
From death metal to R&B? Consistency of music preferences among Dutch adolescents and young adults

Juul Mulder, Tom F.M. Ter Bogt, Quinten A.W. Raaijmakers, Saoirse Nic Gabhainn and Paul Sikkema

From death metal to R&B? Consistency of music preferences among Dutch adolescents and young adults

JUUL MULDER

UNIVERSITY OF UTRECHT, THE NETHERLANDS

TOM F.M. TER BOGT

UNIVERSITY OF UTRECHT, THE NETHERLANDS

QUINTEN A. W. RAAIJMAKERS

UNIVERSITY OF UTRECHT, THE NETHERLANDS

SAOIRSE NIC GABHAINN

NATIONAL UNIVERSITY OF IRELAND

PAUL SIKKEMA

RESEARCH BUREAU QRIUS, THE NETHERLANDS

ABSTRACT The structure of music preferences has been investigated extensively. However, development of music preferences in terms of consistency of music taste is as yet understudied. In this study, intra-individual consistency of music taste was assessed among Dutch adolescents and young adults over three points in time in a 21-month period. An internet-based panel of 236 participants was asked to list their top three favourite artists or bands, and to rate their preferences for a range of music genres. Genre ratings were grouped into five styles: pop, urban, elite, rock and dance, using factor analysis. Thus there were three measures of music taste for each participant over time: favourite artists, preference for musical genres and styles. Findings indicated that favourite artists tended to have a high turnover rate, that genres were rated relatively consistently with moderate to high q -correlations (between .41 and .67), and that style preferences were highly consistent (q -correlations between .77 and .86). Differences in consistency over time across gender and educational level were not substantive, but age was positively related to music taste consistency. It is concluded that music taste is already well developed in early adolescence, and crystallizes further during late adolescence and early adulthood.

KEYWORDS: *music taste, popular music, q-correlation, stability, youth*

Introduction

The range of music from which listeners can choose is varied, complex and subject to change. One of the main approaches to studying musical taste has included

classifying the wide array of artists and their genre labels, and structuring the music audience's preferences (Blacking, 1995; Christenson & Peterson, 1988; Denisoff & Levine, 1972; Farnsworth, 1958/1969; Fox & Wince, 1975; Frith, 1983; Johnstone & Katz, 1957; Lewis, 1992; Tillekens, 1993; Tillekens & Mulder, 2005). Historical and cultural developments within the field of music have been well documented, but relatively little is known about the developmental trajectory of music preferences within individuals. As gender and educational level are important determinants of music preference (Christenson & Peterson, 1988; Frith, 1981; North & Hargreaves, 2007a), this study investigates intra-individual consistency of music taste of female and male adolescents and young adults with different educational levels over time.

The most comprehensive model of sources of variations in musical taste was outlined by LeBlanc (1980). The author distinguishes three levels. The first refers to factors important in music taste that are external to the listener, such as the properties of the music itself, and also media and the peer group. The second refers to individual characteristics such as personality, current affective state and cognitive processing capabilities. The third level represents the response of the listener to the music listened to. Of course, the levels influence each other. This model has not been tested empirically in its totality because of its complexity (Hargreaves, 1986), but parts of the three levels distinguished have been investigated.

Variations in music taste have been studied by analysing the underlying structure of genre preference ratings of large samples of respondents. Techniques such as factor analysis and multi-dimensional scaling have revealed replicable, underlying dimensions, labelled styles. Consistent styles have included guitar-driven rock (containing genres such as hard rock and punk), electronic dance (comprising genres such as trance, techno), Afro-American influenced style (e.g., soul, R&B, rap/hip hop), high(er)-culture style of music (e.g., classical music and jazz), and an easy to listen to, easily accessible pop style, such as can be found in the popular music charts (Christenson & Peterson, 1988; Delsing, Ter Bogt, Engels, & Meeus, 2008; Rentfrow & Gosling, 2003; Roe, 1985; Stevens, 2001; Tillekens, 1993).

Apart from the musicological qualifications of the various dimensions that make up the music field, research has also revealed social determinants of preference for genres and styles. These include such social characteristics as gender and educational level (Bryson, 1996; Christenson & Peterson, 1988; Denisoff & Levine, 1972; Eijck, 2001; Frith, 1983; Peterson & Kern, 1996; Stevens, 2001; Tillekens, 1993). Females tend to like more melodic, relatively softer genres, whereas males tend to prefer louder, more monotonous-sounding genres (Christenson & Peterson, 1988; Frith, 1981; North & Hargreaves, 2007a). Social status, as assessed by social class or educational level, is also an important determinant of taste (Bourdieu, 1979; Bryson, 1996; Coulangeon & Lemel, 2007; Eijck, 2001; Gans, 1999; Hargreaves, 1986; North & Hargreaves, 2007b; Peterson & Kern, 1996). Musical taste has been linked to social-economic status and arguably functions as an in-group/out-group delineator (Gans, 1999; Mark, 1998; Peterson & Kern, 1996). Among school-going youth, social class is frequently operationalized in terms of educational level. Several investigations have demonstrated that having a higher educational level is associated with liking music such as jazz and classical music, and lower educational

level to music such as heavy metal, disco and country (Bryson, 1996; Roe, 1992; Tillekens, 1993).

AGE

On the intra-personal level of LeBlanc's (1980) model, maturation is conceived as being an important factor contributing to variations in musical taste. Thus the onset of adolescence is of particular relevance here. After its onset, more time and effort is invested in music, and knowledge of music types and their subgenres increases (Christenson & Roberts, 1998). Music becomes a major medium of interest, as it enables consumption outside the family context, where the television medium is more central (Steele & Brown, 1995). For 13- to 14-year-olds, North, Hargreaves and O'Neill (2000) found listening to music was the most preferred indoor activity. As parents limit time spent with peers for most adolescents, listening in the private sphere enables parasocial contact with the peer culture and important figures within it (Giles & Maltby, 2004). Moreover, during the school-going period, knowledge of music functions as a status symbol (Brown & O'Leary, 1971). For some, this remains a lifelong struggle for peer recognition, as can be observed among music lovers of all ages (Frith, 1996). Thus, for the most part, knowledge of the artists and musical genres increases over the course of adolescence.

Three characteristic features of adolescent development are consistent with this heightened importance of music. The onset of puberty, that is, sexual-biological changes, increases the desire for mood control (Rosengren & Windahl, 1989), and music is a powerful tool in mood management (Christenson & Roberts, 1998; North et al., 2000; Sloboda & O'Neill, 2001; Wells & Hakanen, 1991). Second, cognitive development during the course of adolescence enables appreciation of musical stimuli of increasing complexity (North & Hargreaves, 1997), allowing for changes in music preference, such as learning to appreciate jazz. Third, a developmental task specific to adolescence is developing a coherent sense of self (a self-concept), an ideal self, and a social self (Erikson, 1968; Tarrant, North, & Hargreaves, 2002). Music is a powerful tool in resolving this task. It facilitates the choice of an identity, as well as its expression, and by enabling experimentation it serves as an imaginative platform on which to perform, construct and negotiate one's own identity, and situate oneself in the social world (DeNora, 2000; Hargreaves, Miell, & MacDonald, 2002; Sloboda & O'Neill, 2001). Conversely, music preferences also help to identify others; that is, they aid social perceptions (Knobloch, Vorderer, & Zillmann, 2000; Rentfrow & Gosling, 2006). These functions of music remain important over the lifecourse, but are of particular salience during adolescence (Tarrant et al., 2002).

Age-specific patterns in musical taste are reflected in the majority of adolescents liking what most others like. Popular hits are generally preferred by younger rather than older undergraduates (Fox & Wince, 1975; Mulder, Bogt, Raaijmakers, & Vollebergh, 2007). A small proportion does not seem to be that interested in music, while another small proportion appears to prefer deviant forms of music. These patterns can be explained by the phenomenon of increased peer orientation during adolescence. From early adolescence on, peaking around the ages of 15 and 16, and subsequently declining, peers become more important in terms of values and ideas than parents and adult institutions (Steinberg & Silverberg, 1986). This helps

explain why most adolescents report an increased preference for music most widely accepted by their peer group, that is, chart-based music. After the ages of 15 or 16, an increased individualization of music taste can be observed, with more room for idiosyncratic preferences.

Previous studies of musical taste have been essentially cross-sectional in nature, providing frozen snapshots of a certain group at a certain time-point. How taste develops within individuals has not yet been extensively studied. One exception is a study assessing retrospectively the age at which people develop lifelong song preferences. Using a convenience sample of 100 Northeastern American consumers between the ages of 16 and 86, Holbrook and Schindler (1989) asked participants to rate 28 half-minute excerpts from songs that represented styles that prevailed from the 1930s to the 1980s. Taking the participants' ages into account, they calculated the age at which the respondent had been or was at the time of the most liked song. The authors reported that the most liked songs originated from the year the respondent had been around 23.5 years old, which they concluded was the age around which music preferences crystallize or consolidate.

Longitudinal monitoring of music preferences has been reported twice. Rentfrow and Gosling (2003) investigated the consistency of the factorial structure underlying music preferences of over 1500 Texan university undergraduates, but the time-span covered was only three weeks. On an aggregated group-level, the dimensions were highly correlated between the two time points (between .77 and .89). More recently, a study with over 1000 Dutch adolescents aged 12 to 19 years replicated this finding over a three-year period (Delsing et al., 2008). However, these stabilities reflect a group-based, not intra-individual, or ipsative, consistency. Furthermore, Delsing et al. (2008) only cover the age range in which music taste seems to develop (ages 12 to 19). This article extends the existing literature to a wider age range, concerns the consistency of musical taste within individuals and includes three separate conceptualizations of musical taste; artists, genres and styles.

THE PRESENT STUDY

This study was conducted in order to assess the intra-individual consistency of music preferences over time within a wide age range of adolescence and young adulthood. Music preference was assessed by asking participants to list their top three favourite artists, as well as assessing preference ratings for a wide range of musical genres. An internet panel consisting of adolescents and young adults participated three times in the course of 21 months. This timeframe was considered broad enough to assess changes in music taste, because artists and bands move in and out of the charts so quickly; often in a matter of a few weeks. People can be expected to be differentially sensitive to that; some will maintain the same music preferences despite such changes in the charts, others will change preferences accordingly.

In addition to the question of ipsative consistency per se, differences were also investigated by age group, gender and educational level. Music preference was hypothesized to be relatively inconsistent among adolescents between the ages of 12 and 17, who are still developing knowledge of music, along with a sense of personal and social identity, in which music taste is an important factor. Moreover, as the majority of adolescents prefer the music in the charts they may also be expected to

be more sensitive to temporary processes of hypes. Gender and educational level are important in music taste per se (Hargreaves, 1986; LeBlanc, 1980), and therefore included in the analysis, but no specific hypotheses regarding the direction of differences in taste consistency by these factors were formulated.

Method

SAMPLE

The study was conducted in collaboration with Qrius, Amsterdam. The sample was obtained by approaching members of an internet-panel part of the Qrius Switch-On project (see <http://www.qrius.nl>). Qrius is a market research bureau specializing in such topics as media use, free time, income and expenditures, education and work among children, youth, and young adults (age range six to 30 years). The Switch-On project was conducted in collaboration with MTV Networks Benelux using an internet-panel aged six to 29 years. Participants are approached regularly on issues such as television viewing, norms and values, and music preferences. Rewards for participation are entry into draws for small prizes such as CDs, and a point-saving system in which participants get €10.00 after participating in a number of study waves. Participants were approached in April 2004, February 2005 and January 2006. The full panel consisted of 490 participants aged 12 to 29. As males were underrepresented (25.5%), males and females were matched in number, controlling for age and educational level. The random nature of the matching was ensured using a random number ascription available in SPSS® 14.0.2 (available from SPSS Inc.). This resulted in a sample consisting of 236 respondents, with 118 females aged 12–29 (mean age 19.65, SD 3.49), and 118 males (mean age 19.97, SD 3.66).

MEASURES

Level of education was represented by 10 categories ranging from the lowest (pre-vocational) to the highest (pre-university) level of education. Respondents were asked which level of education they were currently receiving (for school-attendees), or had attended (for those who had left school), and were subsequently divided into low (low and middle vocational track; $n = 73$) and high (high vocational and academic track; $n = 158$) level groups.

Age groups were constructed by dividing respondents into three groups age 12 to 17 (school-going adolescents, mean age 15.87, SD = 1.08, $n = 70$), 18 to 22 (mean age 19.80, SD = 1.36, $n = 114$), and 23 and older (mean age 25.13, SD = 1.70, $n = 52$). Seventeen was chosen as a cut-off point to capture the group still attending secondary school. Twenty-three was chosen as the second cut-off age to compare our findings with those of Holbrook and Schindler (1989), who estimated that age to be most crucial in developing lifelong song preferences.

Music preferences were assessed by asking participants to list their top three favourite artists or bands. They were also invited to rate 26 genres on a five-point scale ranging from 'dislike strongly' to 'like very much', and a separate option for 'don't know this type of music' (Ter Bogt, Raaijmakers, Vollebergh, Van Wel, & Sikkema, 2003). This range of genres was presented to allow for the many distinctions adolescents and young adults make regarding the music they listen to

(Christenson & Peterson, 1988; Roe, 1985). The response category 'don't know this type of music' was considered as missing and imputed along with preference ratings of related genres using the relative mean substitution developed by Raaijmakers (1999), a valid and reliable method for estimating missing values of (composite) Likert-type scale scores (Bernaards & Sijtsma, 2000).

Distinctions do not imply unrelatedness (Christenson & Peterson, 1988), and exploratory factor analysis (Principal Axis Factoring, direct oblimin rotation, eigenvalues > 1) was used to analyse the underlying structure of the genre preferences within the time 1 data (see Table 1). Explained variance was estimated to be 57.91 percent (using SPSS 14.0.2).

TABLE 1 *Genre and style preference ratings over three waves*

	M (SD)		
	April 2004	February 2005	January 2006
Pop	3.13 (0.83)	2.98 (0.77)	3.02 (0.78)
Top 40	3.81 (1.09)	3.66 (1.09)	3.74 (1.06)
Ballads	3.38 (1.12)	3.21 (1.05)	3.23 (1.10)
Dutch pop	3.36 (1.11)	3.36 (1.11)	3.40 (1.09)
Latin	3.11 (1.15)	2.99 (1.07)	3.16 (1.04)
Boybands	2.57 (1.23)	2.57 (1.18)	2.47 (1.13)
Urban	3.10 (0.95)	3.05 (0.88)	3.01 (0.88)
Rap	3.19 (1.36)	3.19 (1.31)	3.02 (1.32)
R&B	3.17 (1.40)	3.15 (1.36)	3.08 (1.28)
Reggae	3.14 (1.13)	3.14 (1.05)	3.17 (1.07)
Dancehall	2.87 (1.15)	2.73 (1.10)	2.77 (1.11)
Elite	2.97 (0.88)	2.97 (0.86)	3.05 (0.78)
Soul-R&B	3.20 (1.22)	3.20 (1.22)	3.29 (1.08)
Lounge	3.18 (1.20)	3.18 (1.20)	3.09 (1.09)
Singer/songwriter	3.04 (1.11)	3.04 (1.11)	3.13 (1.09)
Jazz	2.81 (1.21)	2.81 (1.21)	2.99 (1.15)
Classical	2.60 (1.26)	2.60 (1.26)	2.74 (1.17)
Rock	2.92 (1.11)	2.90 (1.05)	2.85 (1.05)
Rock	3.78 (1.25)	3.78 (1.18)	3.73 (1.16)
Hard rock	3.05 (1.47)	3.00 (1.43)	2.90 (1.42)
Alternative	2.96 (1.41)	2.97 (1.30)	3.03 (1.33)
Punk	2.79 (1.27)	2.78 (1.21)	2.73 (1.23)
Gothic	2.50 (1.27)	2.42 (1.24)	2.33 (1.16)
Heavy metal	2.47 (1.39)	2.45 (1.31)	2.41 (1.32)
Dance	2.74 (1.02)	2.72 (0.96)	2.62 (0.97)
Dance	3.42 (1.28)	3.46 (1.21)	3.34 (1.24)
Trance	2.92 (1.44)	2.89 (1.37)	2.75 (1.28)
Techno	2.58 (1.33)	2.61 (1.31)	2.56 (1.28)
Electro	2.56 (1.21)	2.53 (1.16)	2.46 (1.21)
Hardhouse	2.54 (1.44)	2.42 (1.37)	2.31 (1.30)

Note: Genre preferences measured on a five-point Likert type scale, ranging from 1 (dislike strongly) to 5 (like very much). Style scores were computed by averaging liking ratings of related genres. Relatedness was based on Exploratory Factor Analysis, described in text.

Related genres are considered to represent a certain style, and the preference ratings of the genres Top 40 (chart-based music), ballads, boy bands, Latin pop, and Dutch pop proved to be related and were labelled Pop style. A second style was labelled Urban, and comprised the genres R&B, dancehall, rap/hip hop, and reggae. A third style was constructed based on relatedness in preference ratings of the genres classical music, singer/songwriter, jazz, soul/R&B and lounge music, and was labelled Elite. A Rock style was constructed of the genres hard rock, heavy metal, rock, punk, alternative and gothic. Finally, ratings of the genres dance, trance, electro, techno and hardhouse were labelled as Dance. Preference ratings of genres within the styles Pop, Urban, Elite, Rock and Dance were summed and their means were taken as style-scores. This structuring of the genre ratings proved similar to previous Dutch, Flemish and American research on the structure of music preferences using factor analysis or multi-dimensional scaling techniques (Christenson & Peterson, 1988; Stevens; 2001; Ter Bogt et al. 2003; Tillekens, 1993), and was also replicated in the time 2 and time 3 datasets of the current study.

ANALYSES OF CONSISTENCY

Consistency of favourite artists

Participants were asked to name three of their favourite artists or bands, labelled artists. Consistency was measured by counting the number of times an artist's name was mentioned by a respondent across the three waves. The repeats were counted between the first and second, second and third, and first and third datasets, not taking the position in the top three into account. The total of these counts was divided by the maximum number of repeats possible (9) in order to rescale the counts on a 0 to 1 scale.

Consistency of genre preferences

Analyses of intra-individual consistency in genre preference ratings was computed using q-correlation. This was conducted within each style group separately. Q-correlation indexes pattern comparability within respondents between two points in time (Cronbach & Gleser, 1953; Dahlstrom & Humphrey, 1996; Roberts, Caspi, & Moffitt, 2001; van Aken, van Lieshout, & Haselager, 1996). The difference with the more ubiquitous Pearson's correlation is that individual responses as indicated on ordinal scales are not compared to the sample mean, but rather are compared to the mean of the respondent within a set of answers of that same respondent. Consistency measures were conducted on the individual's preference responses within style groups. For example, within the style labelled Pop, the sets of individual ratings of the genres Top 40 (chart-based music), ballads, boy bands, Latin pop and Dutch pop were assessed for consistency. The individual's mean in preference for these genres was compared intra-individually between each two sets of time-points, as well as the relative deviation in ratings of the respective genres, whether positive or negative, resulting in one overall individual measure of consistency.

In this study, data from three points in time were available. Pairwise comparisons of patterns is facilitated by q-correlation, that is, patterns were compared between the first and second, the second and third, and first and third waves. As an overall consistency index, the individual's mean of these individual pairwise q-correlations

was computed. This procedure resulted in measures of consistency in ratings within all five style groups, that is, Pop, Urban, Elite, Rock and Dance (see Table 1 for an overview of the styles and genres).

Consistency of style preference

Style scores were computed by computing the mean of the preference ratings of genres belonging to a single style, as determined through factor analysis. Style preference consistency, again using q-correlation, concerns both the consistency in absolute and relative liking of the five styles. For instance, one can rate Rock types of music consistently highly, and more positively than Dance music, while liking Urban and Pop types of music both modestly and less consistently, and disliking Elite genres. The consistency in this pattern was assessed by q-correlating these ratings of the various styles, between the first and second, the second and third, and first and third data collection periods, and then computing the mean of these q-correlations.

MULTIVARIATE ANALYSES

The intra-individual consistencies in artist, genre and style preferences were tested for differences between groups based on gender, educational level, and age. Univariate ANOVAs were conducted using the q-correlated styles preferences and the extent of favourite artist consistency as dependent variables. A MANOVA was conducted with the q-correlated style-grouped genre preferences as dependent variables.

Results

POPULARITY OF ARTISTS

Table 2 displays which artists were mentioned most frequently at each point in time, by all participants, and by gender, educational level and age groups. Although individual lists ranged from the obscure to mainstream, the most popular artists reflected the chart-based list very well. Each group mentioned a variety of most favourite artists that represent a different variation of the same cohort of chart-topping artists. Younger respondents listed newer artists, such as B.E.P., and Direct (a young Dutch pop-punk band). Older participants listed more long-standing artists, such as Metallica, Madonna, Marco Borsato (a best-selling Dutch artist), and Robbie Williams. These artists have been popular for a longer time, and are older themselves.

POPULARITY OF GENRES AND STYLES

The most preferred musical style is Pop, followed sequentially by Urban, Elite, Rock and Dance (see Table 1). Within these styles, certain genres are more popular than others. Within the Pop style, music found in the charts is liked best. The genres rap, R&B, and reggae are similarly popular within the Urban style, while the genres soul/R&B and lounge music top the Elite style. Of the Rock and Dance styles, the similarly labelled genres rock and dance are most popular. Least popular genres within the respective styles are boybands, dancehall, classical music, heavy metal and hardhouse.

TABLE 2 *Most mentioned artists in favourite artist listings*

	April 2004	February 2005	January 2006
All participants (N = 236)			
	1. Marco Borsato ^f	DJ Tiësto ^f (20)	Robbie Williams (20)
	2. Robbie Williams (22)	Anouk ^f (22)	Marco Borsato (19)
	3. DJ Tiësto (20)	Kane ^f /Marco Borsato (15)	Anouk (18)
	4. Sugababes (16)	Keane/Linkin Park (12)	Shakira (17)
	5. N.E.R.D. (15)	Alicia Keys/Robbie Williams (11)	Coldplay (16)
Gender			
Females (n = 118)	1. Christina Aguilera/ M.Borsato (12)	Anouk (16)	M. Borsato/Robbie Williams (13)
	2. Sugababes (10)	Alicia Keys (10)	Anouk/Shakira (11)
	3. Evanescence/Robbie Williams (9)	Marco Borsato (9)	Coldplay (10)
Males (n = 118)	1. DJ Tiësto/Robbie Williams (13)	DJ Tiësto (16)	DJ Tiësto/Kane (8)
	2. M. Borsato (11)	Linkin Park (9)	Anouk/Bløf ^f /R.H.C.P./Robbie W. (7)
	3. N.E.R.D. (9)	Kane (8)	Coldplay/M. Borsato/Shakira/Kelly Clarkson (6)
Age groups			
12–17 (n = 70)	1. B. E. P./Di-rect ^f / Usher (6)	DJ Tiësto (9)	Shakira (6)
	2. Kane/R.H.C.P. (5)	Kane/Linkin Park (5)	R.H.C.P./DJ Tiësto (5)
	3. Christina Aguilera/ Eminem (4)	Eminem/Jamie Cullum (4)	Coldplay/Jamie Cullum (3)
18–22 (n = 114)	1. M. Borsato (14)	M. Borsato (12)	M. Borsato (14)
	2. Robbie W. (10)	Anouk/DJ Tiësto (9)	Anouk (9)
	3. DJ Tiësto/N.E.R.D./ Sugababes (8)	Kane/Usher (8)	Bløf (8)
29–29 (n = 52)	1. DJ Tiësto/M. Borsato/ Robbie W. (6)	Anouk (6)	Robbie W. (6)
	2. Alicia Keys (5)	Alicia Keys/DJ Tiësto (5)	Anouk/Coldplay/Kane/ U2 (5)
	3. The Corrs/Metallica/ N.E.R.D. (4)	Metallica/Robbie W./ U2 (4)	Madonna/Shakira (4)
Educational level			
Low (n = 73)	1. M. Borsato (11)	DJ Tiësto (9)	Robbie W. (8)
	2. DJ Tiësto (7)	Anouk (8)	Anouk (7)
	3. Bon Jovi/Kane/ Robbie W. (6)	M. Borsato (7)	M. Borsato (6)
High (n = 158)	1. Robbie W. (16)	Anouk/DJ Tiësto (14)	M. Borsato (13)
	2. DJ Tiësto (13)	Alicia Keys/Kane (11)	Robbie W./Shakira (12)
	3. M. Borsato (11)	Bløf/M. Borsato/ Robbie W. (8)	Anouk/R.H.C.P. (11)

^f = Dutch artist or band; B.E.P. = Black Eyed Peas; R.H.C.P. = Red Hot Chili Peppers

Differences in style preferences were tested pairwise for groups based on gender, educational level and age. Females were more positive towards genres included in the styles Pop (all three waves) and Urban (1st wave only) ($p < .01$, η^2 between .03 and .13), while the Dance style was more popular among males (over three waves, $p < .01$, η^2 between .03 and .07). Participants from the lower educational level gave lower ratings for the style Elite in all three waves ($p < .01$, η^2 between .05 and .07), and higher ratings for Dance style in the second wave ($p < .05$, $\eta^2 = .02$). In terms of age differences, the 17- to 22-year-olds rated the Pop style lower than both their younger and older counterparts ($p < .05$, $\eta^2 = .03$). Other than that, the age groups did not differ markedly in their liking of the four styles.

CONSISTENCY OF FAVOURITE ARTISTS

Mean consistency in favourite artist was .32. This means that participants displayed on average a 32 percent overlap in top three lists of favourite artists (see Table 3). The adjusted R^2 for the multivariate model was .11. Males and females did not differ significantly in terms of favourite artist consistency. Participants from the higher educational level were more consistent than those from the lower educational level (respectively 36% versus 28%, $p < .05$, partial $\eta^2 = .03$). Compared to the youngest age groups, the older two were more consistent ($p < .01$, partial $\eta^2 = .10$). Respondents aged 12 to 17 repeated artist names in 21 percent of the cases. Among the 18- to 22-year-old age group, this increased to a consistency of 36 percent, and for the eldest age group this increased to 39 percent.

CONSISTENCY OF GENRE PREFERENCE

On the individual level, q-correlations ranged between $-.87$ and $+1$. Table 4 displays the estimated means of the q-correlation coefficients of style-grouped genre

TABLE 3 *Consistency of favourite artists*

	Estimated marginal means	(SE)	<i>F</i>	d.f. ¹	<i>p</i>	Partial η^2
Overall model	0.16	0.01	8.13	4	0.00	0.13
Univariate between subjects effects						
<i>Gender</i>						
Females	0.17	0.01	0.11	1	0.74	0.00
Males	0.16	0.01				
<i>Educational level</i>						
Low	0.14	0.01				
High	0.18	0.01	6.15	1	0.01	0.03
<i>Age group</i>						
12–17	0.10	0.02				
18–22	0.18	0.01				
23–29	0.20	0.02	13.16	2	0.00	0.10

¹Error d.f. = 226; Adjusted $R^2 = 0.11$.

TABLE 4 *Consistency of genre preferences*

	Estimated marginal means	SE	<i>F</i>	d.f.1	d.f.2	<i>p</i>	Partial η^2
Multivariate tests							
Gender			0.72	5	190	0.61	0.02
Educational level			1.25	5	190	0.29	0.03
Age group			2.02	10	382	0.03	0.05
Univariate tests of age-group differences							
			M (SE)				
			12–17	18–22	23–29		
Pop	0.59	0.02	0.56 (0.04)	0.63 (0.03)	0.58 (0.04)		
Urban	0.54	0.03	0.50 (0.05)	0.56 (0.03)	0.55 (0.05)		
Elite	0.46	0.03	0.41 (0.05)	0.54 (0.04)	0.43 (0.06)		
Rock	0.60	0.02	0.53 (0.04)	0.59 (0.03)	0.67 (0.05)		
Dance	0.56	0.03	0.46 (0.04)	0.61 (0.03)	0.60 (0.05)		

Note: Age-group differences reached significance for consistency of Dance genres only with $F(2,194) = 4.19$, $SE = 0.10$, $p < 0.05$, partial $\eta^2 = 0.04$.

preferences, which varied between .41 (consistency of ratings for genres within the Elite style among the youngest age group) and .67 (consistency of ratings for the genres within the Rock style among the oldest age group). There were no significant differences by gender or educational level. The three age groups differed in terms of consistency in ratings of Dance genres. There was a lower consistency in preference for Dance genres among the youngest age group (.46), compared to the middle and oldest age group (.61 and .60 respectively, $p < .05$, partial $\eta = .05$).

CONSISTENCY OF STYLE PREFERENCE

Consistency in style preference over time ranged between $-.35$ and $.99$, and the mean consistency was $.80$ (see Table 5). Females tended to be more consistent in their style preferences ($p < .05$, partial $\eta^2 = .02$). There were no significant differences by educational level. The youngest age group was less consistent than the middle age group ($p < .05$, partial $\eta^2 = .03$). The oldest age group did not differ significantly from the other two age groups. However, for the multivariate model with group differences posed for gender, educational level and age groups, R^2 was $.05$ (adjusted $R^2 = .04$) and thus these differences reported by gender and age, although significant, are not substantial.

Discussion

This study aimed at assessing intra-individual consistency in lists of favourite artists, and in preference ratings for a range of genres and five main musical styles, over three points in time in a 21-month period. Factor analysis of genre preferences resulted in five styles labelled, in order of relative popularity: Pop, Urban, Elite, Rock and Dance. Similar genre and style structures have been identified in studies

TABLE 5 *Consistency of style preference*

	Estimated marginal means	(SE)	<i>F</i>	d.f. ¹	<i>p</i>	Partial η^2
Overall model	0.80	0.02	3.08	4	0.02	0.05
Univariate between subjects effects						
Gender						
Females	0.83	0.02				
Males	0.77	0.02	4.17	1	0.04	0.02
Educational level						
Low	0.81	0.03				
High	0.79	0.02	0.28	1	0.60	0.00
Age group						
12–17	0.76	0.03				
18–22	0.85	0.02				
23–29	0.78	0.03	3.66	2	0.03	0.03

¹Error d.f. = 226; Adjusted R^2 = 0.04.

Note: Overall range between -0.35 and 0.99.

conducted in a variety of western countries (Christenson & Peterson, 1988; Delsing et al., 2008; Rentfrow & Gosling, 2003; i.e., USA, Sweden, Belgium, the Netherlands, see Roe, 1985; Stevens, 2001; Ter Bogt et al., 2003; Tillekens, 1993). Overall, the intra-individual consistency coefficients ranged from perfect inconsistency to perfect consistency. Consistency in favourite artist listing was moderate. Consistency in genre preferences was moderate to high, while on average, style preferences are highly consistent.

Previously identified gender differences in music taste, such as females preferring softer, romantic types of music while males tend to prefer harder types of music (Christenson & Peterson, 1988; Frith, 1983; North & Hargreaves, 2007a) led to the question of potential differences in preference stability. The gendered difference in musical taste itself was replicated. That is, females were more likely to report preferences for Pop and Urban styles, whereas males were more positive towards the more monotonous Dance style. Gender differences with the styles of Rock and Elite were minimal. In the 1970s, the Rock audience was predominantly male (Frith, 1981), but during the 1980s and 1990s this changed, and by the beginning of the 21st century, at least in the Netherlands, few gender-based differences in the Rock audience remain (Mulder et al., 2007). In terms of consistency over time in musical preferences, there were no gender differences in expressed genre preferences or favourite artist listings. Females were more consistent in their relative liking of the five styles Pop, Urban, Elite, Rock and Dance, but the differences were not substantial.

Educational level was positively associated with favourite artist consistency, but not with consistency of style or genre preferences. Numerous previous studies have found social class to be of relevance in music taste studies, and we found educational

level was associated positively to the style Elite, and negatively to the style Dance. However, consistency of preferences for broad styles and genres appears to operate similarly across social strata, as an absence of effects here underlines.

Age group was thought to relate to consistency in music preference as involvement with and knowledge of music increase during adolescence (Christenson & Roberts, 1998), and because music taste can be such a powerful tool in the developmental task at hand during adolescence, that is, identity formation (Erikson, 1968; Tarrant et al., 2002). The importance of peers in this process, reflected in the wide popularity of chart-based music among young adolescents, makes the age group of 12- to 17-year-olds most susceptible to the latest hypes. Moreover, increased cognitive capacity could broaden the musical horizon following increased need for musical complexity (North & Hargreaves, 1997). Therefore, the youngest age group was expected to show the least consistency in music taste. Age did indeed prove to be positively related to favourite artist consistency. Compared to the older two age groups of late adolescents and young adults, the 12- to 17-year-olds not only listed younger and newer artists, they also displayed a higher turnover rate in who they liked best. In line with Holbrook and Schindler's (1989) finding that lifelong song preferences crystallized (or consolidated) at the age of 23, we found the oldest age group indeed displayed the highest consistency in lists of favourite artists.

Regarding consistency of genre preferences, age groups were similarly consistent, with the exception of ratings of Dance genres. Here, the youngest age group was less consistent compared to the two other, older age groups. This makes sense considering the association between dance music and clubbing, or going out, which is not yet optional for most 12- to 17-year-olds. It could be argued that music taste develops at least partially in conjunction with culturally staged accessibility. Contrary to our hypotheses, however, consistencies in the genre ratings other than Dance genres did not increase significantly with age. In terms of style preferences, participants aged 12 to 17 were less consistent than the 18- to 22-year-olds, but, overall, consistency of style preference was remarkably high for all three age groups. Thus artist preferences may function differently from broader judgements of the genres and styles. It seems music taste defined broadly is already well defined at the beginning of adolescence.

In conclusion, our study suggests musical taste is surprisingly consistent even for the age group 12 to 17, and is even more consistent among older youth and young adults. We argue that, although gender and social class function as determinants in music taste itself (Bourdieu, 1979; Bryson, 1996; Christenson & Peterson, 1988; Coulangeon & Lemel, 2007; Dibben, 2002; Eijck, 2001; Gans, 1999; Hargreaves, 1986; North & Hargreaves, 2007b; Peterson & Kern, 1996), they are not of marked influence on patterns of continuity and change in such individual preferences, that is, (in)stability of music preferences appears to be similar across these social strata. At the intra-individual level, taste consistency can vary widely, and the turnover rate of favourite artists was very high. Nevertheless, the majority of adolescents and young adults display high consistency in their preferences for music broadly divided into styles, and moderate to high consistency at the genre level.

Finally, the sample of participants was part of an internet-panel, and therefore inherently limited to those who were computer literate. As the digital divide can

be observed in a developed country such as the Netherlands (Van Dijk, 2006), a bias in the responses due to lack of representativity of the general population of 12- to 29-year-olds could arise. Studies comparing web-based surveys with paper- or telephone-based surveys have reported weighing for demographic representativeness is necessary, especially among the older populations (Berrens, Bohara, Jenkins-Smith, Silva, & Weimer, 2003; Couper, Kapteyn, Schonlau, & Winter, 2007). However, among the 12- to 29-year-olds in this study, internet access is more ubiquitous, and problems associated with the digital divide may therefore be less prominent. Studies aimed specifically at comparing web-based surveys with pen-and-paper surveys on measures of substance use among children (3rd and 4th grade [ages 6–8]) and undergraduate college students indicated few substantive differences (McCabe, Boyd, Young, Crawford, & Pope, 2005; McCabe, Couper, Cranford, & Boyd, 2006; McCabe, Diez, Boyd, Nelson, & Weitzman, 2006). Therefore, the use of an internet-panel may not necessarily be a problem in this situation.

LIMITATIONS

Although our research provides a window onto the consistency of music taste intra-individually, questions remain regarding the nature of the development of music taste. To capture that process, information on developmental issues such as increased capacity for cognitive processing and identity formation would be necessary. Therefore, we cannot rule out that the (slight) increase in consistency of genre and style ratings merely reflects increased knowledge of the music field, and thus more reliable preference ratings. Longitudinal monitoring of children and adolescents regarding the sources of variation in music taste identified by LeBlanc (1980), capturing both the cognitive, emotional and social characteristics of individuals would be needed. In addition, following people over a longer period of time than in our study and starting at a younger age than 12 would further help elucidate the formative mechanisms of music taste. Conversely, and specifically regarding the lists of favourite artists, shorter time intervals between data collection episodes would also be interesting, as artists can move in and out of popularity in a matter of weeks. The importance of music in most people's lives certainly warrants further investigations into the nature of music taste.

REFERENCES

- Bernaards, C. A., & Sijtsma, K. (2000). Influence of imputation and EM methods on factor analysis when item nonresponse in questionnaire data is nonignorable. *Multivariate Behavioral Research*, 35(3), 321–364.
- Berrens, R. P., Bohara, A. K., Jenkins-Smith, H., Silva, C., & Weimer, D. L. (2003). The advent of internet surveys for political research: a comparison of telephone and internet samples. *Political Analysis*, 11(1), 1.
- Blacking, J. (1995). *Music, Culture, & Experience*. Chicago and London: The University of Chicago Press.
- Bourdieu, P. (1979). *Distinction: A social critique of the judgment of taste*. London: Routledge.
- Brown, R. L., & O'Leary, M. (1971). Pop music in an English secondary school system. *American Behavioral Scientist*, 14, 401–413.

- Bryson, B. (1996). 'Anything but heavy metal': Symbolic exclusion and musical dislikes. *American Sociological Review*, 61(5), 884–899.
- Christenson, P. G., & Peterson, J. B. (1988). Genre and gender in the structure of music preferences. *Communication Research*, 15(3), 282–301.
- Christenson, P. G., & Roberts, D. F. (1998). *It's not only rock & roll: Popular music in the lives of adolescents*. Cresskill: Hampton Press.
- Coulangeon, P., & Lemel, Y. (2007). Is 'distinction' really outdated? Questioning the meaning of the omnivorization of musical taste in contemporary France. *Poetics*, 35(2–3), 93–111.
- Couper, M. P., Kapteyn, A., Schonlau, M., & Winter, J. (2007). Noncoverage and non-response in an internet-survey. *Social Science Research*, 36, 131–148.
- Cronbach, L. J., & Gleser, G. C. (1953). Assessing similarity between profiles. *Psychological Bulletin*, 50, 456–473.
- Dahlstrom, W. G., & Humphrey, D. H. (1996). Comparability of MMPI and MMPI-2 profile patterns: Ben-Porath and Tellegen's inappropriate invocation of Mahalanobis's D-2 function. *Journal of Personality Assessment*, 66(2), 350–354.
- Delsing, M. J. M. H., Ter Bogt, T. F. M., Engels, R. C. M. E., & Meeus, W. H. J. (2008). Adolescents' music preferences and personality characteristics. *European Journal of Personality*, 22(2), 109–130.
- Denisoff, R. S., & Levine, M. H. (1972). Youth and popular music: A test of the taste culture hypothesis. *Youth & Society*, 4, 237–255.
- DeNora, T. (2000). *Music in everyday life*. Cambridge: Cambridge University Press.
- Dibben, N. (2002). Gender identity and music. In R. A. R. MacDonald, D. J. Hargreaves, & D. Miell (Eds.), *Musical identities* (pp. 117–133). Oxford: Oxford University Press.
- Eijck, K. v. (2001). Social differentiation in musical taste patterns. *Social Forces*, 79(3), 1163–1184.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. London: Faber and Faber.
- Farnsworth, P. R. (1958/1969). The nature of musical taste. In *The Social Psychology of Music* (2nd ed.). Ames, IA: Iowa State University Press.
- Fox, W. S., & Wince, M. H. (1975). Musical taste cultures and taste publics. *Youth & Society*, 7(2), 198–224.
- Frith, S. (1981). *Sound effects: Youth, leisure, and the politics of rock 'n' roll*. New York: Pantheon Books.
- Frith, S. (1983). *Sound effects: Youth, leisure, and the politics of rock*. London: Constable.
- Frith, S. (1996). *Performing rites: Evaluating popular music*. Oxford: Oxford University Press.
- Gans, H. J. (1999). *Popular culture and high culture: An analysis and evaluation of taste* (rev. and updated ed. ed.). New York: Basic Books.
- Giles, D. C., & Maltby, J. (2004). The role of media figures in adolescent development: Relations between autonomy, attachment, and interest in celebrities. *Personality and Individual Differences*, 36(4), 813–822.
- Hargreaves, D. J. (1986). *The developmental psychology of music*. Cambridge: Cambridge University Press.
- Hargreaves, D. J., Miell, D., & MacDonald, R. A. R. (2002). What are musical identities, and why are they important? In R. A. R. MacDonald, D. J. Hargreaves, & D. Miell (Eds.), *Musical Identities* (pp. 1–20). Oxford: Oxford University Press.
- Holbrook, M. B., & Schindler, R. M. (1989). Some exploratory findings on the development of musical tastes. *Journal of Consumer Research*, 16(1), 119–124.
- Johnstone, J., & Katz, E. (1957). Youth and popular music: A study in the sociology of taste. *The American Journal of Sociology*, 62(6), 563–568.

- Knobloch, S., Vorderer, P., & Zillmann, D. (2000). The impact of music preferences on the perception of potential friends in adolescence. *Zeitschrift Für Sozialpsychologie*, 31(1), 18–30.
- LeBlanc, A. (1980). Outline of a proposed model of sources of variation in musical taste. *Council for Research in Music Education Bulletin*, 61, 29–34.
- Lewis, G. H. (1992). Who do you love? The dimensions of musical taste. In J. Lull (Ed.), *Popular Music and Communication* (pp. 134–151). London: Sage.
- Mark, N. (1998). Birds of a feather sing together. *Social Forces*, 77(2), 453–485.
- McCabe, S. E., Boyd, C. J., Young, A., Crawford, S., & Pope, D. (2005). Mode effects for collecting alcohol and tobacco data among 3rd and 4th grade students: A randomized pilot study of web-form versus paper-form surveys. *Addictive Behaviors*, 30, 663–671.
- McCabe, S. E., Couper, M. P., Cranford, J. A., & Boyd, C. J. (2006). Comparison of web and mail surveys for studying secondary consequences associated with substance use: Evidence for minimal mode effects. *Addictive Behaviors*, 31, 162–168.
- McCabe, S. E., Diez, A., Boyd, C. J., Nelson, T. F., & Weitzman, E. R. (2006). Comparing web and mail responses in a mixed mode survey in college alcohol use research. *Addictive Behaviors*, 31, 1619–1627.
- Mulder, J., Bogt, T. T., Raaijmakers, Q., & Vollebergh, W. (2007). Music taste groups and problem behavior. *Journal of Youth and Adolescence*, 36(3), 313–324.
- North, A. C., & Hargreaves, D. J. (1997). Experimental aesthetics and everyday music listening. In D. J. Hargreaves & A. C. North (Eds.), *The Social Psychology of Music* (pp. 84–103). Oxford: Oxford University Press.
- North, A. C., & Hargreaves, D. J. (2007a). Lifestyle correlates of musical preference: 1. Relationships, living arrangements, beliefs, and crime. *Psychology of Music*, 35(1), 58–87.
- North, A. C., & Hargreaves, D. J. (2007b). Lifestyle correlates of musical preference: 3. Travel, money, education, employment and health. *Psychology of Music*, 35(3), 473–497.
- North, A. C., Hargreaves, D. J., & O'Neill, S. A. (2000). The importance of music to adolescents. *British Journal of Educational Psychology*, 70, 255–272.
- Peterson, R. A., & Kern, R. M. (1996). Changing highbrow taste: From snob to omnivore. *American Sociological Review*, 61(5), 900–907.
- Raaijmakers, Q. A. W. (1999). Effectiveness of different missing data treatments in surveys with Likert-type data: Introducing the relative mean substitution approach. *Educational and Psychological Measurement*, 59(5), 725–748.
- Rentfrow, P. J., & Gosling, S. D. (2003). The do re mi's of everyday life: The structure and personality correlates of music preferences. *Journal of Personality and Social Psychology*, 84(6), 1236–1256.
- Rentfrow, P. J., & Gosling, S. D. (2006). Message in a ballad – The role of music preferences in interpersonal perception. *Psychological Science*, 17(3), 236–242.
- Roberts, B. W., Caspi, A., & Moffitt, T. E. (2001). The kids are alright: Growth and stability in personality development from adolescence to adulthood. *Journal of Personality and Social Psychology*, 81(4), 670–683.
- Roe, K. (1985). Swedish youth and music: Listening patterns and motivations. *Communication Research*, 12(3), 353–362.
- Roe, K. (1992). Different destinies – different melodies: School achievement, anticipated status and adolescents' tastes in music. *European Journal of Communication*, 7, 335–357.
- Rosengren, K. E., & Windahl, S. (1989). Media matter: TV use in childhood and adolescence. Norwood, NJ: Ablex Publishing Corporation.

- Sloboda, J. A., & O'Neill, S. A. (2001). Emotions in everyday listening to music. In P. N. Juslin & J. A. Sloboda (Eds.), *Music and Emotion: Theory and Research* (pp. 415–429). Oxford: Oxford University Press
- Steele, J. R., & Brown, J. D. (1995). Adolescent room culture – studying media in the context of everyday life. *Journal of Youth and Adolescence*, 24(5), 551–576.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, 57, 841–851.
- Stevens, F. (2001). Gemaakte keuzes? Een analyse van de muziek- en mediapreferenties van Vlaamse jongeren [Made choices? An analysis of the music and media preferences of Flemish youth]. *Sociologische Gids*, 48(2), 138–155.
- Tarrant, M., North, A. C., & Hargreaves, D. J. (2002). Youth identity and music. In R. A. R. MacDonald, D. J. Hargreaves, & D. Miell (Eds.), *Musical Identities* (pp. 134–150). Oxford: Oxford University Press.
- Ter Bogt, T., Raaijmakers, Q., Vollebergh, W., Van Wel, F., & Sikkema, P. (2003). Youngsters and their musical taste: Musical styles and taste groups. *The Netherlands Journal of Social Sciences*, 39(1), 35–52.
- Tillekens, G. J. (1993). Het patroon van de popmuziek: De vier dimensies van jeugdstijlen [The structure of pop music: Four dimensions of style]. *Sociologische Gids*, 40, 177–194.
- Tillekens, G. J., & Mulder, J. (2005). The four dimensions of popular music: Mapping the continental drift of pop and rock music preferences. *Soundscapes – Journal on Media Culture 2007*. Retrieved 11 April, 2007, from <http://www.soundscapes.info>.
- van Aken, M. A. G., van Lieshout, C. F. M., & Haselager, G. J. T. (1996). Adolescents' competence and the mutuality of their self-descriptions and descriptions of them provided by others. *Journal of Youth and Adolescence*, 25(3), 285–306.
- Van Dijk, J. A. G. M. (2006). Digital divide research, achievements and shortcomings. *Poetics*, 34(4–5), 221–235.
- Wells, A., & Hakanen, E. A. (1991). The emotional use of popular music by adolescents. *Journalism Quarterly*, 68, 445–454.

JUUL MULDER, MA.

Address: Department of Interdisciplinary Social Sciences, University of Utrecht, Heidelberglaan 2, 3584 CS, Utrecht, the Netherlands. [email: j.mulder@minjus.nl]

TOM F.M. TER BOGT, PhD.

Address: Department of Interdisciplinary Social Sciences, University of Utrecht, Heidelberglaan 2, 3584 CS, Utrecht, the Netherlands.

QUINTEN A. W. RAAIJMAKERS, PhD.

Address: Department of Education, University of Utrecht, Heidelberglaan 2, 3584 CS, Utrecht, the Netherlands.

SAOIRSE NIC GABHAINN, PhD.

Address: Department of Health Promotion, National University of Ireland, Galway.

PAUL SIKKEMA, MA.

Address: Research Bureau Qrius, Amsterdam.