

**Hooked on a feeling: The effect of music tempo on attitudes and the mediating role of consumers' affective responses**

This is the peer reviewed version of the following article: Kristin Stewart, HyeSeung Elizabeth Koh (July 2017). "Hooked on a Feeling: The Effect of Music Tempo on Attitudes and the Mediating Role of Consumers' Affective Responses". *Journal of Consumer Behaviour*. 16(6), which has been published in final form at <https://doi.org/10.1002/cb.1665>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

With today's high degree of advertising clutter, marketers are greatly focused on evoking emotion or creating hedonic experiences for consumers in order to improve practice (Tadena, 2014). These strategies either minimize or maximize the effort needed to process a message and can influence consumers' decisions by impacting how they feel (e.g., their affective responses). Among the multiple resources that range from visual aesthetics to humor, few can match the impact of music on consumer feelings (Dunbar, 1990).

Prior studies have proposed multiple mechanisms to explain how music influences consumers; however, few have connected two related streams of research—tempo's influence on consumers' affective responses, and affective responses' influence on consumers' attitudes. We do so in an effort to extend what we know about music in marketing practice. Clearly, music influences affective responses (Kellaris and Kent, 1993, Thompson et al., 2001), and empirical evidence demonstrates that affective responses influence attitudes (Schwarz, 2011, Schwarz and Clore, 1983). However, there is disagreement regarding how one particular property of music impacts consumers' affective responses (Husain, Thompson and Schellenberg, 2002, Kellaris and Kent, 1993, MacInnis and Park, 1991).

Moreover, research on music tempo is particularly interesting to marketing because tempo is one of the relatively easier elements of music for marketers to control. Tempo can be counted and compared in beats per minute (bpm), compared to more complicated elements, such as the mode, texture or timber of music. Accordingly, this research builds upon studies, which assert that tempo is an integral element of music to assess. By addressing tempos' modular nature and applying an affect-as-information approach, we enhance current understanding of how music, through affective responses, influences consumers' attitudes.

## **Background**

Advertisements often rely on musical and other entertaining elements, while providing little product information. This type of advertisement is primarily designed to trigger an emotional reaction and/or appeal to hedonic needs (Holbrook and Hirschman, 1982). These ads often impact a variety of subjective experiences, including moods, emotions, and physiological sensations. The Affect-as-information (AAI) approach provides a general framework for explaining the role of consumers' affective responses in human judgment and decision-making (Schwarz, 2011, Schwarz and Clore, 1983). These affective responses have been conceptualized as general psychological states of an individual, including but not limited to feelings, core affect, emotions and mood, within a given situation or to a given stimulus (Ekkekakis, 2003).

Specifically, consumers attend to their momentary affective responses as a source of information for subsequent attitudinal judgments. Essentially, Schwarz and Clore (1983) propose that people ask themselves, "How do I feel about *this* (e.g., attitude object)?" before making decisions. In these situations, how one feels is attributed to the attitude object, even though these affective responses might have been evoked by a different object or source. For example, in one study, music "indexicality"—operationalized as music that is familiar to the audience and induces emotive memories—positively influenced subsequent attitudes toward the ad (MacInnis and Park, 1991; Demoulin, 2011). MacInnis and Park (1991) also demonstrated that affective responses mediate this effect on attitudes by testing the "fit" between, or suitability of, the music to the message. They found that consumers' affective responses, evoked by a good fit between music and message, influenced subsequent attitudes toward the ad (MacInnis and Park, 1991; Demoulin, 2011). These studies have been pivotal in demonstrating how elements of music in advertising can influence consumers' attitudinal responses. However, in order to broaden our understanding and further improve business practice, the examination of music elements, beyond those that are highly

perceptual (e.g., indexicality and fit) but hard to manipulate, is required. Additionally, parameters of the AAI approach are left to be uncovered.

In particular, Schwarz (2011) has demonstrated that explicit attribution of affect to the correct source attenuates the effect of affective responses on subsequent attitudes. Interestingly, little research exists to explain how psychological factors and trait based individual differences might moderate the influence of affective responses on subsequent attitudes, compared to situational state-based factors such as attribution. Elements of consumers' personality may also help explain parameters of the AAI approach. Moreover, Park and Young (1986) found that level of involvement moderated the influence of affective responses evoked by music on subsequent attitudes; however, to these author's knowledge, this effect has never been demonstrated using the AAI approach. Consequently, the authors seek to extend MacInnis and Park (1991) by examining a quantifiable element of music, *tempo*, and applying a robust theory to explain the findings.

### **Music Tempo: an Executional Cue in Advertising**

Music has been studied in multiple domains—including consumer behavior, communications, psychology, and music therapy—to understand the role of judgments and affective responses in decisions making. In many of these studies, the structural elements of music, rather than its presence or absence, have been analyzed and/or manipulated (Alpert et al., 2005). Structural elements refer to the properties making up musical sound, such as melody, rhythm, harmony, major or minor modality, dynamics, and tempo (Alpert et al., 2005). The structural element of music, *tempo*, can be fast (slow) and has been previously associated with positive (negative) hedonic value (Berlyne, 1971, Holbrook and Anand, 1990). Subsequently, music tempo may influence consumers' affective responses. For example, music tempo has been shown to influence consumers' processing of radio ads. In particular, Hunter et al. (2010) found that

participants who listened to excerpts of Bach, which were computer-manipulated to vary in tempo, reported higher happiness ratings for faster (vs. slower) songs and higher sadness ratings for slower (vs. faster) songs. Moreover, Alpert et al. (2005) demonstrate that variations in the structural elements of background music in commercials may have a significant influence on the emotional responses of an audience. In one study, music tempo influenced perceptions of music as happy and sad, as the question asked for participants to rate the music they just heard, not how the music made them feel (Kellaris and Kent, 1993). Consequently, a great deal of literature on tempo posits that a fast tempo is a happy cue, and a slow tempo is a sad cue (for review, see Juslin and Laukka, 2003).

Interestingly, contrary findings subsist regarding the role of tempo in evoking affective responses or moods, beyond tempo's influence on perceptions of the music as happy and sad. In particular, Husain et al. (2002) reported that tempo has no effect on mood responses but instead influenced arousal. Specifically, increases in arousal were above average after listening to the fast versions of the sonata but below average after listening to the slow versions (Husain et al., 2002). Moreover, Schellenberg and Von Scheve (2012) suggest a backfire effect on mood whereby one listens to a fast song and feels sad. They attribute this to popular music becoming more emotionally ambiguous. Clearly, the effect of tempo on consumers' feelings is nuanced. Consequently, further research is required to lend clarity to past research. According to different perspectives, these inconsistencies may be attributed to (1) the conceptualization and operationalization of the feeling construct itself (Batson et al., 1992) or (2) the combined study of mode (major or minor) with tempo, instead of isolating tempo.

Batson et al. (1992) have noted that, in psychology research, "most often, the terms affect, mood, and evaluations are used interchangeably, without any attempt at conceptual differentiation"

(p. 295). Extensive work by Russell and Barrett (1999) and Russell, Feldman and Barrett (2009) supports distinguishing what affective construct is being studied and using the appropriate measure for each (e.g., mood, attitude, *affect*—also referred to as affective responses, affect or evoked affect) is important. They further highlight that core affect reflects "neurophysiological states consciously accessible as a simple primitive non-reflective feeling most evident in mood and emotion, but always available to consciousness" (Russell, Feldman, and Barrett, p. 104, 2009). Affect is at the root of emotion, mood, and any other experienced feelings. For example, Kellaris and Kent (1991) specify their focus is positive *pleasure* regarding the music, however, their measurement is more reflective of perceptions or evaluations, then feelings experienced or evoked. In their study, the prompt was "The Music I Heard Was". Consequently, participants use feelings words to describe their perceptions of the music, not how the music made them feel. In their study, they found a positive effect of tempo. These evaluations of the song as happy or sad (e.g., how the song sounds), which Kellaris and Kent (1993) study, are distinctly different from experienced feelings of happiness or sadness evoked by the song (e.g., "how the song makes one feel", or "how one feels after the ad"). Thus, is it logical to believe the effect will persist on consumers' affective feelings?

On the other hand, Husain et al. (2002) direct their inquiry towards negative and positive *feelings* states that do not have an attributed source, but are more aligned with the affective response literature. In their study, the prompt was "How do you feel right now". Unlike emotions, attributed affective responses do not require cognitive appraisal, though they may be attributed to a source like music (Russell, 2003). Conversely, moods, unlike attributed affective responses are longer lasting and typically not attributed to something specific (Ekkekakis, 2013). Consequently, Husain et al. (2002) report that a faster tempo has not effect on mood, but instead affect enjoyment

and arousal. It is important to note that Husain et al., (2002) study tempo in concert with major/minor mode.

From the literature, the effect of tempo on affective responses is still lacking understanding. This research enhances our current understanding by isolating the effect of tempo and assessing feelings, both affected by the song and experienced after the ad. Based on the literature, the effect of tempo on perceptions of a song may be extended to responses regarding how the song makes one feel. Contrarily, the lack of an effect of tempo on general moods, examined in Husain et al., (2002), may apply to more attributed or focused feelings. Supporting inconsistent findings regarding the effect of music tempo on consumers' feelings, and the various ways feelings states have been studied, the authors propose dueling hypotheses. Specifically, we examine experienced feelings states, not perceptions of the song, of both shorter lasting, attributed affective response and directed moods:

*Hypothesis 1a: Consumers who view a commercial with fast (slow) tempo music will report more (less) favorable affective responses (e.g., pleasure).*

*Hypothesis 1b: Consumers who view a commercial with fast tempo will report affective responses (e.g., pleasure) **consistent** with those consumers who view a commercial with slow tempo.*

**Affect-as-Information (AAI) in Advertising**

In order to bridge research on song tempo and advance research in affective decision making, the authors propose the Affect-as-information approach (AAI) as a basis for this investigation. The AAI approach suggests that affective responses or states (e.g., feelings) operate as a source of information (Clore, 1992, Schwartz and Clore, 1988). In particular, people draw information from their feelings in much the same way they draw information from their behaviors. Moreover, people tend to use these feelings to inform their judgments when the object being evaluated is affective in nature or when there are time constraints (Clore et al., 1994). A study conducted by Pham et al. (2001) showed that affective responses result in judgments that are faster and more predictive of people's thoughts when compared to careful evaluation and integration of information.

Alternate perspectives have been provided to explain the prediction of ones attitudes by their affective responses. One such explanation is based on congruence. Specifically, this theory is based on priming, and purports that judgments will be congruent with ones current feelings or moods because of the activation of mood-congruent memories. In this case, affective responses are said to prime (activate in memory) material that is congruent and thus resulting in congruent attitudes (Bower et al., 1978, Isen et al., 1978). According to this 'priming' hypothesis, affective responses generate liking or disliking by activating positive or negative *beliefs* about the object of judgment. Conversely, the AAI approach argues that the effect of these affective responses is not based on primed associated memories, but rather, the effect is more direct, stemming from the current physiological and psychological state of the individual and not prior memories. The main distinction being the role memory plays.

Unlike the priming perspective, the AAI approach predicts that consumers' responses regarding how a song in an advertisement makes them feel act as direct informants when evaluating subsequent things (e.g., a brand in the ad). These affective responses are experiential and physiological information that can be more compelling than thoughts about the object of judgment and can also be reported faster than thoughts (Pham et al., 2001). Because affective responses can influence attitudes directly, music tempo may indirectly influence consumers' attitudes. Specifically:

*Hypothesis 2 (H2): Consumers who report experiencing more (less) favorable affective responses because of the song will judge the advertised brand more (less) favorably.*

*Hypothesis 3 (H3): Affective responses directly and positively influence attitudes and thus mediate the effect of song tempo on brand attitudes.*

### **Tempo as a peripheral cue**

The AAI approach is generally categorized as a heuristic process whereby affective responses, possibly evoked by tempo of a song in an ad, can serve as a peripheral cue. According to theories of dual processing, consumers with low involvement with a product or a message use these peripheral cues to evaluate associated objects (e.g., brands) (Petty, Cacioppo and Schumann, 1983). However, consumers with high involvement with a product or a message are not susceptible to these cues but instead process the central arguments of the message (Petty, Cacioppo and Schumann, 1983; Schwarz and Clore, 2003). Theories of dual processing support the role of involvement; however, affective research utilizing the AAI approach has limited empirical evidence to support the role of involvement in AAI affective processing. This study

seeks to further our understating by empirically testing the role of involvement using the AAI approach. Thus, we argue a moderated mediation such that:

*Hypothesis 4 (H4): When ad involvement is low, tempo will positively influence brand attitudes through consumers' affective responses, but when involvement is high, the mediation by affective responses will not be observed.*

### **The salience of emotions in judgment formation**

According to emotion and motivation literature, the degree to which emotional information is valuable may be based on an individual's propensity to appreciate emotional experiences (Maio and Esses, 2001). Results from past literature indicate that the need for affect—defined as individual differences in the tendency to approach or avoid emotion-inducing situations and activities (Maio and Esses, 2001)—is an important construct in understanding affect-related decision processes (Gohm and Clore, 2000, Maio and Esses, 2001). Moreover, this individual difference in consumers' need for emotion (NFE) may modulate other important psychological variables, such as subsequent attitude extremity (Maio and Esses, 2001, Schwarz, 2011).

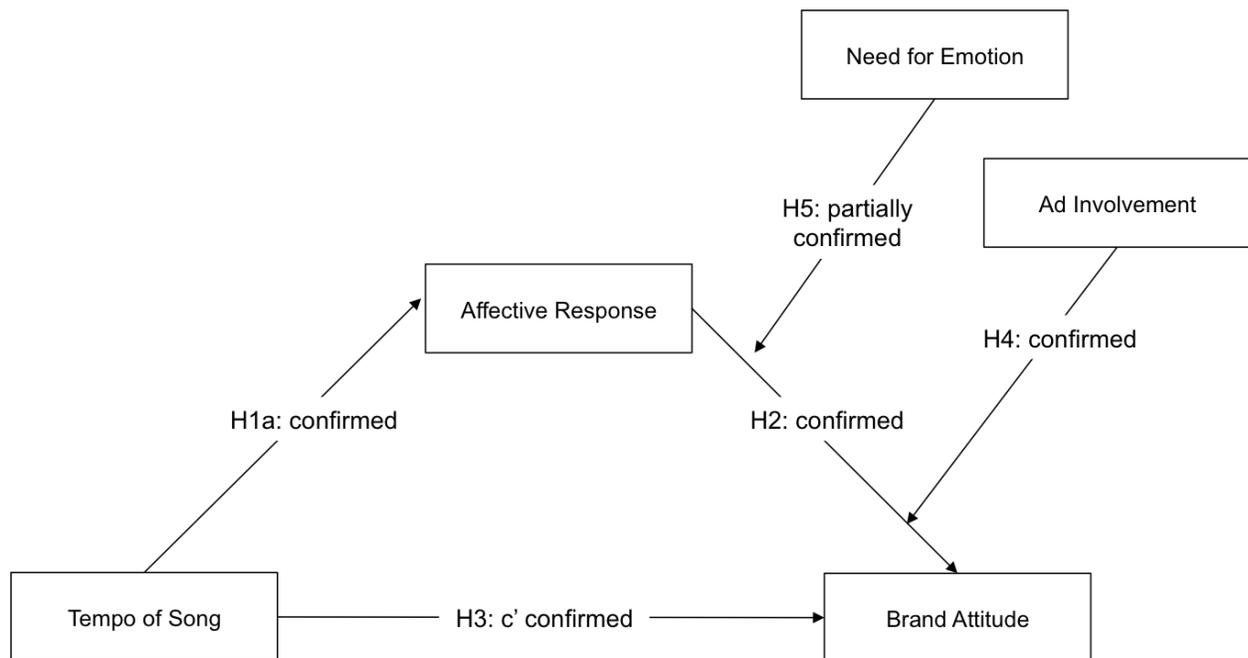
In particular, consumers on average prefer affective states of pleasant valence to states of unpleasant valence, but they also show meaningful individual differences in their approach and avoidance of affective situations and objects. This distinction between approach and avoidance components is common for describing consumer motivation (Maio and Esses, 2001, Raman et al., 1995, Schwarz, 2011, Schwarz, 2013). For example, consumers who approach emotional experiences may value them, and therefore, find the information more salient when making decisions; while those who avoid emotional

experiences may find the information less salient. Based on this literature, the following moderated mediation hypothesis is offered:

*Hypotheses 5 (H5): Need for emotion (NFE) moderates the relationship between affect and attitude toward brand, such that affect will more strongly predict attitudes toward brand when participants have a high NFE, than when they have a low NFE.*

A summary of the theoretical framework tested in this study is provided in Figure 1.

Figure 1. A summary theoretical framework of the of hypotheses tested



## Methods

### Study 1

Study 1 consisted of a pilot experiment and a main experiment. The purpose of the pilot study was to confirm the proposition that tempo is an easier, more objective element of music to control by testing a significant and consistent difference between consumers' perceptions of the song tempo. The purpose of the main experiment was to test competing hypotheses 1 and 2 and rule out alternative mechanisms for tempo's effect on attitudes.

#### *Pilot Experiment 1*

Participants were randomly assigned to one of two conditions. In one condition participants heard the fast version of the target song, which was randomly presented with three filler songs, and in the other condition they heard the slow version of the song randomly presented with the same filler songs. After each song, participants rated the speed of the song, how likable the song was and how the song made them feel. The fast version of the song was instrumented by the Postal Service and the slow version of the song was instrumented by Iron and Wine.

One hundred and eight (52.1% female) participants from the Amazon Mechanical Turk research panel participated in the pilot study. Their ages ranged from 19 to 68 ( $M = 34.59$ ,  $S = 11.21$ ), while 72.3% of the sample was Caucasian. Participants were given access to an online questionnaire made up of multiple scales detailed in Appendix B.

To check the manipulation of song tempo, an independent samples t-test was conducted with song tempo as the factor and the mean composites "perception of fastness" as the dependent variables. There were significant differences in the responses to how fast the song was ( $t(106) = -15.87$ ,  $p < .001$ ). Specifically, participants who heard the fast song described it as faster ( $M = 5.27$ ,  $SD = 1.30$ ) than those who heard the slow song ( $M = 1.46$ ,  $SD = 1.19$ ). Thus, the manipulation

is believed to be robust. Moreover, there was a significant difference in participants' responses to how much they liked the song and how the song made them feel. Specifically, participants who heard the *fast* song ( $t(106) = -7.45, p < .01$ ) experienced more positive affective responses ( $M = 5.58, SD = 1.07$ ) than those who heard the *slow* song ( $M = 3.80, SD = 1.36$ ). Participants who heard the *fast* song ( $t(106) = -12.21, p < .01$ ) experienced more arousal ( $M = 5.50, SD = 1.22$ ) than those who heard the *slow* song ( $M = 2.79, SD = 1.09$ ). Additionally, there was a significant difference in participants' evaluation of song,  $t(106) = 3.55, p < .01$ . Participants who heard the fast song evaluated it more favorably ( $M = 5.47, SD = 1.44$ ) than those who heard the slow song ( $M = 4.32, SD = 1.86$ ). However, it is important to note that a post hoc ANCOVA testing the effect of the song versions on consumers' song liking after controlling for consumers' ratings of the song's speed was not observed ( $F(1, 104) = .711, p = .294$ ).

This supports the effect of tempo in the manipulation, as the song versions, controlling for the influence of the tempo, do not have an effect on song liking. Interestingly, liking ratings were positive (e.g., greater than 4) for both songs.

### ***Main Experiment***

**Design and Procedure.** In the main experiment of Study 1, a single factor between subjects design was used (Tempo: fast vs. slow). Affect evoked by the music and attitude toward brand were the outcome variables. All participants were randomly assigned one of the two conditions. In each condition, participants watched three ads. Two of the ads were filler ads, and one was the target ad (i.e., an automobile ad). All three of the ads were automobile commercials, and all three of the ads contained music. The filler ads were presented to disguise the purpose of the study and reduce any bias in responses towards the target brand (Kim et al., 1998). They also reported first how the song made them feel (i.e., their affective response), then their attitude toward

ad and brand. Control variables measured included the familiarity of the song and familiarity with the advertised automobile brand (i.e., Honda).

**Stimulus.** This study used video ads as the stimuli to examine the effect of song tempo on consumers' attitudes toward brand, which is mediated by affective responses (Appendix A). The target and filler advertisements were 30 seconds long and comprised of a song (i.e., *Such Great Heights*) that played throughout the advertisement. Both conditions viewed the same ad, so participants in both conditions saw exactly the same visual. The conditions were varied by what they heard, such that they heard a song tempo that was either fast or slow (Kellaris and Kent, 1993).

The song—used in the pilot study and main experiment—was selected so that the tempo varied. Unlike in Kellaris and Kent (1993), the song manipulation was not computer modulated. Instead, two versions of the same song—either a fast/electric or slow/acoustic version—were used. Music was chosen according to the difference in beats per minute (bpm), which was assessed using an electronic metronome. According to Anand and Sternthal (1990), a moderate tempo is between 108 and 120 bpm. Thus, in order to dichotomize the manipulation, the slow treatment was an acoustic instrumentation of the song by Iron and Wine with a tempo of 92 bpm, and the fast treatment was an electronic instrumentation of the song by Postal Service with a tempo 162 bpm. It is important to note that the familiarity with the two versions of the song was not observed to be significantly different,  $t(267) = -1.84, p = .07$ .

**Participants.** Participants for this study were members in Critical Mix Research Company's online US panel. There were 269 participants recruited from Critical Mix Research Company. They were offered a \$3.00 compensation for their participation. The age of participants ranged from 18 to 65 years old. The mean age of the participants was 41.07 years ( $SD = 13.50$

years). Most participants were Caucasian (74.3%), but the sample included people who reported Black or African (10.4%), Hispanic or Latino (7.1%), Asian or Pacific Islander (5.6%), and Native American or American Indian (1.1%) ethnicities. Less than two percent of the participants reported their race as “other”. The gender split was approximately even (female-51%). Among 269 participants, 51.3 percent reported that their yearly household income was over \$50,000. Roughly 38 percent of the sample had more than or equal to a college degree.

### ***Measures***

Each measure was checked for inter-item correlations, item contribution to scale reliability, and internal consistency. Appendix B summarizes all of the measures of all of the following four studies.

**Affect.** Affect refers to how participants believe the music in the advertisement made them feel. The scale used a 7-point bipolar semantic differential scale adapted from the Västfjäll et al. (2002), Swedish Core affect scale (SCAS). The scale was consisted of 2 items, sad/happy ( $M = 4.75$ ,  $SD = 1.59$ ) and displeased/pleased ( $M = 4.79$ ,  $SD = 1.57$ ;  $r = .88$ ).

**Arousal.** Arousal refers to how participants believe the music in the advertisement activated them. The scale used a 7-point bipolar semantic differential scale adapted from the Västfjäll et al. (2002), Swedish Core affect scale (SCAS). The scale was consisted of 2 items, dull/peppy ( $M = 4.36$ ,  $SD = 1.75$ ) and sleepy/awake ( $M = 4.32$ ,  $SD = 1.77$ ;  $r = .88$ ).

**Attitude toward brand.** Participants’ overall evaluation about the brand in the ad was assessed with a 7-point bipolar semantic differential scale (Lutz et al., 1983, Yi, 1990). The scale constituted 4 pairs of words: bad/good, unlikable/likable, unfavorable/favorable, and unappealing/appealing ( $M = 5.41$ ,  $SD = 1.33$ ;  $\alpha = .97$ ).

**Control Variables.** To enhance the control of concomitant influences and better examine the effect tempo, multiple covariates were measured and accounted for in the analysis (Bock and Haggard, 1968). According to Baker (1999) and Zajonc (1968), consumers' pre-existing beliefs about a brand are significant predictors of their affective states. Thus, the extent to which participants were familiar with the advertised brand ( $M = 3.46$ ,  $SD = 1.31$ ) was included as a covariate (1 = Not at all familiar, 5 = Extremely Familiar). In the same vein, it might be reasonable to assume that the familiarity with the song may influence participants' affective responses. Therefore, the extent to which participants were familiar with the song (music familiarity,  $M = 3.10$ ,  $SD = 1.93$ ) was also included as a covariate (1 = Strongly disagree the song is familiar, 7 = Strongly agree the song is familiar). The brand and song familiarity were measured using an item, respectively. Moreover, song preference for relevant genres and attitudes towards the ad were measures as control variables. Zero-order correlations among main study variables were listed in Table 1.

Table 1. Correlations among main study variables

	Song tempo	Song Familiarity	Brand Familiarity	Affect	Arousal	Brand Attitude	Preference Folk Music	Preference Alternative Music	Preference Rock Music	Preference Pop Music
Song tempo	1									
Song Familiarity	-.07	1								
Brand Familiarity	-.08	.23***	1							
Affect	.25***	.35***	.33***	1						
Arousal	.40***	.37***	.31***	.80***	1					
Attitude toward brand	-.01	.21**	.34***	.35***	.26***	1				
Preference for Folk Music	.03	.21**	.19**	.18**	.21**	.13*	1			
Preference for Alternative Music	-.01	.22***	.18**	.12	.09	.09	.37**	1		
Preference for Rock Music	-.11	.01	.18**	.09	.00	.15*	.19**	.47**	1	
Preference for Pop Music	.02	.16**	.14**	.11	.10	.06	.22**	.27**	.32**	1

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p \leq .001$

## Results

To test competing hypotheses 1a and 1b in the presence of arousal evoked by the song tempo MANCOVA analyses were conducted. In the model, the variable *tempo* was included as the independent variable. The variables *arousal* and *affect* were included as the dependent variables. Lastly, the variables song familiarity and brand familiarity were included as the covariates. As earlier stated, H1a hypothesized that a fast song tempo would affect more favorable affective responses; while H1b contended that this effect would not be observed. The results were summarized in Table 2, and they indicated a significant effect of song tempo on affect ( $F(1, 265) = 16.07, p < .001, \eta^2 = .057$ ) such that when the song tempo is fast, participants reported more favorable affect ( $M = 5.04, SD = 1.46$ ), compared to when it was slow ( $M = 4.39, SD = 1.44$ ). Thus, it was concluded that the data were consistent with H1a and contrary to H1b. It is important to note that consistent with literature, there was an effect of tempo on arousal ( $F(1, 265) = 53.46, p < .001, \eta^2 = .168$ ) such that when the song tempo was fast, participants reported more favorable arousal ( $M = 4.94, SD = 1.55$ ), compared to when it was slow ( $M = 3.71, SD = 1.47$ ).

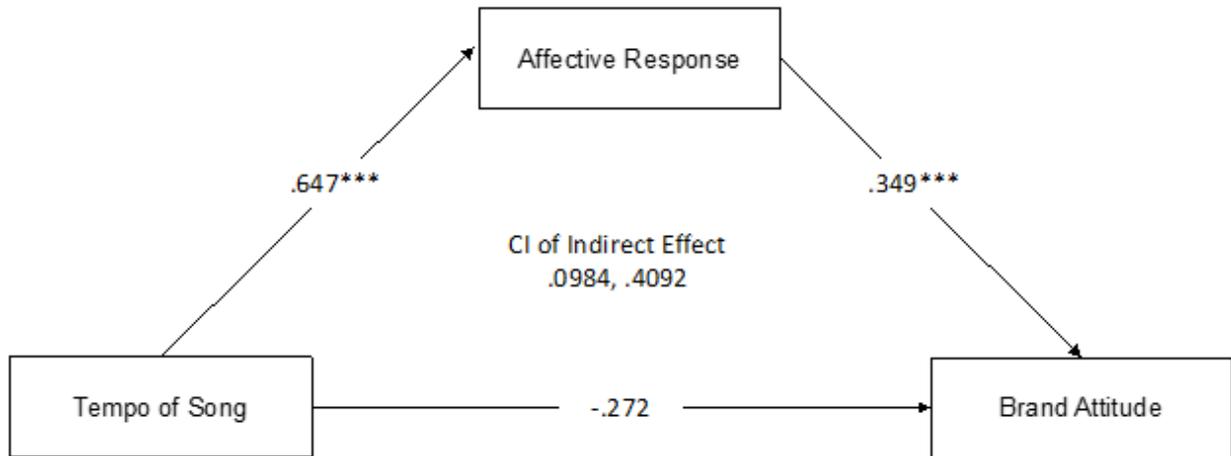
Table 2. Summary of MANCOVA Model form Study 1

	Affect				Arousal			
	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
<i>COVARIATES</i>								
Song Familiarity	1.00	22.82	<.001	.079	1.00	26.11	<.001	.090
Brand Familiarity	1.00	23.40	<.001	.081	1.00	21.61	<.001	.075
<i>MAIN EFFECT</i>								
TEMPO	1.00	16.07	<.001	.057	1.00	53.46	<.001	.168
Computed using alpha = .05								

Hypothesis 2 purported that affect would be positively associated with attitude toward brand. Hypothesis 3 proposed that affect mediates that effect of tempo on brand attitudes. Additionally, an alternative explanation is examined, as literature contends that tempo influences arousal, yet the AAI approach contends the role of affect in affecting attitudes. Thus, arousal is included as a mediator as well. The Preacher and Hayes process 4 with 5000 bootstrapping method was employed to estimate confidence intervals around the magnitude of the indirect effects of the predictor variables on the outcome variables. Bias-corrected and accelerated confidence intervals (BCa CIs) were used to determine the mediating effect. In the model, the variable *tempo* was included as the independent variable. In the model, the variables *arousal* and *affect* were included as the mediating variables. Lastly, the variables *song familiarity* and *brand familiarity* were included as the covariates. Brand attitudes are the dependent variable.

The analyses supported H2 and H3, as the song tempo was related to affect,  $.65$ , ( $SE = .15$ ),  $p < .001$ , and affect was a significant mediator of the relationship between song tempo and attitude toward the brand. The total indirect effect of song tempo on attitude toward brand was,  $.23$ , ( $SE = .08$ ),  $p < .001$ ,  $R^2 = .37$ . Moreover, arousal was not significantly related to brand attitudes,  $-.01$ , ( $SE = .08$ ),  $p = .90$ . Results of 95 percent BCa CIs indicated that *affect* (.10, .41) was a significant mediator; however, BCa CIs indicated that *arousal* (-.22, .19) was not. The associations were displayed in Figure 2. The mediation paths were quantified with unstandardized regression coefficient. The directions of the path coefficients suggested that fast song tempo predicted more positive affective responses, which predicted more favorable attitudes toward the brand.

Figure 2. Study 1 mediation model of the effect of song tempo on attitude toward the brand



All paths are unstandardized coefficients.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Note: the effects for the control variable on brand attitudes are as follows:

Control Variable	Coefficient	SE	p	LLCI	ULCI
Song Familiarity	-.019	.040	.642	-.097	.060
<b>Brand Familiarity</b>	<b>.255</b>	<b>.060</b>	<b>.000</b>	<b>.138</b>	<b>.373</b>
<b>Attitude towards the Ad</b>	<b>.479</b>	<b>.049</b>	<b>.000</b>	<b>.383</b>	<b>.575</b>
Preference for Folk Music	-.016	.043	.709	-.101	.069
Preference for Alternative Music	.013	.047	.779	-.079	.105
Preference for Rock Music	-.013	.049	.790	-.109	.083
Preference for Pop Music	.047	.048	.330	-.048	.142

\*bold -> significant covariates.

## Discussion

First in the Pilot study, the results support the successful manipulation of tempo using two separate versions of the same song. Moreover, beyond perceptions of the songs, previously expressed in other studies as being affective responses, we see actual feelings still being experienced and affected by tempo. Second, Study 1 demonstrates that the AAI approach explains the relationship between tempo and brand attitudes in advertising. Additionally, arousal evoked by music is ruled out as a possible mediator. With a fast-162bpm and slow-92bpm, one can say

that the effect is polarized. However, further explanation is needed to understand if only fast tempos compared to slow tempos affect brand attitudes through affect, or does the effect extend to faster tempos compared to other fast tempos (e.g., 140bpm vs. 130bpm).

## **Study 2**

Study 2 is a quasi experiment that seeks to first replicate findings from Study 1 by varying the context. In Study 2, two different songs and two different ads are used, and rigor is achieved through measurement control. This context differs from Study 1, as those in Study 1 saw the same advertising and heard the same song, but the performance of the song varied between groups. Altering the context in this way enables the research to address situations that actually occur in the real world, as consumers do not normally see two of the same ads during programing with the same song varying in tempo. Instead they see differing ads that are competing to affect a favorable response in the consumer. Consequently, the comparison is made within groups, rather than between groups, and the song and ads differ from each other. Moreover, the AAI approach contends that both mood states and attributed affective responses can affect subsequent attitudes. Consequently, Study 2 measures general moods, instead of affective responses attributed to the music by the consumer. Specifically, Study 2 differs from Study 1 by assessing general affective responses after viewing the advertising (e.g., mood state) instead of affective responses attributed to hearing the song (e.g., core affective state).

**Design and Procedure.** Study 2 was a single factor (tempo: fast vs. slow) within-subjects design. The procedure is adapted from MacInnis and Park (1991, p 166). Specifically, participants were asked to view a five-minute program. At the beginning of the program three commercials (i.e., a Jolla Smartphone ad, a Skoda car ad, a Sunlight dish soap ad) were played. These commercials were repeated at the end of the program as well. The advertisements were pre-tested,

with the music removed from the ad, to ensure that attitude towards each advertisement did not significantly differ. Following the program, participants were asked to respond to questions about the program and the three ads seen at the end of the program. To address any response bias to the questions and to hide the true purpose of the study, participants were first asked a series of questions about their attitude towards the program and the importance of the topic. Next, participants responded to a series of questions about each of the three ads seen earlier, reporting their moods and attitudes towards the brand. The experiment took about 10-15 minutes for participants to finish.

One hundred and forty seven participants were recruited through their professors at a public southwestern university. They were offered an incentive for their participation. Upon entering the classroom, each student was directed to a laptop and instructed to put on a pair of headphones so that participants could not hear what others heard. Two people, the researcher and the class professor, walked around the room to observe as subjects participated.

Two of the commercials were target ads. The products of the target commercials to be compared were for a smartphone and for dish soap. The presentation of the two target commercials was counter-balanced across conditions so that each equally appeared as the first commercial and as the last commercial. The dish soap commercial contained a slower fast tempo song (143 bpm). The smartphone commercial contained a faster fast tempo song (154 bpm). The third advertisement was a filler stimulus for an automobile. It did not contain music.

The songs for the two ads were *I want something* by Torches and *Unknown* by the Vibrations. Both songs were selected from an Indy online music store, CDbaby.com. These two songs were selected from four songs that were all pretested for their low familiarity, and their ability to dichotomize fast and slow tempos. A pre-test of the two songs actually selected for the

study revealed that these two songs *I want something* ( $M = 2.73$ ,  $SD = 1.63$ ) and *Unknown* ( $M = 3.08$ ,  $SD = 1.64$ ) did not differ ( $t(62) = .125$ ,  $p = .145$ ) based on 62 Mturk participant's ratings of likability. Note that this measure was a single item seven-point scale (likable = 1 to unlikable = 7). Moreover, participants were relatively unfamiliar with the song based on the familiarity ratings to a single item seven-point scale (unfamiliar = 1 to familiar = 7) *I want something* ( $M = 2.56$ ,  $SD = 1.73$ ) and *Unknown* ( $M = 2.24$ ,  $SD = 1.53$ )

**Participants.** One hundred and forty seven participants were recruited from a southwestern state university. The age of participants ranged from 18 to 31 years old. The sample consisted of 54% females ( $M = 20$ ;  $SD = 1.76$ ). The sample was predominately Caucasian (61%), followed by participants who were Hispanic (9%) and African American (4%). The degree level of the participants was freshman (38%), senior (27%), sophomore (24%), and junior (12%). Income was not assessed as the students are assumed to be full-time students and, at most, part-time employed.

## Measures

Unlike in Study 1 where affect is associated with being evoked by the music, Study 2 conceptualizes affect as how participants feel after viewing the advertisement. However, similar to Study 1, the scale used is a 7-point bipolar semantic differential scale adapted from Västfjäll et al. (2002) Swedish Core affect scale (SCAS). The scale consisted of 2 items, sad/happy and displeased/pleased ( $r = .88$ ). The question asked participants to rate "how they were feeling after the watching the ad". Brand attitude was measured as it was in Study 1. Brand familiarity was measured as it was in the first study. Moreover, to address the different versions of the ad, attitude towards that advertisement was included in the analysis as an alternative possible explanation for the effect of tempo on brand attitudes, since two different ads were used in the stimuli (Appendix B).

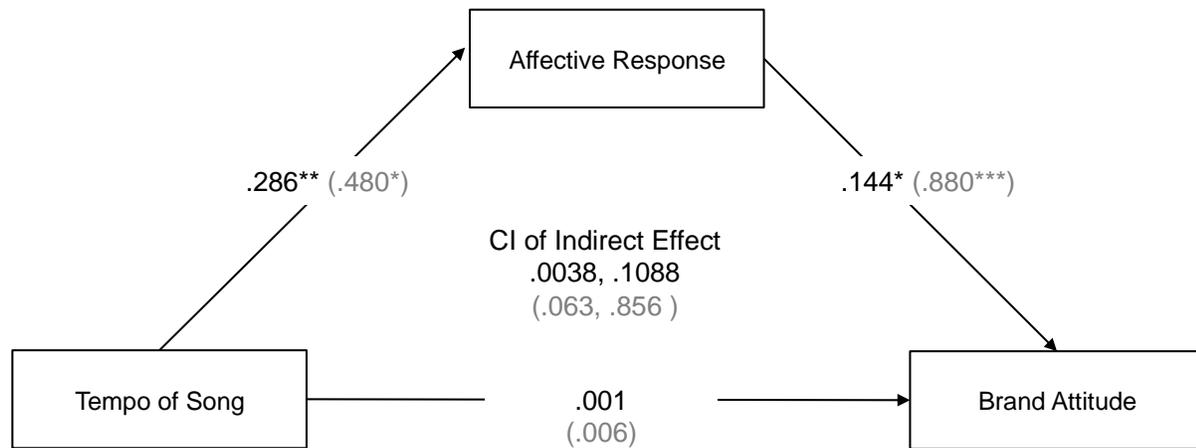
## Results

Using Preacher and Hayes Process model 4 with 5000 bootstrapping method, mediation analyses were completed (Preacher and Hayes, 2008). *Tempo* was entered into the model as the independent variable, *brand attitude* was entered as the dependent variable, and *mood* was entered as the mediator as well as *attitude towards the ad*. Age, gender and brand familiarity were entered as covariates to control for their effect on brand attitude.

The analyses indicated that affect was a significant mediator of the relationship between song tempo and attitude toward the brand. The total indirect effect of song tempo on attitude toward brand was, .10, ( $SE = .08$ ),  $p < .001$ ,  $R^2 = .49$ . Tempo was positively related to mood (.28, ( $SE = .10$ ),  $p < .01$ ) and attitudes towards the ad (.80, ( $SE = .09$ ),  $p < .001$ ). Also, both affective responses (.14, ( $SE = .07$ ),  $p < .05$ ), and attitudes towards the ad (.43, ( $SE = .04$ ),  $p < .001$ ), were positively related to brand attitudes. However, results of 95 percent BCa CIs indicated that mood (for attitude toward brand .004, .11) was a significant mediator, and attitude towards the ad (for attitude toward brand -.17, .09) was not.

The significant associations were displayed in Figure 3. The mediation paths were quantified with unstandardized regression coefficient. The directions of the path coefficients suggested that a faster song tempo predicted more positive affective responses, which predicted more favorable attitudes toward the brand.

Figure 3. Study 2 (and 3) mediation model of the effect of song tempo on attitude toward the brand



All paths are unstandardized coefficients.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Note: parentheses indicate results for Study 3.

### ***Discussion***

Results of Study 2 replicated the findings from Study 1, but also extend our understanding of the role of tempo. Specifically, incrementally faster tempos appear to impact feelings. Moreover, the AAI approach appears to hold for both affect attributed to the song in an advertisement and mood reported after viewing the ad. It is important to note that literature on affect makes a distinction between affect attribute to an object, and affect not attributed to an object. The latter is usually conceptualized as a mood state (Russell, 1996; 2003). Making this distinction helps clarify the strong but subtle effect of tempo as affecting both feelings linked to the song source as well as more global moods not necessarily attributed to a source.

Interestingly, a faster tempo appears to affect more favorable responses, regardless of whether it is a difference of 70bps between songs or 10bps. Importantly, Study 2 is more reminiscent of a

field study, and the lack of experimental control prompts the questions, “is tempo driving this effect?”

### Study 3

Consequently, Study 3 is a replication of study 2. Study 3 is a controlled experiment with a between subjects design. However, the stimulus in this study is the Jolla commercial in study 2, whereby the song in the ad was manipulated using computer software.

**Design and Procedure.** Study 3 was a single factor (tempo: fast vs. slow) between-subjects design. The procedure is adapted from MacInnis and Park (1991, p 166). Specifically, participants were asked to view a five-minute program. At the beginning of the program three commercials (i.e., a Jolla Smartphone ad, a Skoda car ad, a Sunlight dish soap ad) were played. These commercials were repeated at the end of the program as well. Note, only the Jolla Smartphone commercial was the target stimulus in this study. The stimuli can be accessed in Appendix A. To address any demand effects to the questions and to hide the true purpose of the study, participants were first asked a series of questions about their attitude towards the program and the importance of the topic. Next, participants responded to a series of questions about each of the three ads seen earlier, reporting their affective state and attitudes towards the brand. Each commercial was included with the questions so that participants could watch it a third time. The ad auto-played and the video player controls were hidden from participants view so that the stimulus could only be played once for each participant. The experiment took about 10-15 minutes for participants to finish.

The song used in study 2, *I want something* by Torches was used in study 3. Using Adobe Premier software, the original version of the song (e.g., the fast version at 153 bpm) was slowed so that the pitch and the texture of the song were unchanged, but the tempo was slowed (e.g., the

slow version at 90 bmp). Both ads can be accessed from Appendix A. This was a between subjects design, and as such, participants were randomly assigned to one of the two conditions.

**Participants.** One hundred and forty two participants were recruited from Amazon's Mechanical Turk. The age of participants ranged from 20 to 75 years old, with one Ss refusing to answer. The sample consisted of 39% females ( $M = 31.93$ ;  $SD = 11.57$ ). Consistent with recent articles, the Mturk sample did skew younger than the samples from study 1 and 4—both of which utilized panel data. The sample was predominately Caucasian (69%), followed by participants who were Asian (10%) and African American (6%). The median income of the sample was between 20 and 29K, and the media level of education was at least a four-year college degree.

## Measures

Similar to Study 2 a 7-point bipolar semantic differential scale adapted from Västfjäll et al. (2002) Swedish Core affect scale (SCAS). The scale consisted of 3 items, *sad/happy*, *dull/peppy* and *sleepy/awake* ( $r = .86$ ). The question asked participants to rate “how they were feeling after watching the ad”. Brand attitude was measured as it was in Study 2.

The manipulation of tempo was checked using an independent samples t-test. After the participants responded to the focal measures of the study they were asked whether the advertisement was slow paced vs. fast paced using a 7-point bipolar semantic differential scale. Those in the slow tempo condition reported the ad was more slower paced ( $M = 4.40$ ,  $SD = 1.63$ ), and those in the fast tempo reported the ad was more fast paced ( $M = 5.09$ ,  $SD = 1.54$ ),  $t(143) = -2.502$ ,  $p = .014$ .

## Results

Using Preacher and Hayes Process model 4 with 5000 bootstrapping method, mediation analyses were completed (Preacher and Hayes, 2008). *Tempo* was entered into the model as the independent variable, *brand attitude* was entered as the dependent variable, and *mood* was entered as the mediator.

The analysis indicated that mood was a significant mediator of the relationship between song tempo and attitude toward the brand. The total indirect effect of song tempo on attitude toward brand was .42, ( $SE = .18$ ). Tempo was positively related to mood (.48,  $SE = .21$ ),  $p < .05$ ) and mood was positively related to attitudes towards the ad (.88, ( $SE = .07$ ),  $p < .001$ ). Results of 95 percent BCa CIs indicated that affect .063, .856 was a significant mediator.

The significant associations are displayed in Figure 3. The mediation paths were quantified with unstandardized regression coefficient. The directions of the path coefficients suggested that a faster song tempo predicted more positive affective responses, which predicted more favorable attitudes toward the brand.

## Discussion

Results of Study 2 or replicated in this study, however, the attribution of the effect to tempo is clear. Tempo was altered using a computer program, and all other properties of the ad and song were controlled across condition. As expected, the effect of tempo was stronger in the controlled experiment, supporting the effect seen in Study 1 and 2.

## Study 4

Study 4 examines hypotheses 4 and 5. Hypothesis 4 asserts that tempo operates through affect when involvement is low, but this effect will be attenuated when involvement is high. Furthermore, Hypothesis 5 proposes that *need for emotion* will moderate the relationship between

affect and attitude, such that affect will more strongly predict attitudes when need for emotion is higher than when it is lower.

The design and procedure of Study 4 is identical to Study 1; however, the stimuli differ by what is played in the ad. It is important to note that the familiarity with the two versions of the song was not observed to be significantly different, ( $t(265) = -.356, p = .72$ ). It is also important to note that the commercials in Study 1 incorporated the lyrics of the music. However, these lyrics could be influencing consumers because of their emotive qualities (Scott, 1990). Thus, Study 3 removed the lyrics from the commercials. Two tempos were examined—a fast (162 bpm) and slow (92 bpm) tempo song. Additionally, Study 4 differs from Study 1 in that participant's ad involvement and need for emotion are measured.

### **Measures**

Appendix B summarizes the measures of this study. Need for emotion was adapted from Raman, Chattopadhyay and Hoyer (1995). This 12-item 7-point Likert scale (.87) assesses consumers' propensity to seek out emotional stimuli. Additionally, involvement was measured to further understand the effect of tempo on affect. Adapting Zaichkowsky (1994) PII, involvement with the ad was measured. This 6-item 7-point scale (.95) is outlined in Appendix B.

### **Participants**

Critical Mix Research Company recruited 267 participants. They were offered an incentive with an estimated value of \$3 for their participation. The age of participants ranged from 18 to 65 years old. The mean age of the participants was 42.26 years ( $SD = 13.63$  years). Most participants were Caucasian (73.4%), but the sample included people who reported Black or African (12.0%), Hispanic or Latino (9.4%), Asian or Pacific Islander (3.4%), and Native American or American Indian (.4%) ethnicities. Around two percent of the participants reported their race as "other". The

gender split was 55% female. Median yearly household income was between \$40,000 and \$50,000. Approximately 43% of the sample had at least a college degree or more.

## Results

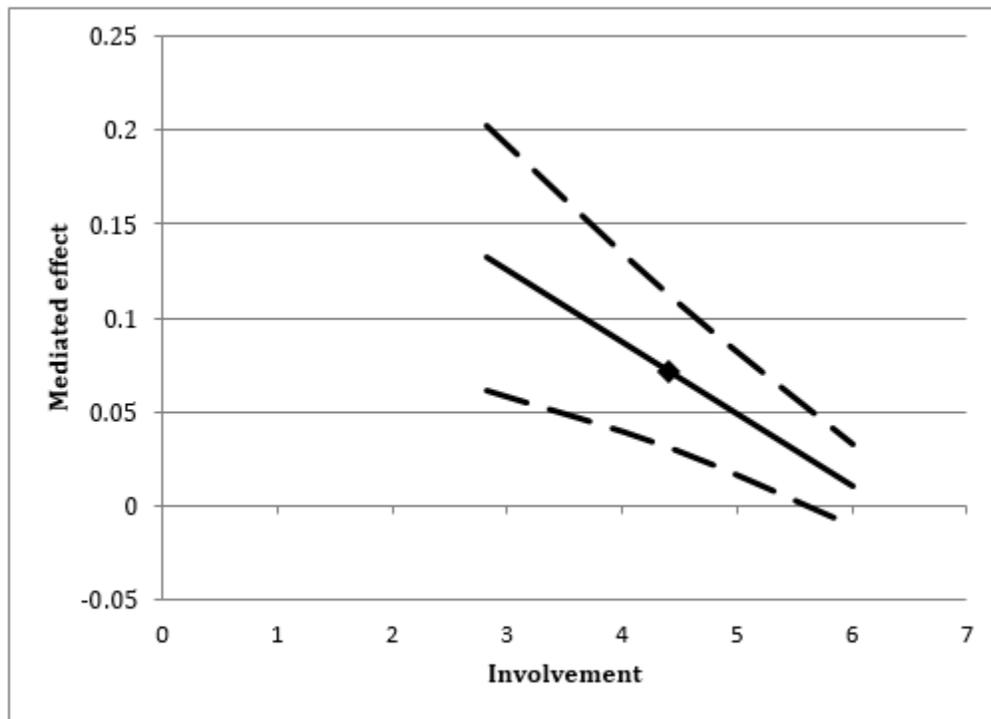
### *Moderation of Involvement*

To test Hypothesis 4 that proposed ad involvement attenuates tempos activation of the AAI when involvement is high, Preacher and Hayes Moderated Mediation Process Model 14 with 5000 bootstrapping method was used. Tempo is the independent variable, while affect is the mediating variable and attitude towards the brand is the dependent variable. The continuous measure, ad involvement was input into the model to moderate the influence of affect on brand attitudes. Brand and song familiarity were inserted as covariates. There was a significant interaction between ad involvement and affect,  $-.10$  ( $SE = .03$ ),  $p < .001$ . Results of 95 percent BCa CIs for the index of the moderated mediation indicated it was significant ( $-.088$ ,  $-.004$ ). Note that the values for quantitative moderators are the mean and plus/minus one standard deviation from the mean. Simply put, the effect of tempo on attitudes through affect is attenuated at higher levels of involvement.

- When involvement is low ( $M = 2.83$ ,  $n = 39$ ), tempo is positively related to affective responses ( $.36$  ( $SE = .16$ ),  $p = .028$ ), and affect evoked is positively related to brand attitudes  $.13$ , (CI  $.008$ ,  $.18$ ), after controlling for the relationship of brand familiarity and song familiarity with brand attitudes.
- When involvement is moderate ( $M = 4.42$ ,  $n = 99$ ), tempo is positively related to affective responses  $.36$  ( $SE = .16$ ),  $p = .028$ , and affect evoked is positively related to brand attitudes,  $.07$ , (CI  $.01$ ,  $.31$ ), after controlling for the relationship of brand familiarity and song familiarity with brand attitudes.
- When involvement is high ( $M = 6.01$ ,  $n = 125$ ), tempo is positively related to affective responses ( $.36$  ( $SE = .16$ ),  $p = .028$ ), **but** affect evoked is not related to brand attitudes,  $.01$ , (CI  $-.03$ ,  $.06$ ), after controlling for the relationship of brand familiarity and song familiarity with brand attitudes.

The results of this analysis support H4 and are illustrated in Figure 4. As indicated by the solid line in the graph, the mediation effect nears zero (i.e., attenuates) as the values of the moderator involvement increase.

Figure 4. Study 4-moderated mediation effect of Involvement



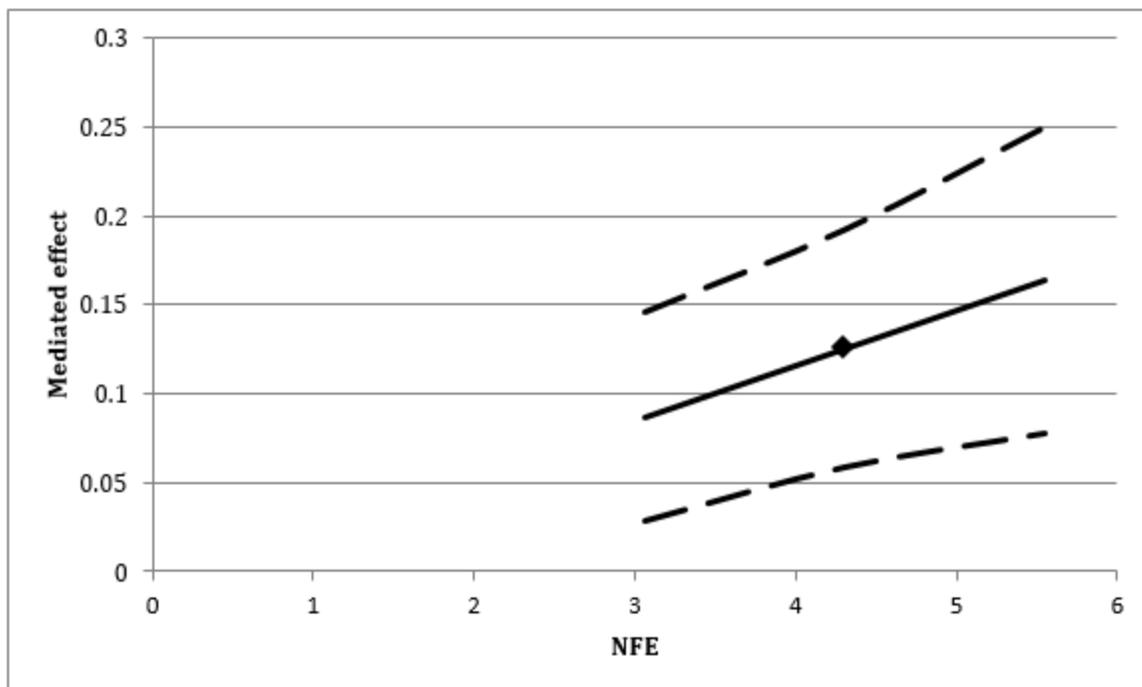
### *The Moderating Mediation of Need for Emotion*

To test Hypothesis 5 that proposed NFE moderated the relationship between the mediator, *affect*, and the dependent variable *attitude towards the brand*, mediation analyses were completed using process 14 model 5000 bootstrapping method (Preacher and Hayes, 2008).

The analyses indicated that *affect* was not a significant predictor of attitude toward brand ( $-.02$ ,  $SE = .18$ ,  $p = .90$ ) but instead, the interaction between NFE and affect was significant,  $.09$ ,  $SE = .04$ ,  $p < .05$ . Results of 95 percent BCa CIs indicated that the interaction of NFE and affect (for attitude toward brand  $.01$ ,  $.41$ ) was significant. However, results of the 95 percent BCa CIs indicated that the indirect effect of tempo on brand attitudes was significant for all three levels of

NFE. Note that values for quantitative moderators are the mean and plus/minus one SD from mean. Specifically, for the effect for people with low NFE (e.g., 3.05) is (.09,  $SE = .06$ ), for people with moderate NFE (e.g., 4.30) is (.13,  $SE = .07$ ), and for people with high NFE (e.g., 5.54) is (.16,  $SE = .09$ ). This means that even though there are differences in the relationship between affective feelings and attitudes between participants with low, moderate and high NFE, results of the 95 percent BCa CIs for the index of the **moderated mediation** were not significant (-.002, .095). Simply put, the effect of tempo on attitudes through affect is not attenuated at lower levels of NFE, though it does get weaker. The associations are displayed in Figure 5. The mediation was quantified using unstandardized regression coefficients. As indicated by the solid line in the graph, the mediation effect is relatively unchanged as the values of the moderator NFE increase.

Figure 5. Study 4-moderated mediation effect of NFE



## Discussion

The objective of this research was to investigate how tempo influences brand attitudes, and whether there is an indirect relationship mediated by affective responses. In the first study the results show that a fast 162bpm song in an ad evoked more favorable affective responses than a slow 92bpm song, and that tempo positively influenced brand attitudes through these affective responses, and not through arousal. Specifically, the AAI approach designates affective response and not arousal as an informer of attitudes. In the second study we, (1) looked at different tempos (e.g., fast 143bpm song and a faster 154bpm song), (2) used a more quasi-experimental approach and (3) measured affective responses that are not directly attributed to the song. In a third study, we used the same procedure and stimuli from study 2, but computer modulated the tempo of one target song. In study 4 the lyrics from the stimuli in study 1 were removed, and the effect of the first two studies was replicated. Furthermore, two moderators of the AAI approach—ad involvement and need for emotion—were tested.

The findings show that tempo has a positive effect on affective responses, which in turn has a positive effect on brand attitude, when ad involvement is not high. The results fully support the AAI approach (Schwarz and Clore, 2003), whereby affect is believed directly inform judgments. Specifically, judgments about an object can be formed by asking, “how do I feel about it?” The findings of these studies also enhance our understanding of tempo’s effect on consumers. Specifically, tempo, a structural element of music, is modular and can be easily manipulated. Though, it is important to note that tempo is also subjectively perceived and experienced by consumers. As shown in this research, perceptions of the songs speed are significantly affected by the tempo.

Prior literature has asserted that the tempo of a song in an advertisement impacts the arousal experienced from the ad. This study extends our understanding of music by demonstrating that both arousal and pleasure are affected; however it is the pleasure experienced, not the arousal that was observed to influence attitudes about the advertised brand.

Moreover, the findings from Study 1 support that music tempo in commercials influences consumers' affective response to the music in advertising. Study 2 and 3 extended this finding by demonstrating how tempo also impacts general mood states, and does so under a very controlled situation. Specifically, participants reported feeling less pleasure after the ad when the ad contained a slow tempo song. However, unlike in the first study where affective feelings were based on "how the song made consumers feel", in the second study, affective feelings were based on "how consumers' felt after the ad". This was shown using two different songs, as well as using one song with the tempo computer modulated. Thus, the AAI approach is further supported, as it proposes that all feeling states, including moods (i.e., general feelings states not attributed to a source) and or affective responses attributed to a source, can act to inform subsequent attitudes (Schwarz, 2013). Interestingly, this was not only observed for fast versus slow songs, but it was also observed for songs that were over 140bpm, but one was relatively slower in tempo. This finding is particularly insightful for advertising theory and practice, as it offers a new way of understating how music in advertising might influence consumers' responses.

For managers, this finding implies that creative decisions in advertising and branding can be based on modular elements of music. Though arousal is impacted by music tempo, it does not appear to impact brand evaluations. Consistent with AAI theory, affective responses do impact brand attitudes. Using music with a fast tempo of over 120bpm in advertising, retail spaces, and restaurants may have a stronger positive influence on consumers compared to a slow tempo under

90bpm. Another important finding is that even a fast tempo 140bpm may evoke less positive affect, and consequently, less positive brand attitudes, than a faster tempo (150bpm). With this in mind, managers should implement A/B tests of fast tempo music, in order to compile an optimized playlists of songs that evoked the most favorable affect. Doing so could influence consumers' attitudes toward the company and brand.

However, marketers should approach this with caution, as personal involvement plays a key role. Specifically, tempo evokes affective responses, which impact brand attitudes, when involvement is low and moderate. However, this mediation effect is not observed when involvement is high. This is consistent with dual processing theories, which contend low motivation and ability to process activates heuristic processing (for a review see Evans, 2008). For managers, this finding suggests that they must understand the situation of customers and their stage in the purchase process. Other strategies should be considered for customers with a high level involvement to impact their attitudes; however, managers should make efforts to employ fast tempo music in situations where involvement might be low.

Finally, to the authors' knowledge this is the first study to examine the role of individual difference from the AAI approach. We examined need for emotion (NFE) as a parameter of the AAI; though prior research has studied situational factors such as familiarity, ease of processing, and source attribution. The findings suggest that this type of affective processing may, in part, be susceptible to personality factors, though not completely. NFE is not a significant moderator of the mediation effect tempo. However, an interaction effect of NFE on the relationship between affective feelings and attitudes was observed, so marketers should not expect tempo to have a greater impact on brand attitudes through affective responses for audiences who are more prone to approach emotional offerings or experiences than less prone. What they might expect is that

affective feelings as information may be more salient for consumers with a high NFE and consequently have a greater effect on attitudes, than for consumers with low NFE. Further research should examine both product categories and personality factors on influencing the relationship between tempo, affective responses and attitudes.

A key take away from the research is that marketers should consider what type of consumer would respond most favorably to tactics that evoke affect. According to this research, ad involvement and NFE should be to considered, as the relationship between affective responses and attitudes is affected by both factors. Though the effect tempo on attitudes was not moderated by NFE, the effect of other stimuli through the AAI approach may be impacted by personality variables such as NFE, Affect Intensity or Need for Cognition (Ruiz and Sicilia, 2004). This research proposed consumers who are more reliant on and responsive to emotional situations would be a key segment to target with emotional appeals, and this was partially supported. Though, results suggest that tempo is not the emotive strategy that will have a stronger effect on attitudes of consumers with higher NFE. However, marketers can improve the effectiveness of music tempo selections on brand attitudes by targeting less involved audiences.

### **Limitations and Future Research**

Could marketers improve attitudes towards their brand by using songs with a tempo of 180 bpm instead of 150 bpm or 130 bpm? Though understanding what incremental increases would result in more favorable attitudes is beyond the scope of this research, the findings of this research support its consideration. Future research should examine which incremental differences result in increased gains and which increments do not since this research examined two incremental differences (e.g., from 92bpm to 162bpm and from 143bpm to 154bpm). Additionally, future research should examine incremental differences in slow tempos (i.e., 75bpm vs. 85bpm), as this

present research focused on incremental differences between fast tempos. Moreover, future studies could test a match-up hypothesis, to understand whether slower tempos work in different contexts (e.g. with romantic ads, vs. somber ads, or with hedonic vs. utilitarian products).

Music is a complex marketing resource. Its structural elements include, lyrics, tempo, texture, timbre, loudness, and pitch. In order to focus on tempo, many of these elements (singer gender, timbre, loudness and pitch) were held constant in Study 1 and Study 3. Additionally, all participants saw the same visual. In Study 2, separate songs and ads were used, as the purpose was to enhance the verisimilitude of the stimulus and context. However, by doing so the experiments control was weakened. However, Study 3 addressed this. Additionally, due to the utilization of real ads, song tempos were not counterbalanced for the ads and the lyrics were not held constant in the first study. Replicating the effect in the third and fourth study addressed the concern of the lyrics; and rigorous stimulus selection and measurement of relevant control variables was utilized to account for artifact effects.

Also of note is that the instrument used to measure affect should be utilized in conjunction with additional prominent measures (i.e., PANAS), as certain measures have been appraised on their inability to measure both pleasure/displeasure and activation/deactivation (Feldman Barrett and Russell, 1990; Crawford and Henry, 2004). This research utilized a scale that captures both high and low arousal as well as pleasurable and unpleasurable affective responses (Russell and Barrett, 1999). This allowed the researchers to examine affective responses separate from arousal.

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**Appendix A: Stimuli from Study 1**



**Accessed at:** <https://youtu.be/d3hvCgH7dNw>

**Appendix A Continued: Stimuli from Study 2**



**Note: Jolla commercial was the manipulated target ad in study 3**



**Study 2 stimuli Accessed at: <https://youtu.be/9YgDTVjRkI4>**

**Study 3 stimuli Accessed at:**

- **Slow Version: <https://youtu.be/rI4PMVNEQUY>**
- **Fast Version: <https://youtu.be/wISgyzhVLT4>**

Appendix B – Summary of measures used for each study

Variables	Measures	Reliability Coef.
<b>Pilot Study</b>		
How the song made one feel	For this questions ...how the song made you feel, not your feeling about the song .... -Displeased:Pleased (7-point)	$\alpha = .80$
	For this questions ...how the song made you feel, not your feeling about the song .... -Sad:Happy ( 7-point)	
Attitude towards the Song	Describe your overall thoughts about the, song you just heard. This song was ... -Bad:Good(7-point)	$\alpha = .98$
	Describe your overall thoughts about the, song you just heard. This song was ... -Unfavorable:Favorable (7-point)	
	Describe your overall thoughts about the, song you just heard. This song was ... -Unappealing:Appealing (7-point)	
	Describe your overall thoughts about the, song you just heard. This song was ... -Unlikeable:Likeable (7-point)	
	Describe your overall thoughts about the, song you just heard. This song was ... -Unpleasant:Pleasant (7-point)	
Perception of Song Tempo	The song I just heard was-Fast ....-Strongly disagree/Strongly agree(7-point)	N/A
<b>Study 1</b>		
Affect (evoked by the music)	For this questions ... how the song made you feel, not your feeling about the song ....-Displeased:Pleased (7-point)	$\alpha = .88$
	For this questions ... how the song made you feel, not your feeling about the song ....-Sad:Happy (7-point)	
Affect (evoked by the music)	For this questions ... how the song made you feel, not your feeling about the song ....-Dull:Peppy (7-point)	
	For this questions ... how the song made you feel, not your feeling about the song ....-Sleepy:Awake (7-point)	
Attitude towards the Band	Describe your overall thoughts about the, song you just heard. This song was ... -Bad:Good(7-point)	$\alpha = .97$
	Describe your overall thoughts about the, song you just heard. This song was ... -Unfavorable:Favorable (7-point)	
	Describe your overall thoughts about the, song you just heard. This song was ... -Unappealing:Appealing (7-point)	
	Describe your overall thoughts about the, song you just heard. This song was ... -Unlikeable:Likeable (7-point)	
Song Familiarity	This song was familiar to me before I took this survey .... -Strongly disagree/Strongly agree (7-point)	N/A
Brand Familiarity	Please describe to what degree you are familiar with the following brands and their products. - Strongly disagree/Strongly agree (7-point)	
<b>Study 2</b>		
Attitude towards the Ad	Describe your overall thoughts about the ad you just saw This ad was ... -Bad:Good(7-point)	$\alpha = .97$
	Describe your overall thoughts about the ad you just saw This ad was ... -Unfavorable:Favorable (7-point)	
	Describe your overall thoughts about the ad you just saw This ad was ... -Unappealing:Appealing (7-point)	
	Describe your overall thoughts about the ad you just saw This ad was ... -Unlikeable:Likeable (7-point)	
Attitude towards the Band	Describe your overall thoughts about the brand you just saw This brand was ... -Bad:Good(7-point)	$\alpha = .97$
	Describe your overall thoughts about the brand you just saw This brand was ... -Unfavorable:Favorable (7-point)	
	Describe your overall thoughts about the brand you just saw This brand was ... -Unappealing:Appealing (7-point)	
	Describe your overall thoughts about the brand you just saw This brand was ... -Unlikeable:Likeable (7-point)	
Affect (After watching the Ad)	Please select the the best response for each item below to complete the sentence about how you feel. After watching the "brand name" commercial I feel .... -Displeased:Pleased (7-point)	$\alpha = .88$
	Please select the the best response for each item below to complete the sentence about how you feel. After watching the "brand name" commercial I feel .... -Sad:Happy ( 7-point)	
<b>Study 3</b>		
Attitude towards the Band	Describe your overall thoughts about the brand you just saw This brand was ... -Bad:Good(7-point)	$\alpha = .97$
	Describe your overall thoughts about the brand you just saw This brand was ... -Unfavorable:Favorable (7-point)	
	Describe your overall thoughts about the brand you just saw This brand was ... -Unappealing:Appealing (7-point)	
	Describe your overall thoughts about the brand you just saw This brand was ... -Unlikeable:Likeable (7-point)	
Affect (After watching the Ad)	Please select the the best response for each item below to complete the sentence about how you feel. After watching the "brand name" commercial I feel .... -Sad:Happy ( 7-point)	$\alpha = .83$
	Please select the the best response for each item below to complete the sentence about how you feel. After watching the "brand name" commercial I feel .... -Dull:Peppy (7-point)	
	Please select the the best response for each item below to complete the sentence about how you feel. After watching the "brand name" commercial I feel .... -Sleepy:Awake (7-point)	
<b>Study 4</b>		
Need for Emotions	I try to anticipate and avoid situations where there is a likely chance of getting emotionally involved-Strongly disagree/Strongly agree (7-point)	$\alpha = .87$
	Experiencing strong emotions is not something I enjoy very much-Strongly disagree/Strongly agree (7-point)	
	I would rather be in a situation where I experience little emotion than one which is sure to get me emotionally involved. -Strongly disagree/Strongly agree (7-point)	
	I don't look forward to being in situations that others have found to be emotional. -Strongly disagree/Strongly agree (7-point)	
	I look forward to situations that I know are less emotionally involving. -Strongly disagree/Strongly agree (7-point)	

Variables	Measures	Reliability Coef.
	<i>I like to be unemotional in emotional situations. -Strongly disagree/Strongly agree (7-point)</i>	
	<i>I find little satisfaction in experiencing strong emotions. -Strongly disagree/Strongly agree (7-point)</i>	
	<i>I prefer to keep my feelings under check-Strongly disagree/Strongly agree (7-point)</i>	
	<i>I feel relief rather than fulfilled after experiencing a situation that was very emotional.-Strongly disagree/Strongly agree (7-point)</i>	
	<i>I prefer to ignore the emotional aspects of situations rather than getting involved in them.-Strongly disagree/Strongly agree (7-point)</i>	
	<i>More often than not, making decisions based on emotions just leads to more errors. -Strongly disagree/Strongly agree (7-point)</i>	
	<i>I don't like to have the responsibility of handling a situation that is emotional in nature.-Strongly disagree/Strongly agree (7-point)</i>	
<i>Ad Involvement</i>	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Uninteresting:Interesting(7-point)</i>	<i>α = .96</i>
	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Irrelevant:Relevant (7-point)</i>	
	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Not Meaningful:Meaningful (7-point)</i>	
	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Worthless:Valuable (7-point)</i>	
	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Uninvolving:Involving (7-point)</i>	
	<i>Describe your overall thoughts about the ad you just saw This ad was ... -Unimportant:Important (7-point)</i>	