Proceedings of the 7th Triennial Conference of European Society for the Cognitive Sciences of Music (ESCOM 2009) Jyväskylä, Finland
Jukka Louhivuori, Tuomas Eerola, Suvi Saarikallio, Tommi Himberg, Päivi-Sisko Eerola (Editors)

What makes us like music?

Thomas Schäfer[1] and Peter Sedlmeier[2]

Department of Psychology, Chemnitz University of Technology, Germany
[1]thomas.schaefer@phil.tu-chemnitz.de, [2]peter.sedlmeier@phil.tu-chemnitz.de

ABSTRACT

Why do we like the music we like and why do different people like different kinds of music? Existing models try to explain music preference as an interplay of musical features, the characteristics of the listener, and the listening context. Hereby, they refer to short-term preference decisions for a given piece of music rather than to the question why we listen to music at all and why we select a particular musical style. In this paper, it is hypothesized that the motivation for music listening and the liking for a particular kind of music depend on the functions that this music can fulfill for the listener. Thus, the relative contribution of these functions to the development of music preference should be investigated, together with repeated listening (which is thought to increase the impact of the functions over time). The cognitive functions, including communication and self-reflection, seemed to have the strongest influence on music preference. Physiological functions were very important as well. Emotional functions had less inmpact on preferences and cultural factors seem to have been irrelevant for participants' judgments. In addition, repeated listening contributed significantly to the strength of music preference. The results indicate that the functions of music substantially predict why we like the music we like. The most important function is communication – giving new evidence to the assumption that communication might have been the initial evolutionary benefit of music and might be an important reason for why we like music at all. The substantial effect found for the private use of music for self-reflection adds new evidence for the importance of music in the development of adolescents. It is suggested that the functions of music should be a central part of a comprehensive model of music preference.

INTRODUCTION

The question of why different people prefer different kinds of music has become one of the central questions not only within music psychology but also within other psychological disciplines. The interest in music preference within music psychology is due to the fact that music listening has become a ubiquitous phenomenon in our modern world. For most people, the importance of music as a leisure time activity can hardly be overestimated (Rentfrow & Gosling, 2003). It is the ubiquitous character of music that calls for psychological investigation, especially regarding the effects of music listening on people's behavior and emotional experience.

The interest in music preference within other psychological disciplines is due to the fact that music is a valuable means for the induction of emotions. In addition, music represents a diagnostic tool for investigating the development of adolescents because their problems, needs, and beliefs are often mirrored in the music they listen to. And not least, music provides a context for and influences people's social activities, which makes it interesting for social psychologists.

All these research activities on music listening require a theoretical basis – a theory or a model that describes and explains the phenomena of music listening and music preference and that integrates research findings about these issues. However, to date only two such models exist – only one of which directly focuses on music preference – and both models ignore the question of why we listen to music at all. To understand the great importance of music listening in people's lives and the fact that different people prefer different kinds of music, such models should incorporate references to a possible foundation of music listening. For example, there are some assumptions about the possible functions of music in human evolution. It may be considered how our ancestors could have benefited and how we profit today from music listening. The present paper presents an investigation of the relative contribution of different factors (such as cognitive functions, emotional functions, and so on) to the strength of music preference. First we will present the existing theoretical models and discuss the factors that are known to have an influence on music preference. We will then give a brief overview of the assumptions about the (evolutionary) foundation of music listening. Finally, we will present our findings of an empirical investigation on the relative influence of different factors on the strength of music preference.

Models of music preference

The only model that directly focuses on the formation of music preferences was developed by LeBlanc (1982). According to this model, the preference for a piece of music depends on input information and the characteristics of the listener. The input information consists of the "musical environment" (such as complexity or the referential meaning of the music) and the "cultural environment" (such as peers, family, educators). The characteristics of the listener are factors such as personality, gender, ethnic group, or musical ability. The input variables are thought to interact with each other and are filtered by the characteristics of the listener before they contribute to a decision about whether a given piece of music is accepted or rejected. LeBlanc's model contains most of the factors known to have an impact on music preference. However, it ignores the possible functions of music and it does not give any reference to the question of why one actually starts listening to music. Thus, no conclusions can be drawn from the model regarding potential reasons for why one listens to music at all.

A second model of music preference was developed by Hargreaves, Miell and McDonald (2005). The model focuses on people's responses to music. One of these responses is music preference (besides cognitive and emotional responses). As in LeBlanc's model, the characteristics of the listener, the music, and the social context have an influence on

these responses. The model of Hargreaves et al. (2005) gives a vague indication of the fact that the use of music may have an impact on music preference as well. However, the specific significance of this benefit through music is not clear and the model also lacks an idea about why one starts listening to music at all.

Nevertheless, both models provide good starting points for developing a more comprehensive model of music preference. However, what needs to be clarified before formulating such model is the precise meaning of the *use of music* in people's lives. Insights about the ways in which music is used would also give an idea about why we listen to music at all and how music may have evolved in human history.

Which factors have an impact on music preference has been investigated in numerous studies. And indeed, many of these factors deal with the functions of music in people's daily lives. We will now give a brief overview on these factors. (1) Cognitive factors, such as communication and self-reflection, were shown to affect music preference. It is a long known fact that music can be used as a means for getting in contact with other people and to express one's identity, values, beliefs, hopes, and fears (Arnett, 1995; Behne, 1997; Larson, 1995; Schäfer & Sedlmeier, in press). In addition, people use music to cope with their daily problems and to mirror their thoughts and feelings (e.g., Schwarz & Fouts, 2003). (2) Music is also liked if it is able to express, induce, and change emotions and to regulate ones mood (Juslin & Laukka, 2004; Saarikallio & Erkkilä, 2007; Waterman, 1996). (3) Music can have a great impact on physiological arousal. Chills, thrills, or strong emotional experiences with music are perceived as very pleasing effects of music listening (Gabrielsson, 2001; Goldstein, 1980; Panksepp, 1995; Sloboda, 1991) and they are closely tied to changes in arousal (Blood & Zatorre, 2001; Krumhansl, 1997; Rickard, 2004). (4) Music can be deliberately used to express the identity or the values of a whole culture or nation (Frith, 1996; Merriam, 1964) and it is diagnostic for the personality of others (Rentfrow & Gosling, 2006). (5) The preference for particular kinds of music increases with repeated listening or with increasing familiarity (Finnäs, 1989; Witvliet & Vrana, 2007). (6) It is known that the characteristics of the music (such as loudness, complexity, tempo) have a strong influence on music preference (see Finnäs, 1989). These characteristics have been intensely investigated. We will not consider them here, however, because they are music-inherent features and are therefore not suited to contribute to an explanation of why we listen to music at all. (7) Not least, several studies have found an influence of the characteristics of the listener (such as personality, age, gender) on music preference (e.g., Christenson & Peterson, 1988; Holbrook & Schindler, 1989; Rentfrow and Gosling, 2003). However, we also will not deal with the characteristics of the listener because they do not vary across different kinds of music and therefore cannot make a contribution to explaining why we listen to music at all.

Explanations for music listening

There is a growing consensus that music has evolved because it provided some evolutionary benefit (McDermott & Hauser, 2005; Peretz, 2006). For instance, Miller (2000) argued that the ability to make music could have been some kind of biological fitness indicator and hence is nothing more than the tail of a peacock. Dunbar (1998) emphasized the social functions of music: It may have been essential for the social bonding of families and groups as well as for the synchronization of common activities and the conveyance of information. Panksepp and Bernatzky (2002) believe that the use of music for social bonding and common activities is due to its potential to induce emotions. Via emotions, information is thought to be sent and received much easier and faster. In particular, the chill phenomenon may be an expression of such conveyance of information since the authors argue that it can guide reunion behavior.

In addition, there may be some reasons for music listening that do not follow directly from an evolutionary benefit. People may just have learned what positive effects music can have. For example, the power of music to induce positive emotions may be a reason why one listens to a piece of music again and again. Furthermore, the preference for musical pieces may become greater due to a mere exposure effect after repeated listening (Szpunar, Schellenberg, & Pliner, 2004; Witvliet & Vrana, 2007). Not least, people engage in music activities because doing so sweetens and structures our leisure time and thereby makes us happy and increases our well-being (Hills & Argyle, 1998; Pinker, 1997).

From these potential (evolutionary) benefits of music listening, one can derive some ideas about what functions music should serve. These are the functions already mentioned above. Music should be a means to communicate with others. In doing so, it must convey particular emotions, and in turn it must influence physiological arousal because arousal is one component in the formation of an emotion (e.g., Scherer & Zentner, 2001; Schubert, 2004). We believe that people prefer music that serves these functions best. In addition, if music should convey particular meaning this meaning has to be learnt. Thus, repetition and familiarity should be crucial for music preference as well. Not least, the importance of repetition and familiarity directly follows from a possible mere exposure effect.

Aim of the present research

As discussed above, the existing models on music preference should be augmented by an important component: the functions of music. We believe that the functions of music are necessary to understand how people engage in music listening and – in particular – why they do it at all. The purpose of the present study was to consider all factors that influence music preference together and investigate their relative contribution to the strength of people's music preference. We will focus on factors that vary across different musical styles, because these factors may contribute to an understanding of why we listen to music at all. Accordingly we will not take into account the characteristics of the music as well as the characteristics of the listener. This leaves communication, self-reflection, mood and emotion, arousal and activation, culture, and repetition as potentical factors that determine music preference.

METHOD

Participants were 53 students from Chemnitz University of Technology (43 females, 10 males) aged 18 to 37 years (M = 22; SD = 3.5). Their task was to listen to seven pieces of music, one of which was their own favorite music that they brought to the laboratory. The other six pieces were representative selections of the six distinct music styles found by Schäfer and Sedlmeier (in press): rock, pop, rap, electro, classical, and folk/beat. For each piece, the participants were asked how much they liked it and how much they agreed with a list of 39 statements on ten point Likert type scales (1 – *I do not agree at all*, 10 – *I totally agree*). Some statements were formulated for each interesting factor (e.g., "This music activates me" as an indicator of physiological arousal, or "This music can put me in a good mood" as an indicator of the emotional use of music.) The order of the pieces was randomized across participants. The six pieces were: *Scherzo from Symphony No. 2, op. 36* (Ludwig van Beethoven) as classical, *Love Is Gone* (David Guetta) as electro, *Dani California* (Red Hot Chili Peppers) as rock, *Gold Digger* (Kanye West featuring Jamie Foxx) as rap, *All Good Things* (Nelly Furtado) as pop, and *Santa Maria* (Roland Kaiser) as beat.

RESULTS

The pieces the participants brought to the lab as their favorite music were rock or pop music in most cases. The strength of music preference (scale from 1 to 10) was highest for their favorite music (M = 8.5; SD = 1.0), followed by rock (M = 6.5; SD =2.4), pop (M = 5.6; SD = 2.2), rap (M = 4.4; SD = 2.8), electro (M = 3.8; SD =2.3), classical (M = 3.0; SD = 1.6), and beat (M = 1.7; SD = 1.1).

In order to investigate the relative contribution of the six factors to the strength of music preference, a multiple regression analysis was calculated. Predictors were the six factors that were each represented by the mean of the statements that belonged to it (e.g., seven statements belonged to the factor arousal and activation). For each participant, the individual scores across the seven pieces were *z*-transformed to avoid level effects between the people.

Table 1. Predictors for the strength of preference for different musical pieces over all respondents (R^2 = .91).

	Beta	*p*
Communication	.32	<.001
Self-reflection	.21	<.001
Arousal and activation	.21	<.001
Mood and emotion	.16	<.001
Repetition and familiarity	.13	<.001
Culture	-.04	.052

The results of the regression analysis are shown in Table 1. Apart from culture, all factors are significant predictors for the strength of music preference. In particular, the fact that music can be used as a means for communication is the most important factor for explaining the strength of music preference. Together with self-reflection – which is the next important factor – it indicates that the cognitive functions of music may be the main reason why people like "their" music. Arousal and activation appear to be just as important as self-reflection. Not as important, though still of substantial size, are the use of music for mood and emotion regulation and the question of whether one is familiar with the music and has listened to it more than once, respectively.

DISCUSSION

In the introduction we have argued that a comprehensive model of music preference should incorporate the use of music as a central characteristic of music listening. Accordingly, such a model should deal with the issue of why we listen to music at all. We believe that the question of the use of music roots in the more general question of the evolutionary foundation of music listening. The results reported here shed some light on this issue. First, it appears that all the functions of music identified above are important predictors for music preference. (Only the ability of music to express the identity and the values of a nation and a culture, respectively, does not seem to be very important, at least in the present sample.) This indicates that the use of music is a very important aspect of music listening and cannot be neglected when constructing a model of music preference. Rather it may be that one's deliberate use of music is the crucial criterion for whether it is likely that one listens to a given music again or not.

The second major finding is that there is a rank order in the degree to which the factors we investigated here contribute to music preference. The cognitive functions of music appear to be the most important factors for music preference. The central role music plays in communicating with others and in reflecting and expressing ones own attitudes, values, and beliefs has already been demonstrated in numerous studies (e.g., Arnett, 1995; Larson, 1995; Schwarz & Fouts, 2003). Especially for adolescents, music serves as a means for defining their identity and expressing it outwards. And music is a means to cope with one's daily hassles and problems that are often mirrored and possibly solved in the music. It seems to be that kind of individual use of music that connects (young) listeners with their music.

In addition, according to Panksepp and Bernatzky (2002), music may also guide and synchronize common social activities and transport information via the emotions it elicits. This assumption would be supported by the (smaller, though significant) impact of the activating and arousing function of music and the importance of mood and emotion. The importance of arousal and activation might also indicate that the modulation of arousal as well as strong experiences (such as chills) people probably had with their favorite music are essential for the development of music preference (Gabrielsson, 2001; Rickard, 2004). Not least, music that is to convey information has to be of a known and familiar structure.

To clarify the evolutionary foundation of music listening, the results would support the hypothesis that the

social-communicative functions of music are the most important ones. These functions may have been the initial benefit in the evolution of music (Dunbar, 1998; Falk, 2004; Mithen, 2006).

To sum up, our results may help to develop a comprehensive model of music preference. One that incorporates the use of music as one central component so that it gives an answer to the question of why one starts listening at all as well. Such a model may start with the components suggested by LeBlanc (1982) and Hargreaves et al. (2005). In a further step, the factors we investigated here – that vary across different music styles – may be combined with all factors known to influence music preference (such as the characteristics of the listener, the features of the music, and the context of music listening). Knowing more about all the interplay of these factors would help to understand people's bonding with their music. And knowing more about why humans evolved to music listening creatures means knowing more about our origin.

REFERENCES

Arnett, J. J. (1995). Adolescents' uses of media for self-socialisation. *Journal of Youth and Adolescence, 24*(5), 519-533.

Behne, K.-E. (1997). The development of "Musikerleben" in adolescence. How and why young people listen to music. In I. Deliège & J. Sloboda (Eds.), *Perception and Cognition of Music* (pp. 143-159). Hove, England: 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 Science of the United States of America, 98*, 11818-11823.

Christenson, P. G., & Peterson, J. B. (1988). Genre and gender in the structure of music preferences. *Communication Research, 15*, 282-301.

Dunbar, R. (1998). *Grooming, Gossip, and the Evolution of Language*. Cambridge: Harvard University Press

Falk, D. (2004). Prelinguistic evolution in early hominins: Whence motherese? *Behavioral and Brain Sciences, 27*(4), 491-503.

Finnäs, L. (1989). How can musical preferences be modified? A research review. *Council for Research in Music Education, 102*, 1-59.

Frith, S. (1996). *Performing Rites. On the Value of Popular Music*. Oxford: Oxford University Press.

Gabrielsson, A. (2001). Emotions in strong experiences with music. In P. N. Juslin & J. O. Sloboda (Eds.), *Music and emotion* (pp. 431-449). New York: Oxford University Press.

Goldstein, A. (1980). Thrills in response to music and other stimuli. *Physiological Psychology, 8*(1), 126-129.

Hargreaves, D. J., Miell, D. E., & MacDonald, R. A. R. (2005). How do people communicate using music? In D. E. Miell, R. A. R. MacDonald & D. J. Hargreaves (Eds.), *Musical communication* (pp. 1-25). Oxford: Oxford University Press.

Hills, P., & Argyle, M. (1998). Musical and religious experiences and their relationship to happiness. *Personality and Individual Differences, 25*(1), 91-102.

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

Juslin, P. N., & Laukka, P. (2004). Expression, Perception, and Induction of Musical Emotions: A Review and a Questionnaire Study of Everyday Listening. *Journal of New Music Research, 33*(3), 217-238.

Krumhansl, C. L. (1997). An exploratory study of musical emotions and psychophysiology. *Canadian Journal of Experimental Psychology, 51*(4), 336-353.

Larson, R. (1995). Secrets in the bedroom: Adolescents' private use of media. *Journal of Youth and Adolescence, 24*(5), 535-550.

Leblanc, A. (1982). An Interactive Theory of Music Preference. *Journal of Music Therapy, 19*(1), 28-45.

McDermott, J., & Hauser, M. (2005). The origins of music: Innateness, uniqueness, and evolution. *Music Perception, 23*, 29-59.

Merriam, A. P. (1964). *The Anthropology of Music*. Evanston: Northwestern University Press.

Miller, G. (2000). Evolution of human music through sexual selection. In N. L. Wallin, B. Merker & S. Brown (Eds.), *The origins of music.* (pp. 329-360). Cambridge, MA, US: The MIT Press.

Mithen, S. (2006). *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body*. Harvard: Harvard University Press

Panksepp, J. (1995). The emotional sources of 'chills' induced by music. *Music Perception, 13*(2), 171-207.

Panksepp, J., & Bernatzky, G. (2002). Emotional sounds and the brain: The neuro-affective foundations of musical appreciation. *Behavioural Processes, 60*(2), 133-155.

Peretz, I. (2006). The nature of music from a biological perspective. *Cognition, 100*(1), 1-32.

Pinker, S. (1997). *How the mind works*. New York, NY, US: Norton & Co.

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.

Rickard, N. S. (2004). Intense emotional responsees to music: A test of the physiological arousal hypothesis. *Psychology of Music, 32*(4), 371-388.

Saarikallio, S., & Erkkilä, J. (2007). The role of music in adolescents' mood regulation. *Psychology of Music, 35*, 88-109.

Schäfer, T., & Sedlmeier, P. (in press). From the functions of music to music preference. *Psychology of Music*.

Scherer, K. R., & Zentner, M. R. (2001). Emotional effects of music: Production rules. In P. N. Juslin & J. A. Sloboda (Eds.), *Music and emotion: Theory and research.* (pp. 361-392). New York, NY: Oxford University Press.

Schubert, E. (2004). Modeling Perceived Emotion With Continuous Musical Features. *Music Perception, 21*(4), 561-585.

Schwartz, K. D., & Fouts, G. T. (2003). Music preferences, personality style, and developmental issues of adolescents. *Journal of Youth and Adolescence, 32*(3), 205-213.

Sloboda, J. A. (1991). Music structure and emotional response: Some empirical findings. *Psychology of Music, 19*(2), 110-120.

Szpunar, K. K., Schellenberg, E. G., & Pliner, P. (2004). Liking and Memory for Musical Stimuli as a Function of Exposure. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 30*(2), 370-381.

Waterman, M. (1996). Emotional Responses to Music: Implicit and Explicit Effects in Listeners and Performers. *Psychology of Music, 24*, 53-67.

Witvliet, C. V. O., & Vrana, S. R. (2007). Play it again Sam: Repeated exposure to emotionally evocative music polarises liking and smiling responses, and influences other affective reports, facial EMG, and heart rate. *Cognition & Emotion, 21*(1), 3-25.