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Individual Differences in Musical Taste

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Abstract

Several studies have investigated the relationship between (usually a narrow set of) personality dimensions and liking for a small number of individual musical styles. There has been no attempt to date to investigate, within a single methodology, the extent to which personality factors correlate with liking for a very wide range of musical styles. To address this, 36518 participants rated their liking for 104 musical styles, completed a short form of the 'big five' personality inventory, and provided other data concerning their favourite musical style. Personality factors were related to both liking for the musical styles and participants' reasons for listening to this music. However, on the whole, these latter variables were related more closely to participants' age, sex, and income than to 'big five' scores. As such, personality is related to musical taste, but other individual differences are arguably related more closely.

Key words: Music, taste, personality, age, sex, income, self-esteem

Individual Differences in Musical Taste

Research has characterised aesthetic responses to music as mediated by aspects of the *music itself*, the *listening situation*, and the *listener* (e.g., North & Hargreaves, 2008). Studies of those aspects of the music itself that influence musical preference have focused on the complexity and familiarity of the music, or the extent to which it is typical of that to which participants are usually exposed (e.g., Martindale & Moore, 1989). Research on the listening situation has investigated how listeners use music to mediate arousal in the autonomic nervous system caused by those situations (e.g., Konečni, 1982; North & Hargreaves, 2000), or use music to meet a series of mundane, everyday goals (North, Hargreaves, & Hargreaves, 2004; Sloboda, O'Neill, & Ivaldi, 2001). Research on the third factor, the listener, is relatively scarce, however. Arguably the most frequently-studied individual difference factor in musical taste is personality; and research has focussed strongly on those factors that distinguish fans of both rap and rock from the remainder of the population, such as Zuckerman's (1979) sensation-seeking scale (e.g. Arnett, 1991, 1992; Hall, 2005); conservatism variables (e.g., Glasgow & Cartier, 1985; Lynxwiler & Gay, 2000); and anti-authoritarianism (e.g., North & Hargreaves, 2006; Wingood, DiClemente, & Bernhardt et al., 2003).

Note also, however, that the rebellious nature of rock fans is not found universally (Zweigenhaft, 2008); and that George, Stickle, Rachid, and Wopnford (2007) and Rentfrow and Gosling (2003) find that rap and rock load onto differing groupings of musical taste, and so must be treated separately. Moreover, this focus on anti-authoritarianism among rap and rock fans has two implications. First, little is known about whether 'personality' in general is related to 'musical taste' in general, with perhaps only two attempts to investigate this to date. Rentfrow and Gosling

(2003) first identified four musical meta-styles, namely reflective and complex; intense and rebellious; upbeat and conventional; and energetic and rhythmic, which were associated with scores on the 'big five' personality inventory (see e.g., Langford, 2003), which produces a score for an individual on each of five dimensions that together are claimed to provide a comprehensive overview of personality. The big five dimensions are openness, conscientiousness, extraversion, agreeableness, and neuroticism. Openness refers to appreciation of adventurousness and art, curiosity, and enjoyment of the unusual; conscientiousness refers to self-discipline, feelings of duty, planning, and achievement orientation; extraversion refers to seeking stimulation and company, energy, and surgency; agreeableness refers to being compassionate and cooperative; and neuroticism refers to emotional instability and a predisposition toward negative emotions such as anxiety or depression. For example, Rentfrow and Gosling (2003) found that liking for both reflective and complex music and intense and rebellious music was related positively to openness; that liking for upbeat and conventional music was related positively to extraversion, agreeableness, and conscientiousness, and negatively to openness; and that liking for energetic and rhythmic music was related positively to extraversion and agreeableness.

Similarly, George et al (2007) assessed liking for 30 musical styles among 358 people, and how this related to the big five personality dimensions plus several other individual difference variables, namely intelligence, spirituality, self esteem, social skills, locus of control, emotional stability, hostility, and depression. They found that "Factor analysis of the 30 music styles resulted in 8 factors ... [and that there was] an almost comprehensively negative personal profile for those who listen to the Rebellious and Rhythmic & Intense categories of music. Results further produce an

almost comprehensively positive profile for those who listen to Classical music” (p. 32).

Second, another consequence of the focus on anti-authoritarianism among fans of rap and rock is that little is known about the *extent* to which more general aspects of personality are related to liking for a range of musical styles. The correlations between liking for meta-styles and scores on the big five dimensions identified by Rentfrow and Gosling (2003) were typically between .10 and .25, indicating that they explained far less than 10% of the variance in participants’ data. The possibility exists that although a general measure of personality is related to liking for a wide range of musical styles, any such relationships might be small in magnitude.

To address these two issues, the present paper presents regression data based on an internet survey of over 36000 people concerning the extent to which their degree of liking for 104 different musical styles could be predicted by their scores on a short measure of the big five personality inventory. The main hypothesis of the present research was that participants’ liking for these musical styles should be related to their personality.

Other individual difference variables: self-esteem, age, sex, and income

Research suggests that several aspects of the listener other than personality might also be related to musical taste. The second aim of the present research was, therefore, to compare the strength of the relationship between musical taste and personality with those relationships concerning musical taste and each of self-esteem, age, sex, and income.

First, the research investigated whether self-esteem was related to liking for the musical styles. This was considered because of research showing elevated levels of self-harming and lower self-esteem among rock fans (e.g., North & Hargreaves, 2006; Rubin, West, & Mitchell, 2001); and Tarrant, North, and Hargreaves' (2002) finding that the maintenance of self-esteem underlies the use of musical preference in inter-group discrimination. Second, the role of age in musical has been studied surprisingly little, but Hargreaves and Castell (1987) report evidence supporting their contention that age should be related positively to liking for more complex music; and other studies implicate adolescence as a critical period in the development of musical taste (e.g., Holbrook & Schindler, 1989; North & Hargreaves, 1995, 2002). Third, few studies have addressed sex as the primary source of variation in musical taste, although there is some indication that women prefer 'softer' musical styles such as mainstream pop whereas males tend to prefer 'harder' styles such as rock (see e.g., North, Hargreaves, & O'Neill, 2000). Finally, there is some indication from sociological research drawing on a Marxist approach that higher income is associated with taste for 'high art' musical styles (see e.g., Shepherd, 2003; North and Hargreaves, 2007).

Reasons for listening to favourite musical style

The present research also allowed investigation of an interesting subsidiary issue concerning individual differences in musical taste. As noted earlier, several studies have found that people whose favourite musical style is rap and rock score higher than others on various measures of anti-authoritarianism. Implicit to these studies is the notion that the sensational lyrics and musical characteristics associated with the music

reflect the dispositions of the listeners. More formally, this suggests that favourite musical styles might *reflect* aspects of personality: the characteristics of a person's favourite musical style might correspond with an exaggerated personality disposition held by that individual. However, data concerning a much wider range of musical styles is needed before such a conclusion can be stated with confidence. In particular, an alternative possibility is that people might instead have as their 'favourite' a musical style that *compensates* for, or attenuates, an otherwise exaggerated personality trait.

Method

Participants

Data were collected via an internet questionnaire (in English) which was publicised by the host university's web site and a press release targeted at newspapers and radio stations situated in Europe, North America, Australia, and New Zealand. The press release noted that an attempt was being made "to carry out the largest-ever academic study of musical taste", that the intention was to collect data from a large number of respondents, and that as many people as possible were needed to visit the project web site in order to complete an online questionnaire presented there. Data from 1336 respondents (3.5% of all respondents) were discarded because the participants did not live in the target areas. Data was deleted from a further 66 respondents who did not state their age and / or country of origin. Data were deleted from five further participants who failed to select the 'unknown' option for a fictional musical style included on the list, pancat, which was included to identify participants producing

unreliable data. This left a final sample of 36518 participants with a mean age of 28.13 years ($SD = 10.47$), comprising 22163 males and 14355 females, with 24792 from Europe (principally Denmark, Finland, Germany, Italy, Norway, Poland, and the United Kingdom), 10223 from North America, and 1503 from Australia / New Zealand. Respondents' IP addresses were used to verify that they did not complete the questionnaire twice. A researcher was available via phone and email during data collection to answer participants' questions and prevent dropouts. A region (Europe vs. North America vs. Australasia) x gender MANCOVA (which treated income and age as covariates) was carried out on factor scores resulting from the principal components analysis of ratings of liking for the musical styles (see Table 1): this indicated no effect of region when these other factors were accounted for, so that data from Europe, North America, and Australasia were pooled in the analyses reported here.

Questionnaire

Participants stated their age in years, their sex (with males coded as '1' and females coded as '2'), and their total personal annual income before tax, before then completing the Rosenberg self-esteem scale (Rosenberg, 1989), on which high scores indicate high self-esteem (Cronbach's $\alpha = .87$).

The most thorough assessment of the big five is provided by Costa and McCrae's (1985) 240-item NEO-PI. However, the length of this clearly makes it unsuitable for use in research that also requires data collection concerning a second factor, in this case musical preferences. Participants therefore completed Langford's (2003) five-item measure of the 'big five' personality dimensions. Langford

investigated the validity and reliability of several shorter versions of Shafer's (1999) 30-item measure of the 'big five'; and concluded that there was "only a slight decline in predictive validity as the number of items and adjectives in the Big Five measures decreased. The results support the use of the abridged measures under conditions when administration time is short, rater fatigue is likely or when multiple measures are being administered", such as in the present study (Langford, 2003, p. 1127). The resulting five-item measure produced by Langford requires participants to rate themselves on seven-point proxy scales for the big five dimensions of openness, conscientiousness, extraversion, agreeableness, and neuroticism, which are respectively 'uncreative-creative', 'lazy-hardworking', 'shy-outgoing', 'headstrong-gentle', and 'nervous-at ease'. The items selected by Langford (2003) for this five-item measure were those that showed the highest weighted average factor loadings across Shafer's published studies, and scores on these five items produced correlations with scores on a 30-item measure of the big five dimensions of between .69 and .82 (mean = .76). Note that although the five items employed here are appropriate proxies for the 'big five' dimensions, the manuscript hereafter refers to only the five items themselves, for the sake of accuracy. Similarly, note that the conclusions reached must be taken as being in relation to the five items themselves, and that the relationship between these conclusions and the 'big five' dimensions per se is potentially more open to debate.

Participants then rated their liking for 104 musical styles, presented alphabetically, from 0 ('dislike a lot') to 10 ('like a lot'). Participants were also told that "if you have never heard of a musical style, or you don't recognise it, then please select 'unknown'", instead of giving a rating. In an attempt to investigate the widest possible range of musical styles, the 104 styles were from all global regions, selected

in consultation with an ethnomusicologist, and checked with the relevant cultural groups (via e.g., cultural centres, internet chat rooms, and student societies) to ensure they were well-known.

Participants were next presented with (i) the full list of musical styles and asked to nominate one as their 'favourite'; (ii) 10 statements from North, Hargreaves, and O'Neill (2000; see Table 3), and asked to rate the extent to which each was a reason why they listened to their favourite style of music (0 = 'definitely not a reason', 10 = 'definitely a reason'); (iii) nine emotional terms from North and Hargreaves (1997) on which they rated how their "favourite style of music usually makes you feel" (0 = 'not at all true for me', 10 'really true for me'): in addition to the rating of how 'arousing' the music was (see Berlyne, 1971; Russell, 1978), the remaining eight terms represented two from each of the four 'quadrants' of the circumplex approach to emotion; and (iv) four reasons why they might buy music within their favourite musical style from North and Oishi (2006) (0 = 'definitely not a reason', 10 = 'definitely is a reason').

Results and Discussion

Many of the non-western musical styles were not recognised by a large portion of the participants, with implications for the statistical power and degrees of freedom of further analyses, so 51 musical styles that were not recognised by at least 60% the participants were deleted from the data set. A list of these can be downloaded via the author's web page (<http://www.psychology.hw.ac.uk/staff.php>).

Meta-styles

A principal components analysis was carried out on ratings of liking for the remaining musical styles. Varimax rotation yielded 10 components with eigenvalues greater than one (see Table 1), with these meta-styles being labelled respectively as classical music, jazz, mainstream, folk, alternative rock, Latino, music of black origin (MOBO), dance, rock, and functional.

- Table 1 about here -

Musical taste and individual differences

Multiple regressions investigated the extent to which personality, self-esteem, age, sex, and income could predict liking for each separate musical style. The full results for each unique musical style are available from the author's web site, which shows that liking for each was predicted significantly by the individual difference variables, and by at least one of the personality variables. However, in a data set as large as that here, other indicators of the actual strength of association than statistical significance are arguably more insightful. Accordingly, Table 2 presents two versions of the mean standardised beta values for each meta-style. In calculating the first set of mean beta values (designated 'Strength'), the direction of the individual values was ignored, indicating the overall *strength* of association. The second set of mean beta values (designated 'Direction') included the direction of the values in calculating the mean. Table 2 shows that the predictor variables explained only a small proportion (typically between 2% and 5%) of the variance in musical taste. Individual differences were

related only weakly to musical preference, and age alone explained the greatest portion of the relationship.

- Table 2 about here -

Indeed, the grand mean row in Table 2 for 'Strength' indicates that the variables most closely related to musical taste were, in descending order, age, gender, income, 'creative', 'outgoing', self-esteem, 'gentle', 'hardworking', and 'at ease'. Of the five personality dimensions, scores for 'creative' were related most closely to musical taste. 'Creative' was the proxy term for the openness dimension of the big five. The latter subsumes concepts such as being creative, imaginative, and artistic; and so it is unsurprising that the term representing this scale in the present research should be more closely related to musical taste than others.

Although the beta values in Table 2 are small, which undoubtedly tempers the strength of any broader conclusions concerning the specific direction of the findings, it is also interesting to compare the present data with those from earlier studies that have concluded that people who like both rap and rock music hold relatively anti-authoritarian attitudes, and that people who like classical music hold relatively conservative attitudes. The 'Direction' rows of Table 2 indicate that when used to predict liking for the MOBO meta-style, 'gentle' (the proxy for the agreeableness dimension) gave rise to a mean standardised beta value of just .010: this fails to support the findings of previous studies suggesting a reasonably strong positive relationship between anti-authoritarianism and liking for such music. Similarly, the rock meta-style was associated with a mean standardised beta value of .006 for 'gentle', which is also arguably inconsistent with a rebellious worldview (and

consistent with Zweigenhaft's (2008) conclusion that rock fans are not necessarily rebellious). Similarly, the classical music meta-style was associated with the highest score for 'creative' (the proxy for the 'openness' dimension) which is arguably inconsistent with a conservative worldview, and more consistent with a liberal one: many measures of conservatism (e.g., Wilson, 1975) have interest in the arts contributing negatively.

It is also interesting that the strength of the present relationships was lower than identified by George et al (2007), who report r-squared values ranging between .092 and .311, although Rentfrow and Gosling (2003) report correlations of similar magnitude to those identified here. Moreover, providing we make a few assumptions concerning the similarity of the meta-styles identified in these datasets, some interesting similarities and dissimilarities emerge in terms of their relationships with personality dimensions. For instance, Rentfrow and Gosling's 'reflective and complex' meta-style maps onto the meta-styles here for jazz, classical music, and folk: in apparent support of Rentfrow and Gosling's findings, these styles were among those most closely related to 'creative' scores. However, Rentfrow and Gosling also found that openness was related to liking for their 'intense and rebellious' meta-style: in contrast, Table 2 shows that 'creative' scores (the proxy here for openness) were not closely related to liking for the rock (and dance) meta-styles. Similarly, Rentfrow and Gosling found that liking for their 'upbeat and conventional' meta-style was related positively to extraversion, agreeableness, and conscientious. Some aspects of Table 2 support this, such as the relatively strong relationship between 'gentle' (the proxy here for agreeableness) and liking for mainstream music. However, the mainstream meta-style was also among those related most weakly to the measure of 'outgoing' (i.e., the proxy for extraversion). Moreover, arguably the most

conventional meta-style of all those identified in Table 2, functional music, was no more closely related to 'gentle' (i.e., the proxy for agreeableness) scores than were many other meta-styles.

George et al's (2007) data set yielded quite differing meta-styles to those identified here, which hampers comparison, although there is clear overlap between George et al's 'rebellious' meta-style and the alternative rock and rock meta-styles here, and also between the 'classical', and 'jazz' (or 'jazz and blues' as George et al term it) meta-styles identified by both studies. It is interesting that George et al should find a similar pattern for classical music to that identified here, and a similar pattern for rebellious music to that here for alternative rock and rock. With regard to jazz and blues, George et al found a positive relationship with openness which mirrors the finding here for 'creative' scores; but a negative relationship with agreeableness that does not mirror that found here for 'gentle' scores.

The differences between the present results and those of both George et al and also Rentfrow and Gosling could of course be attributable to differences in methodology, most notably the use of a shorter measure of personality here. Another possibility, however, may be differences between the respective samples according to four other factors that the present research identified as also related to musical taste, namely age, sex, income, and self-esteem. Since age and gender, in particular, explained a greater portion of the variance in musical taste within the current data set than did personality, it is worthwhile considering these 'non-personality' individual differences in more detail.

Table 2 shows unsurprisingly that negative relationships existed between age and liking for the MOBO, dance, alternative rock, and rock meta-styles, whereas positive relationships were found concerning the classical, jazz, mainstream, folk,

Latino, and functional meta-styles. This is broadly consistent with previous research suggesting that age is associated positively with liking for more musically-complex styles. Table 2 shows that males demonstrated higher degrees of liking for the jazz, dance, rock, and functional meta-styles, whereas females demonstrated higher liking for the classical, mainstream, folk, alternative rock, Latino, and MOBO meta-styles. This provides some support for the prediction that women should prefer ‘softer’ musical styles, although females’ liking for alternative rock and MOBO is more difficult to reconcile with such a conclusion. Although income was related to liking for the majority of the musical styles considered, this was not in the predicted direction: Table 2 indicates that there were negative relationships between income and liking for the classical and jazz meta-styles, among several others, even though these represent the most ‘high art’ of the styles considered; whereas the meta-style giving rise to the strongest positive relationship with income was dance. It is difficult to explain such a pattern of findings in terms of previous research. Finally, Table 2 indicates that self-esteem was related negatively to liking for the alternative rock meta-style, consistent with previous research. Also interesting in this context, however, is that self-esteem was related positively to liking for the MOBO and rock meta-styles, even though these styles have been criticised regularly by various protest groups and legislators alike for having a supposedly negative influence on young people.

Reasons for listening to favourite musical style

Another set of multiple regressions investigated the extent to which the predictor variables could explain participants’ ratings of 10 reasons concerning why

they might listen to their favourite style of music. The results of these 10 regressions are reported in Table 3. These data indicate that males were more likely to report listening to their favourite musical style in order to be creative and use imagination, to create an image for themselves, and to please friends. In contrast, females were more likely to report listening to their favourite musical style because of enjoyment, to relieve boredom, to help get through difficult times, to relieve tension, to express feelings and emotions, and to reduce loneliness. As such, these sex differences are consistent with predictions and support the findings of North et al (2000).

Table 3 also indicates numerous associations between ratings of the reasons for listening to the participants' favourite musical style and scores on the personality dimensions. Within these are several associations that provide some support for the notion that reasons for listening represent a reflection rather than a compensation for personality. 'Creative' scores (the proxy for openness) were related positively to listening to music in order to enjoy the music, to be creative and use imagination, and to express feelings and emotions. 'Outgoing' scores (the proxy for extraversion) were related positively to listening to music in order to be trendy, to create an image, and to please friends; whereas 'outgoing' scores were related negatively to listening to music in order to reduce loneliness. 'Gentle' scores (the proxy for agreeableness) were related positively to listening to music in order to be creative and use imagination, to manage emotions, and to please friends. 'At ease' scores (the proxy for neuroticism) were related negatively to listening to music in order to get through difficult times, relieve tension, and reduce loneliness.

With regard to the relationships between reasons for listening to the favourite musical style and self-esteem, the bulk of the data presented in Table 3 indicates that low self-esteem is related to attempts to use music to help deal with emotional

problems. Ratings of self-esteem were related positively to listening to music in order to enjoy the music; whereas ratings of self-esteem were related negatively to listening to music in order to relieve boredom, get through difficult times, be trendy, relieve tension, create an image, express feeling and emotions, please friends, and reduce loneliness.

No hypotheses were made concerning relationships between reasons for listening to the favourite musical style and both age and income. However, it is interesting that Table 3 shows that age was related negatively to all the reasons for listening. A lack of prior research makes it difficult to interpret this, but one interesting possibility is simply that, with age, people become less prone to using music to achieve goals and address problems that they face: perhaps instead older people substitute music with other sources of support, such as relationships with other people.

Finally, it should be noted that three further sets of subsidiary analyses are available from the author's web site. These report the emotional reactions typically induced by the participant's favourite musical style, the reasons why participants typically bought music, and the means by which participants typically bought music. Although these yielded statistically significant data, the portion of the variance explained was small, and so these analyses are not reported here.

In summary, this study has found that liking for a wide range of musical styles grouped into 10 meta-styles; that liking for the musical styles was related to a short-form of a general measure of personality; that other individual differences (particularly age) appear to be related to musical taste more closely than was data obtained from the short personality measure; and that participants' reasons for listening to their favourite music typically reflected (rather than apparently

compensated for) aspects of their personality. However, even though individual difference variables typically explained only a small portion of the variance in musical taste, nor does this mean that individual differences are unimportant or uninteresting. Without consideration of them it would, for example, be difficult to explain the diversity of musical tastes that exist. Moreover, Table 2 indicates that the importance of individual differences varies considerably between musical styles: it is more appropriate to consider the former on a style-by-style and variable-by-variable basis. More generally, the wide-ranging pattern of relationships identified here suggests that they deserve more attention than has hitherto been afforded them.

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References

- Arnett, J. (1991). Heavy metal music and reckless behavior among adolescents. *Journal of Youth and Adolescence*, 20, 573-592.
- Arnett, J. (1992). The soundtrack of recklessness: musical preferences and reckless behaviour among adolescents. *Journal of Adolescent Research*, 7, 313-331.
- Berlyne, D. E. (1971). *Aesthetics and psychobiology*. New York: Appleton-Century-Crofts.
- Costa, P. T., Jr., and McCrae, R. R. (1985). *The NEO personality inventory manual*. Odessa, FL: Psychological Assessment Resources.
- George, D. M., Stickle, K., Rachid, F., and Wopnford, A. (2007). The association between types of music enjoyed and cognitive, behavioral, and personality factors of those who listen. *Psychomusicology*, 19, 32-56.
- Glasgow, M. R. and Cartier, A. M. (1985). Conservatism, sensation-seeking and music preferences. *Personality and Individual Differences*, 6, 393-395.
- Hall, A. (2005). Sensation seeking and the use and selection of media materials. *Psychological Reports*, 97, 236-244.
- Hargreaves, D. J. and Castell, K. C. (1987). Development of liking for familiar and unfamiliar melodies. *Council for Research in Music Education Bulletin*, 91, 665-669.
- Holbrook, M. B. and Schindler, R. M. (1989). Some exploratory findings on the development of musical tastes. *Journal of Consumer Research*, 16, 119-124.
- Konečni, V. J. (1982). Social interaction and musical preference. in D. Deutsch (ed.). *The psychology of music* (pp. 497-516). New York: Academic Press.

Langford, P. H. (2003). A one-minute measure of the Big Five? Evaluating and abridging Shafer's (1999a) Big Five markers. *Personality and Individual Differences*, 35, 1127-1140.

Lynxwiler, J. and Gay, D. (2000). Moral boundaries and deviant music: public attitudes toward heavy metal and rap. *Deviant Behavior*, 21, 63-85.

Martindale, C. and Moore, K. (1989). Relationship of musical preference to collative, ecological, and psychophysical variables. *Music Perception*, 6, 431-455

North, A. C. and Hargreaves, D. J. (1995). Eminence in pop music. *Popular Music and Society*, 19, 41-66.

North, A. C. and Hargreaves, D. J. (1997). Liking, arousal potential, and the emotions expressed by music. *Scandinavian Journal of Psychology*, 38, 45-53.

North, A. C. and Hargreaves, D. J. (2000). Musical preference during and after relaxation and exercise. *American Journal of Psychology*, 113, 43-67.

North, A. C. and Hargreaves, D. J. (2002). Age variations in judgements of 'great' art works. *British Journal of Psychology*, 93, 397-405.

North, A. C. and Hargreaves, D. J. (2006). Problem music and self-harming. *Suicide and Life-Threatening Behavior*, 36, 582-590.

North, A. C. and Hargreaves, D. J. (2007). Lifestyle correlates of musical preference: 3. Travel, money, education, employment, and health. *Psychology of Music*, 35, 473-497.

North, A. C. and Hargreaves, D. J. (2008). *The social and applied psychology of music*. Oxford: Oxford University Press.

North, A. C., Hargreaves, D. J., and Hargreaves, J. J. (2004). The uses of music in everyday life. *Music Perception*, 22, 63-99.

North, A. C., Hargreaves, D. J., and O'Neill, S. A. (2000). The importance of music to adolescents. *British Journal of Educational Psychology*, 70, 255-272.

North, A. C. and Oishi, A. (2006). Music CD purchase decisions. *Journal of Applied Social Psychology*, 36, 3043-3084.

Rentfrow, P. J. and Gosling, S. D. (2003). The do re mi's of everyday life: the structure and personality correlates of musical preference. *Journal of Personality and Social Psychology*, 84, 1236-1256.

Rosenberg, M. (1989). *Society and the adolescent self-image (revised edition)*. Middletown, CT: Wesleyan University Press.

Rubin, A. M., West, D. V., and Mitchell, W. S. (2001). Differences in aggression, attitudes toward women, and distrust as reflected in popular music preferences. *Media Psychology*, 3, 25-42.

Russell, J. A. (1978). Evidence of convergent validity on the dimensions of affect. *Journal of Personality and Social Psychology*, 36, 1152-1168.

Shafer, A. B. (1999). Brief bipolar markers for the Five Factor Model of Personality. *Psychological Reports*, 84, 1173-1179.

Shepherd, J. (2003). Music and social categories. in M. Clayton, T. Herbert, and R. Middleton (eds.), *The cultural study of music: a critical introduction* (pp. 69-79). London: Routledge.

Sloboda, J. A., O'Neill, S. A., and Ivaldi, A. (2001). Functions of music in everyday life: an exploratory study using the experience sampling method. *Musicae Scientiae*, 5, 9-32.

Tarrant, M., North, A. C. and Hargreaves, D. J. (2002). Youth identity and music. in R. A. R. MacDonald, D. J. Hargreaves, and D. E. Miell (eds.), *Musical identities* (pp. 134-150). Oxford: Oxford University Press.

Wilson, G. D. (1975). *Manual for the Wilson-Patterson Attitude Inventory*.

Windsor: NFER.

Wingood, G. M., DiClemente, R. J., Bernhardt, J. M., Harrington, K., Davies, S. L., Robillard, A., and Hook, E. W. (2003). A prospective study of exposure to rap music videos and African American female adolescents' health. *American Journal of Public Health, 93*, 437-439.

Zuckerman, M. (1979). *Sensation seeking: beyond the optimal level of arousal*. Hillsdale: Erlbaum.

Zweigenhaft, R. L. (2008). A do re mi encore: a closer look at the personality correlates of music preferences. *Journal of Individual Differences, 29*, 45-55.

Table 1 - Rotated component matrix

	Component									
	1	2	3	4	5	6	7	8	9	10
Classical	.832									
Baroque	.790									
20th Century	.749									
Opera	.747									
Choral	.705									
Cool Jazz		.809								
Jazz		.785								
Free Jazz		.773								
Smooth Jazz		.722								
Funk		.558								
Soundtracks/Theme songs			.739							
Musicals			.666							
Show Tunes			.651							
Easy Listening			.647							
Film Scores			.608							
Pop			.573							
Romantic			.520							
American Folk				.794						
Folk Rock				.708						

	Component									
	1	2	3	4	5	6	7	8	9	10
Classical	.832									
Baroque	.790									
20th Century	.749									
Country/Western				.694						
Bluegrass				.676						
Folk Music				.640						
Punk					.784					
Alternative Rock					.757					
Indie					.727					
Garage					.627					
Ska					.570					
Samba						.671				
Rumba						.665				
Latino						.570				
Swing						.538				
Rap							.845			
Hip-Hop							.840			
R&B							.674			
Reggae							.536			
Dance/Electronica								.877		
Techno								.864		

	Component									
	1	2	3	4	5	6	7	8	9	10
Classical	.832									
Baroque	.790									
20th Century	.749									
House								.772		
Disco								.544		
Rock and Roll								.657		
Rock/Heavy Metal								.641		
Marching/Military									.582	
Religious/Praise									.550	
Eigenvalue	5.25	4.99	4.41	4.31	4.15	3.65	3.52	3.12	1.80	1.63
% of variance	9.90	9.41	8.31	8.14	7.84	6.89	6.64	5.89	3.39	3.07

Table 2 – Mean standardised beta weights for each component

		R ²	Self- esteem	Creativ e	Hardwork ing	Outgoi ng	Gentl e	At ease	Age	Gen de r	Incom e
Classical music (component 1)	Strengt h	.055	.037	.123	.009	.034	.018	.013	.192	.045	.050
	Directi on		.037	.123	.003	-.034	.008	.013	.192	.045	-.050
Jazz (component 2)	Strengt h	.028	.039	.096	.007	.037	.021	.021	.066	.056	.061
	Directi on		.039	.096	-.005	.037	.021	.021	.034	-.056	-.044
Mainstream (component 3)	Strengt h	.045	.019	.049	.018	.022	.036	.010	.067	.149	.061
	Directi on		.017	.025	.018	.019	.036	.003	.024	.149	-.032
Folk (component 4)	Strengt h	.030	.018	.067	.018	.018	.010	.005	.150	.005	.028
	Directi on		-.001	.063	.006	-.010	.001	.005	.150	.001	-.013

Alternative rock (component 5)	Strengt h	.029	.023	.052	.022	.018	.022	.008	.144	.027	.053
	Directi on		-.021	.052	-.019	.005	-.022	.003	-.144	.008	.052
Latino (component 6)	Strengt h	.043	.045	.062	.011	.038	.023	.017	.121	.121	.035
	Duratio n		.045	.062	.011	.038	.018	.017	.121	.121	-.035
MOBO (component 7)	Strengt h	.044	.030	.015	.021	.090	.010	.015	.142	.058	.056
	Directi on		.030	.003	.000	.090	.001	.015	-.082	.046	.206
Dance (component 8)	Strengt h	.025	.016	.035	.007	.068	.020	.005	.102	.069	.092
	Directi on		.016	.027	.005	.068	-.012	-.004	-.102	-.024	.092

Table 3 – Standardised beta weights concerning reasons for listening to favourite musical style

Reason	F	R ²	Constant	Self-esteem	Creative	Hardworking	Outgoing	Gentle	At ease	Age	Gender	Income
Enjoy	51.26	.01	8.23	.069	.061	.001 ^{ns}	-.006 ^{ns}	.004 ^{ns}	.013*	-.012	.046	-
	2		(t=144.45)	(t=11.66)	(t=11.58)	(t=.14)	(t=1.03)	(t=.71)	(t=2.32)	(t=1.99)	(t=8.76)	.017** (t=2.62)
Creative	656.0	.13	3.942	-.062	.355	.003 ^{ns}	.027	.036	-	-.077	-.012*	-.034
	6	5	(t=33.77)	(t=11.31)	(t=71.56)	(t=.63)	(t=5.03)	(t=7.32)	.018* (t=3.37)	(t=13.15)	(t=2.51)	(t=5.70)
Boredom	193.2	.04	7.704	-.050	.023	-.007 ^{ns}	.002 ^{ns}	-.030	-	-.186	.077	.028
	3	4	(t=58.25)	(t=8.66)	(t=4.38)	(t=1.29)	(t=.36)	(t=5.80)	.016* (t=2.83)	(t=30.27)	(t=14.97)	(t=4.43)
Difficulties	413.0	.08	7.940	-.160	.058	.036	.037	.005 ^{ns}	-.042	-.112	.184	-.021
	3	9	(t=60.72)	(t=28.29)	(t=11.34)	(t=6.66)	(t=6.64)	(t=.97)	(t=7.77)	(t=18.69)	(t=36.62)	(t=3.50)

Trendy	99.95	.02	3.159	-.054	-.035	.006 ^{ns}	.087	.021	-.037	-.137	.009 ^{ns}	.068
	3		(t=28.96)	(t=9.26)	(t=6.62)	(t=1.16)	(t=15.25)	(t=4.08)	(t=6.55)	(t=21.98)	(t=1.69)	(t=10.67)
Tension	195.6	.04	6.947	-.040	.031	.044	.025	-	-.034	-.132	.151	.032
	7	4	(t=62.52)	(t=6.95)	(t=5.94)	(t=8.02)	(t=4.43)	.004 ^{ns}	(t=6.1)	(t=21.42)	(t=29.26)	(t=5.158)
Image	225.4	.05	6.064	-.104	.038	-.019 ^{**}	.059	.050	-.028	-.148	-.021	-.027
	6	1	(t=44.21)	(t=18.09)	(t=7.39)	(t=3.39)	(t=10.46)	(t=9.73)	(t=5.02)	(t=24.15)	(t=4.04)	(t=4.36)
Emotions	275.9	.06	5.873	-.105	.096	.007 ^{ns}	.069	.033	-.048	-.051	.162	-.040
	5	1	(t=44.25)	(t=18.42)	(t=18.55)	(t=1.32)	(t=12.40)	(t=6.53)	(t=8.71)	(t=8.28)	(t=31.78)	(t=6.36)
Friends	103.0	.02	2.491	-.083	-.020	-.019 ^{**}	.056	.031	-.014 [*]	-.084	-.054	-.009 ^{ns}
	7	4	(t=30.62)	(t=14.23)	(t=3.81)	(t=3.36)	(t=9.91)	(t=6.09)	(t=2.41)	(t=13.44)	(t=10.43)	(t=1.46)
Loneliness	489.9	.10	8.283	-.248	.025	.008 ^{ns}	-.026	.020	-.049	-.034	.114	-.045
	8	4	(t=59.74)	(t=44.33)	(t=4.90)	(t=1.51)	(t=4.70)	(t=4.07)	(t=9.02)	(t=5.78)	(t=22.76)	(t=7.32)

p<.001 in all cases, except ^{ns} = n.s., * p<.05, **p<.01; DF = 9,37791 in all cases

Reasons: 'To enjoy the music', 'To be creative and use my imagination', 'To relieve boredom', 'To help me get through difficult times', 'To be trendy / cool', 'To relieve tension

and stress'. 'To create an image for myself', 'To express my feelings and emotions', 'To please my friends', and 'To reduce loneliness'.

