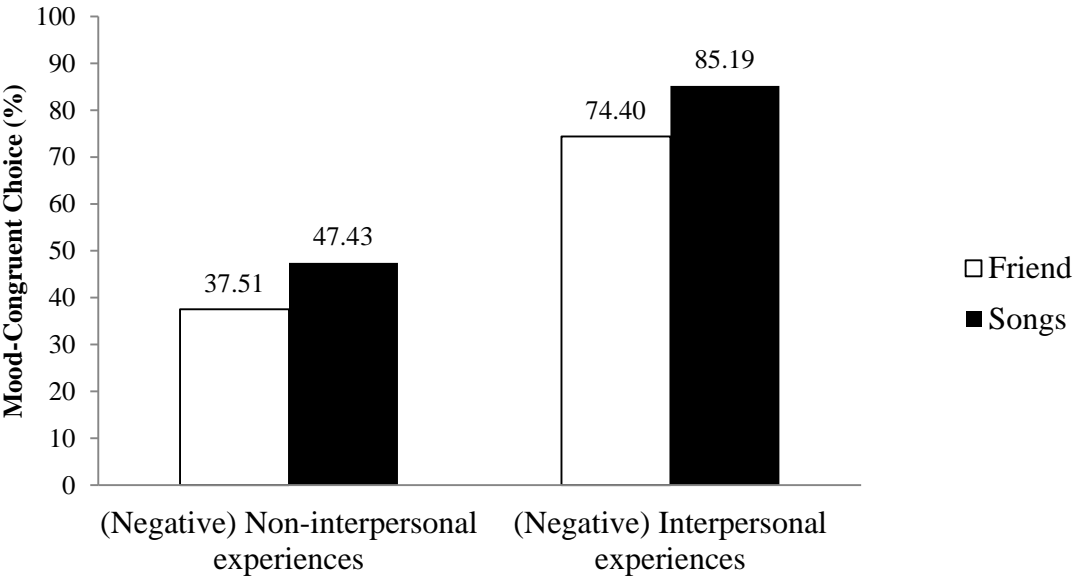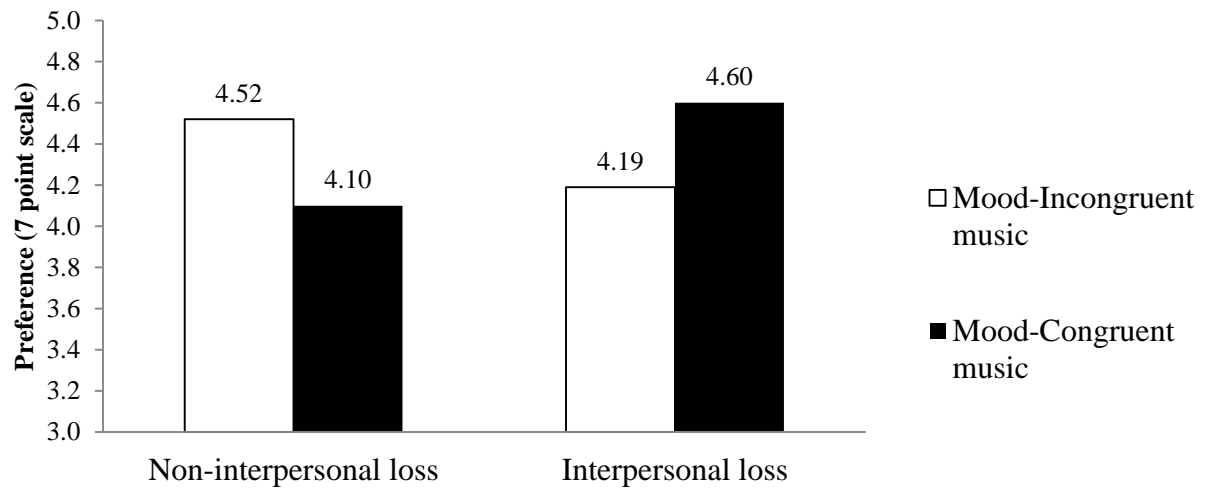FIGURE 1: MOOD-CONGRUENT PREFERENCES (EXPERIMENT 1)

FIGURE 2: MUSIC PREFERENCE (EXPERIMENT 2)

FIGURE 3: INTERIOR COLOR PREFERENCE (EXPERIMENT 3)