Emotion, Embodied Mind and the Therapeutic Aspects of Musical Experience in Everyday Life

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Abstract

The capacity for music to function as a force for bio-cognitive organisation is considered in clinical and everyday contexts. Given the deeply embodied nature of such therapeutic responses to music, it is argued that cognitivist approaches may be *insufficient to fully explain music's affective power.* Following this, an embodied approach is considered, where the emotional-affective response to music is discussed in terms of primary bodily systems and the innate cross-modal perceptive capacities of the embodied human mind. It is suggested that such an approach may extend the largely cognitivist view taken by much of contemporary music psychology and philosophy of music by pointing the way towards a conception of musical meaning that begins with our most primordial interactions with the world.

Keywords: music therapy; music and meaning; embodied cognition; music and emotions; embodied aesthetics; music in everyday life

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Introduction

The effects of music on the human body and mind have been recognised for thousands of years and because music is understood to be associated with emotion, it is often thought that the emotional responses to music may hold the key to better understanding important aspects of its therapeutic power. Indeed, the relationship between music and emotion has been a principal area of investigation in music psychology and the philosophy of music for decades (Juslin & Sloboda 2010). Despite this fact, the nature of affective response to music remains ambiguous (Krumhansl 1997). Part of the reason for this may result from the tendency in psychological and philosophical musicology to begin with so-called 'higher' mental processes, such as structural appraisals (Lerdahl & Jackendoff 1996; Sloboda 1985), the satisfaction and thwarting of learned expectations (Huron 2006; Meyer 1956), or the relationship between the 'intrinsic' formal elements of the music and extrinsic' socio-cultural memories and sentiments (Sloboda & Juslin 2001). While these aspects are indeed important in understanding how we respond to music, the direct, embodied nature of musical experience cannot be ignored, especially when considering music's therapeutic effects.

Bodily responses to music do not go completely unrecognised by music psychology and philosophy. However because these disciplines generally understand musical affect first in terms of higher cognition, dualistic notions of body and mind are often reinforced, and the bodily meaning of musical affect is not always given the attention it deserves. Recent years have seen a surge in neurological research and philosophical theory that asserts the primary role of the body in meaning making and aesthetic response (e.g., Damasio 1994, 1999, 2003; Johnson 2007; Leman 2008; Ramachandran

ISSN: 1791-9622

2011; Varela, Thompson, & Rosch 1992).With this in mind, I argue here for the inclusion of an embodied approach to musical affect and meaning. I begin by outlining music's capacity to function as a force for bio-cognitive organisation in therapeutic contexts. I then discuss the largely ambiguous results of contemporary research in the affective psycho-physiological responses to music. To conclude I draw on recent work in neuroscience, as well as the philosophical work of Johnson (2007) and others in order to consider how emotional-affective responses to music emerge within a complex network of primary bodily systems and embodied perceptions (the origins of meaning making) and thus afford a therapeutic harmonisation of intra-organism and organism-environment interactions. I suggest that such an approach may extend the largely cognitivist view taken by much of contemporary music philosophy and psychology (e.g., Clarke 2005; Deutsch 1999; Kivy 1990) by pointing the way towards a conception of musical meaning that begins with our most primordial interactions with the world; and that it may provide a useful theoretical grounding for recent attempts (e.g., Dibben 2004; Krumhansl 1997; Pansepp 1995) to include analyses of physiological responses in the psychological literature.

Music and bio-cognitive organisation

Music therapy as a contemporary healthcare profession began after the Second World War (Bunt 1994) and has since developed a wide array of approaches to utilise music in the treatment of, among other conditions, emotional-behavioural or mood disorders (Layman, Hussey, & Laing 2002; Magee & Davidson 2002), brain damage (e.g., stroke recovery; Nayak, Wheeler, Shiflett, & Agostinelli 2000), physical and cognitive disabilities, as well as in developing self-esteem and sociability (Henderson 1983). Considering the positive effects of music therapy on stroke patients and in the recovery of verbal fluency in aphasia, Patel (2010) discusses how treatment may result in long lasting changes to brain structures and functions (largely, he suggests, through neuroendocrine effects and mechanisms of brain-plasticity). Indeed, we might note the remarkable effects of clinical music therapy in the case of American congresswoman Gabby Giffords as she struggles to regain the faculties of speech after being shot in the head by a deranged gunman (Michaels 2012). Consider also the case of Gary, a young man unable to see or speak but who, through music therapy, is able to engage in "co-ordinated activity with another person […] develop his sense of self, his presence to self and other(s)" and enjoy "an aesthetic environment and forms of aesthetic interaction capable of producing pleasure [and] security […]" (DeNora 2000: 14-16). According to DeNora, music therapy has afforded Gary tools for "stabilising" his environment and himself, whereas before he could only resort to shrieking, biting and scratching to express distress – activities that would only further alienate him from his own social and physical existence.

Outside of the context of music therapy as a systematically administered treatment, DeNora also considers the case of Lucy, who in the course of everyday life "self-administers" music (in the form of Schubert Impromptus) in order to move from a state of stress to one of calm (2000: 16). Similarly, Standley (1995) has shown how music may be successfully introduced into medical and dental environments in order to reduce anxiety and pain in patients (for a brief overview see Bunt 1997).

Patel (2010: 91-144) argues that music is a biologically powerful "transformative technology of the mind" that physically shapes the brain in ways that afford all manner of physical, cognitive and social benefits to those who participate in it (both in clinical contexts and in everyday life). In all of the above cases where music is introduced to a stressed, anxious, injured or otherwise disorganised body and/or body-environment relationship, we find a therapeutic organisation of the elements of being – one that integrates body, environment and mind beginning at the most primordial level. Along these lines, DeNora (2000) has reviewed the beneficial effects of music on neonates who are in a profoundly disorganised state of being. The introduction of music into the neonate's world masks other potentially stressful noises and aids in creating a regulated calming environment within which the infant may become entrained, thereby regaining some of the auditory stability reminiscent of the intrauterine environment (maternal movements, breathing, heartbeat, etc.) (Collins & Kuck 1990; Leonard 1992; Parncutt 2003). There is growing evidence to suggest that rhythmic entrainment activities (drumming, chanting, dancing) synchronise the body and brain and thus provide "extended control of the limbic system, offering one the chance to reduce emotional noise and settle the mind" (Jovanov & Maxfield 2011: 45). Benzon discusses the biological necessity for humans to share in each other's bodily rhythms through activities like music and dance: "human beings create a uniquely human social space when their nervous systems are coupled through interactional synchrony [via music and dance]" (Benzon 2001: 28; see also Becker 2011; Cross 2012; Mithen 2006).

ISSN: 1791-9622

Considering the therapeutic effects of music, it is very difficult to ignore the fact that much of what makes musical experience meaningful emerges from an active bodily interaction with a musical environment, where sensory perception and bodily activity alter physical-mental processes in ways that may have beneficial consequences. Indeed, the examples above demonstrate how music affords organism-environment organisation (DeNora 2000; see also Clarke 2005; Gibson 1966) in ways that span the entire range of our being-in-the-world. In short, musical experience is a bio-cognitive phenomenon that affords ordering and communication between the diverse and changing aspects of our embodied existence – as DeNora (2000, 2011) claims it is "a device for ordering the self"; a resource for meaning and world making. Most of us have felt, as DeNora calls it, the 'organizing force' of music and regularly use music in this way in our daily lives (DeNora 2000, 2011; Sloboda, O'Neill & Ivaldi 2001). Indeed, music's capacity to function as an entraining device is evident in everyday experience. For example, to mask unnecessary distractions from the task at hand (e.g., homework); to organise the body and our awareness of it in order to more effectively engage in various types of action (e.g., see the discussion of the uses of music in aerobics classes in DeNora 2000); to afford a sense of belonging in the social environment; or simply to make work and life more pleasurable. That music affords such benefits hardly requires further discussion. However, the question of how and why music is able to do what it does remains highly vexing.

Given what has been discussed here, it is difficult to deny the embodied nature of musical affect, and this poses a challenge to theories that rely heavily on representational, grammatical, or structural approaches to musical affect and meaning (e.g., the music as language approach; see Johnson 2007). Recently, a number of researchers (Dibben 2004; Krumhansl 1997; Pansepp 1995; Sloboda 1991; Sloboda & Juslin 2001) have attempted to examine the bodily responses to emotionally charged music with the hope that data might correlate conclusively with that related to non-musical experiences of common emotions like sadness, fear and happiness and thus help us better understand how music affects the body and mind. Unfortunately the results are frustratingly ambiguous and the precise nature of musical emotion-specific psychophysiology remains elusive (Gabrielsson 2001-2002; Krumhansl 1997; Scherer & Zentner 2001; Sloboda 2000). What is needed, it seems, is an expanded and more nuanced conception of meaning and emotion that allows us to discuss how affective response to music affords such meaningful and therapeutic interactions between embodied mind and the enacted musical environment.

The ambiguity of musical emotions

Understanding the relationship between emotion and musical meaning has been a central area of investigation for music psychology since its beginnings. Some have considered how structural variations may set-up and violate musical expectations in the listener and thereby allow emotions to be perceived in the music (Huron 2006; Meyer 1956). This view, as well as other formal and 'rule based' approaches, often focus on the structural aspects of music in terms of grammar or syntax – i.e., hierarchies of pitch, intervals, phrases and rhythm, which are compared and analysed in terms of their psychological effects on listeners (Lerdahl & Jackendoff 1996; Sloboda 1985).

Along similar lines, Cooke (1960) and his followers have adopted an 'expressionist' approach that attempts to put forward, in quasi-linguistic terms, an objective view of how musical structures may produce predictable emotive states in the listener through reference to extra-musical concepts and phenomena (e.g., Harris & Sandresky 1985). Sloboda and Juslin (2001) offer two categories by which musical emotions and affective states might be sourced: the intrinsic (the structural characteristics of the music itself) and the extrinsic (the relationship between musical structure and some extra-musical meaning. While there is now a large amount of evidence to show that specific emotions may be consistently attributed to given musical passages, it has proven much more difficult to demonstrate convincingly that music actually produces such emotions in listeners (Gabrielsson 2001-2002; Scherer & Zentner 2001). It has also been suggested that the labelling of affective states may be influenced by provided categories or cultural aesthetics – "[...] when a listener reports that he felt this or that emotion, he is describing the emotion which he believes the passage is supposed to indicate, not anything which he himself has experienced" (Meyer 1956: 8). This has led to a philosophical divide between those who claim that music elicits real emotions in listeners and those, like Kivy (1990: 151), who assert that music "possesses" basic emotions that may be recognised but not actually felt by listeners because "there are no behavioral symptoms of listeners actually experiencing [emotions] when attending to music [...]".

The statements by Kivy (1990) and Meyer (1956) may need to be re-thought given growing research that attempts to correlate emotional and

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physiological responses to music (Dibben 2004; Krumhansl 1997; Pansepp 1995). For example, a study by Sloboda (1991) showed that listeners did demonstrate physiological changes where musical expectations were thwarted—a finding that both supports Meyer's thesis that perception of musical emotions involves violation of musical expectations and weakens his claim that physiological changes do not correspond with musical patterns. But while it is clear that music produces psycho-physiological responses that are similar to those produced by emotions – and that often appear to correlate with certain structural aspects of music (rapid changes in dynamics, unexpected cadences, changes in tempo and so on) – there remains a lingering suspicion that musical emotions may be different from other types of emotions. Krumhansl observes that 'emotional' physiological changes associated with music do not "clearly map onto those found in studies of non-musical emotions" (Krumhansl 1997: 351). Sloboda discusses the ambiguity of musical emotions in the following terms:

> "Very often we feel that there is an emotion present […] but we cannot quite tie it down. In such a state of ambiguity […] we may well expect the profound and semi-mystical experiences that music seems to engender. Our own subconscious desires, memories, and preoccupations rise to the flesh of the emotional contours that the music suggests. The so-called 'power' of music may very well be in its emotional cue-impoverishment. It is a kind of emotional Rorschach blot" (Sloboda 2000: 226; also quoted in Pellitteri 2009).

This ambiguity is a problem for music psychology, especially when it attempts to examine the affective responses to music in comparison with simpler, more clear-cut cases where there is a definite correlation between stimulus and an identifiable emotion – e.g., I see a tarantula crawling up my leg and I feel fear. However, this ambiguity becomes less of an issue, or at least more understandable, if we are willing to adopt an approach that examines musical experience in terms of deeper, more primordial embodied interactions with the aesthetic environment. This approach may allow us to see the affective response to music from a perspective that is somewhat different from the largely cognitive point of view discussed so far in this section – where emotional (or emotion-like) responses to music are rationalised in categorical terms through correspondence to structural aspects of musical objects, associations with extra-musical meanings, quasi cognitive appraisals, learned expectations, the "music as language metaphor" (Johnson 2007) and so on.

It should be noted here that some have suggested that emotional response to music involves an active seeking out of environmental 'cues' (Sloboda & Juslin 2001) in order to discern what one "should feel or hear in response to a particular musical experience" (Dibben 2004: 113) – an approach that points in an ecological direction (Clarke 1995 2005; Gibson 1966). It is clear that under certain conditions we do engage in cognitive appraisals of the musical environment – or at least, as Dibben (2004) suggests, a kind of "visceral self perception" of bodily/emotive states. It is also clear that music is sometimes associated with certain memories or shared socio-cultural sentiments (Hevner 1936) that may trigger (or at least refer to) emotional responses as extrinsic sources (see above). The case of Lucy discussed earlier may partially fit this category as the Schubert Impromptus remind her of her father and happy times.

These 'higher level' perceptual and appraisal processes are important and, of course, should continue to be studied. But what about the more direct bodily relationship listeners and musicians experience with music? It seems very unlikely that Gary or the neonates' experience (above) would be mediated by extrinsic factors and appraisals such as those discussed above. Their beings would be more focused on the direct embodied experience itself, with what they are feeling and on the beneficial affordances (Gibson 1966) of the lived environment in which they strive for a state of wellbeing. While one could argue that the neonates should have some 'memory' of the prenatal environment, any 'associations' with the 'musical' environment introduced in the maternity ward would most likely be of a direct embodied nature – a state of being that 'resonates' (Clarke 1995; Gibson 1966) with how fundamental biological needs for entrainment and homeostasis (Damasio 1994) were met in the womb – rather than the product (output) of some purely mental or hierarchical (i.e., cognitivist) process of representation and re-cognition. However, although neither Gary nor the neonates would appear to possess the cognitive means to analyse and appraise their 'musical' environments (at least in terms of making the kinds of critical distinctions discussed above), their experiences cannot be understood as meaningless in terms of their direct bodily relationship with the world (i.e., their history of 'structural coupling' with the lived environment; see Varela, Thompson, & Rosch 1992). And this is indicative of how musical meaning emerges from our most primordial and embodied states of being-in-the-world – pre-reflectively; at the origin of sensation and feeling where, in direct active

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experience distinctions between intrinsic and extrinsic (mind, body, world) may not be so clearly recognised.

While music psychology acknowledges that basic primordial bodily systems, brain functions and perceptions must play a role in the emotional response to music, there has been very little research and theory to explain how and why this is so. Speculating about the affective response to music in terms of "semi-mystical experiences" or controversial psycho-dynamic tests designed to reveal psychopathologies (Rorschach blots), or assuming that music is "cue-impoverished" (see above; Sloboda 2006: 226) because our language fails to describe how it effects us will not get us very far. All of this speaks to how difficult it is for an empirical science to objectively study such a subjective and multi-faceted aspect of human experience. This said, however, Sloboda's general turn to subconscious forces and the embodied, emotional "contours" of musical experience might point us in the right direction.

Towards an embodied conception of musical affect

I think it safe to say that, by and large, everyday musical experiences rarely involve any kind of sustained conscious structural analysis on the part of those experiencing it (see Clarke 2005). Although some highly trained musicians and music academics may have difficulty experiencing music without engaging in some form of analysis, for most of us music is first and foremost something felt. Indeed, we are drawn to music because "it appeals to our felt sense of life" (Johnson 2007: 236) as creatures who move, feel and grow in time and space and who strive for some kind of flourishing existence. As Sessions writes,

> "[It] is easy to trace our primary musical responses to the most primitive movements of our being – to those movements which are at the very basis of animate existence. The feeling for tempo […] [has a] primitive basis in the involuntary movements of the nervous system and the body in the beating of the heart and… in breathing, later in walking. [...] [If] an increase in intensity [(pitch, loudness)] of sound intensifies our dynamic response to music… it is because we have already in our vocal experiences – the earliest and most primitive as well as later and more complicated ones – lived through exactly the same effects" (Sessions 1941: 105-109; see also Juslin & Laukka 2003; Mithen 2006)

Music orders our lived experience by bridging dualistic conceptions, such as inner and outer – mind, body and world; the intrinsic and the extrinsic – in ways that begin with our most primal states of being-in-the-world. What we objectively name as pitch, rhythm, tempo, melody and so on are meaningful phenomena because they are "congruous with the dynamic forms of our direct sensuous, mental and emotional life" (Langer 1947: 25).

From the womb, we feel the relationship between sound, movement and emotive-bodily states. Consider, for example, the parallel development and anatomical unity of the cochlea (hearing) and vestibule (balance, orientation) and the prenatal "physiological-emotional communication" that appears to occur between mother and fetus – this is a clear starting point if we wish to account for the universal relationship between music, dance and affective-emotional response (see Parncutt 2006). This kind of approach (one that begins with organism-environment interactions and embodied origins), allows us the ontological continuity necessary to construct an embodied approach to the meaning of musical affect – where so called higher cognitive processes emerge from bodily interactions with the environment with no dualistic 'gaps' between them (see Leman 2008; Varela, Thompson, & Rosch 1992); or, as Dewey puts it, where "rational operations grow out of organic activities, without being identical with that from which they emerge" (Dewey 1991: 26; see also Reybrouk 2005).

Ramachandran (2011), via his research into mirror neurons and the cross-activation of brain maps associated with synesthesia, has suggested that language emerged from the ritualisation of bodily gestures involved with the practical aspects of our ancestors' daily lives as well as through an innate cross mapping of neural areas for sights and sounds. Around a century earlier, William James famously argued that even the most abstract concepts afforded to us by language begin with bodily perceptions and feelings that result from pragmatic interactions with the world – "'More' and 'less' mean certain sensations[…]" (James 1979: 38). Taking this further, Stern (1985) claims that as infants our earliest attempts to construct a secure, coherent and meaningful world are entirely non-linguistic and depend upon the innate ability to perceive and remember what he calls "vitality-affect contours" as we move through space and time. Stern (1985: 54) employs embodied kinetic terms (such as 'surging', 'fading away', 'fleeting', 'crescendo', 'diminuendo' and 'drawn out') and this enables him to consider more nuanced, active states of being than words such as anger, fear, and joy are capable of expressing on their own. Indeed, this approach does justice to the feeling of flow in

ISSN: 1791-9622

our experience (James' stream of consciousness); and to how "differences of pattern in this flow are the basis for different felt qualities of situations" (Johnson 2007: 43) and are, as such, the origins of meaning.

Furthermore, Ramachandran (2011) suggests that since prehistoric times, artists have, in their works, manipulated and exaggerated the basic ways we perceive and move in the world (as well as our most primordial needs, fears and desires) and that this gives rise to aesthetic forms of emotional response, which have correlations with similar, but much simpler, responses in some animals (see Ramachandran 2011; Sessions 1941, quoted above).

As Johnson (2007) points out, we do not 'shed' these bodily, primal, pre-linguistic and often pre-conscious ways of meaning-making as we grow-up and engage in more explicitly cognitive or propositional ways of thinking. Rather they continue to shape the contours of our experience and form the basis of how we meaningfully orient ourselves in the world. We also employ them for pleasure and entertainment, for stabilising our relationship with our environment, and to better feel our most primordial embodied humanity through music, dance and art. One of the ways we do this is through metaphor, which, as both Johnson (2007) and Ramachandran (2011) have demonstrated, is not simply a linguistic device. Rather it is a deeply rooted function of the human mind that often operates pre-reflectively and in non-linguistic contexts; and that enables us to create meaningful aesthetic experiences through cross modal relations. It reveals, as Ramachandran (2011: 108) suggests, the 'closet' synesthete in all of us.

Johnson (2007) discusses musical meaning in terms of the creation and bodily grounding of conscious and pre-conscious metaphors that provide the relevant logics of time and space (Lakoff & Johnson 1999, 2003). This may go some way in explaining the experience of motion (see Clarke 2001; Todd 1999), texture, tension, color and contour, location, landscape, as well as a host of other qualities (or the vitality-affect contours; Stern 1985) we feel in musical experience, and which play such an important role in our 'emotional' responses to music. On an even more fundamental level, because this process involves the cross activation of brain areas it may shed light on how music aids in reorganising damaged brains. For example, Tomaino (2011: 216) writes, "singing may serve as a priming element for speech […] stimulating either peripheral language areas or compensatory areas in the right temporal lobe" (see also Patel 2010; and the case of Giffords above). It follows that the metaphorical approach may offer a useful integration between the neurobiological point of view and the subjective experience of the patient.

This neural cross activation may also partially explain how music interacts with the largely pre-conscious bodily systems that have evolved in humans (and other animals) in order to maintain a state of wellbeing – i.e., metabolism, basic reflexes, the immune system, pain and pleasure responses, basic drives, emotions, and feelings (Damasio 2003). As Damasio points out, more complex systems, such as emotion or feeling, depend on basic biological processes, such as metabolism. These systems are deeply interconnected, and form the basis of our bio-cognitive interactions with the world (Damasio 1994, 1999, 2003). That musical experience comprehensively affects these primordial systems is clear, especially when we consider its therapeutic effects in clinical settings and in everyday life. It should therefore be no surprise that musical affect cannot always be reduced to specific emotions. Rather, music is first felt as moving patterns of experience grounded in basic bodily systems and embodied perceptions of space-time (vitality-affect contours) that afford organisation of the various elements of our most primordial existence – a harmonious state of being-in-the-world.

Conclusion

The prevalence of the 'information processing' approach (e.g., Deutsch 1999) in much of the music psychology literature has tended to create a disembodied view of musical cognition. This view often treats musical cognition as if it were an abstract "reasoning or problem solving process" (Clarke 2005: 15) that proceeds in a hierarchical way – the 'outputs' of lower levels feed 'inputs' to higher levels, with increasingly complex representations of the "world out there" processed at each stage. The final 'goal' of this otherwise disinterested process of perception is conscious experience, which may in turn influence the processing of representations at lower levels (see Clarke 2005; also Varela, Thompson, & Rosch 1992). Little attention is given to how perception functions in terms of a given organism's need to orient itself within (to explore or enact) an environment in ways that accord with its wellbeing. However, given what I have discussed here this approach appears overly reductive if not completely wrongheaded. While we are clearly capable of thinking representationally, the practice of music therapy and the therapeutic experience of music in everyday life highlight the deeply embodied aspects

ISSN: 1791-9622

of perception and cognition. As discussed above, the idea that cognition consists of more than the mental manipulation of symbols according to abstract rules of logic and syntax is increasingly supported by an array of philosophical and neurological studies that demonstrate the central role of the body – and its direct active engagement with the world – in how we construct meaning out of the social and physical environments we inhabit.

These insights have led to the development of ecological (e.g., Clarke 2007; Gibson 1966; Krueger 2011a, 2011b) and enactive (Reybrouk 2005; Varela, Thompson, & Rosch 1992) approaches to perception and cognition that point the way towards deeper and more nuanced conceptions of musical communication and meaning. This research has important implications not only for music psychology and music therapy, but also in the areas of music education and performance. Most importantly it offers a means by which we may begin to think and talk about musical cognition in terms of perceptually guided action, the history of structural coupling between organism and environment, and principles of specification and affordance (as opposed to codification and representation). For educators and performers this may allow new possibilities (a vocabulary even) for considering how embodied action literally brings the music to life – not only in terms of the bodily movements of the performer but also with regard to the kinds of movement experiences and other embodied relationships (physical, emotional, and psychological; i.e., vitality-affect contours) that may be afforded to listeners or that occur between performers (Reybrouk 2005). This perspective may also help to open up a greater awareness of the enacted aesthetic environment, where music functions as a "resource for meaning making" (DeNora 2011: xiv) in contexts where other modes of communication and understanding (e.g., language) are unsuitable or impossible. This will be of interest to creative artists (composers, improvisers) and therapists alike as both are concerned with the creation of meaningful musical environments and the types communication they afford (between musicians, artist and audience, patient and therapist). The growing interest in the embodied aspects of musical experience holds great promise as a shared area of research for music therapy and music psychology, potentially allowing a greater exchange of ideas and collaboration between the two disciplines.

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Suggested citation:

van der Schyff, D. (2013). Emotion, embodied mind and the therapeutic aspects of musical experience in everyday life. Approaches: Music Therapy & Special Music Education, 5(1), 50-58. Retrieved from http://approaches.primarymusic.gr

ISSN: 1791-9622