THE RELATIONSHIP BETWEEN DICHOTOMOUS THINKING AND MUSIC PREFERENCES AMONG JAPANESE UNDERGRADUATES

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The relationship between dichotomous thinking and music preferences was investigated with a sample of 176 Japanese undergraduates (111 males, 65 females). Participants completed the Dichotomous Thinking Inventory (Oshio, 2009) and the Short Test of Music Preferences (Rentfrow & Gosling, 2003). Individuals who thought dichotomously preferred intense and rebellious, energetic and rhythmic, and fast and contemporary music rather than music that was complex and conventional. Specifically, they most liked rock, alternative, soul, funk, and heavy metal and disliked classical music.

Keywords: dichotomous thinking, music preference, individual differences.

Many genres of music exist worldwide and it is noteworthy that since the mid-19th century many kinds of Western music originating in Europe and the United States have triggered diversification of music genres in Japan. As the country has undergone a modernization process Japanese people have received, accepted, assimilated, transformed, and appropriated Western music (Yano & Hosokawa, 2008).

Music plays an especially important role in the social and personal lives of adolescents (Schwartz & Fouts, 2003). Young people typically like popular music, and are the leading consumers of such music in Japan (Mizuno, 2008);

however, a certain number of adolescents prefer to listen to classical music, and others prefer jazz to popular (pop). What are the factors that influence these different music preferences?

Previous researchers have shown that personality and individual differences influence music preferences. For instance, Little and Zuckerman (1986) showed that sensation seeking had a positive relationship with liking all types of rock music and had a negative relationship with enjoyment of soundtrack music. In relation to the Big Five personality types used as a measure of music preference in Little and Zuckerman's study, extraversion was positively related to jazz and hard rock, and openness to enjoyment of a variety of musical forms outside the mainstream of pop and rock (Dollinger, 1993). Rawlings and Ciancarelli (1997) found that extraverts liked popular music and individuals scoring high on openness enjoyed a wide range of musical genres. Rentfrow and Gosling (2003) developed the Short Test of Music Preferences, comprising 14 musical genres, and found four factor structures that they labeled reflective and complex, intense and rebellious, upbeat and conventional, and energetic and rhythmic. They also confirmed the relationship between music preferences and some aspects of individual differences.

In Japan, the relationship between the domain of music and individual differences has been explored in only a few studies. For example, Matsumoto (2002) explored the function of music with regard to mood management, and showed that sad music had the potential to alleviate the sadness of individuals who were depressed. Nakashima, Akimitsu, and Okamoto (2005) explored the relationship between personality and rhythmic improvisation of music in music therapy and found when individuals were playing musical instruments those scoring high on neuroticism tended to play music with a slow beat, when told they could start playing as soon as they wanted to; people with high impulsiveness began to play music sooner than the others in the music therapy group; and more extraverted people tended to change musical instruments more often. Nuki, Nagata, and Kawakami (2004) explored the relationship between music preference and personality, and found that individuals with high extraversion liked new age music best out of all genres, whereas neuroticism was related to liking classical music. However, the sample in the study by Nuki et al. (2004) comprised only 32 participants so that the relationship between music preferences and individual differences among Japanese people still remains unclear.

In the present study the focus was on dichotomous thinking as a cognitive aspect of individual differences. Oshio (2010) found that facets of everyday life deemed important by dichotomous thinkers included cell phones, clothing, movies, music, and digital audio players. This indicated that dichotomous thinkers were more interested in new products that they considered to be fashionable than were

those who were not dichotomous thinkers. Music was identified in that study as one important facet, and it has been found that music can function to reinforce one's disposition and self-view (Rentfrow & Gosling, 2003). The *dichotomous thinking style* refers to *the propensity to analyze in terms of binary opposition: black or white, good or bad, and all or nothing*. Although such a thinking style is useful for quick comprehension and decision making, it has also been associated with negative psychological outcomes such as borderline personality disorder, narcissism, and perfectionism (Oshio, 2009). Dichotomous thinkers prefer simple rather than complex situations, and this tendency may be reflected in their choice of music genres. I hypothesized that they would prefer simple and upbeat rhythms or melodies in music (such as pop and rock), rather than more complex rhythms or melodies (such as jazz or classical music) because their style of thought is congruent with the former kind of music.

Method

Participants and Procedure

Japanese undergraduates (N = 176; 111 males and 65 females) participated in the study. The average age of the participants was 19.7 years (SD = 1.6). All participants completed two instruments to assess individual differences in dichotomous thinking and music preferences. The survey was conducted in December 2008 in a classroom at a university in central Japan.

Materials

Dichotomous thinking was assessed using the Dichotomous Thinking Inventory (DTI; Oshio, 2009), comprising three subscales. The preference for dichotomy (PD) subscale refers to a thinking style that leads to a preference for distinctness and clarity, rather than ambiguity and confusion. The dichotomous belief (DB) subscale refers to a thinking style that any class of physical objects or abstract ideas in the world can be divided into two groups, that are distinct and different from each other and that are usually mutually exclusive. The profit-and-loss thinking (PL) subscale refers to a style of thinking that involves focusing on how things can benefit oneself and the avoidance of disadvantaging oneself. Subscales of the Dichotomous Thinking Inventory are rated on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). Cronbach's alpha ranged from .78 to .87.

Music preferences were assessed using the Short Test of Music Preferences (STOMP; Rentfrow & Gosling, 2003), comprising 14 items. The preference for each genre is rated on a 7-point Likert-type scale ranging from 1 = *not at all* to 7 = *a great deal*.

Results

Factor Analysis of Music Preferences

In order to explore the structure of the STOMP in Japan, an exploratory maximum likelihood factor analysis with a promax rotation was conducted for the 14 items (see Table 1). A four-factor solution seemed to be appropriate because four of the eigenvalues were more than 1, being 4.27, 1.88, 1.55, 1.21, in descending order. These four factors accounted for 52% of the total variance.

Table 1. *Factor Analysis of Music Preferences*

	I	II	III	IV
Country	.82	-.09	-.06	.05
Classical	.65	-.12	-.04	.10
Blues	.55	.19	.05	.01
Religious	.55	.27	.02	-.42
Folk	.52	-.06	.01	.18
Music for movies or television (soundtracks)	.40	-.06	.28	-.02
Alternative	-.07	.86	.06	-.03
Heavy metal	-.02	.74	-.18	-.04
Soul/funk	.03	.47	.39	.08
Rap/hip-hop	-.09	-.10	.99	.02
Electronica/dance	.23	-.02	.36	.16
Pop	.03	-.06	.14	.71
Rock	-.05	.55	-.06	.56
Jazz	.39	-.03	-.09	.51
Interfactor correlations	I	II	III	IV
I	-	.40	.14	.29
II		-	.29	.34
III			-	.30
IV				-

Factor 1 included country, classical, blues, religious, folk, and soundtrack genres of music. Jazz also loaded strongly on Factor 1. This factor consisted of a combination of the reflective and complex, and upbeat and conventional factors as identified by Rentfrow and Gosling (2003), with the exception of pop, and was named *complex and conventional*. The genres included in Factor 2 were alternative rock, heavy metal, rock, and soul/funk, and this group was similar to the grouping in the study by Rentfrow and Gosling, and this factor was termed *intense and rebellious*. Factor 3 included rap/hip-hop, soul/funk, and electronica/dance genres and was termed *energetic and rhythmic*. Factor 4 included pop, rock, and jazz genres, whereas religious music loaded negatively on this factor. The emphases in these genres were on uptempo beats and nontraditional image

in Japan, and this factor was termed *fast and contemporary*.

Correlations between Dichotomous Thinking and Music Preference

Following the factor analysis, four factor scores of music preferences were calculated. The correlation coefficients among scores on the DTI and factor scores for music preferences are shown in Table 2.

Total DTI score had a significantly negative correlation with complex and conventional music. The subscales of the DTI also showed nonsignificant but negative correlations with complex and conventional music. Intense and rebellious music was positively correlated with total DTI, dichotomous beliefs, and preference for dichotomy. There was a significantly positive correlation between energetic and rhythmic music and dichotomous belief. Fast and contemporary music was positively correlated with profit-and-loss thinking and preference for dichotomy.

Table 2. *Correlations between DTI and Music Preference*

| | | DTI subscales | | |
	Total DTI	Preference for dichotomy	Dichotomous belief	Profit-and-loss thinking
Music preference factors				
Complex and conventional	-.15*	-.11	-.13+	-.11
Intense and rebellious	.17*	.13+	.18*	.07
Energetic and rhythmic	.12	.11	.15*	.00
Fast and contemporary	.07	.15+	-.12	.18*
Music genres				
Pop	.07	.18*	-.13+	.16*
Rock	.14+	.17*	.01	.17*
Alternative	.17*	.11	.20**	.07
Soul/funk	.16*	.09	.19*	.08
Heavy metal	.14+	.10	.18*	.04
Rap/hip-hop	.12	.11	.15+	.00
Classical	-.23**	-.16*	-.25**	-.09
Jazz	-.11	-.01	-.20**	-.01
Religious	-.06	.01	.01	-.18*
Blues	-.12	-.12	-.04	-.14+
Country	-.14+	-.11	-.11	-.11
Electronica/dance	-.01	.02	.03	-.09
Music for movies and television (Soundtracks)	-.08	-.11	-.10	.05
Folk	.06	.02	.04	.09

Notes: + $p < .10$, * $p < .05$, ** $p < .01$.

Correlation coefficients among the DTI scores and the preferences for specific musical genres were also explored (see Table 2), because dichotomous thinkers may choose a particular music genre for a reason other than the integrated images

as described by each factor. DTI total score had a positive correlatation with alternative and soul/funk genres of music and a negative correlation with classical music. Preference for dichotomy showed a significantly positive correlation with pop and rock genres of music and a negative correlation with classical music. Dichotomous thinking had a significantly positive correlation with alternative, soul/funk, heavy metal, and rap/hip-hop genres but a significantly negative correlation with pop, classical, and jazz. The profit-and-loss subscale of the DTI was positively correlated with pop and rock, but showed negative correlations with religious music and blues. However, it must be noted that all of the correlation coefficients were relatively low.

Discussion

Rentfrow and Gosling (2003) used principal components analysis with varimax rotation to identify dimensions of music preferences among undergraduates in the United States. In the present study I identified four factor structures of music preferences among Japanese students: complex and conventional, intense and rebellious, energetic and rhythmic, and fast and contemporary. The energetic and rhythmic and the intense and rebellious factors found in this study were almost the same as two of the dimensions described by Rentfrow and Gosling. However, the complex and conventional factor in the current study was a mixture of the reflective and complex and the upbeat and conventional factors in the earlier study. This result was interesting because low correlations were found by Rentfrow and Gosling between the reflective and complex and upbeat and conventional factors, whereas the items making up these factors integrated into one factor in my study. Furthermore, in my study fast and contemporary was a distinct factor that was not identified by Rentfrow and Gosling (2003).

In the history of Japanese popular music, people have accepted many kinds of Western music and reconstituted a Japanese popular music style (Yano & Hosokawa, 2008). The factor structure in the present study may reflect the images of music either outside or inside Japan, because Japanese popular music is typically a mixture of rock and pop music. Japanese people readily make distinctions between songs sung in Japanese and those sung in other languages; the former is often called "Hougaku" and the latter "Yougaku". However, the STOMP does not include factors to assess such distinctions and the features of the factor structure in this study may be affected by the existence of these distinctions in Japanese culture. However, further study is required in order to categorize the structure of musical genres in Japan.

Correlation analysis revealed that among all four styles of music dichotomous thinkers liked complex and conventional music the least, indicating that they have a tendency to like simple music. Analyses of the correlations between the

DTI and specific music genres clearly showed that the dichotomous thinkers liked simple and upbeat musical genres such as pop, rock, alternative, and soul/funk the most and that complex musical genres such as classical music and jazz were the genres they liked the least. These results suggest that thinking style influences the music preferences of Japanese undergraduates, although correlation coefficients between the DTI and music preferences were low. Selfhout, Delsing, ter Bogt, and Meeus (2008) found that a preference for hip-hop predicted the prospective externalizing of problems among youth. It was also found that a preference for heavy metal predicted subsequent problems among young boys, such as bullying others. These results suggest that music preferences may have an influence on everyday activities among young adults. As shown by Oshio (2010), dichotomous thinking also relates to daily behaviors and activities. Therefore, in future studies researchers should focus on the function of dichotomous thinking in the relationship between music preference and day-to-day activities.

In the present study the focus was on the generalizability of the STOMP test to Japan and therefore it has certain limitations in that I did not include, such as genres of music that are very popular and peculiar to Japan e.g., theme music for games and anime. As Japanese popular music encompasses a wide variety of music, making it difficult to discriminate between subordinate categories, further research is needed from this viewpoint.

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