

# TEMPORAL STABILITY OF MUSIC PREFERENCES AS AN INDICATOR OF THEIR UNDERLYING CONDITIONINGS

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## Abstract

To emphasize the substantial impact of both cognitive and emotional processes on the development of music preferences, such definitions are formed which define preferences as a set of emotional-rational attitudes, which in turn affect the perception of a piece of music. It can be assumed that music preferences are dependent on the current situational and emotional aspects. Accepting this assumption, the absolute stability of the preferences of particular musical genres will be relatively low. As an alternative to the above reasoning, it can be assumed that the high temporal stability of the musical genres preferences may indicate deeper than, for instance, related to the current mood determinants of music preferences. The current study analyzed the temporal stability of musical preferences as measured with the Short Test of Music Preferences (Rentfrow, Gosling, 2003), which was tested within five months in a group of 88 people aged 20 to 58 years. Studies have shown that the Short Test of Music Preferences (STOMP) allows for a relatively stable measurement of music preferences in a period of 5 months. The analyzes revealed that the stability of the results of music preferences is high and constant. With the awareness of the limitations of the method to research the stability of results over time, you can assume with some caution that the high temporal stability of the music factors preferences may indicate deeper conditionings of music preferences than, for example, those connected to the current mood or situation.

**Keywords:** music preferences, temporal stability

## 1. Introduction

There are some compositions you like, some that you treat with indifference, finally some which irritate you. You would call them good, average, and uninteresting music respectively, while being aware of the subjectivity of your assessments, given that although you really like one genre, it may well irritate other person. With some other genre, the situation may be quite different. Your preferences determine your attitude to a particular musical theme. Music preferences include the condition that a person's choices concern pieces of music. Simultaneously, selected songs are indices of preferences.

To define the concept of "music preferences", it is necessary to characterize

the plane from which this idea originates. It is, undoubtedly, the notion "general preferences". General preferences are described in literature as the standards governing the course of cognitive functions in situations that are characterized by complexity, ambiguity and uncertainty, in other words, when a person is free to choose the type of reaction (response) (Nosal, 1992). An alternative to this type of situations are those in which response depends on certain external patterns, i.e. when the role of preferences is small. Therefore, the disclosure of preferences applies to such situations in which there is a freedom of choice. Preferences influence the course of human

behaviour by determining which possible mode of functioning a person is willing to choose. To facilitate the realisation of preferences, there should be no specific external requirements as to the manner of their realization. Certain situational factors often prevent or impede the realisation of preferences, whereas others may be helpful. Taking into account the difficulties that arise in the process of preferences realisation, you adjust to them as often as you oppose them. A situational feature conducive to the activation of preferences is their vagueness, namely, that there is either no information, or not enough information about the required modes of functioning. Such situations are far more frequent than situations that are based on an algorithm. As preferences disclose most freely in cognitively vague situations, their measurement is most valid in those circumstances.

Music preferences may have multifactorial conditionings. These conditionings are complex, and closely linked through their mutual interaction. Biological (Blood & Zatorre, 2001; Panksepp & Bernatzky, 2002), educational (Brittin, 1991), and cultural (North & Hargreaves, 1997; O'Hagin & Harnish, 2006) conditionings have been discussed among factors that shape individual music preferences. Preferred music is associated with the problem of the development and verification of one's social and personal identity (Tarrant, North & Hargreaves, 2004), differences in the styles of music perception (Hargreaves & Colman, 1981, Smith, 1987), social influence factors (Inglefield, 1972; Hargreaves 1986). In addition, much attention has been paid to the relationship between music preferences and perceived adequacy of music listened to, depending on situational context (Konečni, 1982), but also on emotional needs (Roe, 1985; Little & Zuckerman, 1986; Behne, 1997). The term "music preferences" denotes such reactions to music which show the degree of liking or not liking certain songs or types of music, and these reactions are not necessarily based on the cognitive analysis of music being the object of a personal disposition (Finnäs, 1989).

The concept of preferences appears in the theories of personality whilst the differences in

the orientation of the mind and personality structure are explained (e. g. in Jung's theory of types, where "a preference" means a dominant possibility to direct both the behaviour and a potential cognitive standard) (Nosal, 1992). Thus preferences can be treated as inclinations, distributions of possibilities, multi-dimensional dispositions, which constitute a component of personality structure. The works of Cattell (1954), who assumed that music preferences are a window to human personality, were clearly inspired by psychoanalytic concepts. Thus personality can manifest itself in one's music choices. Previous studies have shown that people are aware of this relationship (Rentfrow & Gosling, 2003), and can quite accurately infer personality traits, such as openness and emotional stability, on the basis of one's music preferences (Rentfrow & Gosling, 2006). Consequently, a certain stability of music preferences can be assumed, resulting, for example, from the repeatability of personality parameters of an individual's functioning, or from the relative constancy of internal factors determining repetitive external reactions. Stability or relative stability of personality stems from the fact that personality comprises traits (Cattell, 1950; 1957). Thus the stability of personality based on constant traits becomes the basis to predict long-term patterns of behaviour.

## **2. Music preferences model according Rentfrow and Gosling (2003)**

A huge variety of music categories is used to describe music preferences. Music continues to grow and change, and the boundaries between genres are flexible. Can music choices, then, be described and classified on specific dimensions?

In addition to genre classification, music can be characterized in terms of the elements of music (melody, rhythm, pace, dynamics, formal structure). Terms referring to the impressions and reactions to music are also used. Semantic differential and factor analysis, two methods established in experimental aesthetics, are used to fulfil this aim.

Rentfrow and Gosling (2003) attempt to answer many questions key to the issue of music preferences. They turn out to be the heirs of Cattell's thought, both when it comes to building a bridge between music preferences and personality, and to the statistical analysis of data. The researchers developed the STOMP (Short Test of Music Preferences), consisting of 14 music categories to measure music preferences corresponding to the following music genres: blues, classical, jazz, folk, heavy metal, rock, alternative, country, pop, religious, soundtracks, rap/hip hop, soul/funk, dance/electronica. These genres were selected from a pool of 80 music genres and subgenres (14 genres and 66 subgenres). During the procedure of developing the tool, only 7% of respondents knew all music subgenres (e. g., industrial, swing), whilst 97% of respondents knew all listed genres. Thus genre was established as a central category on which the procedure to analyze music preferences should be build (Rentfrow, Gosling, 2003).

Using a variety of statistical verification methods (including factor analysis), the cited authors found that the best construct to describe music preferences is a four-factor model. Expanding the scope of research on music preferences, they showed that listeners' individual music choices can be described in four dimensions. Factor analysis identified a positive grouping of the following genres: blues, classical, jazz, folk (Reflective and Complex). According to the authors, these are structurally complex genres, and they seem to facilitate introspection. The second factor was defined by such genres as heavy metal, rock, alternative music (Intense and Rebellious). These are genres that are full of energy, and emphasize themes of rebellion. The third factor includes the following genres: country, pop, religious, soundtracks (Upbeat and Conventional), which, due to the nature of the music material, were defined as structurally simple, with lyrics emphasizing positive emotions. Finally, the fourth factor comprised such genres as rap/hip-hop, soul/funk, electronica/dance music (Energetic and Rhythmic). They represent lively music, which often emphasizes the rhythm.

### 3. Method

A study using the Short Test of Music Preferences was carried out in two institutions of higher education in Poland within the period of five months. The STOMP includes 14 categories corresponding to the music genres described in theoretical foundations.

Respondents rate each of these categories on a 7-point Likert-type scale with endpoints at 1 - Not at all and 7 - A great deal (I like a particular music genre). The results of relevant music genres evaluations are averaged according to the key, indicating four music dimensions. The average of all responses in the scale indicates the strength of preference for a particular music dimension.

Temporal stability was tested on a group of 88 students (including 31 females, 35.2% of the total sample) aged 20 to 58 years ( $M = 24.7$ ,  $SD = 13.1$ ). The research was a group study, carried out during labs and lectures in the participants' home institutions. The experimenter was present during the test to ensure comforting conditions, but did not attempt to influence the answers. The participation was voluntary and anonymous. The respondents were encouraged to work at a steady pace.

### 4. Results

Although the structure of the dimensions in the presented model of music preferences is clear and understandable, the stability of these dimensions over time is an important aspect to discuss. As noted earlier, music preferences may be affected by the current situational and emotional factors. Therefore, absolute stability of the preferences for particular music dimensions is relatively low. Alternatively, however, it can be assumed that high temporal stability of the preferences for particular music dimensions may indicate determinants of music preferences which are deeper than those based on the current mood or situation.

The temporal stability of individual music factors is high (Table 1). The only exception seems to be soul/funk music, for which correlation coefficient does not exceed .60.

**Table 1:** Temporal stability of the Short Test of Music Preferences.

Classical	.75
Blues	.72
Country	.65
Dance/Electronica	.65
Folk	.61
Rap/Hip-Hop	.71
Soul/Funk	.53
Religious	.67
Alternative	.71
Jazz	.62
Rock	.73
Pop	.61
Heavy Metal	.65
Soundtracks	.75

Similarly, the temporal stability of music dimensions is high (Table 2), as all correlations exceed .60. This result suggests that music preferences are constant for a short period of time (as predicted by this study).

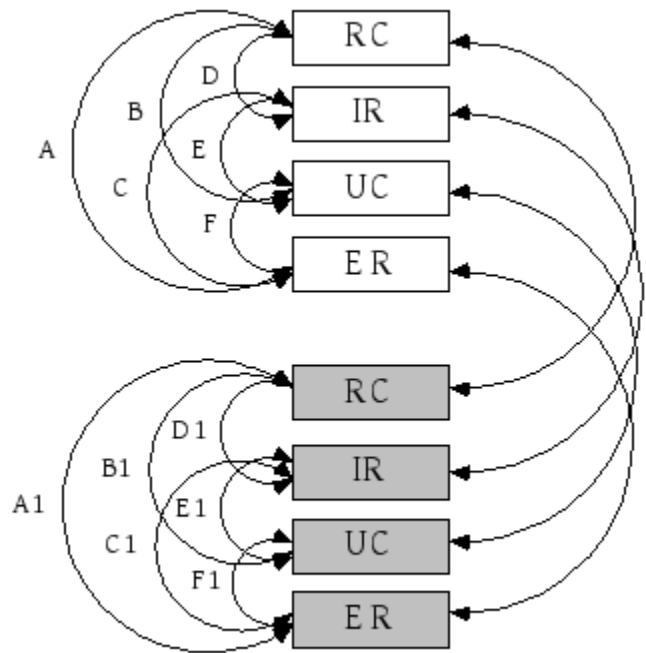
**Table 2:** Temporal stability of the results in the STOMP, total scores for dimensions.

Reflective & Complex	Intense & Rebellious	Upbeat & Conventional	Energetic & Rhythmic
.77	.66	.70	.61

The final stability test for the theoretical model of the STOMP preferences structure is a test of the stability of the factorial structure of the measurement, calculated by means of confirmatory factor analysis.

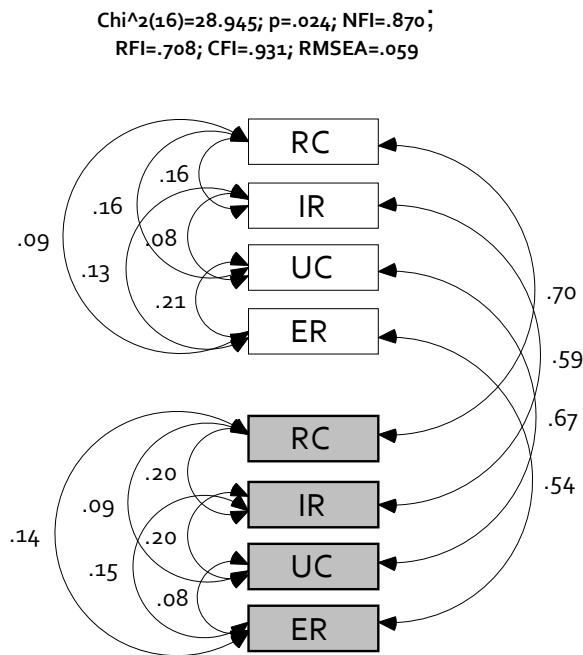
The model assumes that in each measurement the four dimensions describing music preferences are exogenous manifest variable. A mutual correlation of all the variables in each measurement is also assumed. However, only correlations between corresponding indices were allowed between measurements. To test accurately the hypothesis of the stability of the structure of the four music-preference dimensions measurement, two models were tested (Fig. 1). Model 1 does not make any additional assumptions about intercorrelations between factors. Model 2, however, assumes that there are equal correlations between analogous

music preferences dimensions in pre-test (e.g. correlation between RC and IR marked as D) and retest (D1).



**Figure 1:** The scheme of the stability of the structure of declarative preferences measurement.

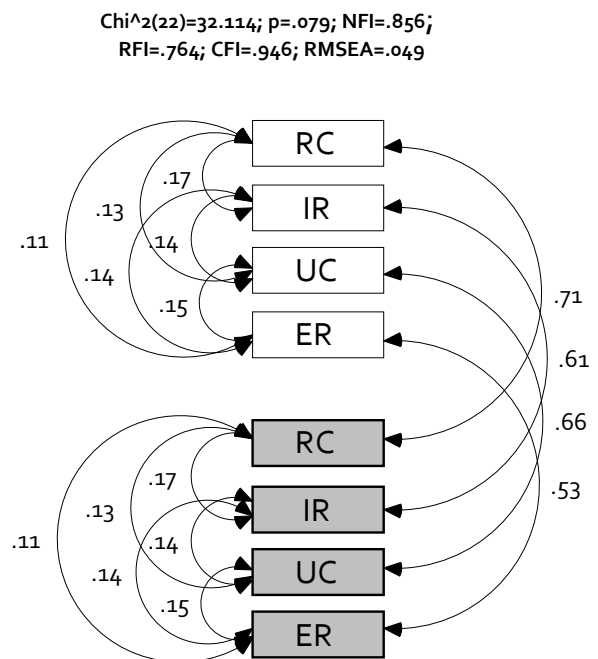
The analysis of the first model, assuming a free stability of the structure of music preferences measurement (Fig. 2), revealed fit indices slightly lower than expected boundary values. The results suggest that the Short Test of Music Preferences allows for a stable testing of preferences within the presented four-dimension structure. The strongest indices ( $\lambda = .70$ ) can be predicted for the measurement stability of the preference for music dimension RC, although other indices are only slightly lower. Moreover, correlation coefficients between various factors in each measurement appear different, and the strongest differences manifest themselves in terms of correlation between the UC scale and the other scales - UC and IR ( $\lambda = .08$  in pre-test and  $\lambda = .20$  in retest), UC and ER ( $\lambda = .21$  in pre-test and  $\lambda = .08$  in retest), and UC and RC ( $\lambda = .16$  in pre-test and  $\lambda = .09$  in retest). This result may indicate a qualitatively different musical connotation of this music dimension in the first and second measurement.



**Figure 2:** The path model of the stability of the measurement structure as tested with the STOMP.

However, Model 2 (Fig. 3), which additionally assumes the equality of correlations between dimensions in the individual measurements, provided a more satisfactory fit than Model 1, though not significantly better ( $p = .079$ ). Moreover, it shows very similar correlations between the individual measurements for each of the dimensions. The differences are very small, less than .05.

To conclude, the results suggest that the Short Test of Music Preferences allows for a relatively stable measurement of music preferences within five months for those aged over 20 years. The stability of the result of the separate dimensions, and the stability of the structure appear to be satisfactory.



**Figure 3:** The path model of the stability of the measurement structure as tested with the STOMP - assuming the correlations equality between dimensions in two measurements.

## 5. Discussion

It seems self-evident that the development of music preferences is influenced by widely understood situational and emotional factors. Apparently, musical tastes are determined also by the temporary level of emotion and motivation to listen to certain music. A preference for anything is associated with personal genesis, such as: personal utility, the uniqueness of stimuli evoking subjective experiences, emotions, and sensory experiences. Studies have shown that 85% of women and 74% of men respond positively to the question: "Have you ever used music to change your mood?" (Wells, 1990).

The tested model of music preferences, which is the Short Test of Music Preferences, turned out to be resistant to situational or emotional factors. This was concluded from the analysis of the temporal stability of the results, which showed that declared music preferences in the context of selected factors remained unchanged over the period of five months. Unquestionably, there are certain limitations of the method of testing the

temporal stability of results. Nevertheless, high temporal stability of music-preference dimensions may indicate deeper conditionings of music preferences than those connected, for example, to the current mood or situation. Such an understanding of the result corresponds with Holbrook and Schindler's claims (1989). This observation can lead to a conclusion that situational factors exert temporary impact on the current functioning, and, consequently, also on music preferences. The preference for disco music over classical compositions does not have to mean only a familiarly conditioned tendency to listen to this type of music, but also it can indicate, for example, a temperamental need for this type of musical stimuli. The presented method of inference about a person's musical choices has been discussed in literature (Konečni, 1982; Kopacz, 2005). It seems, therefore, that developed music preferences make it impossible for a person to opt for something else. One can certainly choose other music elements following others' suggestions, but in case of free situations which do not restrict the choice, one is going to choose the musical elements that are consistent with one's individual preferences. Therefore, the condition of individual preference is the consistent manifestation of this preference during the performance of various tasks by a participant. Tasks characterized by freedom of choice allow acting in accordance with preferences. Conversely, the result can be interpreted differently. If certain "music situations" occur in individual experience often enough, they can consolidate as preferences. This is more likely in cases of higher compliance between the external and internal - developmental and temperamental - personal - requirements (Matczak, 1982). The assumed stability of music preferences is due to the repeatability of objective parameters of situations in which an individual functions, and the relative constancy of the internal factors determining their subjective parameters.

## 6. Summary

Music is a combination of emotions and mathematics. The emotional side is embodied

within the intimate character that is attributed to music. On the other hand, music is a term that can be transformed into the language of mathematics. The current study has shown that the mathematical reasoning about the stability of music preferences seems to be an efficient, yet complex process. The result, which indicates the stability of declarative music preferences, seems to be a very important issue. Stability is a prerequisite to talk about preferences that seem to be truly individual properties. But although music choices may be the expression of a relatively stable mental apparatus, they are never exclusively that expression. However we specify what musical preferences are and within what context they should be analyzed, we can recognize and understand them only approximately, and any knowledge gained should not be treated as absolute. The study presented in this paper indicates the need for further, large-scale longitudinal studies.

## References

- Behne, K.E. (1997). The development of „musikerleben“ in adolescence: How and why young people listen to music. In: I. Deliège, J.A.Sloboda (Ed). *Perception and Cognition of Music* (pp.143-159). Hove: Psychology Press.
- Blood, A.J., & Zatorre, R.J. (2001). Intensely pleasurable responses to music correlate with activity in brain regions implicated in reward and emotion. *Proceedings of the National Academy of Sciences*, 98, 11818–11823.
- Brittin, R. (1991). The effect of overtly categorizing music on preference for popular music styles. *Journal of Research in Music Education*, 39(2), 143 – 151.
- Cattell, R. (1950). *Personality: A systematic, theoretical and factual study*. New York: McGraw – Hill.
- Cattell, R. (1957). *Personality and motivation structure and measurement*. Yonkers-on-Hudson: World Book.
- Cattell, R., & Saunders, D. (1954). Musical preferences and personality diagnosis: A factorization of one hundred and twenty themes. *The Journal of Social Psychology*, 39, 3 – 24.
- Finnäs, L. (1989). A comparison between young people's privately and publicly expressed musical preferences. *Psychology of Music*, 17(2), 132–145.

Hargraves, D.J., Colman, A.M. (1981). The dimensions of aesthetic reactions to music. *Psychology of Music*, 9(1), 15-19.

Hargreaves, D. (1986). The developmental psychology of music. Cambridge University Press.

Hoolbrook, M., & Schindler, R. (1989). Some exploratory findings on the development of musical tastes. *Journal of Consumer Research*, 16, 119 – 124.

Inglefield, H. G. (1972). Conformity behaviour reflected in the musical preference of adolescents. *Contributions to Music Education*, 1, 56-65.

Konečni, V. (1982). Social interaction and musical preferences. In: D. Deutsch (Ed.) *The Psychology of Music*. (pp.497-515). New York: Academic Press.

Kopacz, M. (2005). Personality and music preferences: The influence of personality traits on preferences regarding musical elements. *Journal of Music Therapy*, 3(42), 216 – 239.

Little, P., & Zuckerman, M. (1986). Sensation seeking and music preferences. *Personality and Individual Differences*, 7, 575 – 577.

Matczak, A. (1982). Style poznawcze: rola indywidualnych preferencji. Warszawa: Państwowe Wydawnictwo Naukowe.

North, A., Hargreaves, D. (1997). Experimental aesthetics and everyday music listening. In: D. Hargreaves, A. North (Ed.) *The Social Psychology of Music* (pp.84-103). New York, Tokyo: Oxford University Press.

Nosal, C. (1992). Diagnoza typów umysłu: rozwinięcie i zastosowanie teorii Junga. Warszawa: Wydawnictwo Naukowe PWN.

O'Hagin, I.B., & Harnish, D. (2006). Music as a cultural identity: A case study of Latino musicians negotiating tradition and innovation in northwest Ohio. *International Journal of Music Education*, 24, 56–70.

Panksepp, J., & Bernatzky, G. (2002). Emotional sounds and the brain: The neuro-affective foundations of musical appreciation. *Behavioural Processes*, 60, 133–155.

Rentfrow, P.J., & Gosling, S.D. (2003). The do re mi's of everyday life: Examining 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 musical preferences in interpersonal perception. *Psychological Science*, 17(3), 236–242.

Roe, K. (1985). Swedish youth and music: Listening patterns and motivations. *Communication Research*, 12, 352-362.

Smith, J.D.(1987). Conflicting aesthetic ideals in a musical culture. *Music Perception*, 4, 373-392.

Tarrant, M., North, A.C., & Hargreaves, D.J. (2004). Adolescents' intergroup attributions: A comparison of two social identities. *Journal of Youth and Adolescence*, 33, 177–185.

Wells, A. (1990). Popular music: Emotional use and management. *Journal of Popular Culture*, 24(1), 105 – 117.