

Full-Length Article

Expected Effects of Listening to Music Among Japanese and American College StudentsMasako Otera¹, Yuichi Wada², Barbara L. Wheeler³, Masayoshi Ichie¹¹Graduate School of Medicine, Tohoku University, Sendai, Japan²Graduate School of Information Sciences, Tohoku University, Sendai, Japan³Temple University, Philadelphia, PA, USA**Abstract**

This study investigated the effects that people expect when listening to their preferred, familiar, and nostalgic music. One hundred and ninety-two college students (114 Japanese, 78 American) took part in the study. Two questionnaires, Expected Effects of Music Listening Inventory (EEMLI) and General Affective Scale (GAS; Ogawa et al., 2000), with 24 questions each, were administered. Participants were asked to indicate three pieces of music, one that was preferred, one that was familiar, and one that was nostalgic, and to rate their cognitive, emotional, and behavioral responses when listening to each piece on a four-point scale. The results showed overall greater responses to preferred music than for other types of music, and participants' cultural background interacted with music types, which seemed to influence the results. Compared with the Japanese students, American students tended to highly value preferred music for mood management, identity expression, and reminiscence, while the responses of the Japanese students were dependent upon the type of music. Clinical applications of the results are discussed.

Keywords: *Listening, Japanese, Cultural, Music Therapy, Musical Identity*multilingual abstract | mmd.iamonline.com**Introduction**

While extensive literature has focused on the effect of music on human physiological and psychological responses [1,2], fewer studies have explored other aspects of human responses to music. For example, previous studies showed an impact of music preference on arousal level, and additionally, the influence of personality on music preference [3,4] was also identified. At the same time, studies on people's motives for listening to music and their uses of music reveal that people in modern society strategically tend to use music to fulfill their needs or for purposes such as emotional regulation, reflection of self-identity, diversion, and social interaction [5]. Ruud considered music as having "self-sustaining functions" (p. 126) and discussed that such musical experiences "may awaken and maintain the self or give us the sensation of having a self" (p. 126) [6]. Although it is unclear whether or not people are fully aware of such functions of music, previous studies suggest that people relate to music by interacting with

various aspects of the music. Findings of such studies are particularly useful for music therapists and those involved with music medicine as well, in their ability to help us understand a variety of client responses. It is important clinically, particularly for those who use music to treat people to know what might be an expected outcome or response from listening to a specific type of music, as this can help to increase the efficacy of music therapy interventions.

Although music therapy might involve various musical activities such as listening, performing, and composing, this paper is concerned with music listening, exclusively, as a fundamental activity of music therapy. The "Reciprocal Feedback Model of Musical Response," [7] may help to establish a comprehensive understanding of people's musical responses and related factors. This model describes reciprocal feedback relationships that exist between the music listener, within situations and contexts, which are "the three main determinants of a specific response to a given musical stimulus (p. 518)." For example, music preference may interact with physical, cognitive, and affective responses in listeners. This interaction may produce expected effects that listeners may predict when listening to music, which may interact with how one implements further music decisions. Mitchell and her colleagues [8,9] found that preferred music was effective for managing experimentally-induced pain. Situational or cultural context may also interact with peoples' responses, together with their use of music or music preference. Previous cross-cultural studies have found some differences, but also similarities, in the use of music for emotional management, diversion, background-related preferences, socialization, and personal identity amongst

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Masako Otera, Graduate School of Medicine, Tohoku University, 2-1 Seiryomachi, Aoba-ku, Sendai, 980-8575, Japan, Email: otera@med.tohoku.ac.jp | COI statement: The authors declared that no financial support was given for the writing of this article. The authors have no conflict of interest to declare.

varying cultures [10-13]. Good, Picot, Salem, Chin, Picot, and Lane [14] found that patients' cultural background influenced their choice of music in treating post-operative pain.

Based on the previous results, two concerns were addressed in the current study. First, little is known about what people expect from listening to different types of music, although previous studies revealed the reasons and motives for listening and have identified to some extent the use of music in general. Additionally, some studies used genres of music to specify a type of music that corresponded to respondents' reasons for listening to music and the particular uses of music, as well [13,15,16]. The inconsistency in precise categorization among genres due to cultural and social influences is of concern [17,18]. Second, although a few studies of cultural influences on the use of music were found [10-14], not many studies addressed the current research topic with a non-Western population, and no studies dealt with Japanese participants.

The purpose of this study was to explore whether expected effects of listening to music differed by types of music selected and listeners' cultural backgrounds. Participants were asked to specify a piece of music that corresponded to their (a) preferred, (b) familiar, and (c) nostalgic music, and to indicate their predicted effects from each type of music above by rating the extent of their expected cognitive, emotional, and behavioral responses.

In the current study, we specified a type of music by categorizing it by the defined personal meanings participants assigned to the music. The most commonly accepted category is preferred music, because this type of music is one of the most intensively studied in previous music research. Nostalgic music is another common type of music. Janata, Tomic, and Rakowski [19] reported nostalgia as one of the most frequently reported affective responses after listening to music. Preferred music and nostalgic music were selected as music categories for the current study because of the involvement of strong personal meaning identified in preferred music and nostalgic music. Familiar music was added because it involves personal meaning that belonged to neither the preferred, nor nostalgic music categories. It seems likely that, the more that the clients' personal meanings are involved and tied to the music, the more the therapeutic values and effects might have an impact in the clinical music selection. This requires a more personalized categorization than the typical method presented when music is categorized by genre.

Methods

Participants

A total of 192 participants took part in the study. The number of participants and mean ages were as follows: Japan: $N = 114$ (46 males, 68 females), mean age = 20.57 ($SD = 1.71$), and US: $N = 78$ (29 males, 48 females, 1 gender and age unreported), mean age = 19.93 ($SD = 1.26$). These participants were students of two universities located in a large city in Japan and one in the United States.

Materials

All participants were asked to complete a questionnaire that consisted of two scales, General Affective Scale (GAS) [20] and Expected Effects of Music Listening Inventory (EEMLI). Because the questionnaire was used in two countries, two language versions (Japanese and English) were prepared. Pilot studies in both countries were held to refine the study procedure and materials used. College students in both countries were asked to complete the questionnaire and the revisions were made according to their responses.

Expected Effects of Music Listening Inventory (EEMLI)

EEMLI is an investigator-made scale consisting of 24 questions asking participants to rate the extent to which they agree with each question on a four-point scale on which 1= "strongly disagree" to 4= "strongly agree" for 24 adjectives when listening to a corresponding piece of music. These 24 questions were selected from a list of reasons for listening to music, adapted from a study by Lonsdale and North [21]. Because our aim was to understand participants' expected effects of listening to music, we asked participants to answer the question, "How does the music make you feel?" as though they were listening to the piece of music, and to rate how well each question matched the extent of their responses. The reason for asking this way instead of using the expression of "What effects do you expect from the piece of music you have chosen?" was because it was a more natural, open-ended way to ask about one's expected music responses. Because these questions were originally asked in English, the first author translated them into Japanese.

GAS

GAS is an established scale to examine three different types of affect: positive affect (PA), negative affect (NA), and calm affect (CA) by rating on a four-point scale on which 1= "strongly disagree" to 4= "strongly agree" for 24 adjectives (eight adjectives for each type of affect). We chose GAS to assess participants' expected affective responses when listening to music because it includes the CA component. We considered it important to evaluate calm affect, which belongs to neither PA nor NA due to the complexity of musically induced affect. This scale was originally published in Japanese, and the first author translated the 24 adjectives into English with permission from the authors of GAS.

Procedure

The first investigator and student assistants (three in Japan, one in the US) undertook the survey procedure. The survey was conducted either before or after college lectures in psychology, world music, nursing, and music education for non-music majors. Some participants met with the investigator and completed the survey procedure outside of the college lectures. Participants first completed enrollment info: gender, years of education, musical training, and frequency of listening to music per week. A questionnaire consisting of GAS and EEMLI followed. There was no

compensation for the participation, but complimentary snacks were provided for the participants.

This study was approved by the Institutional Review Boards of the two universities in both of the USA and Japan. Participants received detailed description about the study and signed an informed consent form.

Results

EEMLI

Due to the missing values, 178 cases were used for the factor analysis. The number of participants and mean ages in the used cases were as follows: Japan: N = 108 (44 males, 64 females), mean age = 20.53 (SD =1.68), and US: N = 70 (25 males, 44 females, 1 gender and age unreported), mean age = 19.92 (SD =1.30). Although the case with unreported age and

gender was included in the factor analysis, it was excluded for the following analysis. Analysis employing principal factor method with promax rotation was conducted. Factor loadings greater than 0.30 are reported in *Table 1*.

Two items were excluded from the list due to a low communality and high loadings for two factors at the initial calculation. We interpreted these identified factors as follows: Factor 1 positive mood management (PMM), Factor 2 personal-identity (PI), Factor 3 reminiscing (R), and Factor 4 negative mood management (NMM) in this study. Similar factors were obtained in Lonsdale’s study, however, items under the factors of “arousal” and “diversion” in Lonsdale’s study [21] were listed under either “positive mood management” or “negative mood management.”

Table 2 presents the means and standard deviations of the dependent variables (the resulting factor scores of expected

| Expected effects of listening to music | Factors | | | |
|----------------------------------------------------|----------|---------|--------|----------|
| | 1 PMM | 2 PI | 3 R | 4 NMM |
| dance to | .86 | | | -.47 |
| entertain | .71 | | | |
| brighten my day | .68 | | | |
| give me energy | .61 | | | |
| relieve boredom | .57 | | | |
| wake me up in the mornings | .57 | | | |
| sing along to | .50 | | | |
| pass the time | .48 | | | |
| reflect how I feel | | .76 | | |
| create an image for myself | | .73 | | |
| express my feelings and emotions | | .68 | | |
| express my identity | | .65 | | |
| display my membership in social groups/subcultures | | .52 | | |
| explore possible identities | | .44 | | .38 |
| bring back certain memories | | | .92 | |
| reminisce about the past | | | .76 | |
| remind me of someone | | | .76 | |
| relieve anxiety | | | | .51 |
| relax | | | | .51 |
| help get through difficult times | | .32 | | .42 |
| distract | | | | .40 |
| create an atmosphere | | | | .30 |
| Factor Correlation | I | II | III | IV |
| | I | -.48 | .26 | .49 |
| | II | | -.54 | .55 |
| | III | | | -.38 |
| | IV | | | |

Table 1. Factor analysis of expected effects of listening to music; Factor loadings greater than 0.30 are reported

effects of listening to music: PMM, PI, R, NMM) for the three types of music (preferred music, familiar music, and nostalgic music). There were overall higher scores for preferred music compared to the other two types of music, except in the case of R scores for nostalgic music.

A three-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of type of music, nationality (Japanese and American), and participant gender on four dependent variables. When necessary, Greenhouse-Geisser epsilon was used to correct for sphericity violations.

The main effects of nationality (Wilks' $\lambda = 0.80$, equivalent to $F[4,170] = 10.13, p < .001$), gender (Wilks' $\lambda = 0.90, F[4, 170] = 4.64, p = .001$), and type of music (Wilks' $\lambda = 0.53, F[8, 166] = 18.01, p < .001$) were significant. A significant two-way interaction between type of music and nationality was also found (Wilks' $\lambda = 0.82, F[8, 166] = 4.43, p < .001$). For the multivariate interaction between nationality and type of music, there were significant univariate effects on all four resulting factor scores (PMM: $F[1.91, 331.36] = 4.14, p = .018, \epsilon = .958$; PI: $F[1.84, 319.49] = 3.38, p = .039, \epsilon = .923$; R: $F[1.93, 334.18] = 5.87, p = .003, \epsilon = .966$; NMM: $F[2, 346] = 7.44, p = .001$). Post hoc comparisons ($p < .05$ with Bonferroni correction) revealed that females reported higher R scores.

| Variable | Type of Music | Mean | SD |
|----------|---------------|-------|------|
| PMM | Preferred | 0.30 | 0.77 |
| | Familiar | -0.22 | 1.02 |
| | Nostalgic | -0.05 | 0.95 |
| PI | Preferred | 0.21 | 0.80 |
| | Familiar | -0.32 | 1.00 |
| | Nostalgic | 0.10 | 0.91 |
| R | Preferred | -0.08 | 0.85 |
| | Familiar | -0.37 | 0.99 |
| | Nostalgic | 0.42 | 0.78 |
| NMM | Preferred | 0.34 | 0.62 |
| | Familiar | -0.29 | 1.00 |
| | Nostalgic | -0.02 | 0.89 |

Table 2. Means and standard deviations of EEMLI scores; EEMLI scores are the resulting factor scores.

A two-way ANOVA (nationality X type of music) on each resulting factor score was conducted as a follow-up to the MANOVA. The main findings of post hoc multiple comparisons ($p < .05$ with Bonferroni correction) follow (see *Table 3*). American participants demonstrated significantly higher scores for preferred music in PMM, PI, R scores and for nostalgic music in PMM scores compared to Japanese participants. Japanese participants showed significantly higher scores for familiar music in NMM scores compared to American participants.

GAS

Sample sizes for GAS were somewhat smaller to those in EEMLI, with some missing values noted. The number of participants and mean ages were as follows: Japan: $N = 106$ (43 males, 63 females), mean age = 20.54 ($SD = 1.74$), and US: $N = 55$ (20 males, 35 females), mean age = 20.00 ($SD = 1.27$). *Table 4* presents the means and standard deviations of the dependent variables (obtained GAS scores of PA, NA, CA) for the three types of music.

| Variable | Type of Music | Mean | SD |
|----------|---------------|-------|------|
| PA | Preferred | 23.76 | 5.99 |
| | Familiar | 22.10 | 6.46 |
| | Nostalgic | 22.35 | 6.30 |
| NA | Preferred | 12.40 | 4.64 |
| | Familiar | 12.12 | 4.57 |
| | Nostalgic | 12.51 | 4.41 |
| CA | Preferred | 18.12 | 6.09 |
| | Familiar | 17.75 | 5.85 |
| | Nostalgic | 18.90 | 5.83 |

Table 4. Means and standard deviations of GAS scores

A three-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of types of music (preferred music, familiar music, and nostalgic music), nationality (Japanese and American), and participant gender on three dependent variables (PA, NA, CA). The main effects of gender (Wilks' $\lambda = 0.95$, equivalent to $F[3, 155] = 2.72, p = 0.046$) and type of music (Wilks' $\lambda = 0.83, F[6, 152] = 4.92, p < .001$) were significant. A significant two-way interaction

| | EEMLI | | | | GAS | | |
|-----------------|--------|--------|---------|-------|--------|-------|-------|
| | PMM | PI | R | NMM | PA | NA | CA |
| Preferred music | -0.40* | -0.46* | -0.37 * | 0.12 | -2.57* | 1.65* | -1.47 |
| Familiar music | -0.09 | -0.09 | 0.28 | 0.43* | 1.32 | -1.47 | 2.58* |
| Nostalgic music | -0.60* | -0.21 | -0.07 | -0.16 | -2.71* | 0.26 | 1.81 |

Table 3. Pairwise comparisons between nationalities in means of EEMLI and GAS scores ; Numbers represent the difference scores (Japanese minus American) in means. Positive numbers indicate American < Japanese and negative numbers indicate American > Japanese. Asterisks indicate significant difference with Bonferroni adjustment ($p < 0.05$).

between type of music and nationality was also found (Wilks's $\lambda = 0.85$, $F[6, 152] = 4.43$, $p < .001$). For the multivariate interaction between nationality and type of music, there were significant univariate effects on all of the four factor scores (PA: $F[2, 314] = 5.60$, $p = .004$; NA: $F[2, 314] = 7.79$, $p < .001$; CA: $F[1.92, 302.18] = 5.05$, $p = .008$, $\epsilon = .962$). Post hoc comparisons ($p < .05$ with Bonferroni correction) revealed higher NA scores for males.

A two-way ANOVA (nationality X type of music) on each factor score was conducted as a follow-up to the MANOVA. The main findings of post hoc multiple comparisons ($p < .05$ with Bonferroni correction, see *Table 3*) found that American participants demonstrated significantly higher scores for preferred music and nostalgic music in PA scores compared to Japanese participants. Additionally, Japanese participants reported significantly higher scores for preferred music in NA scores and for familiar music in CA scores compared to American participants.

Discussion

The aim of this study was to explore whether people's expected effects of listening to music differ by types of music and listeners' cultural background. The factor analysis found four expected effects of listening to music across two different countries. Similar factors were found in a previous study by Lonsdale and North [21]. Overall, greater responses to preferred music in EEMLI scores can be interpreted as participants' higher expectations of their preferred music. In addition, the finding of higher scores in reminiscence for nostalgic music was also reasonable. On the other hand, lower scores in both EEMLI and GAS were found for familiar music compared with the other types of music, suggesting that people value music that has personal meaning more than music that they may have just heard (i.e., familiar music). People's tendency to value preferred music and nostalgic music may indicate their expectation of beneficial effects from listening to these types of music, but these results are influenced by listeners' cultural background, as the interactions between music types and nationalities have indicated.

American students consistently valued preferred music, and their expected effects of listening to preferred music seemed to be associated with positive mood management and positive affect. The tendency for American students to value preferred music, as a means of expressing personal identity was similar to previous study results [11]. While American students showed clear-cut results indicating positive responses to preferred and nostalgic music, Japanese students demonstrated music-type dependent responses. Japanese students valued familiar music, as evidenced by the results of higher scores by Japanese participants, of negative mood management and calm affect during familiar music use as compared with Americans. In addition, Japanese students reported higher negative affect scores for preferred music, although we do not have a clear explanation for this result.

Previous research [22] has shown a higher tendency of extreme responses for survey questionnaires in participants from individualistic-oriented cultures such as the US, whereas the higher tendency of modest responses in those from collectivism-oriented cultures such as Japan. Although participants' culturally influenced response styles may have confounded the current results, the results are still informative because they have indicated two distinctly different cultural bases, which may also influence one's musical behaviors such as choosing a piece of music and determining the effect of listening to the music. According to the Reciprocal Feedback Model of Musical Response [7], the obtained results may be interpreted as a reflection of interactions among expected effects of music, and to an extent, the contextual implications of implied use of personal meaning in music listening within cultural contexts.

From the clinical point of view, the current findings may provide some useful information for music therapy and music medicine. The results of this study may support the use of clients' preferred music, as is commonly practiced in both areas. In addition, participants in this study made a clear distinction between three different types of music, suggesting that clients' expected effects of listening to music differ according to the personal meanings involved in each type of music experience. Music therapists and those who are involved in music medicine, in particular, need to be aware of the difference between preferred and familiar music, as evidenced by the different responses to the two specific types of music in this study. However, the impact of clients' cultural backgrounds should not be ignored. For example, music with intense personal meanings as may be apparent with preferred music, may not be necessary for some people, to reach an achieved diversion or desired relaxation state, as the results of Japanese participants indicated. Yet, music preference is recognizably considered an important factor to consider when aiming to elicit a relaxation response [23].

Some limitations of this study need to be addressed. First, our findings were obtained from college students and do not necessarily apply to people of other ages. Previous studies [21,24] indicated age differences in people's reasons for listening to and using music. Therefore, conducting more studies with different age groups, using the same procedures as used in this study, would provide more detailed information regarding age differences in people's expected effects of listening to music. Second, this study targeted participants' responses for listening to music, but the investigation can extend to people's responses to music playing, as North, Hargreaves, and O'Neill [15] have explored. Because this study did not involve actual listening and participants' responses were all expected responses, it would be worth comparing participants' responses before and after actual listening.

In conclusion, this study found overall higher expectations of listening to preferred music, but this result interacted with respondents' cultural differences. It provided a new view by comparing participants' responses amongst

different types of music and also broadened the understanding of cultural differences in people's responses to listening to music.

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