A Project entitled

Music, Personality and Economics:

A Quantitative Study on the Relationship between Music Preference, Personality Orientation and Economic Judgement

Submitted by

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Declaration

I, *HE Xinfu* , declare that this research report represents my own work under the supervision of *Dr LAM, Yan Grace*, and that it has not been submitted previously for examination to any tertiary institution.

Signed _____

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Abstract

The current research aims at studying the music preference with the quantitative method of psychology and economic science. A set of hypotheses that stipulate the relation between music preference and personality orientation will be tested. We also examine the relation between music preference and economic judgement. The sample that we will study is university students (n = 41) whose music taste, personality and economic inclination would be revealed by questionnaire. Correlations corroborate the hypotheses that personality and economic judgement could be reflected in one's attitude toward music. The research may indicate the intertwined relationship of different dimensions of human beings, namely, aesthetics, personality and as a member of economy.

Keyword: music preference, big five model, basic personal values, economic judgement

Music, Personality and Economics: A Quantitative Study on the Relationship between Music Preference, Personality Orientation and Economic Judgement

Since the emergence of sophisticated personality theory and test, researchers have endeavoured to explain the individual difference variables according to personality (Barrick & Mount, 1991; Caligiuri, 2000; Judge, Higgins, Thoresen, & Barrick, 1999; Lord, De Vader & Alliger, 1986). Although the majority of such study tends to involve the workplace issues, some researchers have examined the aesthetic inclination in light of personality theory (Cattell & Anderson, 1953; Dollinger, 1993; Furnham & Avison, 1997; Furnham & Walker, 2001; Kraaykamp & Van Eijck, 2005; Robinson, Weaver & Zillmann, 1996). It is reasonable to assume that the personality, which represents the constant unique thought, feeling and action of each individual (Eysenck, 2013), and economic judgment, which manifests one's material belief toward individual and society (Tomer, 2001), can account for one's music tastes. There are some evidences that music preference could be reflected in the dimensions of personality characteristics and socio-economical attitude (Delsing, Ter Bogt, Engels & Meeus, 2008; Fox & Williams, 1974; Rentfrow, & Gosling, 2003). Nevertheless, there are some empirical and theoretical gaps needs to be addressed. As to the empirical gaps, limited studies examining the correlation of music preference against personality and economic judgement have been conducted in Eastern culture. It is still indefinite whether the findings of previous researches could be generalized into Eastern context. For the theoretical gaps, certain type of music historically became popular for some particular reasons and catered to the aesthetics of certain social stratification, which could not be fully and solely explained by personality. The current study is intended to fill these gaps by examining the relation of music preference against personality and economic judgement together in a sample of university students from Greater China Region. Music preference, as a behaviour which is common in everyone and everyday life, lacked adequate attention and investigation from personality psychologists (Rozin, 2001). Our understanding of the interaction between music preference, personality orientation and economic judgement would be enriched by the present study.

Music is indispensable in Hong Kong primary and secondary school curriculum (EDB, 2003). Teaching music in Hong Kong, like teaching English, is expected and required to be specialized (Morris*, 2004). Schools from various levels participate actively in local and international music competition. However, the understanding of the relation between music and other factors seems to be inadequate compared with the high standard of the performance and the rich resources allocated to music activities. For example, if we know the relation between music preference and personality, we could design tailor-made music curriculum and activities which match the personality of a certain group of students better. If there are some relations between music preference and economic judgement, then teacher may take the student's economic perception in deciding music curriculum or organizing music activity. In addition to education, a psychological and economic perspective toward Hong Kong music environment would be developed after this research, which can improve the academic and social understanding of the cultural issues. Such understanding can facilitate the artist, reviewer and government to grasp the inner logics of the cultural industry. The

artist could anticipate the reaction to his or her works from people with different personalities and economic values. The reviewer could be more impartial to make comments on the music piece if he or she know the personality and economic views may more or less influence his or her music taste.

Music

Since the dawn of music, it inevitably involved artist with general socio-political background and personal conviction. In the Middle Ages and Renaissance period, the church dominated the cultural life and music is not an exception. The ideas of order and deity in church resulted in the purity and meditative character of Middle Ages and Renaissance music. However, even in such reactionary and conservative environment, Carlo Gesualdo created extremely emotional and dramatic music, potentially due to his neurotic personality (Newcomb & Gesualdo, 1968). With the emergence of middle class in 18th century and the incessant revolutionary events, music focusing on the individual subjectivity and emotional expression stepped into the centre of stage. The French Revolution infused musicians with liberalism and individualism, which finally evolved into impatience with the traditional rules of music and the rebellion against classical practice. Emphasis of certain kinds of music in music education has also been used for political reasons as well(Law & Ho, 2011; Grout & Palisca, 1996). In summary, both socio-economic factors and personalities may have influenced the genres of music that was produced and popular at a given time. If such historical relation has its modern representation, we believe the quantitative method could ascertain it.

The questionnaire, Short Test Of Music Preferences (STOMP), which devised by Rentfrow and Gosling (2003), would be adjusted to Hong Kong context. There are 14 items in STOMP which are classified in four categories, namely, Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, Energetic & Rhythmic. The original test does not include Chinese music elements. This research supplements the STOMP with western-eastern general comparison. The general comparison contains four elements, namely, Eastern traditional, Eastern popular, Western traditional and Western popular.

Personality Trait and Basic Personal Values

Five factor model could be traced back to the study of natural language, from which the classification of traits was put forward (Allport, & Odbert, 1936) and series of synonym for measurement were developed (Cattell, 1946; Fiske, 1949). The discovery of lexical approach has been complemented by questionnaires and quantitative scales, which led to the current five factor model (McCrae & Costa, 1985). With the knowledge of traits, one can explain the consistent and lasting way of how human thought, emotion and behaviour function. As Costa and McCrae (1990) described, traits are "dimensions of individual differences in tendencies to show consistent patterns of thought, feelings, and actions" (p. 23). There are five personality traits which are widely recognized and accepted, namely, Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (McCrae & John, 1992). As to neuroticism, it measures to which extent insecurity, anxiety, agitation, depression and self-assurance that a person exhibits. Extraversion evaluates the elements spanning

from cordial and sociable to restrained and faint-hearted. Openness, or openness to experience, describes the level of creativity and curiosity. Agreeableness concerns the interpersonal qualities and skills, explaining how difficult for a person to cooperate other is or what the mood he or she shows when staying with others. Conscientiousness elucidates the attitude of a person towards study or work, which includes diligence, assiduity and sense of responsibility versus indolence, heedlessness and lack of accountability.

Past psychology research has shown that the Big Five personality traits are related, in predictable ways, to preferences for different kinds of Western music (e.g. Langmeyer, Guglhör-Rudan, & Tarnai, 2012; Rentfrow & Gosling, 2003). However, little has been explored about Eastern music, nor in the context of Eastern culture.

Similarly, values are the internalized principles which can be described as the preferred, abstract and transcendental objectives in people's life (Schwartz, 1992). The traits describe the stable character, while basic personal values the life-long goals. Cross-cultural and cross-regional studies indicate that the basic personal values are distinct and recognisable universally (Schwartz, 2006). The basic personal values framework includes ten values, each of which represents the goals that motivate an individual behaviours.

- Power: the capacity to control others or influence the events; dominance over the resource allocation; prerogative or privilege.
- Achievement: successfully career or life attained by personal merits in line with socially specified standards and norms.
- Hedonism: personal enjoyment and satisfaction according to one's own criteria.
- Stimulation: the excitement and tension aroused by new experiences and provocations.
- Self-direction: intellectual independence and spontaneous action
- Universalism: empathy with the people from different background and in different condition; Respect for value of nature and the welfare beyond mankind
- Benevolence: caring and protecting the intimate friends or relatives to whom he or she is akin.
- Tradition: Willingness to accept and assimilate the practices and ideas which are culturally or religiously prevailing
- Conformity: reluctance to follow the personal impulses or decisions when they are incompatible with social customs or could harm the feeling of others
- Security: free from conflicts, uncertainty and precariousness in society, interpersonal relation or self.

Figure 1. The circular construction of basic values and underlying layers (Schwartz, 2010)

The basic values are not independent from each other and a continuum described by Figure 1 could be arrayed. The circular construction and multi-layer structure are inherent in the theory formulation. The circular construction, as Figure 1 shows, indicates the relation based on the distances among the values. If two values are more adjacent, the compatibility of them is higher, which means probably they could be achieved by similar activities or manifested by comparable opinions. If two values are more remote around the circle, they tend to be more divergent and colliding, which are less likely to be achieved by similar activities or manifested by comparable opinions.

As to the underlying layers, the ten values could be compressed into four categories. Achievement and power could be classified as self-enhancement; hedonism, stimulation and self-direction, as openness to change. Security, conformity and tradition could be grouped into conservation, universalism and benevolence, into self-transcendence. Self-enhancement and openness to change predict the behaviour and attitude motivated by goals from the personal prospective. Conservation and self-transcendence consider the internalization of social values and interaction between individual and society. Another layer concerns the contradistinction between the values under self-enhancement and conservation and those under openness to change and self-transcendence. The self-enhancement and conservation values are anxiety-based. For example, inadequate conformity to social norms may cause anxiety of thinking other's perception toward oneself. To dodge the potential threats is one of the motivations of these values. The motivational forces pushing these value rely on the extrinsic factors. In contrast, the driving force of openness to change and self-transcendence is not anxiety induced by external pressure. The intrinsic motivations, such and self-development and growth, are what encourage these value to be attained.

The framework of the circular continuum and underlying layers have received overwhelmingly cross-cultural supportive evidence from 81 countries (Schwartz, 2006, 2007). Until now, there is no study to investigate the relations of music preference to basic personal values.

Economic Judgment

The questionnaire for economic section are designed based on Hong Kong context with the social science theories regarding the economic disposition and various schools of economic thought (Compass, 2005; Ray, 2002; Nolan, 1995; Landreth & Colander, 2002). The economic sections are composed of general questions and specific questions. The general questions aims at investigating the participants' level of concern about economics and their self-identified economic standpoint. The specific questions are set for understanding the detailed economic judgment on social issues (question 1 to question 3) and individual issues (question 4 to question 6). The spectrum on social economic issues are divided as left and right; that on individual economic issues, materialistic and spiritual.

The Current Research

The current research would tackle the following questions:

1) How does the music preference correlate the personality traits revealed by the Five Factor Model?
2) How does the music preference correlate the personal basic values?
3) Could music preference predict the personal basic values?
4) Does socio-economic status and economic judgement relate to the taste of particular music?

The current study is inspired by the pioneering research conducted by Rentfrow and Gosling (2003) and expands it in the following ways. In the first place, the 74 participants in Rentfrow and Gosling research was from the undergraduate students of University of Texas at Austin with 7 (9.5%) Asians. The generalization of their findings from a sample prevailing of western culture to Asian region has not been well established. The core of the music curriculum in United State of America is western genre oriented (Mark & Gary, 2007), whereas that in the Greater China especially in Hong Kong is much more diverse. A student studying in the Hong Kong local school would be exposed to various types of music. In addition, the western culture, music included, has become convenient to access, while Eastern culture is still eccentric in US people daily life. Secondly, music involves complicated mental activities (Jourdain, 1997) and hence we have reasons to expect it should relate to many other factors apart from personality trait. In present study, basic personal values and economic judgement are incorporated so that a clearer picture about music preference could be formed.

There are five main hypotheses in this research:

- Hypotheses I (personality trait): Higher in the dimension of openness to experience (incentive/curious) predicts a inclination of Reflective & Complex music and western traditional music; higher in that of neuroticism (sensitive/nervous) predicts a less inclination of Upbeat & Conventional music;

higher in that of agreeableness (friendly/compassionate) predicts a inclination of Upbeat & Conventional music

- Hypotheses II (personality trait): Higher in the dimension of conscientiousness (efficient/organized) predicts a preferences of Eastern popular music, whereas higher in that of extraversion (outgoing/energetic) predicts a preferences of western popular music.

The Reflective & Complex music and Western traditional music comprehend various rhythmic patterns, textures, harmony, orchestration and etc. If a person pursues intellectual inventive and has curiosity towards great art works, he or she may incline to explore complicated music genres more. Upbeat & Conventional music represents a smoothing atmosphere and feeling. Neuroticism, which measures the level of sensitivity and nervousness, is hypothesized not to have strong positive correlation with Upbeat & Conventional music. In contrast, a person scoring in agreeableness, which characterizes cooperativeness, warmth and cordiality, is hypothesized to prefer Upbeat & Conventional music which is lest loathsome to most people. Conscientiousness generally refers to the personal quality like carefulness and efficacy. People who score high in conscientiousness is prone to be conformist (DeYoung, Peterson & Higgins, 2002). Considering the characteristic of the current research sample, it is hypothesized that the conscientiousness could predict the preference of eastern popular music which is most prevailing in eastern society. Since the western popular music leaves a general impression that it stands for the outgoing and energetic aspect of western culture, it is pertinent to assume that it correlate with the extraversion trait.

- Hypotheses III (basic values): Self-transcendence (universalism and benevolence) predicts a taste of Reflective & Complex music and traditional music, whereas conservation (tradition, conformity, security) predicts a taste of popular music.

- Hypotheses IV (basic values): Music preference could be predictive factors for basic values; the circular continuum embedded in the basic personal values regulates and gives coherence to music preference.

The Reflective & Complex music like classical music and blue music, historically, emerged from the humanitarian and democratic movement. Although music is an abstract form of art compared to visual art, the music preference should be capable of revealing the deepest and most subtle values of a person. The preference of Reflective & Complex and traditional music may indicate the faculty of empathy, abstract reasoning and universal legislation which is the prerequisite of moral judgement (Kant & Abbott, 2004; Kant & Pluhar, 1987). Hence, it is hypothesized that people scoring high in self-transcendence dimension would prefer Reflective & Complex music and tradition music. In contrast, popular music is the product of culture industry in which profit-making is the main aim and the transcendental appeal of art is trifled if it goes against the commercial interest. A taste of popular music, on the other hand, may be shaped by peer imitation and mainstream media. Therefore, it is

hypothesized that the taste of popular music is related to conservation dimension of basic personal values.

According the motivational continuum of basic personal values, we assume that the relation between music preference and basic personal values should demonstrate the conflicts in the remote values and similarities in the adjacent values. The music preference should be coherent to the motivational continuum of values. Each music preference is assumed to have strongly positive relation with a group of values, while at least with week relation, if not strongly negative relation, with a group of values differing 180 degrees in the continuum.

- Hypotheses V (economic judgement): As to socio-economic issues, the left wing predicts a preference of Intense & Rebellious music, whereas the right wing predicts a preference of Upbeat & Conventional music. As to individual economic issues, materialistic inclination predicts a preference of western popular music, whereas spiritual inclination predicts a preference of eastern music.

Intense & Rebellious music, such as rock & roll music, heralded the social movements from 1950's and culminated in Woodstock Music & Art Fair in 1969 (Friedlander & Miller, 1996). The ideology behind these social movements could be largely attributed to left-wing assertions and goals (Della Porta & Diani, 2009). The concept of welfare society became sophisticated and was advocated vehemently during these social movements (Banting & Kymlicka, 2006). Given this historical association, the inclination toward welfare society gives coherence to a preference of Intense & Rebellious music, whereas the inclination toward laissez faire gives coherence to a preference of Upbeat & Conventional music. The communication or even confrontation among global civilizations, since industrial revolution and till now, have created a stereotype image of wealth and material success of Western society in the Eastern society (O'Rourke & Williamson, 2001; Waley, 2013). Western popular music, as a nontrivial ingredient of prevailing Western culture, carries the symbol of wealth, success and fashion. Therefore, it is hypothesized that the materialistic inclination relates positively to the preference of Western popular music; spiritual inclination, Eastern music.

Method

Respondents and Procedures

The sample was made up of 41 undergraduate and postgraduate students. Of those who reported, mean age is 23.1 (SD = 4.99), 22 (53.7%) were female, 19 (46.3%) were male, 29 (70.7%) were undergraduates, 12 (29.3%) were postgraduate students, 16 (39%) were from Hong Kong or Macau, 25 (61%) were from Mainland, 34 (82.9%) hold Cantonese as mother tongue, 7 (17.1%) hold Mandarin as mother tongue.

The responses were collected from my university and secondary school classmates in 2017. A content form which described the aim and method of the current research and gave the choice of not participating was present to the participants first. The participants completed the designed questionnaire online through Survey Monkey,

after the completion most of them chose to accept the cash reward. The unfinished responses were excluded from the data.

Measures

Music Preference. Short Test of Music Preferences (STOMP: Rentfrow & Gosling, 2003) measure music preference, presenting in the bilingual (English-Chinese) setting. The STOMP is comprised of 14 music genres, each referring to a distinguished kind of music that contributes to the preference of a more inclusive categories. For example, "Classical" is an indicator for the category of Reflective & Complex music. As to each item, respondents report the preference level for each indicator on a scale ranging from "strongly dislike-1" to "strongly like-7". We infer the respondent' music preference from the music genres to which they indicate how much they prefer.

The dimensions of music preference has been proved to be convergent by the cross time, samples, method and region studies (Rentfrow & Gosling, 2003). The test-retest reliability of the factor has been studied, which established the stability of the four dimensions of music preference. The test-retest correlation ranged from .77 (Reflective and Complex) to 0.89 (Upbeat and Conventional). Although the factor structure has not been studied to the global extent of multi-region and multi-culture, a confirmatory factor analysis has been conducted on a sample of user of audiogalaxy.com, a music website. The result indicated strong factor loadings towards a prior hypothesis.

Personality Traits. We adopt the Big-Five Factors (BFI-44) to assess the respondents' personality trait (John, Donahue & Kentle, 1991; John, Donahue & Kentle, 2008). Each English statement is followed by Chinese translation. The respondents indicate how they agree or disagree with 44 statements on a five-point scale ranging from "disagree strongly-1" to "agree strongly-5". (Rammstedt, & John, 2007). The internal consistencies measured by BFI-44 in American sample, suggested by Cronbach's Alpha, for the dimensions are .88 (Extraversion), .79 (Agreeableness), .82 (Conscientiousness), .84 (Neuroticism), 0.81 (Openness). The internal consistencies measured by BFI-44 in Spanish sample for the dimensions are .85 (Extraversion), .66 (Agreeableness), .77 (Conscientiousness), .80 (Neuroticism), 0.79 (Openness) (Benet-Martinez & John, 1998).

Basic Personal Values. The Portrait Values Questionnaire (PVQ; Schwartz, 2006) is applied to assess basic values. There are 57 short statements concerning one's goals, aspirations, or desires for the participants to identify how much the statements are like themselves. For example, "It is important to him to have a good time" outlines a person who attaches importance to hedonism value. For scoring 10 key values, there are three to nine items to evaluate them. According to the 6-point scale ranging from "Not like me at all-1" to "Very much like me-6", the respondents report how the portrait person is like himself or herself.

The application of the PVQ scale may differ from various individuals and cultural groups (Saris, 1988; Schwartz, Verkasalo, Antonovsky & Sagiv, 1997). Without proper consideration and correction, misuse of the scale may result in distorted conclusion (Schwartz, 1992, 2003). As the result, we compute both *un*centred values

and centred values indicating personal values for different statistic purposes. The *un*centred values is computed by taking the simple average of the numerical value of items which index a particular basic personal values. Before calculating the centred value scores, we first average each respondent's score across all 57 items, the result of which is named as Mean RATing. Subtracting each respondent's uncentred value scores by their own Mean RATing, we could attain the centred value scores. The uncentred values is appropriate for factor analysis, while the centred one is appropriate for correlation analysis.

The convergent and discriminant validity of the objects assessed by the PVQ has been established by multimethod-multitrait analyses (Schwartz; 2006). Given the theoretical context of the basic personal values, it is not pertinent to ask whether the internal reliabilities are high or not. The items, under each category, are expected to encompass the values within that category instead of indexing a core idea. Nevertheless, basic values assessed by the PVQ has been found to relate with the Big Five personality traits, political orientation and other demographical variables as the proposed hypotheses (Cohrs, Moschner, Maes & Kielmann, 2005; Schwartz & Rubel, 2005).

Economic Judgement. The economic judgement questionnaire (EJQ) is constructed based on economic and political science. The Overall Economic Judgement (EJ-O) measures how a person considers the importance of economic issues in his or her life with two items. The First Economic Judgement (EJ-1) measures a person's choice of economy system, laissez faire versus the welfare society, with three items. A respondent scoring higher in EJ-1 indicates that he or she inclines to welfare society. The Second Economic Judgement (EJ-2) measures a person's motivation to pursue financial and economic success with three items. A person scoring higher in EJ-2 indicates that he or she has stronger motivation to achieve financial and economic success. Although the sample in the current research is limited, the alpha reliability coefficients of the EJQ could serve as a preliminary evidence for further research. The Cronbach's alpha coefficients of EJ-O, EJ-1 and EJ-2 are .77, .74 and .77 respectively.

Results

Correlation between Personality Traits and Music Preference

Hypothesis I and Hypothesis II both proposed that a certain preference of music genres is related personality traits. For example, preference of Reflective & Complex music and western traditional music should correlate positively to the openness traits. Table 1 reports the Pearson correlation between Big Five Factor personality traits and music preference measured by STOMP, while Table 2 reports that between Big Five Factor personality traits and music preference measured by general comparison. All of the hypothesized associations were significant ($p < .05$). In addition, it could be observed that the correlation between Western Classical music and Agreeableness was significant ($p < .05$) as well. In particular, Neuroticism related to Western Popular significantly ($p < .05$) and Western Tradition ($p = 0.061$), while its correlation with

Table 1

Correlation between Music Preference Measured by STOMP and Big Five Personality Trait

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Reflective & Complex	.25	.14	-.09	.38**	.41**
Intense & Rebellious	.01	-.06	.11	.33*	.22
Upbeat & Conventional	.19	.35*	.09	.24	.19
Energetic & Rhythmic	.14	-.10	-.04	.31*	.14

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

Table 2

Correlation between Music Preference Measured by General Comparison and Big Five Personality Trait

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Eastern traditional	.19	.11	.10	.05	.24
Eastern popular	.10	.10	.23	.12	.02
Western traditional	-.07	.32*	.13	.25	.30*
Western popular	.29*	.02	.08	.30*	.03

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

Eastern Popular and Eastern Traditional is noticeable low. There is dichotomous relation regarding to the traditional-popular comparison in light of Openness. The correlation between Openness with popular dimensions, both Western one and Eastern one included, is obviously lower than that with two traditional dimensions.

Correlation between Basic Personal Values and Music Preference

As to hypotheses III, most of the arguments are corroborated by the results demonstrated in Table 3 and Table 4. However, Benevolence turned out to be negatively related with preference of Reflective & Complex music. There are some additional findings beyond the original hypotheses. Apart from Universalism, Stimulation and Achievement has significant positive correlation with the preference of Reflective & Complex music. The negative correlation preference of Reflective & Complex music and Tradition is significant. Self-direction reports significant positive correlation with preference of Intense & Rebellious music. Those respondents who prefer Energetic & Rhythmic significantly tend to score lower in Security. The conservation values do predict a taste of popular music, but the predictive power of each conservation value for either Western Popular or Easter Popular differs. Conformity predicts a preference of Western Popular, while Tradition predicts a preference of Eastern Popular. In regard to popular music in general, Stimulation and Universalism indicate a significantly negative correlation with both Western Popular and Eastern Popular.

The direct application of Pearson correlation is undesirable for addressing hypotheses IV. The correlations among music preference and Basic Personal Values may obstruct our understanding of overall picture. Although the sample size is limited, exploratory factor analysis is employed in current research to give a rough representation of the circular continuum embedded in the Basic Personal Values. Some studies (Preacher & MacCallum, 2002; de Winter*, Dodou* & Wieringa, 2009) have shown that limited sample size could yield preliminary but satisfactory result for exploratory factor analysis. When it comes to practical research, the minimum sample size and the minimum Subject-to-Variable, which is found in four journals (*Educational and Psychological Measurement*, *Journal of Educational Psychology*, *Personality and Individual Differences, and Psychological Assessment*), is 42 and 3.25:1 respectively (Henson & Roberts, 2006). A similar review, conducted by Fabrigar, Wegener, MacCallum and Strahan (1991), shows that the factor analyses with sample size less than 100 and Subject-to-Variable less than 4:1 are common in *Journal of Personality and Social Psychology* and *Journal of Applied Psychology*.

Theoretically speaking, the communality of the variables should hold a reasonable level for a promising recovery of popular factors. It is suggested that the communalities should not less than .6 for each variables or 0.7 in average (MacCallum, Widaman, Zhang & Hong, 1999). As to the factor-to-variable ratio, secondly, it is argued that it is appropriate to set 3 or more variables for each factor (Velicer & Fava, 1998). Thirdly, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test should be satisfied for the factor analysis. The KMO result should be greater than .5 and the Barlett's Test should be significant ($p < .05$) (Williams, Onsman & Brown, 2010). Considering all

Table 3

Correlation between Music Preference Measured by STOMP and Basic Personal Values

	self-direction	stimulation	hedonism	achievement	power	security	conformity	tradition	benevolence	universalism
Reflective & Complex	.09	.28*	.21	.28*	-.14	-.15	-.09	-.330*	-.226	.281*
Intense & Rebellious	.33*	.04	-.01	.23	-.09	-.17	-.07	-.173	-.177	.100
Upbeat & Conventional	-.02	-.19	.20	-.14	-.11	-.11	.12	.132	.173	-.008
Energetic & Rhythmic	.14	.15	.10	.18	-.02	-.40**	-.04	-.141	.034	.082

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

Table 4

Correlation between Music Preference Measured by General Comparison and Basic Personal Values

	self-direction	stimulation	hedonism	achievement	power	security	conformity	tradition	benevolence	universalism
Eastern traditional	-.20	-.11	.15	-.08	-.09	.06	.06	.195	-.033	.083
Eastern popular	-.00	-.27*	.05	-.20	.00	-.05	.16	.345*	.239	-.271*
Western traditional	.06	-.11	.05	-.01	-.06	-.08	-.02	.093	-.256	.171
Western popular	-.09	-.29*	.04	-.07	.08	.03	.34*	.205	.212	-.381**

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

the literatures above, an exploratory factor analysis could be performed in the current study.

The factorability of the items made up of PVQ and STOMP are examined according to several well recognized criteria. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy for our first factor analysis (Table 5) is .63, which is greater than the recommended value of .5. Secondly, Bartlett's test of sphericity shows significance (Approx. Chi-Square = 306.569, df = 91, $p < .05$). The communalities of the variables are all greater than .6 expect for Simulation which is .58 (Appendix I), evidencing the sharing covariance among the items.

To facilitate our understanding of the coherence that basic values give to music preference, principal components analysis was employed to compute the music preference factors latent in basic values. The composite scores based on the uncentred mean of PVQ items and the sum of STOMP items are used as input for principal components analysis. The initial eigenvalues indicate the four factors could explain the 33.37%, 18.90%, 11.48% and 9.50% of the variance respectively. In total, 73.25% of the variance could be explained. We adopt the four-factor solution because it is preferable to separate music preferences measured by STMOP and basic values in our current research. Both the varimax and direct oblimin rotations have been performed before deciding which one to be reported. The differences are not significant, but the oblimin rotation could yield more coherent and remarkable results by eliminating the correlations among factors.

Table 5

Factor loadings and communalities based on a principle components analysis with oblimin rotation for 14 items from PVQ and STOMP (N = *41*)

	Reflective & Complex	Intense & Rebellious	Upbeat & Conventional	Energetic & Rhythmic
self-direction	**.71**	.07	-.29	.18
stimulation	**.50**	.05	-.42	.30
hedonism	**.81**	.03	.19	.02
achievement	.24	.19	-.27	**.79**
Power	-.28	-.06	.15	**.95**
security	.41	-.17	.27	**.57**
conformity	.45	-.07	**.52**	.32
Tradition	.16	-.26	**.68**	.17
benevolence	**.61**	-.14	.37	.20
universalism	**.92**	-.02	.04	-.28

Note. Rotation converged in 53 iterations. The eigenvalues of the factors were: 4.67, 2.65, 1.61, 1.33. Factor loadings greater than .5 were bolded.

Table 6

*Descriptive statistics for the four STOMP factors (*N *= 41)*

	No. of items	*M* (*SD*)	Skewness	Kurtosis	Alpha
Reflective & Complex	4	19.56 (3.66)	.39	-.09	.73
Intense & Rebellious	3	10.76 (3.40)	.30	.18	.73
Upbeat & Conventional	4	19.66 (3.35)	-.54	.48	.52
Energetic & Rhythmic	3	11.37 (3.69)	-.22	.39	.76

Descriptive statistics are reported in Table 6. According to recognized practice (Field, 2009), the reported skenness and kurtosis could support us to assume a normal distribution for each factor. A more robust test which rejects the hypothesis that the distribution is not normal is provided in Appendix II. The internal reliabilities are acceptable ($.8 > \alpha > .7$) except for Upbeat & Conventional. Nevertheless, the alpha of Upbeat & Conventional still fall beyond the totally unacceptable range (less than .5). In summary, the approximate normalities and the internal reliabilities of the STOMP factors qualify parametric statistical analyses in current study.

A similar factor analysis is adopted to approach the greater picture of relation between basic personal values and music preference measured by general comparison. The factorability of the items made up of PVQ and STOMP are examined according to several well recognized criteria. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy for our second factor analysis (Table 7) is .66, which is greater than the recommended value of .5. Secondly, Bartlett's test of sphericity shows significance (Approx. Chi-Square = 292.032, df = 91, $p < .05$). The communalities of the variables are all greater than .6 expect for Simulation which is .54 (Appendix III), evidencing the sharing covariance among the items.

The composite scores bases on the uncentred mean of PVQ items and the numerical figures revealed by general comparison of music preference are used as input for principal components analysis. The initial eigenvalues indicate the four factors could explain the 32.91%, 18.71%, 10.87% and 9.46% of the variance respectively. In total, 71.95% of the variance could be explained. We adopt the four-factor solution because it is preferable to separate music preferences measured by general comparison and basic values in our current research. Both the varimax and direct oblimin rotations have been performed before deciding which one to be reported. The differences are not significant, but the oblimin rotation could yield more coherent and smooth results by eliminating the correlations among factors.

Since the each music preference is measured by one item in general comparison, the reliability test is not applicable. The rest descriptive statistics are reported in table 8. Except the kurtosis of Western traditional, all the skenness and kurtosis fall within an acceptable range for assuming normal distributions. Although the kurtosis value of Western traditional is high, it is nevertheless not completely poor for further analysis.

To sum up, the general comparison factors could receive parametric statistical analyses in current study.

Table 7

Factor loadings and communalities based on a principle components analysis with oblimin rotation for 14 items from PVQ and general comparison (N = *41*)

	Eastern traditional	Eastern popular	Western traditional	Western popular
self-direction	.11	.06	.19	**.74**
stimulation	-.01	-.14	.05	**.70**
hedonism	**.55**	.10	.36	.39
achievement	-.01	.04	-.36	**.91**
Power	.24	-.05	**-.74**	.40
Security	**.65**	-.02	-.18	.41
conformity	**.83**	.04	-.02	.09
tradition	**.84**	.08	-.05	-.29
benevolence	**.81**	-.06	.08	.15
universalism	.44	-.06	**.70**	.27

Note. Rotation converged in 17 iterations. The eigenvalues of the factors were: 4.61, 2.62, 1.52, 1.33. Factor loadings greater than .5 were bolded.

Table 8

*Descriptive statistics for the four general comparison factors (*N = *41)*

	No. of items	*M* (*SD*)	Skewness	Kurtosis	Alpha
Eastern traditional	1	4.39 (1.24)	.10	.41	N/A
Eastern popular	1	4.49 (1.52)	-.58	-.16	N/A
Western traditional	1	4.61 (1.16)	-.38	1.37	N/A
Western popular	1	4.78 (1.44)	-.33	-.14	N/A

Correlation between Economic Judgement and Music Preference

Hypotheses V proposed how economic judgement relates to music preference. Socio-economic status measured the self-identified position of himself or herself in society. The scale ranged from "upper class" to "lower class" with 5-point scale, where lower score implied higher socio-economic status. Overall economic awareness measured how the respondents prioritise economic issues in life, where higher score in this dimension indicated a more sensitive attitude toward economic issues. Those respondents who scored higher in Economic Judgement 1 implied an approval of welfare society policy (left wing), whereas lower implied an approbation of laisse-fair policy (right wing). Those respondents who scored higher in Economic Judgement 2 implied an embracement of materialistic life style, whereas lower implied an acceptance of spiritual one.

The result shown in Table 9 partly confirms the hypotheses V. The left wing ideology correlate significantly with Energetic & Rhythmic music, Reflective & Complex music and Intense & Rebellious music. However, the relation between Economic Judgement 1 and Upbeat & Conventional music is too weak to support corresponding hypotheses. In table 10, the second part of hypotheses is substantiated.

Discussion

Interpreting of Correlation between Personality and Music preference

The pattern of correlations between music preferences measured by STOMP and Big Five Personality only resembles those previous researches in a limited manner (Rentfrow & Gosling, 2003; Delsing, Ter Bogt, Engels & Meeus, 2008). Neuroticism, or emotional stability, plays little role in music preference measured by STOMP in both previous researches. However, the current study found substantial correlation between neuroticism and music preferences, except for Upbeat & Conventional dimension. This conspicuous difference may be attributed to the different cultural backgrounds of the samples. It has been long argued by some music scholars and educators that traditionally rationality elements of music, such as structure, texture and polyphony, were stressed more than emotion elements, such as melody and rhythm, by Western music compared with Eastern one. A strong influence of Neuroticism on music preferences in our respondents may confirm such belief. Another possible explanation is that people in Eastern society tends to conceal their emotions in public. Music, as an alternative, becomes a powerful medium to carry and convey emotion. The consistencies between current research and previous researches are interesting as well. Despite Neuroticism have a large role in preference of Reflective & Complex music particularly in this research, three researches all show that Openness has significant positive correlation with it. The cross-cultural consistency may support the idea that appreciation of Reflective & Complex music involves aesthetic sensitivity and intellectual curiosity that Openness describes. Besides, it is reported in three researches that preference of Upbeat & Conventional music significantly correlates with Agreeableness. It is widely believed that upbeat music follows the deep instincts of heartbeat rhythm, while the tonal (conventional) music follows that of auditory sense. The Upbeat & Conventional music may attract the respondents scoring higher in

Table 9

Correlation between Music Preference Measured by STOMP and Economic Judgement

	Reflective & Complex	Intense & Rebellious	Upbeat & Conventional	Energetic & Rhythmic
Socio-economic status	.13	.12	.15	.17
Overall economic awareness	.16	.09	.07	.12
Economic judgement 1	.37**	.29*	.04	.44**
Economic judgement 2	.03	.11	.03	.09

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

Table 10

Correlation between Music Preference Measured by General Comparison and Economic Judgement

	Eastern traditional	Eastern popular	Western traditional	Western popular
Socio-economic status	.22	.14	.06	.08
Overall economic awareness	.09	.25	.02	.27*
Economic judgement 1	-.12	.04	-.10	.16
Economic judgement 2	-.05	.12	.13	.24

Note. $N = 41$. *$p < .05$, one-tailed; **$p < .01$, one-tailed.

Agreeableness because it appeals to the straightforwardness and tender-mindedness facets of Agreeableness.

The correlation reported in Table 2 could offer us another new perspective toward the dynamics between personality and music preference. The correlation between personality traits and Western music is more distinguishable from that between personality traits and Eastern one. It could be argued that, given our sample cultural characteristics, Western music is capable of embodying personality in a more direct way. Although it is easier to touch different cultures in a globalized world, the choice of Western music, either traditional or popular, demands extra reasons or explanations for one's own self. Such choice, which is made so as to avoid inconsistencies in mind, should stands for himself or herself. If this understanding is plausible, the people with higher Openness and Agreeableness intentionally choose to immerge themselves in Western traditional music, while those who scores higher in Extraversion and Neuroticism consciously pick Western popular music to appreciate.

Structuring of Basic Personal Values by Music Preference

Rather than treating basic personal values as factors explaining music preference, it is constructive to view music preferences as predictive factors of basic personal values. In everyday life, it is inconceivable for us to know each other's personal values with a standardized set of questions, not to mention the impoliteness of doing so. More frequently, we simply ask less sensitive and awkward questions like "what music do you prefer" or "what food do you like" to know each other better. The people with similar hobbies, as it is commonly observed, tend to get along with each other. One may curious if it is just hobbies that tie them together, or something deeper works. If music preferences could predict basic personal values, this question would have a meaningful explanation.

Figure 2 is the visualization of the Table 5, in which the circulator continuum embedded in the basic values is vividly shown. It is reported that each music preference relates to a specific category of basic personal values, except for Intense & Rebellious which loadings are not powerful enough. The common pattern is that the loadings of a music preference peaked at a specific value. The more remote the values are, the less the loadings are. It corresponds to the theory structure of basic personal values as the opposite values in Figure 1 should has week correlation or negative correlation. For example, the factor loadings of Energetic & Rhythmic peaked at power that belongs to self-enhancement and clustered around the bolded nearby values. As the values move to the opposite direction in Figure 1, the factor loadings drop to the lowest at universalism that belongs to self-transcendence.

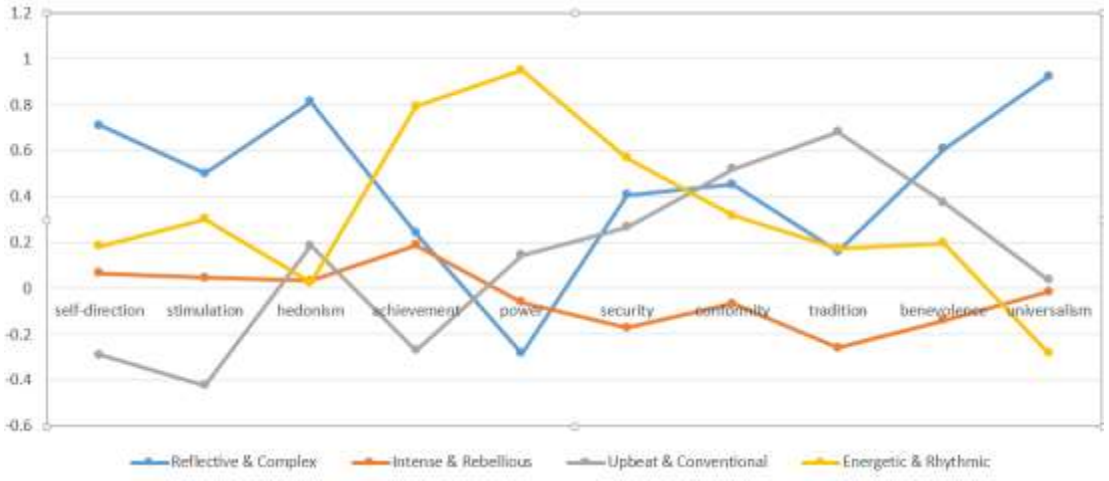

Figure 2. The factor loadings in Table 5 reported in line chart. The x-axis is basic personal values and the y-axis is the factor loading.

From the above analysis, we have a sound explanation why people with similar music taste would be easier to get along with each other. Initially, People with similar music preference are more inclined to talk to each other because they find some shared topics. As the communication goes deeper, they will touch on personal values sooner or later. It is probable that they uphold similar values when they share similar music taste. Finally, the similar values would bind them as intimate friends.

Understanding of Correlation between Economic Judgement and Music preference

Our findings support the view that a particular style or genre of art may stand for a specific ideology. Some artists explicitly express the convictions they hold in their works. For example, Beethoven made an unequivocal assertion of universal brotherhood and sisterhood in his Symphony No.9. Many rock starts vehemently advocate the liberal ideas, welfare society included. Interestingly enough, Table 9 reports that those who score high in EJ-1, which means an inclination to welfare society and thus liberal economic policy, have strong tendency to prefer Energetic & Rhythmic music, Reflective & Complex and Intense & Rebellious. Rentfrow & Gosling (2003) adopted political liberal/conservative approach to study this question. It is also reported that liberal political orientation points a significant positive correlation with the same music preferences. In light of both studies, we could tentatively arrive at a plausible conclusion that music could stand for similar ideology beyond the obstacle of different cultures, regions and languages. Another finding is that higher score in Overall economic awareness predicts a preference of Western popular music. The most convincing explanation we believe is that Western culture has long been a symbol of wealth and success. It is natural for those respondents who think economic issue is important to choose to appreciate Western popular music.

Limitation

There are some theoretical and empirical limitations in current research. For the theoretical limitations, firstly, a more comprehensive scale for measuring economic judgement should be employed. There are sophisticated theories and corresponding questionnaire to assess the conservative-liberal orientation. However, due to the limited time and resources provided for the current research, a tailor-made scale was adopted in this research. Secondly, the music preference measured by general comparison is rather direct and transparent, but more delicate differences in music genre are omitted. For the future research, we think that the STOMP could be revised by adding more music genres into it, including, but not limited to, Chinese music genres. Some respondents told me that the music genres with which they were familiar are not included in STOMP, while not a few items in STOMP are eccentric to them. It should be borne in mind that STOMP is designed out of Western culture. The direct application of it in non-Western context may give rise to inaccuracies and misunderstandings. Thirdly, a valid cross-cultural research is supposed to conduct in one research, from which a complete data could be analysed. Instead of comparing the result alone, analysis of the raw data together is crucial for a convincing cross-cultural research. The comparisons in current research could only serve as some hints for such research by indicating there may be values and possibilities for it. Future studies should collect data with revised STOMP so that the similarity and difference of music preference among different cultures could be established.

The most striking empirical limitation is that the sample size is rather small in this study, resulting in less convincing findings. We are well aware that our sample size, even if it is justifiable for an exploratory factor analysis by the *minimum* requirements found in literatures, is not adequate to produce unambiguous and deciding findings. Given the limited sample size, the factor loadings are rather unstable and thus the factors may not be so reliable. In the second place, the sample was a non-random sample, which was biased towards the respondents with whom I acquaint. Nevertheless, as a prefatory research, the findings may provide some clues for future studies. Future studies should select larger and more representative samples so that the findings would be compellingly persuading.

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Appendix I

Communalities of PVQ and STOMP items

	Initial	Extraction
Reflective & Complex	1.00	.70
Intense & Rebellious	1.00	.65
Upbeat & Conventional	1.00	.68
Energetic & Rhythmic	1.00	.80
0Self-direction	1.00	.67
Stimulation	1.00	.58
Hedonism	1.00	.73
Achievement	1.00	.87
Power	1.00	.85
Security	1.00	.81
Conformity	1.00	.74
Tradition	1.00	.69
Benevolence	1.00	.72
Universalism	1.00	.77

Extraction Method: Principal Component Analysis.

Appendix II

Tests of Normality for STOMP factors

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Reflective & Complex	.10	41	.20*	.98	41	.52
Intense & Rebellious	.10	41	.20*	.97	41	.40
Upbeat & Conventional	.13	41	.10	.96	41	.19
Energetic & Rhythmic	.15	41	.02	.96	41	.20

Note. *. This is a lower bound of the true significance. a. Lilliefors Significance Correction

Appendix III

Communalities of PVQ and STOMP items

	Initial	Extraction
Eastern traditional	1.00	.66
Eastern popular	1.00	.70
Western traditional	1.00	.62
Western popular	1.00	.71
self-direction	1.00	.66
stimulation	1.00	.54
hedonism	1.00	.72
achievement	1.00	.88
power	1.00	.79
security	1.00	.77
conformity	1.00	.75
tradition	1.00	.68
benevolence	1.00	.75
universalism	1.00	.84

Extraction Method: Principal Component Analysis.