

Mood, Music, and Involvement: The Moderating Effects of Personality

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Abstract: We examined the role of personality (i.e., impulsive sensation seeking [ImpSS] and self-transcendence [ST]) in the effects of autobiographically induced mood and emotional music on subjective involvement in music in 48 subjects. Participants listened to music after a mood induction. Both music and induction varied in the dimensions of valence (pleasant and unpleasant) and arousal (high and low). After listening, involvement in music was assessed using a self-report measure that consisted of four 7-point scale items (e.g., "When I listened to music, I felt I was intensely absorbed in it"). We found that high ST scorers were more involved in listening to music than low ST scorers. We also found that (a) in connection with the valence dimension of emotion, high ImpSS scorers were more involved in the pleasant music regardless of the valence of induction, whereas, in line with mood-congruency theory, among low ImpSS scorers the pleasant music after the pleasant induction, and the unpleasant music after the unpleasant induction prompted the highest levels of involvement, and (b) in connection with the arousal dimension of emotion high ImpSS scorers seem to prefer high stimulation (in terms of high arousal music) both in connection with the pleasant and the unpleasant music, whereas low ImpSS scorers preferred high-arousal music in connection with the pleasant and low arousal music in connection with the unpleasant music.

Background

Listening to music has become fully imbedded in daily life. People listen to music, for example, to relax and to get themselves into a good mood, as well as background music in connection with a wide range of everyday activities, such as doing housework or driving a car ([Sloboda, O'Neill, & Ivaldi, 2001](#)). Portable devices (such as CD player and mobile phones) and other new technologies (such as an Internet) are expanding the uses of music in everyday life.

When perceiving information (e.g., music) via media and communication technology (e.g., stereos, TVs, or portable CD players) people have a feeling of presence. In presence, the mediated information becomes the focused object of perception, while the immediate, external context, including the technological device, fades into the background. Thus, from one perspective, presence can be seen as psychological immersion, which refers to the degree of involvement and attention to stimuli ([see Witmer & Singer, 1998](#)). Empirical studies have shown that there may be individual differences in involvement and that emotions, in turn, have effects on the evaluation and involvement in a media stimulus ([see e.g., Sedikides, 1992](#)). However, there is practically no previous research on the role of personality in the level of involvement in connection with pre-existing mood and music.

According to a dimensional view of emotions, large amounts of variation in emotions can be located in a two-dimensional space, with coordinates of valence and arousal ([Larsen & Diener, 1992](#)). The *valence* dimension refers to the hedonic quality of an affective experience and ranges from unpleasant to pleasant. The *arousal* dimension refers to the perception of arousal associated with such an experience, and ranges from very calm or sleepy at one extreme to very excited or energized at the other. In the present study, mood and music was defined in terms of the four affective feeling states that provide high and low end points on the aforementioned axes: high-arousal pleasant (i.e., activated pleasant affect), low-arousal pleasant (i.e., unactivated pleasant affect), high-arousal unpleasant (i.e., activated unpleasant affect) and low-arousal unpleasant (i.e., unactivated unpleasant affect).

In addition to mood and music per se, it is also reasonable to expect that (a) a pre-existing mood may interact with the emotional tone of music and (b) there are subjective moderator variables (e.g., personality) in predicting involvement. In our previous study, we found that a pleasant induction elicited higher involvement than an unpleasant induction and pleasant music elicited higher involvement than unpleasant music ([Kallinen, Saari, & Ravaja, submitted](#)). We also found that, in connection with the arousal dimension of emotion the interaction between mood induction and music supported the mood congruency theory: high-arousal music elicited higher involvement after high-arousal induction than after low-arousal induction, whereas in regard to low-arousal music the reverse was true. However, in connection with the valence dimension of emotion, we found that pleasant music elicited higher involvement regardless of the valence of induction, thus supporting the idea that generally people listen to music to get into a good mood.

In the present study, we wanted to examine whether personality moderates the aforementioned results. In this paper we used the impulsive sensation seeking scale (ImpSS) from the Zuckerman, Kuhlman, Joiremann, Teta, & Kraft's ([1993](#)) model of personality and the Cloninger, Svrakic, and Przybeck's ([1993](#)) subdivision of self-forgetfulness vs. self-consciousness of self-transcendence (ST1) from the model of character, to assess the potential personality related differences in responses to music. The ImpSS scale describes a tendency to act impulsively and a general need for thrills and excitement, thus potentially moderating the responses to music. It has been found, for example, that extroverts and high sensation seekers show a tendency to seek stimulation in order to raise their arousal to hedonic optimal levels (see e.g., [Zuckerman, 1990](#)). The ST1 dimension of character was also considered relevant in connection with music, given the spiritual and transcendent functions of music in people's life (see e.g., Sloboda, O'Neill, & Ivaldi, 2001). The self-forgetfulness versus self-consciousness describes the experienced transience of listeners when they are totally absorbed, intensely focused, and fascinated on one subject (e.g., "lose themselves into music"). The ST1 scale resembles Tellegen's ([Tellegen & Atkinson, 1974](#)) absorption scale, which also describes the individual's ability to become engaged in the (musical) experience.

Aims

The focus of the present paper was to examine the role of personality in the effects of mood and music on self-reported involvement. Given that the ST1 scale describes the individual's ability to become involved in a stimulus, we expected that high ST1 scorers would be more involved in music listening than low ST1 scorers (Hypothesis 1). Given that the ImpSS scale describes a general need for thrills and excitement, we expected

that high ImpSS scorers would be more involved in high-arousal music than low-arousal music, whereas for low ImpSS scorers the opposite would be true (Hypothesis 2). Given also that ImpSS correlates strongly with sensitivity for positive cues (i.e., with behavioural activation sensitivity [BAS] and especially with the fun seeking subscale of BAS, see [Kallinen & Ravaja, 2004](#)), we also expected that high ImpSS scorers would be more involved in pleasant than unpleasant music (Hypothesis 3).

Method

1. Subjects

Forty-eight subjects with varying educational backgrounds participated in the study in return for two movie tickets. The subjects were 21 men and 28 women ranging from 21 to 51 years of age ($M = 25$), who listen to classical music on average 2.2 hours a week ($SD = 1.5$). Most of the subjects had little or no musical education ($M = 2.97$, $SD = 2.10$, in 7-point scale). The subjects had normal visual and hearing capabilities.

2. Mood induction

Mood was induced by autobiographical memories varying in affective valence and arousal. There was one mood induction for each of the following emotion categories: high-arousal pleasant (i.e., Joy), low-arousal pleasant (i.e., relaxation), high-arousal unpleasant (i.e., fear), and low-arousal unpleasant (i.e., depression).

3. Music

We chose 8 one-minute long pieces from the classical music repertoire on the basis of ratings in our earlier studies ([see e.g., Kallinen, in press](#)), which differed in terms of valence (i.e., pleasant, unpleasant) and arousal (i.e., high, low). Correspondingly to the emotional dimensions in mood inductions, there were two pieces of music for each of the following emotions: high-arousal pleasant (i.e., *Final* from Saint Saens's *Carnival of Animals* and *Vivace* from Haydn's, Piano concerto in D), low-arousal pleasant (i.e., Bach's *Inventio* No. 8 in F and Marini's *Passacaglia*), high-arousal unpleasant (i.e., from the beginning of Borodin's Symphony No. 2 and from the beginning of Mussorgsky's *Night on the bare mountain*, and low-arousal unpleasant (i.e., from the beginning of the part 1 of Beethoven's Symphony No. 4 and from the beginning of the *Romanze* from Schumann's, Symphony No. 4).

4. Measures

Involvement was assessed using a self report measure consisting of the following four items: "when I listened to music, I felt clear and concentrated"; "It would have been difficult to stop listening to music"; "While and after listening to music I noticed that I have lost my sense of time and location"; "When I listened to music, I felt I was intensely absorbed in it". Each of the items was rated on a 7-point scale, ranging from 1 (very untrue for me) to 7 (very true for me). The sum of the 4 items was used as an index of involvement. The scales were presented on a computer screen. Mean reliability of the scale (in 32 measurements) was acceptable ($\text{Alpha} = .77$, $SD = .06$; see Nunnally, 1978).

The ImpSS scale from the Zuckerman-Kuhlman Personality Questionnaire was used to assess the participants' impulsivity and sensation seeking (Zuckerman *et. al.*, 1993). The

ImpSS scale consists of 19 items (e.g., “I tend to begin a new job without much advance planning on how I will do it”).

The 11-item subscale (ST1) of Cloninger *et al*’s (1993) self-report measure of self-transcendence was used to assess participants’ self-forgetful vs. self-consciousness dimensions of character (e.g., “Often when I am concentrating on something, I lose awareness of the passage of time” and “Sometimes I felt like I was part of something with no limits or boundaries in time and space”). Each of the items was rated on a 5-point scale, ranging from 1 (very untrue for me) to 5 (very true for me). High values represent high instances of self-forgetfulness (and low self-consciousness), and low values represent high instances of self-consciousness (and low self-forgetfulness).

5.Procedure

After a brief description of the experiment, the participant was asked to write a description of an event or a situation that evoked each of four emotions—joy (delight), relaxation, fear, and depression—most powerfully in his or her own life. We emphasized to the participants that the success of the experiment depended on the truthfulness of his or her descriptions. Given the potentially sensitive nature of the events, to facilitate the creation of truthful descriptions, the participant was told that he or she should not show the descriptions to the experimenter, and that, when leaving the experiment, he or she could take the descriptions with him or her.

The participant was then seated in a comfortable armchair. Each of the 8 music pieces was paired with different mood inductions to consist of the total of 32 different trials (8 pieces x 4 induction). Each trial (and an additional practice trial) consisted of (a) a 15-s mood induction period and (b) a presentation of music. The participant was instructed that the targeted emotion would be displayed on the computer screen, after which he or she should (a) read the appropriate description of an emotional event/situation written by him or her, (b) indicate that he or she was ready using the keyboard, and (c) create a vivid image of personally experiencing and participating in the event/situation for 15 s. The mood induction period ended with a (weak) signal followed by the presentation of music. After each trial of induction and music, the participant rated his or her involvement in music using the four 7-point scales. The 32 trials were presented in a random order to each participant.

The participant was asked to keep his or her eyes closed during the induction and music, and told that he or she should concentrate on listening to music. The experiment was conducted in a dimly illuminated and sound attenuated laboratory room. After the 32 trials consisting of induction and music, the participant was debriefed, and thanked for his or her participation.

6.Data-analysis

The data on the involvement ratings were pooled over the individual two pieces representing the same emotion (i.e., high-arousal pleasant, low-arousal pleasant, high-arousal unpleasant, and low-arousal unpleasant). Data were then analysed by the General Linear Model (GLM) Repeated Measures procedure in SPSS, with four, i.e., valence of music (pleasant, unpleasant), arousal of music (high, low), valence of induction (pleasant, unpleasant), and arousal of induction (high, low) as within-subjects factors. Continuous independent variables (i.e., personality measures [ST1, ImpSS]) were used, each in turn,

as a covariate.

Results

The GLM Repeated Measures analysis revealed significant main effect for ST1, $F(1,46) = 6.19$, $p = .017$, in predicting involvement. High ST1 scorers were more involved in music than low ST1 scorers ($M_s = 15.79$ and 14.34). The analysis revealed also a significant Arousal of Induction \times ST1 interaction in predicting involvement in music, $F(1,46) = 4.54$, $p = .039$. Low-arousal induction elicited higher involvement in music than high-arousal induction among low ST1 scorers ($M_s = 14.68$ and 14.01), whereas among high ST1 scorers there was no significant difference ($M_s = 15.77$ and 15.81).

In predicting involvement in music, a significant Valence of Music \times Valence of Induction \times ImpSS interaction was revealed, $F(1,46) = 5.63$, $p = .022$. As illustrated in figure 1, among low ImpSS scorers, pleasant music elicited higher involvement ratings than unpleasant music after a pleasant rather than an unpleasant induction, and unpleasant music elicited higher involvement ratings than pleasant music after an unpleasant induction than a pleasant induction (left panel). However, among high ImpSS scorers pleasant music elicited higher involvement both after pleasant and unpleasant induction (right panel).

The analysis revealed also a significant Valence of Music \times Arousal of Music \times ImpSS, $F(1,46) = 6.50$, $p = .014$, interaction in predicting involvement ratings. As illustrated in figure 2, (a) in connection with pleasant music among low ImpSS scorers the high arousal music prompted higher involvement than low arousal music, whereas among high ImpSS scorers there was no difference, and (b) in connection with unpleasant music, among low ImpSS scorers the low arousal music prompted higher involvement, whereas among high ImpSS scorers the opposite was true.

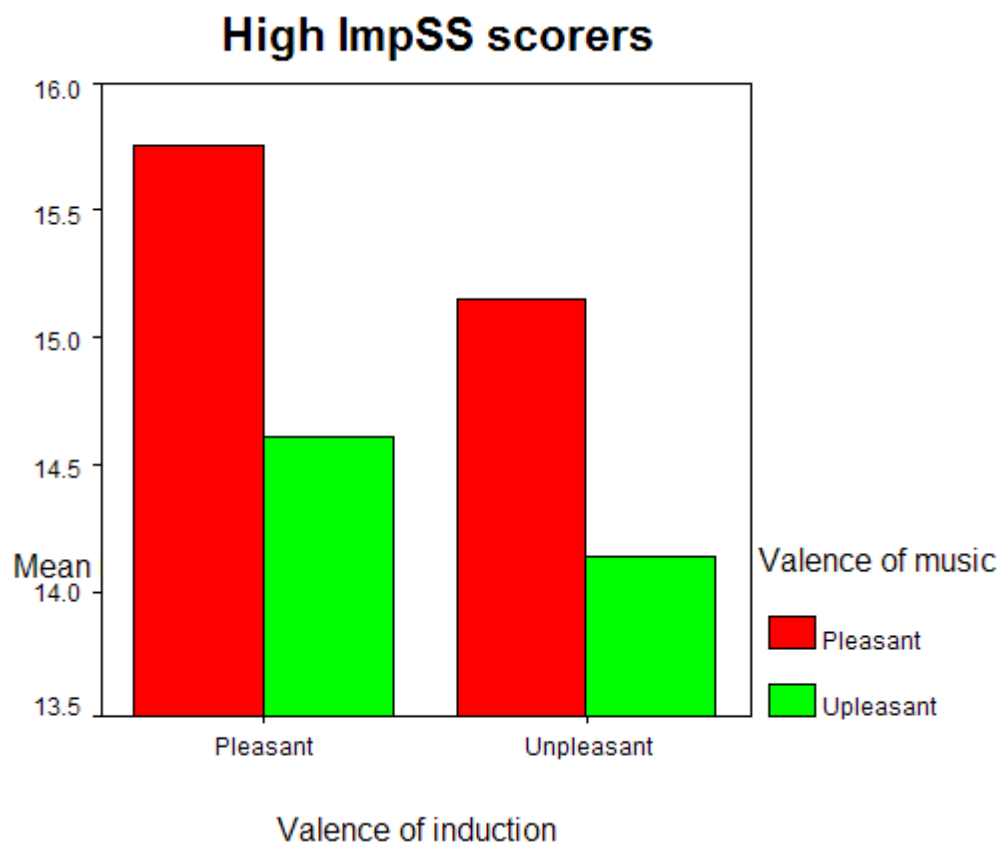
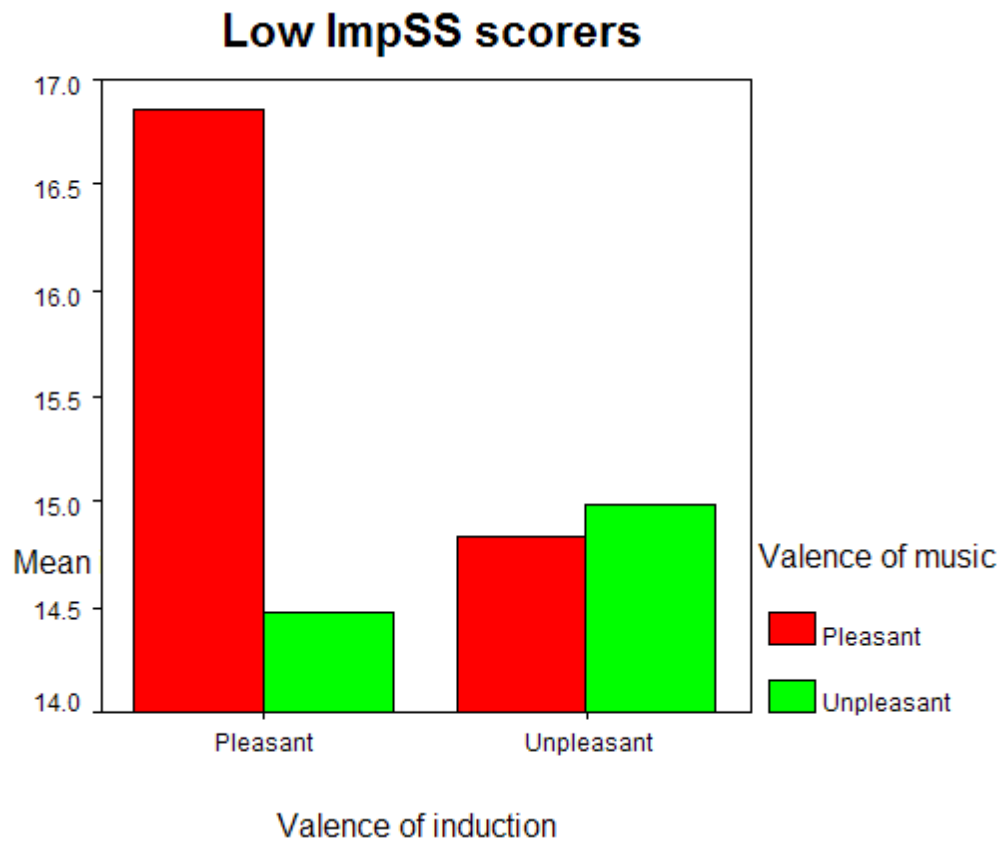


Figure 1. Mean Involvement ratings among low (left panel) and high (right panel) ImpSS scorers as a function of valence of music and valence of induction.

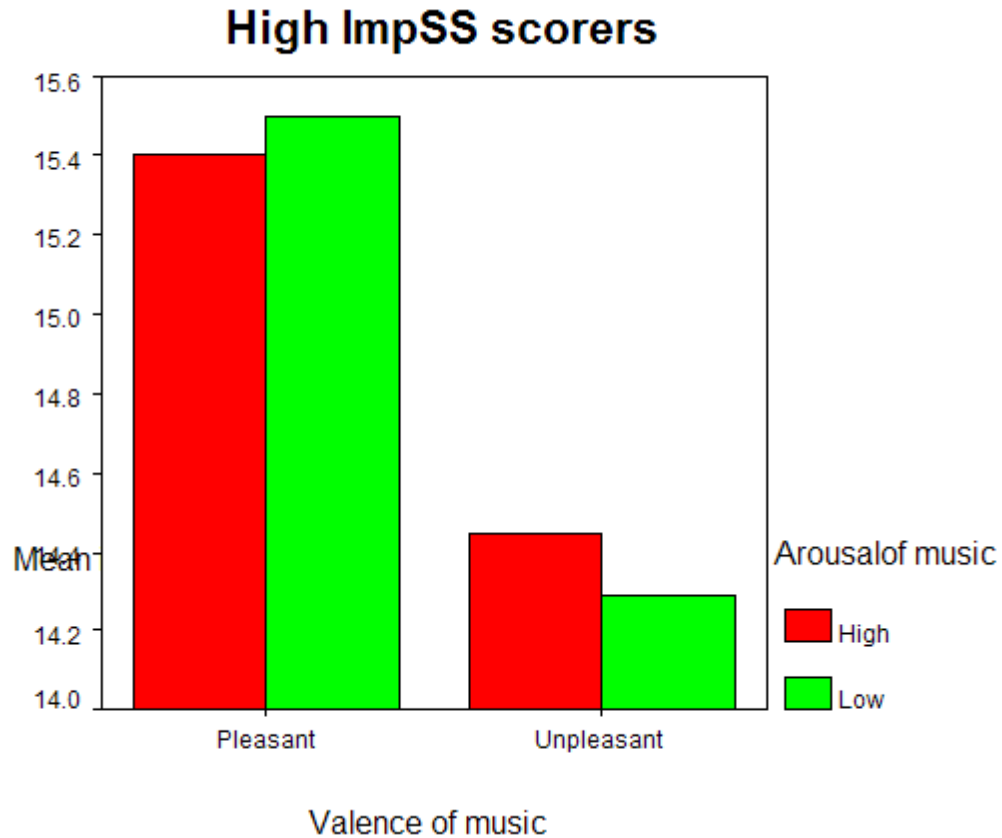
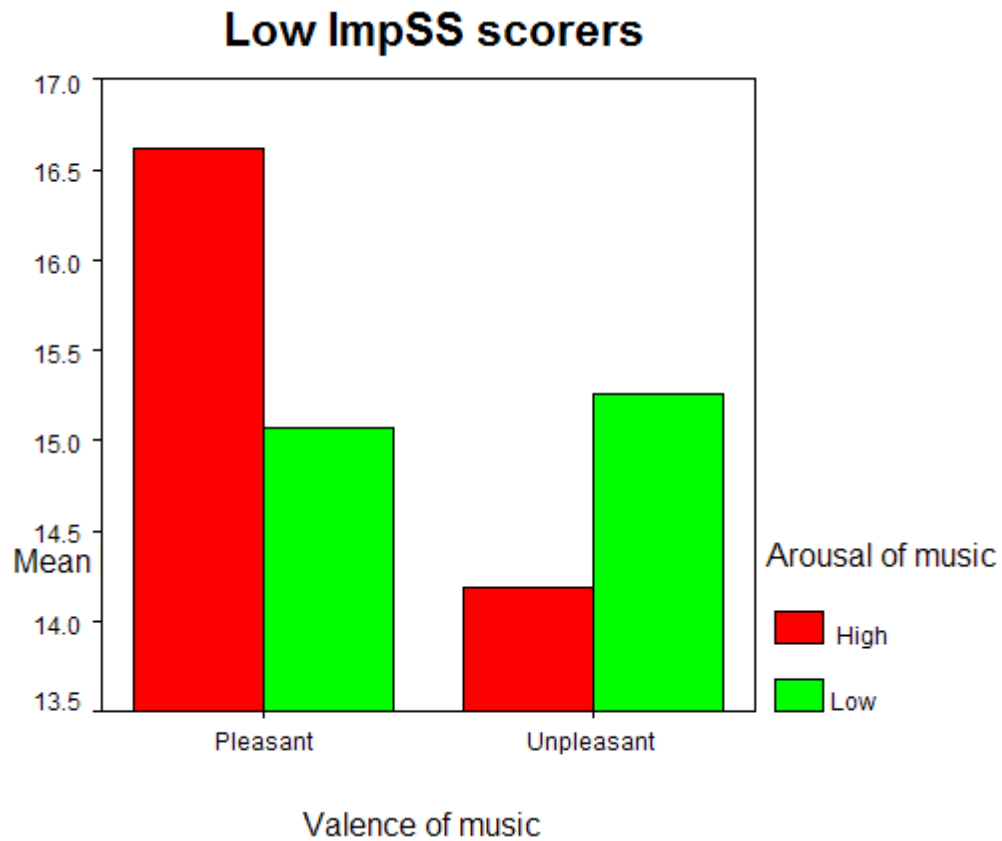


Figure 2. Mean Involvement ratings among low (left panel) and high (right panel) ImpSS

scorers as a function of valence and arousal of music.

Conclusion

In the present paper, we examined the role of personality in the effects of pre-existing mood, as elicited by autobiographical memories, and music (i.e., a priori valence and arousal) on self-reported involvement. As expected (Hypothesis 1), high ST1 scorers were more involved in listening to music than low ST1 scorers. Reasonably, high ST1 scorers are more likely to get more involved in music listening than low ST1 scorers, given that the ST1 scale describes the individual's general ability to become engaged in an experience. In connection with ST1 dimension of character, we also found that low-arousal induction elicited higher involvement in music than high-arousal induction among low ST1 scorers, whereas among high ST1 scorers there was no significant difference. We argued that low ST1 scorers (who are generally less sensitive to involvement by stimuli), may have had an easier time engaging in listening to music during relaxing low-arousal music than during stimulating high-arousal music. However, this argument needs to be validated in further studies.

In regard to ImpSS dimension of personality, we observed that among low ImpSS scorers pleasant music elicited higher involvement ratings than unpleasant music after pleasant than unpleasant induction, and unpleasant music elicited higher involvement ratings than pleasant music after unpleasant than pleasant induction, thus giving support for mood congruency theory ([see e.g., Rusting, 1998](#)). However, among high ImpSS scorers pleasant music elicited higher involvement both after a pleasant and an unpleasant induction, giving partial support for our hypothesis 3, which stated that high ImpSS scorers would be more involved in pleasant than unpleasant music (because they would be more sensitive for positive cues). We found no direct support for our hypothesis 2, stating that high ImpSS scorers would be more involved in high arousing stimuli than low arousing stimuli, whereas for low ImpSS scorers the opposite would be true. However, we found that in connection with unpleasant valence of music, low ImpSS scorers were more involved in music during low-arousal, but high ImpSS scorers during high-arousal music. The result suggests that high ImpSS scorers might prefer high-arousal stimuli even though unpleasant, whereas low ImpSS scorers might want to minimize stimulation in a negative context. However, these notions must remain conjectural and need to be further examined.

In summary, the present investigation showed that personality moderated the involvement in music derived from pre-existing moods and music varying in affective valence and arousal. The results are of importance, given that music is one of the most commonly used media but yet under explored in connection with subjective presence in terms of involvement in music.

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