HOW CURRENT MOOD STATE INFLUENCES
SONG SELECTION BEHAVIORS

by

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ABSTRACT

In the present investigation, we examined how current mood state influences the songs that people prefer to listen to and examined the self-reported intentions underlying these preferences (Experiment 1 & 2). We induced happy, neutral, sad or angry moods, and compared subsequent song desirability ratings on the dimensions of valence (positive vs. negative) and motivational direction (approach vs. withdrawal). Participants also reflected on their intentions regarding their music selection preferences. Across two experiments, participants rated positively valenced songs as more desirable than negatively valenced songs, and withdrawal-oriented songs as more desirable than approach-oriented songs, regardless of current mood. These results are most consistent with the mood management hypothesis which proposes that individuals are motivated to minimize negative moods and extend or enhance good moods.

Key words: Music; Mood; Music selection; Motivational orientation; Congruency; Mood management
DEDICATION

This dissertation is dedicated to my close friends, my family, Lucy Hunt and everyone who helped guide me.
LIST OF ABBREVIATIONS AND SYMBOLS

\( \text{df} \)  Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data

\( \text{SD} \)  Standard deviation: measure used to quantify the amount of variation or dispersion of a set of data values

\( F \)  Fisher’s F ratio: ratio of two variances

\( M \)  Mean: the sum of a set of measurements divided by the number of measurements in the set

\( p \)  Probability associated with the occurrence under the null hypothesis of a value as extreme as, or more extreme than, the observed value

\( \eta^2 \)  Eta squared: measures the proportion of the total variance in a dependent variable that is associated with the membership of different groups defined by an independent variable

<  Less than

=  Equal to
ACKNOWLEDGMENTS

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INTRODUCTION

“One good thing about music, when it hits you, you feel no pain” – Bob Marley

Why do people listen to music? A fundamental question guiding a growing body of multidisciplinary research concerns the examination of “every-day” functions of music. Recent decades have demonstrated increased investigation into the effects of listening to music—why individuals choose certain types of music and how listening to these various types of music affects mental processes. As investigators work towards an overall theory of music preference, their studies have begun to establish reliable associations between music and a wide range of psychological processes, including emotion, personality, self-identity, and relationships (Rentfrow, 2012). Recently, scientists have begun to acknowledge that the effects of music cannot be understood exclusively through the investigation of the consequences of listening to different types of music (e.g. change in emotion). Rather, investigating the reasons why people choose to listen to different types of music in the first place is also paramount to the understanding of practical functions of music. For example, if you were in a sad mood would you rather listen to sad-sounding music or happy-sounding music? On the one hand, sad-sounding music may resonate with us by mirroring the tone of our current life circumstance or feel more authentic than something upbeat. On the other hand, listening to happy-sounding music may work to raise our mood to be more positive.

In the current study, we will examine whether individuals choose music with the goal of enhancing or matching their current emotional state. In addition, we will disentangle three different dimensions on which people might choose to match their current state: discrete
emotions (e.g., sad with sad, happy with happy, angry with angry, etc.), emotional valence (e.g. positive with positive, and negative with negative), and motivational direction (e.g., approach motivation with approach motivation, and withdrawal motivation with withdrawal motivation). We examine the independent contributions of each of these dimensions to understand more comprehensively individuals’ motivations underlying their song-selection behaviors.

Empirical research demonstrates that music can elicit certain emotions in listeners and can influence how people feel (Juslin & Laukka, 2004; Scherer & Zentner, 2001; Barrett, Grimm, Robins, Wildschut, Sedikides, & Janata, 2010; Zentner, Grandjean, & Scherer, 2008). Along these lines, emotion elicitation is one of the most common motives for listening to music (Juslin & Laukka, 2004).

It may follow then, that listeners can use music (happy, sad, or otherwise) to regulate their current emotional states. In that vein, a study by Lonsdale and North (2011) investigated individuals’ self-reported reasons for why they listen to music and found that participants reported listening to music primarily to regulate their emotions. For example, the authors found that, compared to other leisure activities, music was rated at serving an individual’s needs more effectively. Similarly, in a review by Schäfer, Sedlmeier, Städtler & Huron (2013), the authors found, across hundreds of publications, that regulating arousal and mood (valence) was one of three major factors identified as a potential function of music. However, these studies do not directly examine people’s music selection behavior, and thus do not address whether, and how, people actually use music to regulate their emotions. Indeed, participants’ self-reported preferences may or may not reflect their actual behaviors—what music they freely choose to listen to.
Furthermore, although it may seem obvious that individuals may engage with music to regulate their emotions, little is known about the factors that affect music selection behaviors for such regulation in everyday life. In the context of music exposure, basic mood management theory posits that media is capable of manipulating emotional states, and the self-selection of media can serve to regulate emotional states (Zillmann, 1988; Knobloch, 2006). More specifically, mood management theory proposes that individuals are motivated to minimize negative moods and extend or enhance good moods (Zillman, 1988b, 2000a; Knobloch and Zillman 2002). This process is known as response modulation. Thus, response modulation is a tool to achieve a frequent goal of emotion regulation in everyday life: downregulating (diminishing) emotions that typically have a negative valence (i.e. sadness or anger) (Gross, Richards & John, 2006). Thus, from a mood management perspective, individuals should prefer to select songs that are positively valenced (e.g., happiness) over songs that are negatively valenced (e.g., sadness, anger). Generally, past work supports this perspective—that music is functional in regulating emotion by maintaining positive mood, improving mood and controlling emotion (Knobloch & Zillman, 2002, Saarikallio & Erikkila, 2007).

In a study by Knobloch and Zillman (2002), the authors placed the participants into specific mood states (bad, neutral and good) using performance feedback and recorded the amount of time participants chose to listen to various song selections. Consistent with mood-management theory, the results indicated that selective exposure to “energetic-joyful” music increased in a negatively valenced mood state and decreased in a positively valenced mood state. These choices were likely intended to make their current mood more positive. However, participants did not report their intentions underlying their selections, and the researchers only examined the effect of mood valence on song-selection behaviors.
One common observation demonstrating that individuals do not solely regulate to improve mood is the fact that individuals do freely decide to listen to sad music in their everyday lives. However, we are limited in our understanding of which emotional contexts predict the regulatory strategy of freely engaging with sad music. One emerging area of research examines the effects of listening to negatively valenced songs. Previous mood induction studies have demonstrated that listeners report feeling sad when listening to sad music (Ladinig & Schellenberg, 2012; Vuoskoski & Eerola, 2012) and, generally, listeners give higher liking ratings to music that sounds happy compared to music that sounds sad (for a review see Hunter & Schellenberg, 2010). Listening to sad music can negatively affect arousal levels, emotions, and spatial abilities (Thompson, Schellenberg & Husain, 2001). Sad-sounding music has also been found to elicit right frontal brain activation (Schmidt & Trainor, 2001), which is an indicator of withdrawal tendencies (Harmon-Jones & Sigelman, 2001). So, why would anyone choose to listen to sad sounding music?

A review by Forgas (2013) provides evidence that negative affect can positively benefit thinking and behavior, and even can be functionally adaptive. The author provides converging evidence for the benefits of negative affect on cognition (i.e. improved memory; Forgas, Vargas & Laham, 2005), judgments (less prone to judgemental errors; Forgas, 1998), motivation (increased motivation; Goldenberg & Forgas, 2012), and pro-social behavior (Forgas, 1999). Thus, at a general level, it is suggested that positive affect may not be “universally desirable” and that negative affective states can yield some short-term benefits (Frederickson, 2001; Gruber, 2011).

Music represents an especially unique domain with respect to positive versus negative mood states. For music-listening behaviors (somewhat counterintuitively) previous research
indicates that improving mood (i.e., to make more preferable) is one of the primary reasons individuals choose to listen to sad-sounding music (Saarikallio, 2008; Saarikallio & Erkkilä, 2007; Van den Tol & Edwards, 2015). For example, when in a negative mood, individuals may choose to listen to sad songs that don’t improve mood immediately, but may still improve happiness in the long run (Larsen, 2000; Saarikallio & Erkkilä, 2007). In another study by Schellenberg, Peretz, & Vieillard (2008), listeners made liking ratings for happy- or sad-sounding music. The researchers found that, after completing a demanding task, individuals no longer preferred happy-sounding music over sad-sounding music. In fact, individuals reported preferring the sad-sounding music after completing the demanding task. The authors provided two explanations for this result. The first was that the demanding task increased levels of arousal and the sad-sounding music reduced arousal (e.g., Thompson et al., 2001). In other words, perhaps the sad-sounding music better enabled participants to disengage from the highly arousing (but demanding) task than a positively valenced—but also highly arousing—happy song. The other suggested motive was based on emotion congruency; individuals preferred the sound-sounding music because listeners were also in a negative emotion state, and individuals may feel more validated and/or authentic listening to music that matches how they truly feel in the moment.

Therefore, one alternative to mood management theory, and one that may more accurately explain why people listen to sad music, is the congruency hypothesis. This hypothesis posits that individuals may choose music—with the intent to regulate their emotions—that matches their current emotional state.

A number of studies have demonstrated a desire to match music emotionality with experienced emotion. For example, in a study by North and Hargreaves (1996), participants rated
the importance of various descriptors of music across different listening situations. Findings demonstrated a preference for music that matched participants’ current emotional states. Similarly, a review by Van den Tol & Ritchie (2014) found that individuals listened to sad music when in a sad emotional state/situation compared to happy states/situations. The motivations toward listening to sad music included: “validating emotions, providing solace, providing rewarding emotional experiences and aiding reflection and relaxation.” Cantor and Zillman (1973) demonstrated that after emotion induction through film stimuli, individuals preferentially choose emotionally congruent music based on “hedonic-tone” (valence) for the purpose of emotion regulation. In a related and more recent study by Thoma, Ryf, Mohiyeddini, Ehlert, & Nater (2012), the authors set out to examine how individuals use music to induce specific emotional states for the purpose of emotion regulation and found “robust results for the mood-congruency principle.”

Thus, it may be that in certain situations, people prefer to enhance their mood to regulate their emotions, but in other situations, people may prefer to match their mood to regulate their emotions—even if the mood and accompanying emotions are negatively valenced. Examining both people’s intentions and behaviors that underlie their music preferences may differentiate what scenarios predict mood management versus mood congruency.

In existing research on music-listening behaviors, scholars commonly examine the effects of discrete emotions and emotional valence, as is reviewed here. This work provides evidence for two distinct regulatory-based perspectives on why individuals choose certain types of music, with one based on the preference to improve mood (i.e. mood-management) and one based on the preference to maintain mood (i.e., mood-congruence). However, researchers have yet to reach consensus on when we are likely to see one strategy over the other in people’s song-
selection behaviors. One key component we believe to be missing from the current discussion on song selection behaviors is *motivational direction*. Established examinations of how emotional state affects song-selection behaviors typically confound valence and motivational direction. As we propose, motivational direction may be critical in understanding why individuals choose music that varies in valence.

Although there are multiple dimensions that can be used to categorize emotions, the current study will extend established work by including a motivational dimension to our investigation of emotion in order to isolate the independent effect of motivational direction from valence. That is, for the past several decades, models of emotion have considered pleasant (positive valence) to unpleasant (negative valence) dimensions of emotion as the most important organizing principle that helps scientists understand situational reactions to stimuli. However, recent research has suggested that simply focusing on the dimension of valence may not adequately capture the full range of emotion. *Motivational direction* (i.e. approach or withdrawal direction) may also play an important role in understanding behaviors. Although historically several theories have posited that approach motivation is experienced as positive affect and withdrawal motivational direction is experienced as negative affect (Lang & Bradley, 2008; Watson, Wiese, Vaidya & Tellegen, 1999), more recent research indicates that the reality is more complex. For example, the emotion of anger is often triggered by negatively-valenced stimuli, but is often also associated with approach motivation (Carver & Harmon-Jones, 2009).

Therefore, because human behaviors depend on complex interactions between valence and motivational direction, we felt it was necessary to disentangle these factors when developing an overall theory of music preference. Thus, in addition to happy (positive valence, approach direction) and sad (negative valence, withdrawal direction) we also examine anger (negative
valence, approach direction) in order to examine the effects of valence (e.g., happy vs. sad and angry) and motivational direction (e.g., happy and angry vs. sad) on song selection. Specifically, by examining songs that vary in both valence (positive, e.g., happy music, and negative, e.g., sad music) and motivational direction (approach, e.g., happy music, angry music, and withdrawal, e.g., sad music), we can examine the extent to which motivational direction uniquely predicts music preference.

It is important to note, however, that mood management theory makes no specific prediction regarding motivational direction. In fact, very few studies address motivational direction at all with respect to music preferences. For example, regardless of valence, do individuals prefer songs that move them toward an action or to a more reserved/inhibited state?

Although there exists some literature on how mood state influences song-selection behaviors (Knobloch & Zillman 2002; Hunter & Schellenberg, 2011), there remain unanswered questions and several limitations of previous research. The distinction between motivational direction and valence is critical, because established work on song-selection behaviors typically confounds these two variables. For example, when examining whether individuals tend to match music to one’s mood, previous work focuses exclusively on valence—how “enjoyable” versus “annoying” or “happy” versus “sad” that participants find a song across different mood induction states (e.g. Knobloch & Zillman, 2002; Hunter & Schellenberg, 2011). Specifically, Knobloch and Zillman (2002) induced valence-specific mood states (e.g., good or bad) and recorded how long participants listened to songs rated as either low or high-energy “joyfulness.” Consistent with mood-management theory, the results indicated that selective exposure to “energetic-joyful” music increased in a negatively valenced mood state and decreased in a positively valenced mood state. These choices perhaps motivations to improve mood, however, this design
confounded valence and motivational direction in their song ratings and does not allow for a clear understanding of the matching process. For example, an average preference for “enjoyable” music may mask more specific preferences related to motivational direction—for example, preferences for music that makes one more versus less stimulated to action. This latter preference may even supersede valence-oriented preferences.

Similarly, Hunter & Schellenberg (2011) induced valence-specific mood states (e.g., good or bad) and had participants rate how much they liked the songs rated as either “happy” or “sad.” Results indicated that in happy and neutral moods, happy music is preferred, but in a sad mood state, the preference for happy music disappears. These results are consistent with mood congruency, however, this design again confounded valence and motivational direction in their song ratings. For example, “sad” music is negatively valenced and tends to be withdrawal-oriented but can still vary in motivational direction (e.g., a low-tempo versus high-tempo operetta about loss/death), whereas “happy” music is positively valenced and tends to be approach-oriented but also can vary in motivational direction (e.g., a soft-rock love song versus a hard-rock love song).

Another limitation is that existing methodologies tend to decontextualize the music-listening experience, assessing responses to music in situations of low ecological validity (e.g., forcing participants to listen to particular song clips). In real-world situations individuals often have some degree of control in their music selections (Sloboda & Lamont, 2009). That is, people select music depending on their current situation, emotional state, and surroundings rather than being explicitly told to listen to a particular kind of music by someone else (especially a researcher). Thus, in order to understand the regulatory functions of music, it is imperative to examine how people intentionally select the music that they listen to and the consequences of
those choices (e.g., improving mood, validating emotions). It is critical that studies allow participants the opportunity to choose their song selections freely, as they do in real life.

Thoma and colleagues (2012) note that much of the existing research on music preferences consists of questionnaire-based surveys that do not involve any expectation of actually listening to music. Specifically, participants are asked to imagine what music they would listen to in a given situation, but are not given the opportunity to select a piece of music and listen to it (Behne, 1984; Gembris, 1990; Schaub, 1981). To our knowledge, only one study examining how current mood influences song-selection behaviors used active music-selection tasks in the laboratory environment (Knobloch & Zillman, 2002) and, as is reviewed above, did not examine motivational direction.

Therefore, we believe that in order to explore the question of how people make use of music in everyday situations, the anticipation of having to actually listen to the song plays an important role in song-selection behaviors. This expectation was incorporated in the design of the current set of studies.

In addition to the examination of how current emotional state influences song-selection behaviors, we are also interested in participants’ self-reported intentions. Different theories (i.e. mood-management or congruency) suggest different intentions (i.e. choosing the most positive songs or choosing the songs to fit their current emotional state, respectively). By including a measure of intention, these items will allow us to gain a more complete understanding of how people believe that they choose music in their everyday lives. For example, as discussed previously, individuals in a sad emotional state may preferentially choose to listen to sad songs, but it is unclear whether individuals are aware or not of this preference. Moreover, participants’ specific intentions associated with, for example, preference for a sad song could vary widely
(e.g., to validate their current emotional state, to relax and reflect, to make their current emotional state more positive). Therefore, by including a measure asking participants why they chose the songs that they did, we can gain insight into people’s conscious motivations.

We examined how current mood state influences song-selection behaviors and explored the self-reported intentions behind these preferences (Exp. 1 & 2). More specifically, we were interested in how the dimensions of both valence and motivational direction of the music influenced that choice. In two experiments, one of four mood states were induced in each participant (happy, sad, angry, neutral). After the emotion manipulation, individuals listened to brief music clips and completed a song desirability task, rating how much they would like to listen to more of each clip. This procedure allowed us to examine how induced mood (and the valence and motivational direction of that emotion) influenced music selection.

In addition to exploring how current mood state influences music-selection behaviors, Experiment 1 & 2 were designed to explore the self-reported intentions underlying music selection. Participants rated a number of items designed to explore these intentions. By including these items (e.g. “Why did you choose the songs you did?”) we were able to examine whether participants’ self-reported intentions matched their actual song-selection behaviors. We could also examine whether these intentions lend greater support to the mood-management or mood-congruency theories. Specifically, above and beyond valence, did participants report that they were choosing songs to fit with their current emotional state (congruency) or did they report a desire to improve their emotional state (mood management)? For example, if participants are in a sad emotional state and choose to listen to a sad song, will participants report choosing the song because they wanted to match their current mood state (congruency) or will they report wanting to make their current mood state more positive (management)?
Following previous work in emotion regulation and music selection behaviors, we posit three emotion congruent hypotheses and an alternative mood management hypothesis:

Hypothesis 1: Individuals will prefer to listen to songs that match their current mood state based on discrete emotion (i.e. both valence and motivational direction) such that: (a) individuals in a sad mood state will indicate wanting to listen to sad songs (characterized by negative valence and withdrawal motivation) more than non-characteristically sad songs, (b) individuals in an angry mood state will indicate wanting to listen to angry songs (characterized by negative valence and approach direction) more than non-characteristically angry songs, and (c) individuals in a happy mood state will indicate wanting to listen to happy songs (characterized by positive valence and approach direction) more than non-characteristically happy songs. No prediction is made for individuals in a neutral mood state.

Hypothesis 2: Individuals will prefer to listen to songs that match their current mood state based on valence (i.e. positive/negative), such that: (a) individuals in a sad mood state will indicate wanting to listen to songs characterized by negative valence more than songs characterized by positive valence, (b) individuals in an angry mood state will indicate wanting to listen to songs characterized negative valence more than songs characterized by positive valence, and (c) individuals in a happy mood state will indicate wanting to listen to songs characterized positive valence more than songs characterized by negative valence. No prediction is made for individuals in a neutral mood state.

Hypothesis 3: Individuals will preferentially rate songs that match their current mood state based on motivational direction (i.e. approach/withdrawal) such that: (a) individuals in a sad mood state will indicate wanting to listen to songs characterized by withdrawal direction more than songs characterized by approach direction, (b) individuals in an angry mood state will
indicate wanting to listen to songs characterized by approach direction more than songs characterized by withdrawal direction, (c) individuals in a happy mood state will indicate wanting to listen to songs characterized by approach direction more than songs characterized by withdrawal direction. No prediction is made for individuals in a neutral mood state.

In addition to these three congruency hypotheses, we include an alternative mood-management hypothesis. It may be the case that individuals generally tend to prefer positively valenced songs over negatively valenced songs, regardless of current mood state.

Hypothesis 4: Individuals across conditions will want to listen to songs characterized by positive valence more than songs characterized by negative valence.

Overall, we predict that results will be most consistent with Hypothesis 3.
PILOT STUDY

Because we are interested in exploring if individuals are selecting songs based on the dimensions of motivational direction and valence, it is necessary to manipulate the valence and motivational direction of the song choices. In a pilot study, participants rated 20 pieces of music that were selected because the experimenter expected them to be: 1) unfamiliar to the average participant, and 2) highly variable with respect to valence and motivational direction. Eight musical pieces were chosen for the main study that showed the highest rating consensus for each of the four combinations of “valence” (positive/negative) and “motivational direction” (approach/withdrawal) dimensions (see Figure 1).

Twenty volunteers were recruited to participate in the pilot study. Participants were recruited from a pool of acquaintances, friends, family members of the authors, and students.

The respondents evaluated 30-second segments of 20 pieces of music on a computerized scale. For each song, participants used a seven-point Likert scale (1 = positive; 7 = negative) to indicate the valence of the song and a seven-point Likert scale (1 = approach; 7 = withdrawal) to indicate the motivational direction of the song. Music pieces were played in random order. For the main study, eight pieces of music that showed the best corresponding values were selected for each of the four combinations of “valence” and “arousal” dimensions (positive/negative valence, V +/-, and approach/withdrawal motivational direction, A/W). Mean values of valence and motivational direction are as follows: (a) $M_{\text{valence}} = 1.95$ and $M_{\text{arousal}} = 2.83$ for V+/A stimuli; (b) $M_{\text{valence}} = 3.31$ and $M_{\text{arousal}} = 4.83$ for V+/W stimuli; (c) $M_{\text{valence}} = 4.69$ and $M_{\text{arousal}} = 5.25$ for V/-A stimuli; and (d) $M_{\text{valence}} = 5.31$ and $M_{\text{arousal}} = 5.24$ for V/-W stimuli.
Figure 1. *Pilot data songs rated on the dimensions of valence and motivational direction*

![Graph showing ratings of pilot data songs on valence and motivational direction](image)

Table 1. *Characteristics of music pieces chosen for the main study*

<table>
<thead>
<tr>
<th>Band</th>
<th>Title</th>
<th>Valence/Motivational Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua</td>
<td>Doctor Jones</td>
<td>V+ / A</td>
</tr>
<tr>
<td>Elite Gymnastics</td>
<td>Andreja 4 ever</td>
<td>V+ / A</td>
</tr>
<tr>
<td>Valerie June</td>
<td>With You</td>
<td>V+ / W</td>
</tr>
<tr>
<td>Zella Day</td>
<td>Compass</td>
<td>V+ / W</td>
</tr>
<tr>
<td>Radiohead</td>
<td>Lucky</td>
<td>V- / W</td>
</tr>
<tr>
<td>Sneaker Pimps</td>
<td>Spin Spin</td>
<td>V- W</td>
</tr>
<tr>
<td>NOFX</td>
<td>Dying Degree</td>
<td>V- / A</td>
</tr>
<tr>
<td>Death Angel</td>
<td>Truce</td>
<td>V- / A</td>
</tr>
</tbody>
</table>

Note. V = valence, A = approach, W = withdrawal
EXPERIMENT 1

Two-hundred and fifty-five psychology students (62 male, $M_{age} = 18.61$ years, $SD_{age} = .83$ years) were recruited from the PY 101 participant pool and received course credit in accordance with departmental policy.

Additionally, in order to improve ecological validity, fifty-one participants were recruited using MTurk (29 male, $M_{age} = 32.56$ years, $SD_{age} = 9.54$ years)

Using the software G*Power (Faul, Erdfelder, Lang & Buchner, 2007), at $\alpha = .05$, we calculated an achieved power of 84%, to detect a within-group difference small effect size ($d = .2$; Cohen, 1992).

Self-Reported Emotion - Participants completed a modified Discrete Emotions Questionnaire (DEQ; Harmon-Jones, Bastian & Harmon-Jones, 2016) prior to viewing the emotion stimuli and again following the music selection task. This served as a manipulation check for the emotion manipulation. The DEQ comprises 32-items on a seven-point Likert scale from 1 (not at all) to 6 (an extreme amount) and is sensitive to eight distinct state emotions: anger, disgust, fear, anxiety, sadness, happiness, relaxation and desire. Our analyses focused on anger, sadness and happiness, but we included the other emotions in the questionnaire as distractors.

Mood Manipulation - Participants viewed one of four film clips, each of which was intended to induce a specific emotional state: happiness, sadness, anger, or no emotion. Each clip had a running time of 60 seconds. For the happy condition, participants viewed a clip of stand-up comedy characterized by positive valence and approach motivational direction (e.g. joy,
amusement, and awe). Participants in the sad condition viewed a sad scene from a movie (e.g. Bambi) characterized by negatively valenced withdrawal oriented emotions (e.g. helplessness, disappointment, sorrow). Participants in the angry condition viewed a clip of aggression (e.g. Fight Club) characterized by negative valence and approach motivational direction (e.g. hostility). In the no emotion film, participants viewed a clip designed not to induce any specific emotional state (e.g. clips of rocks). The neutral pictures have been used in previous research (Gable & Harmon-Jones, 2008; Harmon-Jones & Gable, 2009).

Music Sampling Task - Participants listened to consecutive eight-second clips of the eight songs identified in the pilot study. We used unfamiliar songs as stimuli to avoid the possibility that familiarity might be confounded with one of the variables we were attempting to manipulate (e.g., perhaps more positive songs are more familiar, and people rate them differently as a result). As a consequence, it was necessary to make participants aware of the emotional content of the songs before making their selections.

If this music sampling task were done before the emotion manipulation, it would allow for the manipulation to have a stronger impact while simultaneously making it more likely that participants forget which songs were characterized by which emotional content. Reversing the order of these two tasks would make it more likely that participants would remember the emotional content of the songs, but would weaken the impact of the emotion manipulation. Therefore, we created two versions of the experiment (Experiment 1 and Experiment 2) that differed with respect to the order of the emotion manipulation and music sampling tasks.

Song Desirability - After the emotion manipulation and music sampling task, participants were asked to rate the eight songs identified in the pilot study. There were two songs in each of the following categories: positive valence and approach direction, positive valence and
withdrawal direction, negative valence and withdrawal direction and negative valence and approach direction. For each song, participants used a ten-point Likert scale (1 = not at all; 10 = very much) to indicate “How much would you like to listen to this song”. They were told that they would listen to their song choice after their selections (when—in reality—they did not).

Reasons for Song Choices Questionnaire - Following the song desirability task, participants were asked to respond to a series of items designed to assess why they rated the songs the way that they did. The questionnaire consisted of items designed to measure the degree to which participants wanted to listen to each song based on: valence, motivational direction, congruency of the valence dimension, congruency of the motivational direction, congruency of discrete emotion, and mood management. For each item, participants were given a 7-point Likert-type scale (See Appendix).

Emotion Regulation - The Brief Music in Mood Regulation Scale (B-MMR; Saarikallio, 2012) was used as an exploratory measure to examine individual differences in emotion regulation strategy on song selection behaviors. The B-MMR is a 21-item self-report instrument for assessing the use of seven different music-related emotion-regulation strategies: Entertainment (creating nice atmosphere and happy feeling to maintain or enhance current positive emotion), Revival (personal renewal, relaxing, and getting new energy), Strong Sensation (inducing and strengthening intense emotional experiences), Diversion (forgetting unwanted thoughts and feelings with the help of pleasant music), Discharge (release of negative emotions through music that expresses these emotions), Mental Work (using music as a framework for mental contemplation and clarification of emotional preoccupations, and Solace (searching for comfort, acceptance, and understanding when feeling troubled or sad). Items were answered on a 5-point Likert-scale ranging from “strongly disagree” to “strongly agree.”
Music Preference - The STOMPR is an exploratory measure and was used to guide alternative song selection behavior theories. In addition to emotional state, research has shown that individual differences in music preferences may influence song selection behaviors and subsequent emotion outcomes (Rentfrow & Gosling, 2003). Based on these individual differences in music preference, individuals may simply stay within their preferred dimension regardless of current situational factors (see also, Garrido & Schubert, 2011a, 2011b, 2013). Therefore, we had participants complete the Short Test of Music Preferences - Revised (STOMPR; Rentfrow, Goldberg & Levitin, 2011). The STOMPR is a revised version of the original STOMP (Rentfrow & Gosling, 2003) assessing preferences of 23 music genres (e.g. alternative, blues, classical, country, electronica/dance, folk, heavy metal, rap/hip-hop, jazz, pop, religious, rock, soul/funk, etc.). Preference for each genre is rated on a 7-point Likert-type scale with endpoints at 1 (Not at all) and 7 (A great deal).

Participants were tested individually. Participants first completed a modified state emotion questionnaire (DEQ) designed to assess current emotional state. Next, participants were told that they would view a short film clip and would later be asked to write a short reflective statement about the film. For the film-viewing portion, participants were assigned randomly to one of the four mood manipulation conditions (happy, sad, angry, or neutral). After viewing the 1-minute clip, participants completed the music sampling task. Next, participants completed the song desirability task. The mood manipulation instructions and song desirability task were framed as separate studies to reduce demand characteristics. After completing the song desirability task, participants were asked again to complete the modified DEQ as a mood manipulation check. Following the DEQ, participants completed the “reasons for song choices” questionnaire, designed to assess why they made their song selection choices. Following the
“reasons for song choices” questionnaire, participants completed the B-MMR and STOMPR to assess individual differences in emotion regulation strategy and music preference, respectively.

In order to test whether sample (MTurk vs. in-lab) had an effect on song desirability, we ran a one-way MANOVA predicting song desirability. Song motivational direction (approach vs. withdrawal) and song valence (positive vs. negative) were within-subjects factors and sample was a between-subjects factor. There was a significant main effect of sample on song desirability scores overall, $F(1, 304) = 29.59, p < .001, \eta^2_p = .089$. Song desirability for the MTurk sample ($M = 4.53, SD = 2.2$) were higher than the in-lab sample ($M = 3.5, SD = 1.74$). There were no significant interactions between sample and valence ($F(1, 304) = 3.03, p = .083, \eta^2_p = .01$), sample and motivational direction ($F(1, 304) = .22, p = .642, \eta^2_p = .001$), or sample by valence by motivational direction ($F(1, 304) = .013, p = .91, \eta^2_p < .001$). For this reason, we collapsed our MTurk sample and in-lab sample into one dataset.

We ran a series of one-way ANOVAs to see whether the mood manipulation influenced participants’ affective reaction in the way we intended.

There was a significant effect of mood on reported anger ($F(3,302) = 32.3, p < .001$). A Tukey post-hoc test revealed that anger was significantly higher after viewing the angry mood manipulation ($M = 2.8, SD = 1.48$) than after viewing the sad ($M = 2.23, SD = .92, p < .001$) and happy mood manipulations ($M = 1.76, SD = 1.08, p < .001$).

There was a significant effect of mood on reported sadness ($F(3,302) = 50.62, p < .001$). A Tukey post-hoc test revealed that reported sadness was significantly higher after viewing the sad mood manipulation ($M = 3.08, SD = 1.23$) than after viewing the angry ($M = 1.73, SD = 1.07, p < .001$) and happy mood manipulations ($M = 1.76, SD = 1.15, p < .001$)
There was a significant effect of mood on reported happiness ($F(3, 302) = 55.46, p < .001$). A Tukey post-hoc test revealed that reported happiness was significantly higher after viewing the happy mood manipulation ($M = 4.17, SD = 1.7$) than after viewing the angry ($M = 1.29, SD = .83, p < .001$) and sad mood manipulations ($M = 1.28, SD = .64, p < .001$).

In order to test whether the mood manipulation had an effect on song desirability ratings, we ran a 4 (mood: happy, sad, angry, neutral) by 2 (song motivational direction: approach vs. withdrawal) by 2 (song valence: positive vs. negative) mixed ANOVA predicting song desirability. Song motivational direction and song valence were within-subjects factors and mood was a between-subjects factor.

There was a significant main effect of song valence on song desirability ($F(1, 302) = 163.46, p < .001, \eta_p^2 = .35$) with positive valence ($M = 4.27, SD = 1.64$) rated higher than negative valence ($M = 3.06, SD = 1.44$). There was also a significant main effect of motivational direction on song desirability scores overall ($F(1, 302) = 239.34, p < .001, \eta_p^2 = .44$) with withdrawal motivational direction ($M = 4.38, SD = 1.66$) rated higher than approach ($M = 2.95, SD = 1.4$). There was no significant main effect of mood on rating scores ($F(3, 302) = .24, p = .87, \eta_p^2 = .002$) (See Figure 2).

There was no significant interaction between valence and mood ($F(3, 302) = 1.16, p = .32, \eta_p^2 = .01$), motivational direction and mood ($F(3, 302) = .36, p = .78, \eta_p^2 = .004$), valence and motivational direction ($F(1, 302) = 1.99, p = .16, \eta_p^2 = .007$) or valence by motivational direction by mood ($F(3, 302) = 1.7, p = .17, \eta_p^2 = .017$).
Together, these results indicate that participants rate positively valenced songs as more desirable than negatively valenced songs, and withdrawal oriented songs as more desirable than approach oriented songs. Additionally, these preferences seem to be unaffected by the mood manipulation. These results are most consistent with hypothesis four—the mood management hypothesis—which states that individuals are motivated to minimize negative moods (i.e., negative valence) and extend or enhance good moods.

We ran a one-way repeated measures ANOVA to compare individual’s reported song-selection strategies. These results determined that participants did not rate the different song-selection strategies as equally likely ($F(3, 915) = 10.87, p < .001$). Post-hoc tests using the Bonferroni correction revealed that matching valence ($M = 5.43, SD = 1.39$), matching motivational direction ($M = 5.32, SD = 1.4$) and matching emotion ($M = 5.44, SD = 1.5$) did not significantly differ from one another. However, mood management ($M = 4.93, SD = 1.72$) was significantly lower than matching valence ($p < .001$), matching motivational direction ($p = .007$) and matching emotion ($p < .001$). These results indicate that individuals are reporting using mood management selection strategies at significantly lower rates than the alternative strategies.
EXPERIMENT 2

In Experiment 1, the music sampling task occurred between the mood manipulation and the song desirability task. Having participants rate their desirability of the song clips immediately after first being presented with them will reduce familiarity-related bias in the ratings (i.e., minimizing the likelihood that participants will only remember the most salient clips from 1-2 minutes before). This design addressed the issue of familiarity; however, it allows for the possibility that the emotion manipulation will be less powerful.

In the current experiment, participants completed the music sampling task before the mood manipulation and song desirability task to address this possibility of emotion degradation between the emotion manipulation and the song selection task. That is, listening to all 8 song clips takes almost a full minute after the emotion was induced, and the strength of that experienced emotion in the participant may begin to wear off once they reach the selection task. Because a strong emotion manipulation is fundamental to our design, this degradation could negatively affect the selection task. Thus, to address both issues of familiarity and issues of emotion degradation, we employed these two different designs. Moreover, given that this project is one of the first to explore how mood state affects freely chosen song selection, collecting data on two separate samples will strengthen the explanatory power of the findings.

Two-hundred nineteen psychology students (62 male, $M_{age}=18.83$ years, $SD_{age}=1.19$ years) were recruited from the PY 101 participant pool and received course credit in accordance with departmental policy.
As in Experiment 1, in order to improve ecological validity, fifty-one participants were recruited using MTurk (30 male, M_{age}=36.94 years, SD_{age}=11.76 years). Using the software G*Power (Faul, Erdfelder, Lang & Buchner, 2007), at $\alpha = .05$, we calculated an achieved power of 79%, to detect a within-group difference small effect size ($d = .2$; Cohen, 1992).

All materials were identical to those in Experiment 1.

The procedure was identical to that of Experiment 1 except the order of the music sampling task and the mood manipulation were reversed.

In order to test whether sample (MTurk vs. in-lab) had an effect on song desirability, we ran a one-way MANOVA predicting song desirability. Song motivational direction (approach vs. withdrawal) and song valence (positive vs. negative) were within-subjects factors and sample was a between-subjects factor. As in Experiment 1, there was a significant main effect of sample (MTurk vs. in-lab) on song desirability scores overall, ($F(1, 270) = 29.11, p < .001, \eta_p^2 = .097$). Song desirability for the MTurk sample ($M = 4.49, SD = 2$) were higher than the in-lab sample ($M = 3.49, SD = 1.65$). There were no significant interactions between sample (MTurk vs. in-lab) and valence ($F(1, 270) = 7.04, p = .008, \eta_p^2 = .03$), sample and motivational direction ($F(1, 270) = 9.46, p = .002, \eta_p^2 = .03$), or sample by valence by motivational direction ($F(1, 270) = 1.829, p = .18, \eta_p^2 = .01$). For this reason, we collapsed our MTurk sample and in-lab sample into one dataset.

We ran the same series of ANOVAs that we ran in Experiment 1 to assess the efficacy of the mood manipulation.

There was a significant effect of mood on reported anger ($F(3,268) = 12.95, p < .001$). A Tukey post-hoc test revealed that reported anger was significantly higher after viewing the angry
mood manipulation ($M = 2.7, SD = 1.51$) than after viewing the sad ($M = 2.2, SD = 1, p = .002$) and happy mood manipulations ($M = 1.69, SD = 1.13, p < .001$).

There was a significant effect of mood on reported sadness ($F(3,268) = 20.21, p < .001$). A Tukey post-hoc test revealed that reported sadness was significantly higher after viewing the sad mood manipulation ($M = 3.07, SD = 1.15$) than after viewing the angry ($M = 1.91, SD = 1.02, p < .001$) and happy mood manipulations ($M = 1.56, SD = .93, p < .001$).

There was a significant effect of mood on reported happiness ($F(3,268) = 41.42, p < .001$). A Tukey post-hoc test revealed that reported happiness was significantly higher after viewing the happy mood manipulation ($M = 3.81, SD = 1.65$) than after viewing the angry ($M = 1.50, SD = 1.22, p < .001$) and sad mood manipulations ($M = 1.53, SD = 1.27, p < .001$).

In order to test whether the mood manipulation had an effect on song desirability ratings, we ran a 4 (mood: happy, sad, angry, neutral) by 2 (song motivational direction: approach vs. withdrawal) by 2 (song valence: positive vs. negative) mixed ANOVA predicting song desirability. Song motivational direction and song valence were within-subjects factors and mood was a between-subjects factor.

As in Experiment 1, there was a significant main effect of valence on song desirability scores overall, ($F(1, 268) = 166.46, p < .001, \eta^2_p = .38$) with positive valence ($M = 4.28, SD = 1.49$) rated higher than negative valence ($M = 3.08, SD = 1.47$) and a significant main effect of motivational direction on song desirability scores overall, ($F(1, 268) = 171.86, p < .001, \eta^2_p = .39$) with withdrawal motivational direction ($M = 4.34, SD = 1.55$) rated higher than approach ($M = 3.02, SD = 1.46$). There was no significant main effect of mood on rating scores overall ($F(3, 268) = .19, p = .91, \eta^2_p = .002$).
There was no significant interaction between motivational direction and mood ($F(3, 268) = .64, p = .59, \eta^2_p = .007$), valence and motivational direction ($F(1, 268) = 1.66, p = .2, \eta^2_p = .006$) or valence by motivational direction by mood ($F(3, 268) = .26, p = .86, \eta^2_p = .003$).

Figure 3. Rating of song desirability across mood manipulations

Together, these results indicate that participants rate positively valenced songs as more desirable than negatively valenced songs, and withdrawal oriented songs as more desirable than approach oriented songs. Additionally, these preferences seem to be unaffected by the mood manipulation. These results are most consistent with the mood management hypothesis.

We ran a one-way repeated measures ANOVA to compare individual’s reported song-selection strategies. These results determined that participants did not rate the different song-selection strategies as equally likely ($F(3, 813) = 9.77, p < .001$). Post-hoc tests using the Bonferroni correction revealed that matching valence ($M = 5.35, SD = 1.56$), matching motivational direction ($M = 5.31, SD = 1.49$) and matching emotion ($M = 5.51, SD = 1.53$) did not significantly differ from one another. However, mood management ($M = 4.94, SD = 1.69$)
was significantly lower than matching valence (p = .006), matching motivational direction (p = .028) and matching emotion (p < .001).
DISCUSSION

In the present investigation, we examined how current mood influences the songs that people prefer to listen to and examined the self-reported intentions behind these preferences. We induced happy, neutral, sad or angry moods, and compared subsequent song desirability ratings on the dimensions of valence (positive vs. negative) and motivational direction (approach vs. withdrawal). Across two studies, participants rated positively valenced songs as more desirable than negatively valenced songs, regardless of current mood. These findings provide the clearest support for Hypothesis 4—the mood management hypothesis—which states that individuals generally show a preference for positive songs (Bryant & Zillmann, 1984). In contrast to previous research suggesting emotion-congruent song selection behaviors (Cantor & Zillmann, 1973; Hunter, Schellenberg & Griffith, 2011; Thoma et al., 2012), our results suggest that responders prefer positively valenced songs regardless of whether they are in a negatively valenced mood (i.e. anger and sadness) or positively valenced mood (i.e. happiness).

We also observed that, in both studies, participants rated withdrawal-oriented songs as more desirable than approach-oriented songs, regardless of current mood. These findings suggest that individuals in general may prefer songs that induce a reserved rather than an arousing/outgoing state, whether they feel happy, sad, or angry. This finding suggests possible underlying motivations beyond a desire to improve mood through the use of music, however, a broader sample of songs should be utilized in future research when trying to replicate this effect.

Interestingly, although the results indicated that mood management does the best job of explaining participants’ song selection behavior, participants’ self-reports indicated otherwise.
When asked to reflect on their rating preferences, participants reported utilizing the mood management strategy significantly less than other strategies (e.g., to listen to a song that matches one’s mood). This discrepancy may suggest that individuals are not fully cognizant of the processes that govern their selection decisions (Nisbet & Wilson, 1977).

The current project has extended our understanding of the effect of mood on music selection in three ways. First, the present investigation examined the effect of mood state on song-selection, rather than examining the opposite effect (i.e., the effect of song on mood state, e.g., Thoma et al. 2012). To our knowledge, only Knobloch & Zillmann (2002) and Hunter & Schellenberg (2011) have examined song-selection as a dependent variable.

Second, this research examined the effects of both valence and motivational orientation on song desirability. Existing research, in contrast, tends to confound these constructs. For example, Knobloch & Zillman (2002) used a mood manipulation categorized by valence and two DVs consisting of frequency of music sampling and preference for low/high-energy joyful songs for all mood groups (confounding valence and arousal); Hunter & Schellenberg (2011) used a mood manipulation categorized by valence and music selections rated as “sad” or “happy”. In order to further explore the effects of mood on song selection behaviors, the current study used mood manipulations and song selection characterized by both valence and motivational orientation. Both valence and motivational direction proved to have an effect on song-selection behavior: individuals tend to prefer positive songs over negative songs; and individuals tend to prefer withdrawal-oriented songs over approach-oriented songs. These findings demonstrate the utility in disentangling motivational direction from valence when examining song-selection behavior.
Finally, participants were given the expectation that they would listen to their song selections during the study. As Thoma et al. (2012) note, previous research often does not involve such an expectation, another methodological choice that decontextualizes the music listening experience. To address this limitation, we told the participants that they would listen to their song choices in the experiment, allowing us to examine with greater accuracy how individuals make use of music in more everyday scenarios.

Despite the methodological improvements outlined above, the present research did not mimic everyday use of music perfectly. For example, the participants in these studies consisted largely of university students. It is possible that students’ music selection behaviors and their self-reported intentions behind these behaviors may be different from other populations. The quantity and variety of the presented music selections was also limited. Modern music listening devices and software give access to thousands of pieces of music. Our selection of 8 pieces of music cannot account for all music styles.

Additionally, it remains difficult to simulate real-world conditions in a laboratory setting. Mood manipulations in the lab may differ from moods generated in the real world (e.g. being sad because an experimenter showed you a sad movie vs. being sad because something bad happened in your life). The elicitation and situational factors involved in the same mood state in different environments may differ in meaningful ways. For example, responders might see the movie-induced mood as artificial, and be more likely to try and change it, compared to a mood elicited through real-life situations. Thus, ecological validity of the results, although an improvement on previous studies, has limitations. The laboratory setting cannot fully capture behaviors and cognitions which occur in everyday life, however it remains a valuable paradigm for exploratory lines of research such as this.
Future research on music selection behaviors should strive for increased ecological validity. First, it would be ideal to present responders with a larger, more diverse pool of songs to more accurately mirror real world choices. Even better, the medium of choice would mimic real-world scenarios as well (e.g., having participants rate songs on Pandora or Spotify). Ideally, these studies would also investigate the song selection behaviors of individuals in real-world situations. Responders could indicate their current mood and song-selection behaviors could be recorded in a way that is true to life. A daily diary paradigm, for example, could examine how people’s actual moods affect the music they choose to listen to.

Future research may also benefit from adopting physiological measures. For example, electroencephalography (EEG) could be used to further explore the relationship between current mood and song desirability ratings by examining frontal-asymmetry activation in addition to self-report items. This could provide converging evidence of the role of motivational direction in song selection behaviors. Physiological measures may be useful for determining the role of song selection behaviors in reducing unpleasant mood states. For example, our results demonstrate that individuals rated withdrawal-oriented songs as more desirable than approach-oriented songs across mood manipulations. Using EEG we could better understand how the role of motivational direction (i.e., withdrawal) in song choice influences mood states (i.e., are participant’s song choices effective in manipulating motivational direction in a way intended to improve mood?).

The present research advances our understanding of the relationship between mood state and song selection behaviors. By including a motivational direction dimension to both our mood manipulation and song selection choices, we were able to disentangle motivational direction from valence in song selection behaviors in a novel way.
Findings suggest exciting avenues for future research, such as examining whether particular song selections actually diminish unpleasant states such as anger or sadness.
REFERENCES


October 10, 2017

Brett Grant
Department of Psychology
College of Arts and Sciences
Box 870348

Re: IRB # 17-OR-337, “Music and Emotion”

Dear Mr. Grant:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of one element of informed consent and waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on October 5, 2018. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research,

Sincerely,

[Signature]

T. Myles, MSM, CIP
Director of Research Compliance
Office for Research Compliance
Information Sheet

You are being invited to take part in a research study called Emotion and Music. The purpose of this study is to investigate how individuals' affective states interact with environment and personality. This study is being conducted by Dr. Alexa Tulett, a faculty member in the Department of Psychology. If you agree to participate in this study, you will be asked to complete an emotion questionnaire. These questionnaires measure individual differences such as mood, emotion, and personality. You will be asked to complete a cognitive task on the computer. Then, you will be asked to complete follow-up personality questionnaires. The session will last approximately 60 minutes.

There are no risks in the experiment beyond those in everyday life. The primary benefit of this research is scientific. The knowledge gained by conducting this study will further our understanding of the way emotions and decisions are affected when individuals are presented with specific cognitive tasks. By taking part in this study, you will receive 1.5 research credits toward your PY 101 course requirement.

You do not have to take part in this research project if you do not want to. You can stop participating at any time. You are free to leave at any time. If you decide not to participate, or you quit the study, you will not lose any benefits that you have been promised. Data collected during the course of this study is identified by number, and not by name. Your name is never attached to any data. Hence, all data is completely confidential. We are only interested in results aggregated across groups of people, and any report of these data will involve the reporting of group data.

If you have any questions or concerns about this research project please contact Dr. Alexa Tulett at (205) 348-9697. If you have any questions, concerns, or complaints about your rights as a research participant, you may contact Ms. Tanta Myles, the University of Alabama Research Compliance Officer at 205-348-8461 or toll-free at 877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email us at participantoutreach@bama.ua.edu.
Debriefing

Before you leave, I'd like to tell you a little more about this study. We are interested in how your current emotional state influences song selection behaviors. At one point during the experiment you were asked to view a film clip. This was intended to elicit a specific emotion (i.e. happy, sad, angry, etc.). Then, we asked you to rate music selections indicating how much you would like to listen to each song selection presented. This was designed to investigate how your induced emotion influenced your song selection behaviors. We expected that individuals will preferentially rate songs that match their current emotional state based on motivation direction (i.e. approach vs. withdrawal). We also included measures of individual differences in emotion regulation strategy and music preference to see whether these measures were correlated with the extent to which people select certain songs. It is our hope that these data will give us clues into how personality and the environment affect behavior.

If you have any questions about the study you may email Alexa Tullett at atullett@bama.ua.edu or by phone at (205) 348-0607. All of your responses are completely anonymous and your name won't be associated in any way with our findings. In addition, you have the right to withdraw your data from this study. If you choose to withdraw your data, they will not be used in this study—that is, they will not be recorded or used in future data analyses. Withdrawing your data will not affect your credit and you will not be penalized in any way should you choose to withdraw your data. To request a withdrawal of your data you may contact Alexa Tullett at atullett@bama.ua.edu or by phone at (205) 348-0607.

Finally, I'd like to ask you not to tell anyone else about what happens during this study or what the real purpose of the study is. If people come into the study with any sort of suspicions or prior expectations, it could really bias our results. Even if you told someone who isn't in PY 101, word could get around and have severe effects on our results.

Thank you for participating in our study. If you have any questions, concerns, or complaints about your rights as a research participant, you may contact Ms. Tanta Myles, the University of Alabama Research Compliance Officer, at 205-348-4681 or toll-free at 877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email us at participantoutreach@bama.ua.edu.

UA IRB Approved Document
Approval date: 10-6-17
Expiration date: 10-5-18
January 30, 2018

Brett Grant  
Department of Psychology  
College of Arts and Sciences  
The University of Alabama  
Box 870348

Re: IRB # 17-OR-337-A “Music and Emotion”

Dear Mr. Grant:

The University of Alabama Institutional Review Board has reviewed the revision to your previously approved expedited protocol. The board has approved the change in your protocol.

Please remember that your protocol will expire on October 5, 2018.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants.

Good luck with your research.

Sincerely,

Carpanato T. Myles, MSM, CHM, CIP  
Director & Research Compliance Officer  
Office of Research Compliance

358 Rose Administration Building | Box 870327 | Tuscaloosa, AL 35487-0127  
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There are no risks in the experiment beyond those in everyday life. The primary benefit of this research is scientific. The knowledge gained by conducting this study will further our understanding of the way emotions and decisions are affected when individuals are presented with specific cognitive tasks.

You do not have to take part in this research project if you do not want to. You can stop participating at any time. You are free to leave at any time. If you decide not to participate, or you quit the study, you will not lose any benefits that you have been promised. Data collected during the course of this study is identified by number, and not by name. Your name is never attached to any data. Hence, all data is completely confidential. We are only interested in results aggregated across groups of people, and any report of these data will involve the reporting of group data.

If you have any questions or concerns about this research project please contact Dr. Alexa Tullett at (205) 348-0607. If you have any questions, concerns, or complaints about your rights as a research participant, you may contact Ms. Tarta Myles, the University of Alabama Research Compliance Officer at 205-348-8461 or toll-free at 877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email us at participantoutreach@bama.ua.edu.