Music is an important source of stimulation, answering listeners’ multiple needs, bringing them a variety of perceptions, providing them with affective, cognitive, and aesthetic experience. This paper refers to the selected theoretical approaches to the emotional responses to music. It presents exemplary research topics concerning the relationship between music and emotion. These topics are situated in the context of general theories of emotion, and special attention is paid to their physiological and phenomenological aspect. The complexity and variability of affective experience inherent in the process of music perception are explained with reference to the interaction between the music profile and a listener’s profile. The emotional response to music is considered as an interaction effect of the properties of music, relatively stable traits of a listener, his or her momentary state, and the situation in which he or she is exposed to music. The paper proposes an integrative view of how music evokes emotional responses and points out to the links they have with the practice of self-regulation and music therapy.

Key words: emotion, affect, aesthetic experience, music profile, listener’s profile

One of the basic motivations to listen to the music is pleasure drawn from perception of its emotional aspect (considered also as emotion communication) and being subject to its emotional effects, for instance in the process of affective regulation (Madison, 2011; Thayer, Newman, & McClain, 1994). This paper refers to the selected theoretical approaches to the emotional responses to music and presents the exemplary research topics concerning the affective and cognitive aspect of emotional responses to music. The paper points out to their role in everyday life, the physiological, phenomenological and functional aspect of emotional responses to music, their cross-listeners congruence and individualisation.

Emotional responses to music are presented here in the light of the basic claims of pragmatic aesthetics as well as the selected theories of emotion, with special attention to utilitarian and aesthetic emotions. The complexity and variability of affective phenomena inherent in the process of music perception are explained with reference to the interaction between the music profile and a listener’s profile. Such an integrative approach to the mechanisms of inducing emotional responses to music may form a basis to further empirical investigation of the problem.

The ontological status of musical emotion is controversial (see Juslin, 2013). Dependent
on which aspect of the affective experience is taken into consideration, the emphasis is put on the similarity of the emotional responses to music and the responses to other affective stimuli, or on the specificity of the affective experience inherent in music perception. The interest in the affective effects music may have on a listener is manifested in a wide range of research problems undertaken (see Bharucha, Curtis i Paroo, 2006). The process of generating an emotional response to music is embedded in the context of individual characteristics of a perceiver formed in the constant interaction between an organism and the environment. The standing of pragmatic aesthetics, viewing art as an experience, emphasizes the constructivist character of the emotional response to a work of art (Dewey, 1934). In this approach it is not a perceiver (here: a listener) but the very fact of getting into contact with a work of art (here: listening) that changes the object of perception, e.g., the emotional experience inherent in its perception. Music perception, and thus also the emotional responses it arises are not objective or subjective but result from the interaction between a listener and the music, in which the fact of listening constructs the perceived form of the work of art (see Wilkoszewska, 2003). Stable and momentary characteristics of a listener, his or her past experience and the present listening context are the basic extra-musical grounds for the emotional responses to music (Sloboda, 2005; Västfjäll & Gärling, 2006). Considering them in a conjunctive mode is a challenge for empirical research.

EMOTIONAL RESPONSES TO MUSIC AND THE GENERAL CONCEPTS IN THE DOMAIN OF AFFECT

Emotions inherent in listening to the music are defined and classified in many ways (see Bharucha et al., 2006; Sloboda & Juslin, 2010). The relationship between music and emotion is a vivid topic of interdisciplinary debates among psychologists, music scientists, and neuroscientists (Bharucha et al., 2006; Juslin, 2013; Huron, 2011).

In the context of listening to the music, emotion is not necessarily the basic response classified by Ekman (1992), Plutchik (2002) or moods as affective states extended in time (Davidson, 2002). Considering that music can trigger basic emotions and affective states that are more specific (Juslin & Västfjäll, 2008; Zentner, Grandjean, & Scherer, 2008), music perception comprises a wide range of affective phenomena that don’t belong to the main current of the research on human affect. With reference to the emotional responses to music, we should recall in brief the concepts of emotion, feeling, mood, and preference as the elements of a broad concept of affect (np. Davidson, Scherer, & Goldsmith, 2003). Utilitarian and aesthetic (Scherer, 2004) as well as refined emotions (Frijda & Sundararajan, 2007) will also be brought into attention.

Temporal and energetic aspects of emotion

Affect in a narrow sense, as an elementary component of emotion, forms a momentary positive or negative response of an organism to an external or internal stimulus (Kolańczyk, 2004) with its characteristic valence and arousal. In the context of music perception, this emotional response is the most elementary sensory experience.

Emotion is an organized, structurized response to an event that is important for survival, for the needs and goals of an organism, comprising the state of elevated arousal (Ekman & Davidson, 2002), physiological response, phenomenological feeling, expression, and action tendencies (Oatley & Jenkins, 1996). It is intense, concise, and reactive meaning a direct reference to a stimulus that arises it. A definition that can best grasp the variability of the affective phenomena, presents emotions as relatively short patterns of perception, experience, physiological response, activity and communication that arise...
in response to the specific physical and social challenge or opportunity (Keltner & Gross, 1999).

The above definition emphasizes the functional aspect of emotion that comprises for instance the elements of appraisal characteristic for aesthetic perception, the subjective feeling, and regulative functions. It refers to the intense and short affective experiences as responses to the stimuli of a homeostatic importance (including cognitive changes, subjective impression, expression and action tendencies; Davidson, et al., 2003), as well as the reactions that are more extended and less defined such as moods (Silvia, 2006). An example can be interest as a key emotion underlying the aesthetic experience (Tan, 2000), more or less extended in time, which is associated with exploration, intrinsic motivation, curiosity and learning (Silvia, 2006).

With reference to the affective aspect of art perception, special attention should be paid to feeling, which is the central experiential component of emotion (Damasio, 2000; Panksepp, 2005). Feeling comprises experiencing the changes occurring in the body and in cognition with the mental images of what evoked these changes (Damasio, 2011; Scherer, 2004). It integrates other aspects of emotion and forms the basis of the conscious representation of emotion (Scherer, 2004) that is a state of feeling made conscious (Damasio, 2000).

Mood is an affective phenomenon less intense in nature and longer in duration as compared to emotion or as a slight feeling or affect. It is a subjective affective state that does not refer directly to a stimulus. It does not need to correspond to an emotion that is currently being experienced but it can change the probability of its occurrence or be an effect of condensed emotion. Information about mood can only be gathered relying on report of a person that is experiencing it or by measuring their cognitive activity that the mood affects (Davidson, 2002). Mood cannot be easily induced by music, unless music is listened to on purpose, with listeners’ considering it as a tool of self-regulation (see Van den Tol & Edwards, 2014).

Music preferences are an attitude to music analysed on the dimension of like and dislike. Whether a listener likes certain music in a stable way as well as at a certain moment, affects the actual listening activities and the responses to them (see Lamont & Greasley, 2009). Music preferences may change fast, also dependent on the context, and those more stable are usually associated with strong emotional experiences (Lamont & Webb, 2009). It is plausible that depending on the properties of music, the characteristics of a listener, and listening circumstances, emotional responses to music may have a form of the elementary affects or may develop into more complex affective states that bring sense to individual experience. Sometimes a direct relationship between music and emotion is questioned, which reveals the variability of the ways in which the importance of music for the emotional state of a listener is recognized as a function of the method used to study them (Konečni, Brown, & Wanic, 2008).

Utilitarian and aesthetic emotions

Emotion accompanying art perception, as with respect to other types of stimuli, arises on the verge of the internal and external worlds (see Sloboda & Juslin, 2010). Utilitarian and aesthetic emotions vary in the proportion of the physiological, experiential, and cognitive components as well as action tendencies (Scherer, 2004). Utilitarian emotions such as anger, fear, joy, sadness, guilt, shame or disgust comprise a strong biological component and play a major role in adaptation. Their functions are based on the prior analysis of the meaning of the stimuli or situations that evoke them, from the perspective of the possibility to carry out the goals that are important for an individual. Utilitarian emotions are of high intensity and low duration. They are focused on a stimulus that induced them, and synchronized with it. They are highly changeable and have a strong impact on behaviour, providing...
distinct cues as to whether the stimulus should be avoided or is worth approaching. A feeling characteristic of the utilitarian emotions is close to core affect meaning a neurophysiological state that stems from recognition of a predictive value of a stimulus that is available to experience (Barrett, 2005).

In turn, aesthetic emotions are of low intensity and short duration. They are not tightly synchronized with a stimulus but they closely refer to its immanent properties which results in stronger experiential and cognitive components as compared to a biological component. Aesthetic emotions do not comprise the element of appraisal of a stimulus in any other way than from the perspective of a perceiver’s aesthetic needs. However, its emotional effect can be interpreted in the context of a perceiver’s extra-aesthetic experience. The physiological element “embodying” aesthetic emotions is different here than in utilitarian emotions: the evoked changes are weaker than in utilitarian emotions, less synchronized, and they do not serve behavioural readiness to undertake the adaptive behaviour (see Frijsa, 1986; Scherer, 2004). While utilitarian emotions are pro-active, the prevailing aspect of aesthetic emotions is reactive. Despite the fact that aesthetic emotions are rarely tightly related to the basic life goals, they are involved in the process of formation of the relationship between an individual and the environment, and in building up the individual identity. Many people admit that music plays an important role in their lives, which is reflected in a theoretical approach to music as ‘positive resources for active self-making’ (Hesmondhalgh, 2008). Emotions experienced while listening to the music are included in making sense of life and transcending one’s experience which is of high importance for individual development (Volgsen, 2013).

The core of aesthetic experience is the recognition of the properties of the work of art itself, with no need to view its practical or pragmatic aspects, with the accompanying feeling of like or dislike which results in approach or avoidance tendencies. Refined emotions (Frijda & Sundararajan, 2007) are missing a character of an unconditional response to a stimulus, remaining at a distance from real issues and problems. Their important component is self-reflection and self-awareness. Applying general knowledge of emotion to the aesthetic emotions associated with music we may conclude that such emotions arise when exposure to music results in a change in a listener’s core affect (see Barrett, 2005).

THEORETICAL APPROACHES TO MUSIC AND EMOTION

A relationship between music and emotion cannot be grasped in a single-threaded way. Music is a whole range of auditory stimuli in an infinite amount of combinations. Researchers propose a bunch of terms that address a relationship between music and emotion, a number of which indicates a multi-aspect character of this phenomenon. Music can thus signify (Damasio, 2000) or provoke (Scherer & Zentner, 2001) emotion. Music represents or suggests emotion through its acoustic or structural similarity to real life emotion (Kivy, 1989). Listeners echo the emotion expressed in music (Kivy, 1989), mirror it (Davies, 1994), experience emotional contagion meaning introjection of the emotional character dominant in the environment (Hatfield, Cacioppo, & Rapson, 1994) or osmosis (Davies, 1994).

Selected approaches to the structure of the emotional experience that accompanies music perception point out to the two dimensions of affect – valence and arousal (Schubert, 2004), three forms of response: thrills, aesthetic awe and being moved (Konečni, 2008) or nine factors representing the states of enchantment, transcendence, tenderness, nostalgia, peacefulness, power, joy, tension and sadness (Zentner et al., 2008). We are moved by what is intimate and honest in music (Dissanayake, 2000), what balances between fulfilling listeners’ expectations and surprising them (Meyer, 1974), and between tension and release (Krumhansl, 1997).
by what revives memories (Davies, 1994) or forms associations with something that we find important.

In the social world, affective experience may be associated with the risk of discomfort or harm, whereas music moves us causing no embarrassment or the need to form any relationships, distinguishing no truth and falsity or anxiety of being manipulated (Dissanayake, 2000). (An exception here is the context of music therapy in which music, depending on a therapist’s suggestions or the processes going on spontaneously in the patient’s mind, can take the properties of the extra-musical objects, which may lead to subjective anxiety or discomfort; see Galińska, 1995). Music has its role in inducing peak experiences (Whaley, Sloboda, & Gabrielsson, 2009). They are of a multimodal nature and can comprise untypical cognitive processes such as loss of control, high level of receptiveness and engagement in listening, changed sense of distinctness from the external world, vivid images and associations. Musical factors are of greater importance here than the characteristics of a listener or a situation (Scherer, Zentner, & Schacht, 2002). Peak experiences associated with music may have a transcendent or religious character as reported by some 11 per cent of the participants (Gabrielsson, 2010). In the light of empirical data, the claim that music ennobles our experience of life is fully evidence-based and devoid of grandiloquence. Explaining the ways in which music evokes emotions represents the absolutist and referentialist approach.

SELECTED PROPOSITIONS OF THE MECHANISMS IN WHICH MUSIC EVOKES EMOTIONS

The role of listener’s expectations in triggering emotional responses to music

The absolutist approach claims that ascribing music an emotional effect on a listener is an attribution error and the only response that music evokes in a listener is arousal of an undefined character (e.g., Kivy, 1990; Meyer, 1956). Emotional engagement of a listener may refer to the abstract musical structure with no need to form any relationship to the utilitarian emotion. Absolutists claim that music is an ordinary combination of sounds (e.g., Stravinsky & Craft, 1982), but affective responses that accompany music perception may be strong, unexpected to a listener, and exceed the aesthetic experience.

While listening to the music, a listener forms predictions as to what will shortly occur. Such an anticipation that music continuously evokes, based on its harmony, melody, rhythm or dynamics, is a basis for emotional responses that can be registered in real time, particularly as regards the physiological indices. Responding to music encompasses constructing predictions concerning the probability of a given sound to occur (Margulis, 2005). It comprises three types of tension that can be (a) surprise resulting in attentional engagement (surprise-tension), (b) denying predictions (denial-tension) which forms an impression that music does not fit the image a listener forms about it and (c) expectation when music follows the ways that were predicted, (expectancy-tension). Surprise and tension in music that arise on the basis of the functional relationships in tonal music (Lerdahl & Jackendoff, 1983; Meyer, 1974) are interwoven with the progress of music that leads to an experience of release. Such a way of understanding emotional responses to music mostly refers to the cognitive processes related to the work of art with no attention to the situational context of perception and the individual characteristics of a listener.

Classification of mechanisms of evoking emotional responses to music

The emotional response to music is conceived of as one of the components of aesthetic experience and preference that also comprise cognitive and social elements (Juslin, Liljeström, Västfjäll, & Lundqvist, 2010; Konečni, 1979). The cognitive component is inherent in aesthetic experience but affective response to music is not necessarily associated with aesthetics. It can
EMOTIONAL RESPONSES TO MUSIC: SELECTED RESEARCH PROBLEMS

Affective and cognitive aspects of emotional responses to music

One of the major branches of the current research in music perception and cognition refers to the relationship between music and mood, emotional involvement in listening, a dynamics of the affective domain in a listener that accompanies the activities of listening to the music and the role music plays in the affective aspects of our life (Salimpoor, Benovoy, Larcher, Dagher, & Zatorre, 2011). The most recent theories in psychology promote inseparability of affect and cognition with the assumption that embodied emotion mediates cognitive responses to stimuli (Barrett, Niedenthal, & Winkielman, 2005), and any act of perception is accompanied with a kind of response of the emotion apparatus (Damasio, 2000). The nature of the relationship between recognition of the emotional expression of music and inducing affect is controversial. The character of this relationship is widely discussed with reference to the perceived emotional expression of music (*emotion perceived*) and emotion that a listener experiences under the influence of music (*emotion felt*; Kallinen & Ravaja, 2006; Schubert, 2007). In the light of knowledge in both domains it seems that the efforts to separately study perceived emotional expression of music and emotion felt while listening to the music are inadequate (Krumhansl, 1997). It is of high probability that affective responses to music arise with reference to the appraisal of the emotional properties of what we hear (Juslin, 2006) and what we feel in response to it (Russell, 2003; Russell & Barrett, 1999). Perception of emotional expression and emotion felt in result should be considered as non-identical but interlocking or interwoven domains of interaction of a listener with music (see Kantor-Martynuska & Bigand, 2013; Kantor-Martynuska & Horabik, 2015; Niedenthal, Krauth-Gruber & Ric, 2006). When
emotional expression is recognized as tragic or melancholic, it may induce in a listener a solemn or romantic mood that does not exactly reflect the one expressed by music (Kawakami, Furukawa, Katahira, & Okanoya, 2013). The proportion of the involvement of the emotional and cognitive components of emotion in particular cases of music perception can vary.

The role of music in everyday life and response to its emotional aspect

Music rarely induces the physiological response, expressive behaviour and feelings in a combination that is characteristic of basic emotion (Lundqvist, Carlsson, Hilmersson, & Juslin, 2009). Thus, during music listening it is infrequent to experience the emotion typical of real life contexts. Emotional responses to music are missing the basic function of utilitarian emotion – they do not provide a listener with any information that would be important from the survival and adaptation perspective and – as aesthetic emotion – are independent of the appraisal of an aesthetic stimulus from the perspective of its properties associated with achieving goals (see Scherer, 2004). Therefore, they are not meant to maximize the chance of survival, however they use the pleasure circuits that have evolved in order to reinforce the adaptive behaviour (Huron, 2001; Salimpoor et al., 2011) and activate the nodes in the semantic network that are meaningful for a listener (Martindale, 2001). It does not eliminate the adaptive functions of the music itself that are proposed within the evolutionary view on the role of music for the development of the humankind (Dissanayake, 2008). A listener’s involvement in music perception is directed at fulfilling their conscious or unconscious needs (DeNora, 2001), and listening to the music may be intentional and purposeful. Nowadays, listening to the music as an activity per se is quite rare (Clarke, Dibben, & Pitts, 2011). Much more frequently, music forms background for studying, doing housework, and socializing. It is “situated” in the context of listener’s characteristics and the situation (see McAdams & Pals, 2006; Kreutz, Schubert, & Mitchell, 2008) as an element of the environment that contributes to the formation of affective experience. Music contributes to a listener’s state. A listener forms conceptual representations about his or her state, taking into account also the circumstances in which the listening takes place (see Barrett, Wilson-Mendenhall, & Barsalou, 2014). As mentioned above, a wide range of factors contributing to the emotional responses to music requires considering their interaction and emphasizes the need for an integrative approach to explaining the bases of emotional responses to music.

Sensory experience and physiology in emotional responses to music

Music evokes affective responses at a physiological level manifested in the intensity of experiencing pleasure during listening. Pleasure is positively associated with the strength of emotional arousal measured as the activity of the sympathetic nervous system (Salimpoor, Benovoy, Longo, Cooperstock, & Zatorre, 2009). Such responses may comprise changes in facial expression characteristic for emotion (Grew, Nagel, Kopiez, & Altenmuller, 2007) or crying (Norton, 2011). Aesthetic pleasure as a direct response to the aesthetic properties of a work of art is purely sensual and is the core interest for the researchers focused on the psychophysical responses to art (Funch, 1997). Neurophysiological research suggests that an extensive network of cortical and subcortical links forms the basis for the emotional responses to music (Blood & Zatorre, 2001). Music induces physiological responses in a form of reflexes, simple affects, appraisal, and preference. Conscious and unconscious physiological responses contribute to the subjective impression that may secondarily induce such physiological responses as chills, thrills or accelerated heart rate. Chills and thrills that may be accompanied by a feeling of cold can reflect the effect of
Emotional responses to music and their musical, individual, and situational factors...

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contrast (Huron & Margulis, 2010), surprise and are related to pleasure that a listener experiences (Grewe et al., 2007). Within the musical structure, the major correlate of thrills is a sudden change in loudness, most importantly a sudden rise in loudness resulting in a change in heart rate. Skin response is much more often evoked by music that is perceived as sad than happy music (Panksepp, 1995). This kind of emotional response may be associated with the primary instincts such as concern and care for offspring (Panksepp, 1995). The sources of the emotional power of thrill is sensitivity to the child’s weeping, and women are more eager to experience thrills than men (Panksepp, 1995).

Unlike the physiological response whose strength and profile are easily detectable in research, not all the experiential aspects can be verbalized and measured. Vagueness of aesthetic experience regarding music makes them ineffable (Raffman, 1992). On the other hand, listeners report feelings and physiological states relevant to the music that they are listening with high consistency, which indicates their empirical availability (Krumhansl, 1997). The spectrum of information concerning various aspects of emotional responses to music suggests the multiplicity of phenomena that can be included in this psychological category.

Similarity versus individuality of emotional responses to music

Emotions inherent in a given piece of music are not always identical with those that listeners report in response to this piece (Kallinen & Ravaja, 2006; Zentner et al., 2008). Originally, research on emotional responses to music was focused on predictability and cross-subject consistency of emotional experience evoked by music (Hevner, 1935). The meta-analyses (Juslin & Laukka, 2004; Västfjäll, 2002) also indicate that the affective perception of certain music excerpts is highly predictable.

The issue of cross-listeners similarity of the “key” to emotional response is promoted by Cooke (1959) suggesting that music comprises the elements that refer to the principles of physics, in the light of which certain relationships between sounds or their dynamics may result in perceived positive or negative affect. Such conclusions stem from the research in which short stimuli are used with the focus on basic emotions (see Juslin, 1997). The more complex and the longer the stimuli are, and the more freedom listeners have in reporting their experience, the more noticeable is the decrease in the consistency of their responses (see Juslin, 1997). In such circumstances music perception seems to be stronger influenced by individual variables and the listening context.

POSITIVE AND NEGATIVE AFFECT IN RESPONSE TO MUSIC: THE CONTINUUM OF PLEASURE

Phenomenological aspect of the aesthetic experience is still understudied (Clarke, 2011). One of the basic ways in which it is manifested is the experience of pleasure that forms a kind of a guidepost in the process of realization of the evolutionary imperative of prolongation of the species and reproduction. The feeling of pleasure represents two kinds of experience: the object that brings us pleasure arises liking and wanting to stay in contact with it. If we like the music, we want to listen to it. This urge is brought to an end when the familiarity with piece of music results in boredom while listening (see Berlyne, 1971). Basic pleasures are of a sensory, sexual or social character, while those of a higher order are associated with arts and music, altruistic behaviour, and transcending experience. Despite the refined character of the stimuli that induce higher order pleasures, they are associated with physiological changes: intense pleasure in response to music co-occurs with the enhanced dopamine secretion in the intralimbic reward system (Klingerbach, 2009). The body is an amplifier rather than a generator.
of a sensation (Klingerbach, 2009). Pleasure is of a subjective nature: emotional experience is an interpretation of the changes observed in the body in a certain context accompanied by a decision about how to behave. Pleasure felt in contact with art may be based on art’s imitation of affective objects (Fubini, 1997), even if these emotions are negative. Listening to sad music, reading books or watching dramas are forms of mood regulation as activities aimed at adjusting mood to the present circumstances (not only mood enhancement) according to the accepted standards (Erber & Erber, 2000). Pleasure out of sad music indicates how complex and multisided emotional responses to music can be.

How can we like sad, threatening or gloomy music (Hunter, Schellenberg, & Griffith, 2011)? The urge to listen to such music is formed by recognition of whether our mood is good or bad (valence), how much excited we are (arousal), what kind of our emotional response we anticipate (see Västfjäll, Gärling, & Kleiner, 2001) or we perceive our experienced emotional response. Despite the strong hedonistic motivation leading to experiencing pleasure, in some contexts we can be motivated by the desire to approach negative feelings and avoid the positive ones (Erber, Erber, & Poe, 2004; Västfjäll & Gärling, 2006). An example of this direction of efforts can be a variety of motivations to listen to sad music, which is not necessarily aimed at mood improvement (Van den Tol & Edwards, 2014).

Pleasure out of listening to the sad music is generated when negative emotions are activated in the aesthetic context. A dissociative mode of information processing is turned on and the situation context inhibits the activity of the pain centres in the brain. In contact with an aesthetic stimulus, the activation of any nodes in the semantic network (e.g. relevant to anger, sadness or fear with the exception of the aversive experience) can be accompanied by the experience of pleasure (see Martindale, 2001). For instance, even in depressed mood music can help achieve self-regulative goals, evoking positive aesthetic experience (Zentner et al., 2008; Van den Tol & Edwards, 2014), reducing pain or raising resistance to it by diverting attention from the source of the unpleasant experience (Van den Tol & Edwards, 2014). Huron (2011) explains pleasure out of listening to the sad music with reference to the elevated level of prolactin – a hormone responsible for a state of well-being with a homeostatic function. Depending on its tempo and mode (major-minor), music may leave listeners with mixed feelings (Hunter, Schellenberg, & Schimmack, 2010). A listener’s mood also influences the perceived affective character of music: sad mood is associated with stronger liking for sad music and perceiving more sadness in the music whose affective character is unclear, in a way projecting their mood onto the music (Hunter et al., 2011). Preferences for sad music get stronger when a listener has already been in a negative mood (Schellenberg, Peretz, & Vieillard, 2008). Listeners who are empathetic and open to experience like sad music more in particular. Their experience of sadness is also more intense (Vuoskoski, Thompson, McIlwain, & Eerola, 2012).

Those who like sad music choose to listen to it because it makes their state more expressive (Hunter, Schellenberg, & Griffith, 2011). At the same time, whether we like a given piece or not, is irrespective of perceiving categories of joy or sadness in it. The importance of the factors mentioned above may be modified by the relatively stable characteristics of a listener. These are the other data emphasizing the importance of an interaction between the many conditions of music perception for the listeners’ emotional responses to music.

MUSIC PROFILE AND A LISTENER’S PROFILE

Emotional responses to music are not only the effect of a complex interaction between the cognitive and affective processes (Krumhansl, 2002),
but also between the structural characteristics of the music itself (e.g., the interaction of mode, tempo and texture [simple melody vs. harmonic structure] of a given piece of music) and such factors as situation in which a listener is exposed to music, and individual characteristics of a listener (Webster & Weir, 2005).

The unique individual experience modifies emotional processing (Damasio, 2011), which results in differences in the extent to which listeners get engaged in listening to the music (Kreutz et al., 2008; Ter Bogt, Mulder, Raaijmakers, & Gabhainn, 2011). The variability of emotional responses to music in an individual person seems to depend on the granularity of perception of the emotional expression of music associated with their musical experience rather than on the sensitivity to emotional stimuli in general or emotional reactivity (Kantor-Martynuska & Bigand, 2013; Kantor-Martynuska & Horabik, 2015). Persons with a higher level of absorption (meaning narrow attention and deep processing; Polczyk, 2005) and manifesting the empathetic music listening style, experience stronger pleasure during listening to sad music than their peers (Garrido & Schubert, 2011). BAS activity (BAS – behavioral activation system) and impulsive sensation seeking may regulate listeners’ emotional involvement and the intensity of the pleasant and unpleasant sensations they experience in response to music (Kallinen & Ravaja, 2004; Kallinen, Saari, Ravaja, & Laarni, 2005). The above example of motivation to listening to the sad music and the emotional responses to it indicates that the affect experienced in response to music arises from the interaction of the emotional expression of music, individual characteristics of a listener and a situation. While “beauty is in the eye of a beholder”, emotional response to music seems to be “in the ear of a listener”.

The knowledge in music perception gathered here suggests that affective experience in the context of listening to the music depends on a degree of compatibility between the profile of a listener (comprising his or her traits, state, and situational context) which determines the current need for stimulation as well as cognitive and affective needs, and the music profile (comprising all the properties of music), whose multidimensionality may fit with a listener’s profile or be inadequate to it. This assumption is relevant to the ancient iso principle known since Aristotle, widely used in music therapy. According to this principle, corrections in the patient’s mood should be initiated by exposing them to the music that imitates their current state. By using the pieces of music each of which is more and more distant from the initial state as to its emotional expression, a desired state is achieved step by step. Music is a guide progressing towards the desired emotional state of a patient. While the music profile is stable or relatively stable (varying mainly depending on the way the piece is performed), a listener’s profile is changeable, which might explain intra-individual variability of the emotional responses to a given piece. A unique meaning a given piece of music may adopt for a listener, in effect of for instance ascribing it certain associations, would in turn explain individual stability of the emotional responses to it despite the changeability of a listener’s profile. The above mentioned assumptions await their empirical verification.

APPLICATION OF THE EMOTIONAL RESPONSES TO MUSIC IN PROGRESS TO HEALTH AND WELL-BEING

Emotional regulation is one of the basic motivations to listen to the music (Lonsdale & North, 2011). Emotional responses induced by music usually arise with no reference to a listener’s personal goals, but the very same emotions through their extra-musical references, may be associated with these goals. Emotional responses to music may have a diagnostic value (see Galańska, 2012). When music brings
associations, a resulting affective state may be related directly to its functioning in the light of the extra-musical phenomena. Thus, aesthetic emotions may initiate a listener’s reflections on the related utilitarian emotions, becoming a vantage point to the psychotherapeutic activities. An example of such a process is a musical portrait method (Galińska, 1995), musical interaction of an adult with an infant supporting sensitivity and mutual influences between a child and a caregiver (Trehub, Hannon, & Schachner, 2010) or emotional regulation with the use of music (Saarikallio & Erkkila, 2007). Emotional responses to music may form a meaningful anchor independent of the listening circumstances (provided that it was formed in the context of strong emotional involvement). However, if the music has no former connotations, its reception may depend both on the listener’s state and the listening circumstances. Such a capacity or flexibility of meaning depends however on the properties of music (see Hunter et al., 2010, 2011).

Research on the applications of music as a mood induction tool and the possibilities of affecting cognition and behaviour by mood induced in such a way suggests that music (stronger than verbal instructions; Sutherland et al., 1982) supports elimination of the undesired thoughts and facilitates processing of positive and negative content (see Thaut & Wheeler, 2010). However, the utilitarian character of aesthetic emotions may only be recognized ex post, when we already know their consequences, for instance, when music-induced emotions contribute to a profitable life change (Juslin, et al., 2010).

Research on neuronal responses to music provides a vast amount of data on neurobiological correlates of perception of various sound structures. However, these data are mostly hard to interpret and they are of limited utility in explaining the emotional aspect of music perception (Panksepp & Trevarthen, 2009). This paper proposes considering emotional responses to music as a domain that has its contribution to the general knowledge of human affective functions with consideration of the specificity of the emotional responses to the arts. This approach refers to the results of research on the physiological and neuropsychological aspect of the emotional responses to music in the context of the growing frequency of the affective dysfunctions (Aust, Filip, Koelsch, Grimm, & Bajbouj, 2013), injuries and neurodegenerative diseases (Gosselin, Samson, Adolphs, Noulhiane, Roy, Hasboun, Baulac, & Peretz, 2006; Peretz, Gagnon, & Bouchard, 1998).

CONCLUSIONS

This review of the selected issues concerning the relationship between music and emotion presents the understanding of the affective phenomena that accompany music perception. It emphasizes their multi-sided character and variability. However, it does not represent a compendium of knowledge of the subject due to the vast amount of research and the resulting data. Developing theoretical themes, the paper indicates the practical consequences of the knowledge of the emotional responses to music, which find their application e.g., in mood regulation and music therapy. The paper suggests that undertaking the topic of emotional responses to music we should refer closer to the general knowledge of emotion, consider the individual characteristics of a listener and the functional context of generating the emotional responses to music.

Typologies of the emotional responses to music and classifications of the mechanisms which result in such responses most often miss out listening circumstances and the characteristics of a listener. In order to better understand the significance of music-induced emotions for a listener, we need to consider the properties of a stimulus, the situation in which a listener is exposed to it and the characteristics of a listener.
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Empirical research within the integrative approach to the origins of the emotional responses to music forms methodological and practical challenge. The difficulty here is the necessity to merge paradigms and research circumstances. It seems that testing the integrative approach to affective phenomena in the context of music perception is possible due to combining the knowledge of specialists from various disciplines and the availability of new technologies. Theoretical consideration and empirical investigation run in the integrative approach should bring a deeper understanding of emotional responses to music, and may shed a new light on aesthetic emotions in a broader sense.

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