# Music, Empathy and Cultural Understanding

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**Abstract**

In the age of the internet and with the dramatic proliferation of mobile listening technologies, music has unprecedented global distribution and embeddedness in people's lives. It is a source of intense experiences of both the most intimate and solitary, and public and collective, kinds – from an individual with her smartphone and headphones, to large-scale live events and global simulcasts; and it increasingly brings together a huge range of cultures and histories, through developments in world music, sampling, the re-issue of historical recordings, and the explosion of informal and home music-making that circulates via YouTube. For many people, involvement with music can be among the most powerful and potentially transforming experiences in their lives. At the same time, there has been increasing interest in music's communicative and affective capacities, and its potential to act as an agent of social bonding and affiliation. This review critically reviews a considerable body of research and scholarship, across disciplines ranging from the neuroscience and psychology of music to cultural musicology and the sociology and anthropology of music, that provides evidence for music's capacity to promote empathy and social/cultural understanding through powerful affective, cognitive and social factors; and explores ways in which to connect and make sense of this disparate evidence (and counter-evidence). It reports the outcome of an empirical study that tests one aspect of those claims, demonstrating that 'passive' listening to the music of an unfamiliar culture can significantly change the cultural attitudes of listeners with high dispositional empathy; presents a model that brings together the primary components of the music and empathy research into a single framework; and considers both some of the applications, and some of the shortcomings and problems, of understanding music from the perspective of empathy.

**Keywords**: Music, Empathy, Cultural Understanding, Resonance, Intersubjectivity, Alterity

## 1. Introduction

Music is a source of intense experiences of both the most intimate and solitary, and public and collective, kinds – from an individual with her smartphone and headphones, to large-scale live events and global simulcasts; and it increasingly brings together a huge range of cultures and histories, through developments in world music, sampling, the re-issue of historical recordings, and the explosion of informal and 'bedroom' music-making that circulates via YouTube. For many people, involvement with music can be among the most powerful and potentially transforming experiences in their lives. At a time when musicology, and the social and cultural study of music, have become far more wary of what might be seen as essentializing and romanticizing tendencies, it is still not uncommon to find claims being made for music as a 'universal language' that can overcome (or even transcend) cultural differences, break down barriers of ethnicity, age, social class, ability/disability, and enable physical and psychological wellbeing. There are widespread manifestations of this belief, including the activities of the West-Eastern Divan Orchestra (founded by Edward Said and Daniel Barenboim, to bring together Israeli and Palestinian musicians);[1] and the appointment by UNICEF of classical musicians to act as 'goodwill ambassadors', bringing their music to people in deprived, war-torn, or disaster-hit parts of the world so as to offer emotional support, solidarity, and a kind of communion. An extract from the website of the first classical musician to be appointed a goodwill ambassador in 1997, the violinist Maxim Vengerov, reads: "1997, September: For Maxim Vengerov's first official undertaking with UNICEF, he organized a musical exchange with children from Opus 118 – a violin group from East Harlem, New York. The children of Opus 118, aged 6 to 13, came from three different elementary schools in this inner-city neighbourhood. This

innovative programme has spurred a whole generation to learn 'violin culture'. Along with the youths, Mr. Vengerov not only played Bach but also southern blues and tunes such as 'Summertime' and 'We Shall Overcome'."[2] And from the same webpage, beneath a picture showing Vengerov playing the violin as he leads a line of children in the sunshine, is the caption: "In the remote village of Baan Nong Mon Tha, children from the Karen hill tribe ethnic group follow Maxim Vengerov, in a human chain, to a school run by a UNICEF-assisted NGO. Thailand, 2000." Equally, the 1985 and 2005 Live Aid and Live 8 were global pop music events intended not only to raise money (in the case of Live Aid) and put popular pressure on politicians (in the case of Live 8) for the relief of famine and poverty, but also to galvanize a global consciousness and a united 'voice' to act against poverty and famine in Africa: as Bob Geldof, the prime mover of Live 8 put it: "These concerts are the start point for The Long Walk To Justice, the one way we can all make our voices heard in unison."

In these very public examples of a much wider phenomenon, we see a complex mixture of implicit musical values, discourses about music's 'powers', folk psychology and its sociological equivalent, and (in some cases) more or less grounded or unsupported claims about the impact of music on the brain (Levitin, 2006). It might be easy to be dismissive of some of these claims, but a considerable volume of research in disciplines that range from neuroscience and philosophy through psychology and sociology to anthropology and cultural studies has also made a significant case for the capacity of music and musicking (Small, 1998) to effect personal and social change (e.g. Becker 2004; Gabrielsson 2011; Herbert 2011; DeNora 2013). If music can effect change, and communicate across barriers, perhaps it can also offer a means of intercultural understanding and identity work. As

Nicholas Cook (1998: 129) puts it: "[W]e can see music as a means of gaining insight into the cultural or historical other … If music can communicate across gender differences, it can do so across other barriers as well. One example is music therapy… But the most obvious example is the way we listen to the music of other cultures (or, perhaps even more significantly, the music of subcultures within our own broader culture). We do this not just for the good sounds, though there is that, but in order to gain some insight into those (sub)cultures. … And if we use music as a means of insight into other cultures, then equally we can see it as a means of negotiating cultural identity."

These and similar claims are frequently either explicitly or implicitly based on the idea that music can wordlessly act as an agent of mutual understanding – that it activates or channels empathy between people. Empathy has recently attracted considerable attention in a number of different spheres. In politics, as long ago as 2001 Barack Obama publicly mentioned an 'empathy deficit' as a significant social issue (in relation to the 9/11 attacks), and has done so on numerous public occasions since then.[3] In psychology and philosophy, particularly in the work of Baron-Cohen (2011) and Krznaric (2014), empathy has figured prominently in discussions of social and mental health. And a project is now underway to establish an 'empathy museum' (http://empathymuseum.com/) that will open in late 2015 in mobile premises in London, and then tour to various parts of the world. Of more direct relevance to the topic of this review, in musicology, the psychology of music, the sociology of music, and ethnomusicology, empathy has been seen as a way to conceptualize a whole range of affiliative, social bonding, identity-forming, and 'self-fashioning' capacities in relation to music, with the first conference on music and empathy being held in the UK in late 2013. But what is brought together or meant by the term 'empathy', and is

it a useful and coherent way to think about music in relation to its individual and social effects?

This review addresses the disparate nature of the evidence for the claims about music's empathic affordances, individually and socially, across a wide disciplinary range of theories and findings. From research on music and the endogenous opioid system (Tarr, Launay and Dunbar 2014), and music and mirror neurons (Overy and Molnar-Szakacs 2009) to the ethnomusicology of affect (Stokes 2010), the history of musical subjectivity (Butt 2010), and sociological studies of music and collective action (Eyerman and Jamieson 1998), the case has been made for different perspectives on music's capacity to afford compassionate and empathic insight and affiliation, and its consequent power to change social behaviour. These diverse research strands all point to the crucial role that musicking plays in people's lives, to its socially binding capacities, and to the insights that it can afford. There is no single window onto 'what it is like to be human' (Nagel 1974), but musicking seems to offer as rich, diverse, and globally distributed a perspective as any – and one that engages people in experiences that vary widely along the dimensions of public and private, solitary and social, frenzied and reflective, technological and bodily, conceptual and immediate, calculated and improvised, instantaneous and temporally extended. The fact that music can be heard and experienced by large numbers of people simultaneously and in synchrony (orchestral concerts, stadium gigs, live simulcasts) means that the embodied experience of music can also be shared – fostering entrainment and a sense of being together in time (McNeill 1995). Indeed, some theories of the evolutionary significance of music highlight the importance of music's empathy-promoting aspects, suggesting that a fundamental adaptive characteristic of

music is its capacity to promote group cohesion and affiliation (Cross & Morley, 2008).

While many studies have suggested that empathic interaction with other human beings is facilitated by musical engagement, the direct empirical evidence for this important possibility is scattered and disciplinarily disconnected. This review critically examines a substantial body of research evidence related to claims for music's capacity to engender empathy, and cultural understanding by means of empathy's mediating role; presents new empirical evidence for the empathy-enhancing effects of musical listening; and provides a model and conceptual framework within which to understand these phenomena.

## 2. Empathy

The English word 'empathy' is only just over 100 years old, listed by the Oxford English Dictionary as being first used by the psychologist Edward Titchener in 1909, and defined by the OED as:

"a. *Psychol.* and *Aesthetics*. The quality or power of projecting one's personality into or mentally identifying oneself with an object of contemplation, and so fully understanding or appreciating it.
b. orig. *Psychol.* The ability to understand and appreciate another person's feelings, experience, etc."

'Empathy' was Titchener's attempt to translate the word *Einfühlung* (literally 'feeling into'), coined by the philosopher Robert Vischer (1873) in a book on visual aesthetics, but championed by Theodor Lipps (1903). It was Lipps who developed the concept of

empathy from an essentially aesthetic category (the ability to 'feel into' an artwork) into a much more general psychological/philosophical concept to account for the human capacity to take the part of, and share the feelings of, another person. Laurence (2008) gives an important account of the origin and development of the idea of empathy, tracing a line back to Adam Smith's (1759) *The Theory of Moral Sentiments*, and Smith's appeal to a notion of sympathy and 'fellow feeling' as the basis for understanding and living a moral life, based on imagining how it would feel to be in the circumstances of another. The distinction between *imagining* how one would feel and simply *feeling with* another is crucial, since it places Smith's notion of sympathy in the domain of imaginative reason rather than involuntary affect, and makes clear the role of cultural artefacts (paintings, literature, drama, music) as a means of socially learning that sympathetic attitude. Laurence draws significantly on the work of Edith Stein (1917) – a doctoral student of the philosopher Edmund Husserl – whose *On the Problem of Empathy* also engages with the problem of how it is that we can know or experience the mental states of others, and whether this knowledge or experience is given in some direct and primordial sense. Stein's conclusion is that empathy is dependent on the mediating role of similarity with the person (or animal) with whom/which we attempt to empathize, leading Laurence to propose a definition that emphasizes empathy as both a process, and as a social and educable skill or achievement:

"In empathizing, we, while retaining fully the sense of our own distinct consciousness, enter actively and imaginatively into others' inner states to understand how they experience their world and how they are feeling, reaching out to what we perceive as similar while accepting difference, and experiencing upon reflection our

own resulting feelings, appropriate to our own situation as empathic observer, which may be virtually the same feelings or different but sympathetic to theirs, within a context in which we care to respect and acknowledge their human dignity and our shared humanity." (Laurence 2008: 24)

In contrast to Laurence, Baron-Cohen (2011) provides an account of empathy that explicitly presents it as a psychometrically measurable trait,[4] with a genetic and environmental basis, distributed in a particular network of brain regions, and manifested in seven 'degrees' – ranging from the zero degrees of empathy of the psychopath or autistic person, to the six degrees of empathy of some 'hyper-empathic' individuals.[5] Baron-Cohen regards empathy as a critically valuable human resource, and sees the erosion or loss of empathy as an issue of global importance that has the most serious consequences for social health at scales ranging from the family to international relations.

As is already evident, different authors have chosen to define and characterize empathy in more or less inclusive or restrictive ways. At the inclusive or more informal extreme, the term is used to denote a whole range of ways in which an individual might 'take the part of another' (that other being a person, a non-human animal, an aesthetic object such as a sculpture, a fictional character in a novel or film, or a piece of music), without too much concern for how that perspective sharing comes about. In this inclusive approach, a more directly perceptual engagement (a person hearing the distress in a person's voice and feeling that same distress themselves) and a more conceptual and imaginative engagement (a person reading about another person's predicament, imagining it, and as a consequence experiencing – or imagining experiencing – what they believe to be the same thoughts and

emotions) are brought together under the same broad terminological umbrella: these are both manifestations of empathy. But others have taken a more restrictive view – as indeed did Stein. Stein argued that empathy should be distinguished from contagion (see below – section 3.3), since in her view empathy depended fundamentally on the observer retaining a distinct sense of her own consciousness, or subjectivity. Without such a subjective distinction, individual identity is dissolved, with pathological results for self-other awareness: the observer is no longer able to distinguish herself from the object of her empathic concern – with the paradoxical consequence that empathy itself (taking the part of an *other*) collapses, or is cancelled out. In Stein's view (see Laurence 2008), empathy depends upon sufficient similarity between self and other for a shared perspective to be possible, coupled with sufficient difference for an independent perspective to be sustained.

Coplan (e.g. Coplan 2011) is another author to have argued for a restrictive definition, robustly criticizing Preston and de Waal (2002) for defining empathy very broadly as 'any process where the attended perception of the object generates a state in the subject that is more applicable to the object's state or situation than to the subject's own prior state or situation' (Preston and de Waal 2002: 4). Coplan argues that it is essential to distinguish between low-level processes (such as imitation and contagion) and higher-level processes that involve representations, and that 'empathy is a complex imaginative process in which an observer simulates another person's situated psychological states while maintaining clear self-other differentiation' (Coplan 2011: 5). She insists on restricting empathy to circumstances in which lower-level sensory-motor processes that may bring people into a powerful intersubjective engagement are mediated or supplemented by higher-level imaginative processes, resulting in a *representation* of the other's states – perhaps activated by, but not

directly accessible through, the observer's perceptual processes. This representation is a 'simulation' in which a person 'replicates or reconstructs' the experiences of another, while maintaining 'a clear sense of self-other differentiation' (Coplan 2011: 8) – a strongly cognitivist account that is significantly at odds with the embodied and enactivist approaches (e.g. Varela, Thompson and Rosch 1991; Colombetti 2013) to human experience that have gained so much ground in the last 25 years.

As this discussion has revealed, there is a significant range of perspectives on empathy, from which two distinctions in particular can be drawn. The first is the distinction between empathy as a skill or social achievement – acquired, educable, and in some sense fundamentally collective; as opposed to empathy as a trait – relatively fixed, individual, and with a genetic component. The second concerns the extent to which different perspectives emphasize the involuntary and affective character of empathy (sometimes expressed through the metaphor of contagion), involving identification with the other and a loss of self; as opposed to a more cognitive and deliberate view in which empathy depends upon an imaginative projection into the circumstances of the other (closer to what Adam Smith called sympathy). These differences in perspective affect the scope and reach of the term empathy, and are an issue to which we return towards the end of this review in the specific context of music. Since the literature on music and empathy is not yet very large, and in the interests of initially casting the net wide so as to bring together a rather disparate literature, we adopt an inclusive approach. The following sections therefore present and discuss the various mechanisms and conceptual frameworks according to which music and empathy have been understood.

## 3. Music and empathy across different fields

### 3.1 Neuroscience

An increasing body of neuroscientific evidence indicates the very close coupling of perceptual and motor functions in the central nervous system, strongly suggesting that one way to account for the human capacity adopt the perspective of another (sometimes referred to as 'theory of mind', or even 'mind reading') is in terms of the coupling of a person's experience of their own actions with their perception of the actions of others. At the level of brain anatomy it has long been recognized that there are suggestive parallels between the organization of the sensory and motor cortices of the human brain, and this might provide at least superficial evidence for the close relationship between perception and action (e.g. Penfield and Jasper 1954). More recently, however, and particularly in the wake of the discovery of mirror neurons in the early 1990s (e.g. Di Pellegrino, Fadiga, Fogassi, Gallese, and Rizzolatti G., 1992), there has been a surge of interest in the ways in which perception-action relationships at the level of the central nervous system might provide a powerful way to explain a variety of intersubjective and empathic phenomena. Freedberg and Gallese (2007: 197) have argued that the activation of a variety of embodied neural mechanisms underlie a range of aesthetic responses, proposing that "a crucial element of esthetic response consists of the activation of embodied mechanisms encompassing the simulation of actions, emotions and corporeal sensation, and that these mechanisms are universal." Freedberg and Gallese were primarily concerned with the embodied and empathic qualities of visual art, but Overy and co-authors (Molnar-Szakacs & Overy 2006; Overy & Molnar-Szakacs 2009; McGuiness & Overy 2011) have developed a persuasive model of how the embodied, emotive and empathic effects of music might be understood from a mirror neuron perspective.

Mirror neurons (or mirror systems as they are often called) are neurons in motor areas of the brain that become active when an individual passively observes[6] an action of the kind that these neurons are usually responsible for controlling. The first, apparently accidental, discovery of these neurons was from direct electrophysiological recordings from the motor cortex of macaque monkeys that observed reaching and grasping behaviours in other monkeys and humans, and while the most direct evidence comes from animal studies, there is an increasingly persuasive body of evidence relating to the human mirror system (Hari 2007; Mukamel et al. 2010). Mirror systems were first described in relation to visual observation (monkeys *watching* another individual reach for an object), but subsequent research has also revealed the operation of auditory mirror neurons (e.g. Haueisen and Knösche 2001; Kohler et al. 2002; Dick et al. 2011) – a matter of obvious significance for music. These '*as if* body loops', as Damasio (1999) has called them, provide a direct identification with the actions of another, and constitute the fundamental building blocks of what Gallese (2001; 2003) has termed the 'shared manifold'. The shared manifold is understood as a three-leveled mechanism for intersubjective identification: i) a phenomenological level that is responsible for our sense of similarity with others – which Gallese equates with an inclusive notion of empathy; ii) a functional level characterized by models of self-other interaction; and iii) a sub-personal level, instantiated by the activity of the mirror neuron system. The aim of the shared manifold hypothesis is to ground a sense of empathy and self-other identity in identifiable neural mechanisms without suggesting that human experience and neuroscience can simply be collapsed into one another: hence the distinction between phenomenological, functional and sub-personal levels. Gallese is also at pains to point out that intersubjectivity is not equivalent to self-other identity: mirror

systems do not allow us to experience others exactly as we experience ourselves, since to do so would (ironically) preclude the possibility of experiencing others as *others* at all. Our capacity to experience an external reality with content and behaviours that we can understand is made possible by "the presence of other subjects that are intelligible, while preserving their alterity character" (Gallese 2003: 177).

At times the mirror neuron idea has been presented as if it were a hardwired feature of the brain that acted rather like a magic bullet. But as Heyes (2010) has argued, while one way to see mirror neurons is as an evolutionary adaptation (and therefore present at the species level), an alternative is to see the development of mirror systems as *acquired* through the operation of associative processes (Hebbian learning) during the lifespans of individuals. From this perspective, mirror processes originate in sensorimotor experience, most of which is obtained through interaction with others. Thus, the mirror neuron system is a *product* of social interaction, as well as a process that enables and sustains social interaction. A rather specific (and musical) example of this kind of plasticity is the finding by Bangert et al. (2006) that trained pianists listening to the sound of piano music showed significantly more neural activity in the motor areas of their brains than did a matched group of non-musicians.

A second area within the neuroscience of empathy that has been the focus of significant research concerns the role of neurohormones in human social bonding, brought together under the umbrella term of the Endogenous Opioid System (EOS). Physical exercise has long been known to stimulate the release of endogenous opioids (e.g. Howlett et al 1984), resulting in the feelings of mild euphoria and well-being that are popularly referred to as the 'runner's high'. Developmental research (e.g. Nelson and Panksepp 1998) has pointed to the significant role of the EOS in early bonding

between infants and their carers; and Domes et al (2007) found that inhalation of oxytocin (not an opioid, but another significant neurohormone associated with intimacy, sexual behaviour, and lactation) from a nasal spray increased participants' success in a 'mind-reading' task that involved judging the mental state of another individual from an image of their eyes. Combining these sources of evidence, a number of studies have investigated the possibility that coordinated physical activity may cause activation of the EOS, with consequences for social bonding and empathy. Cohen et al. (2010) found that synchronised team rowing caused an elevated pain threshold compared with solo rowing (a raised pain threshold being widely regarded as a proxy for the release of endorphins); and Tarr (2015) found that synchronised dance movements to music caused an increase in measures of social bonding by comparison with partially synchronised, or non-synchronised movements, with evidence for the role of the EOS in mediating the effect. The EOS has therefore been proposed as a neurohormonal factor in human social bonding (or in experiences of intersubjective affiliation), based on a broadly evolutionary argument for the adaptive advantage of social coordination. Some research has suggested that strongly exertive activity is required for the EOS to be activated (Cohen, Mundry and Kirschner 2014), and thus raises questions about the extent to which such a mechanism is relevant to so-called passive listening to music. Cohen et al. (2014) suggest that routine, or simply 'mechanical' synchronous group movement may not be sufficient to increase cohesion and cooperation among participants, and that high levels of physical exertion or shared task-representations and intentions, may also be required. However a study by Kreutz (2014) showed that choral singing led to increased subjective measures of wellbeing and higher levels of oxytocin in saliva samples than did an equivalent period of social conversation, providing evidence for a neurohormonal

response in the absence of a high level of physical exertion. And others (Tarr, Launay and Dunbar 2014) have argued that involuntary sympathetic activation of the motor areas of the brain during passive listening (for which there is considerable evidence – see e.g. Haueisen and Knösche, 2001; Bangert et al.. 2006; and for an overview, Koelsch, 2012, chapter 11) may be sufficient to stimulate the EOS even in the absence of significant physical exertion.

### 3.2 Perception-action coupling, empathy and embodiment: behavioural evidence

Mirror systems are one way to understand intersubjective interaction and identity, with direct relevance to music, at a neural level. At the behavioural level there is another extensive literature that has sought to understand empathy in terms of its roots in overt perception-action coupling, and has revealed the significance of mimicry and synchronization in mediating human relationships in general, and music in particular. Frans de Waal (e.g. de Waal, 2007) has proposed what he calls a 'Russian doll' model of empathy, based on the idea that evolutionarily earlier adaptations do not disappear but, like the nested figures of a Russian doll, persist as the precursors of more complex and developed functions. At the core of empathy, therefore, is what de Waal terms a perception-action model (PAM) – a coupling that has the consequence that the state and circumstances of a conspecific 'automatically activates the subject's representations of the state, situation, and object, and that activation of these representations automatically primes or generates the associated autonomic and somatic responses, unless inhibited' (Preston and de Waal 2002: 4). The PAM is not intended to exhaust the notion of empathy, but is based on the parsimonious assumption that 'the same nervous system link between perception and action that helps us to navigate the physical environment helps us navigate the social

environment' (Preston and de Waal 2002: 20). Empathy in its more complex human forms is built upon this fundamental perception-action link, but significantly modified by social learning and the representations (understood as parallel distributed contingency networks) that ensue. In short, rather like Gallese's 'shared manifold' idea, this is a way to understand the roots of empathy in terms of sensory-motor contingencies without falling into crude reductionism.

One symptom of such a model (although not a necessary condition for PAM) is the prevalence of overt and covert mirroring behaviours in human interaction, and in a review of the extensive literature, Chartrand and Dalton (2008; see also Chartrand & Bargh 1999) make a strong case for the importance of mimicry in social life, ranging from postural and facial mimicry to vocal and syntactic mimicry (people unconsciously mimicking one another's accents and sentence structures) – both as *manifestations* of existing social bonds and affiliations, as well as the *means* by which such social bonds may be established (e.g. Inzlicht, Gutsell & Legault, 2012). As Heyes (2011) has argued, such imitative behaviours may be automatic and insuppressible, and thus constitute a fundamental embodied basis for a critically important domain of human social interaction. At a similarly general level, a number of authors (e.g. Valdesolo and DeSteno 2011) have demonstrated the power of synchronization to induce altruistic and compassionate behaviours, this synchronization in many cases serving to entrain people's behaviours upon one another.

With this general psychological literature in mind, it is easy to see that music powerfully affords these kinds of cooperative and affiliative engagements. Music has long been associated with socially coordinated work, worship and celebration, where its rhythmically entraining attributes and opportunities for controlled mimicry and

complementation (such as in the 'call and response' character of many vernacular musical cultures) play a central role (e.g. Clayton, Sager and Will 2005). Hove and Risen (2009) demonstrated with a tapping task that the degree of synchrony between individuals tapping together predicted how strongly affiliated those individuals rated one another; and in a more directly musical context, Demos et al. (2012) showed that pairs of listeners who were instructed to rock their chairs in time to music felt more connected to their partners when they synchronized with the (common) music, the music acting as what Demos et al. call a 'social glue' – binding them together by providing a shared, synchronized experience. With a younger age-group, and in the context of more everyday active participation, Kirschner and Tomasello (2010) and Rabinowitch, Cross & Burnard (2013) have shown that over shorter and longer timescales children involved in rhythmically synchronized music activities subsequently behaved more cooperatively and empathically than did children who were involved in an equivalent but not synchronized activity. Music is a powerfully multi-sensory, and particularly kinaesthetic phenomenon (see Stuart 2012), whose embodied character draws people into fluid and powerful social groups at a range of scales and degrees of permanence and impermanence, and in doing so helps to enact a kind of empathy.

But of what kind of socially bonded, or intersubjective experience is music(king) capable, and how is that experience related to the balance between self-other understanding and the preservation of self identity on which empathy (as characterized by Stein, Laurence and others) depends? Rabinowitch, Cross and Burnard (2012) describe a continuum of intersubjectivity for musical group interaction that ranges from fragmented individual subjectivity at one extreme, to highly coordinated and interpenetrating group intersubjectivity, understood as

intentions, emotions, and cognitive processes shared among subjects. This intersubjectivity does not obliterate individual subjectivity, but is characterized by enhanced understanding of, and identification with the other, elicited by the common (musical) activity, which in turn facilitates the execution of the task. Young children, for example, synchronize better with a pattern of drum sounds when they believe that the sounds are intentionally produced by another person than when the source is either clearly mechanical (and inanimate), or unknown (Kirshner and Tomasello 2009). Intersubjectivity is thus a *process* born of, and constituted by, the actions that people are carrying out, rather than simply a state that they experience. In particularly intense intersubjective experiences it is anecdotally reported that people can lose the capacity to differentiate between their own (musical) actions and those of others, eroding the boundary between self and other within the specific activity – an experience that Rabinowitch et al. identify as 'merged subjectivity'. A person making music together with others in an intensely collaborative manner may literally not know whether he/she, or one of the others, was responsible for producing an element of the composite sound.

If this seems fanciful, then it is worth remembering that it is relatively easy to cause a person to experience this loss of the boundary between the self and even an inanimate object. In the so-called 'rubber hand illusion' (Botvinick and Cohen 1998) a rubber model of a forearm and hand, positioned in the visual field of a person such that it could plausibly be part of that person's body while their real forearm and hand are out of sight behind a screen, can become incorporated into the person's body schema (i.e., can appear to feel sensation) within a short period of time (less than 10 minutes). The extent of this 'boundary loss' or merging is indicated by the fright that is caused to the person if the rubber hand is hit with a hammer. Significantly, the

critical variable in inducing the effect is that some appropriate action on the rubber hand must happen in synchrony with the same action on the (out of sight) real hand – such as visibly stroking the rubber hand with a paintbrush while doing the same to the person's concealed hand. Unsynchronised stroking significantly fails to produce the illusion. In music-making, it is the coherence, integration, and synchronization of participants' individual actions and sounds into a unified auditory scene (Bregman 1990) that elicits the radical integration that is experienced as merged subjectivity.

On some accounts, the condition of 'merged subjectivity', which is associated with active participation in collaborative music-making (choral singing, playing in bands and other instrumental ensembles) goes beyond empathy, and involves a loss of self that conflicts with the empathy-defining principle of taking the part of another while retaining a self-anchored perspective. Passive listening does not ostensibly provide the conditions for 'merged subjectivity' to occur, since it does not involve overt synchronization between the listener and any other real subject; but Gabrielsson (2011) provides numerous striking accounts of passive listeners who report becoming 'one with the music' (see below, section 3.4). Dynamic attending theory (e.g. Jones and Boltz 1989; London 2012) proposes that attending to temporally predictable events can induce entrainment, and a sense of (self-) motion (Clarke 2001; 2005); and as discussed above, an increasing body of neuroscientific evidence has demonstrated the extensive activation of motor areas of the brain during so-called passive listening. This provides one way to understand the strongly embodied experience of being 'one with the music' that listeners sometimes report (e.g. Peters 2010). In a similar manner, Reynolds (2012) has made the same case for dance spectators, proposing that kinaesthetic empathy with the dance itself (rather than, or in addition to, the actual dancers on stage) draws the spectator into an intersubjective relationship with the

virtual person, or people, enacted by the dance. In short, something like merged subjectivity may be a reasonable way to characterize the experiences of listeners or spectators who are not ostensibly directly, productively engaged with any other real human subjects.

### 3.3 Dispositional empathy and music

As already noted, some authors (e.g. Baron-Cohen, 2011) have understood empathy as a trait, arguing that since some people have a tendency to experience empathy more readily than others, being more or less empathic can be understood as a personality trait or a disposition. There have been numerous trenchant critiques of rigidly trait-based theories of the person over the last four decades or more (e.g. Mischel 1968), rightly pointing to the situational variability and specificity of people's behaviour in contradiction of the idea that behaviour directly manifests fixed traits. As Mischel (2004) articulates in a more recent review, neither a narrowly trait-based theory, nor an exclusively situated approach will suffice, and a plausible theory must take account of the complementary relationship between person-based and situational factors – indeed will arguably need to dissolve any 'hard' boundary between person and environment (e.g., Heft 2001: 362-70). In what follows, therefore, we make use of the idea of dispositional empathy without implying any commitment to conventional trait theory, regarding a disposition as an action tendency that emerges from person-environment complementarity.

In its broadest sense, dispositional empathy can be defined as an individual's general responsiveness to the observed experiences of others, involving both perspective-taking capabilities or tendencies (cognitive empathy), and emotional reactivity (emotional or affective empathy; e.g., Davis, 1980). Although a variety of

factors contribute to whether or not we experience empathy in a given situation, those with high dispositional empathy tend to experience empathy more readily across different situations. Davis (1980) has suggested that dispositional empathy is a multidimensional construct comprising at least four components: Perspective-taking, Fantasy, Empathic Concern, and Personal Distress. Perspective-taking can be understood as the tendency, or ability, to shift perspectives (to see and understand things from another's point of view), while Fantasy refers to the tendency, or ability, to identify oneself with fictional characters in books and films, for example. While Perspective-taking and Fantasy are typically characterized as forms of cognitive empathy, Empathic Concern and Personal Distress can be defined as types of affective empathy. Empathic Concern taps into the tendency to experience feelings of compassion and concern for others, whereas Personal Distress is associated with the individual's *own* feelings of fear, apprehension and discomfort in response to the negative experiences of others.

It has been proposed that affective and cognitive empathy may have partially independent neural substrates, the former involving the mirror neuron system, and the latter involving brain areas associated with Theory of Mind, mentalizing, and autobiographical memory (e.g., Goldman, 2011; Shamay-Tsoory, 2011). However, it may be that both affective and cognitive empathy have their bases in neural mirroring (e.g., Iacoboni, 2011; Preston & de Waal, 2002). Most of the empirical work in this area has focussed on investigating the potential association between dispositional empathy and mirror system activity. Interestingly, both cognitive and affective facets of self-reported dispositional empathy have been associated with mirroring responses at a neural level. Gazzola, Aziz-Zadeh, and Keysers (2006) found that Perspective-taking was associated with stronger activation of the mirror neuron system in

response to action sounds. By contrast, Kaplan and Iacoboni (2006) did not find an association between Perspective-taking and mirror responses to visually presented grasping motions, but discovered that activation in the right inferior frontal mirror neuron area was positively correlated with Empathic Concern and Fantasy, and negatively correlated with Personal Distress. It may be that the sounds of actions recruit perspective-taking abilities in the generation of mirroring responses, by contrast with visually presented actions, precisely because the motor actions that are specified in sound are not as immediately explicit as when observed visually (cf., Iacoboni, 2011).

By contrast, studies that have used emotional stimuli have tended to report more consistent associations between emotional empathy and mirror responses. Sonnby-Borgström, Jönsson, and Svensson (2003), using EMG, investigated participants' automatic facial mimicry responses to pictures depicting facial expressions. Those who scored high in emotional empathy displayed more spontaneous facial mimicry, even with very short exposure times (as little as 56 msec). In line with these findings, Aziz-Zadeh, Sheng, and Gheytanchi (2010) reported an association between Personal Distress and increased brain activation while listening to emotional speech prosody (in the same premotor areas that were active during the perception and production of prosody). Although cognitive and affective empathy may have somewhat independent functional substrates, it is possible and even likely that both types of process are involved in any empathic episode (e.g. Shamay-Tsoory 2011). It is also likely that there is some degree of interaction between the two processes, as empathic mirroring responses to the pain of others can be modulated by perceptions of their social behaviour (such as whether they are perceived to be fair or unfair; Singer et al., 2006).

Several theories of music-induced emotions suggest that some form of empathy may be involved in the emotional responses induced by music (e.g., Scherer & Zentner, 2001; Juslin & Västfjäll, 2008; Livingstone & Thompson, 2009; Juslin, 2013). The proposed mechanisms range from pre-conscious motor resonance with musical features that resemble the vocal and motor expression of emotion (Molnar-Szakacs & Overy, 2006; Livingstone & Thompson, 2009) and emotional contagion (Davies, 2011; Juslin & Västfjäll, 2008); to empathizing with the imagined emotional experiences of the performer or composer (Scherer & Zentner, 2001), or with the music as a 'virtual person' (Levinson, 2006). Parallels can be seen between these proposed mechanisms and the more general notions of affective and cognitive empathy, or what Goldman (2011) calls 'mirroring' and 'reconstructive empathy', respectively. Molnar-Szakacs and Overy (2006) have argued that the human mirror neuron system might offer a neural mechanism for emotional contagion from music, and that a listener would engage in a form of pre-conscious 'motor simulation' of those auditory and gestural features in the music that resemble vocal and motor expressions of emotion, and/or the intentional motor acts that produce the sounds (see also Livingstone & Thompson, 2009; Overy & Molnar-Szakacs, 2009). Indeed, neuroimaging studies have shown that listening to music is able to activate premotor areas related to vocal sound production (Koelsch et al., 2006) as well as larger-scale motor circuits (Alluri et al., 2012) in the absence of overt singing or movement. However, it is still unclear whether emotional contagion (in musical contexts or in general) involves actual motor simulation of emotionally expressive acts, or whether it is more accurately described as the mirroring of contextualized emotions (cf. Hess & Fischer, 2013). The fact that listening to emotionally expressive music is able to evoke facial muscle activation that is congruent with the emotional expression of the

music (e.g., Lundqvist et al., 2009; Witvliet & Vrana, 1996) is more consistent with the idea that rather than directly mirroring specific facial muscle activations, for example, people unconsciously act out the socially learned expression of a represented emotion.[7]

Some authors have suggested that music might evoke emotional responses in listeners through an empathic process that involves mentalizing and imaginative perspective-taking. Scherer and Zentner (2001) have proposed that “there may also be a kind of empathy with the emotion presumed to be felt by the performer that may be construed in our imagination through an underlying 'idea' that is seen as responsible for the emotional state that is expressed (for example, the longing of the composer for his homeland, as in Dvoràk's 'New World Symphony')” (Scherer & Zentner 2001: 371). Others have taken the idea of imaginative perspective-taking even further, suggesting that listeners might experience music as a narrative about a virtual person that they hear as inhabiting the musical environment (Levinson, 2006). Empirical investigations have shown that concentrated music listening often evokes visual or narrative imagery (Lavy 2001; Vuoskoski & Eerola, 2012, 2015; see also Juslin & Västfjäll, 2008) that can intensify the emotional effects of music (Vuoskoski & Eerola, 2015). Although parallels can be seen between this kind of imaginative engagement and the Fantasy subscale of the Interpersonal Reactivity Index (Davis, 1980), for example, it is unclear whether it should be regarded as a form of reconstructive empathy.

One approach to the role of empathy in music-induced emotions has been to investigate the possible association between dispositional empathy and self-reported emotional responses to music. Such studies have shown that listeners who have a tendency to be more empathic seem to experience more intense emotions, especially

in response to sad and tender music (Vuoskoski & Eerola, 2011; Vuoskoski et al., 2012); more sadness, wonder, and transcendence (Miu & Balteş, 2012); and more motor and 'visceral' entrainment (Labbé & Grandjean, 2014) while listening to music. These findings provide indirect evidence for the involvement of empathy in music-induced emotions, but it is possible that the association only exists at the level of self-report, reflecting participants' response styles rather than their actual reactions. In order to clarify this issue, Vuoskoski and Eerola (2012) measured music-induced emotions using more objective, indirect measures of experienced emotion (namely emotion-related judgement biases). They found that Fantasy and Empathic Concern – the same factors that were associated with mirroring responses to grasping motions (Kaplan & Iacoboni, 2006) – were positively associated with the degree of experienced sadness (as indicated by a judgment bias towards sadness) after listening to unfamiliar sad music; but not after listening to neutral music, nor after sad autobiographical recall. This suggests that empathy can contribute to emotional responses evoked by unfamiliar sad music, possibly by facilitating emotional contagion. However, it is impossible to ascertain the exact mechanism of emotion induction, as it is possible (and even likely) that multiple mechanisms are at work simultaneously in any given episode of music-induced emotion (cf. Juslin & Västfjäll, 2008).

Another approach that has provided support for the role of empathy in music-induced emotions has involved providing listeners with explicit instructions to adopt either an empathic or an objective perspective while attending to recorded opera performances (Miu & Balteş, 2012). The high and low empathy instructions led to differing psychophysiological responses and differing ratings of experienced emotion, with the emotional responses in the high empathy condition being more congruent

with the emotional content and expression of the opera performances. While acknowledging the possible role of opera's dramatic and verbal semantic content in these effects, the findings provide the first evidence that perspective-taking can affect music-induced emotions at the level of psychophysiology. Taken together, these findings and those showing that both emotional and cognitive facets of dispositional empathy (i.e., Fantasy and Empathic Concern) have been positively associated with both subjective and indirect measures of music-induced emotions (Vuoskoski et al., 2012; Vuoskoski & Eerola, 2012) imply that both mirroring and reconstructive processes may be involved in empathic responses to music.

It is worth noting that dispositional empathy has been associated with the intensity of music-induced sadness in particular (Vuoskoski & Eerola, 2011, 2012). Empathic individuals tend to enjoy sad music more than non-empathic individuals, suggesting that empathically experienced negative emotions such as sadness can be enjoyable in the context of music (Vuoskoski et al., 2012; Garrido & Schubert, 2011; Greenberg et al., 2015). Similar findings have been made in the context of films, where the experience of empathic distress while watching a tragic film has been associated with greater enjoyment of the film (De Wied et al., 1994). It is not yet known what the mechanisms behind such enjoyment are, but Huron (2011) has proposed that the consoling hormone prolactin might be involved. Levels of prolactin increase when people are sad, and sad music might trigger this consoling response by evoking vicarious sadness (Huron, 2011). Although there is little empirical evidence regarding the role of prolactin in music listening, previous studies have documented increased levels of another hormone – oxytocin – in association with music listening (Nilsson, 2009). As noted earlier, the prosocial neuropeptide oxytocin plays an important role in social bonding and social cognition (for a review, see Heinrichs, von

Dawans, & Domes, 2009), and it has been found to facilitate emotional empathy (Hurlemann et al., 2010). As oxytocin also functions as an anxiolytic (Heinrichs et al., 2009), it is possible that its relaxing effects might be experienced as pleasant in a context such us music listening. Although further investigation is needed in order to understand the role of oxytocin in music-induced emotions better, current findings suggest that there is something inherently enjoyable in empathic engagement in an aesthetic context – even when the experienced emotions could nominally be characterized as negative.

### 3.4 Music as a virtual person; music and subjectivity

In some of the earliest writing on empathy, Lipps (1903) and Stein (1917) address how it is that people can identify with, or 'take the part of' aesthetic objects, as well as other people. In the case of clearly representational aesthetic objects (fictional writing, representational painting, photography, dance, drama, and film) it is relatively easy to understand how and why readers and spectators might identify with, or take the part of, fictional characters. Writing of empathic engagement with film, for example, D'Aloia (2012: 95) describes spectators' experiences as '*quasi*-intersubjective', the characters in the film having (at times) the same direct and palpable presence as do real others in everyday life. But how – if at all – does this work with music? In the context of live performance there is clearly the opportunity for audience members to empathize with the performers themselves, and the history of jazz and popular music is populated with iconic performers who have been the objects of powerful empathic identification. Classical music has its own star performers who may also engage the empathy of their audiences. But classical musicians typically play or sing music that is not their own, but rather the work of a

separate composer, and often with a display of virtuosity and specialised performance skills that makes the relationship of 'proximity at a distance', as D'Aloia (2012) describes it for a character in a film, seem rather less likely for members of a classical music audience. And in the case of recorded instrumental music, where the presence of a person is even more attenuated, there might appear to be rather little scope for empathic engagement.

But remarkably, people tend to describe even recorded instrumental music in terms of attributes commonly used to describe the psychological attributes of people (Watt & Ash, 1998). Indeed, it has been suggested that music is capable of creating a 'virtual person' of sorts (Watt & Ash, 1998; Livingstone & Thompson, 2009). Since the musical expression of emotion bears a close resemblance to human vocal and motor expression of emotion, involving similar auditory and gestural cues (see Juslin & Laukka, 2003; Jackendoff &Lerdahl, 2006; Cox, 2011), it has been proposed that listeners may respond to music as they would to the perceived emotional state of a conspecific (Livingstone & Thompson, 2009). However, music's capacity to represent a virtual person seems to go beyond acoustic and gestural cues that resemble vocal and motor expressions of emotion. An example is provided by studies that have investigated people's reasons for listening to sad music when they already feel sad. These studies have found that some listeners can experience the music itself as providing empathy and understanding for the feelings that they are going through, functioning as a surrogate for an empathic friend (Lee, Andrade & Palmer, 2013; van den Tol & Edwards, 2013). The participants in van den Tol and Edwards's study felt that the music itself (not the actual human musicians) was "empathizing with their circumstances and feelings, supporting them, making them feel understood, or making them feel less alone in the way they were feeling", one of the participants describing

her experience as follows: “I felt befriended by the music – by this I mean that if you were to pretend the music/lyrics was a real person, with its lyrics of understanding, friendship, comfort and confidence, then surely the song would be your best friend, your soul-mate . . . Music personified is your soul-mate, your trusted secret friend who can empathize with you” (Van den Tol & Edwards, 2013: 14).

Thus, it appears – at least for some people – that music is able to represent a virtual person with whom to empathize, and who they can experience as empathizing with their own felt emotions. There has been considerable interest in the musicological literature in the relationship between music and human subjectivity (e.g. Cumming, 2000; McClary, 2004), pursuing the idea that music has attributes either of an idealized person, or of an idealized collection or community of people. Lawrence Kramer (e.g. 1995; 2001; 2003) has written extensively about music as the instantiation or enactment of a kind of imagined subjectivity – not associated specifically with the composer, performers, or anyone else explicitly and literally engaged with the making of the music, nor simply as the mirror of a listener’s own subjectivity, but in a more abstracted and generic manner. John Butt (2010) has argued for the historical and cultural contingency of such a relationship with music, viewing the Bach passions (the *St. John Passion* and the *St. Matthew Passion*) as coinciding with, and contributing to, the emergence of a modern notion of subjectivity – an important reminder that the idea that music might represent or even enact a ‘virtual person’ is a historically and culturally specific listening attitude. In a detailed exploration of just such an attitude, Naomi Cumming, focusing on the solo violin introduction to the aria ‘Erbarme Dich’ from Bach’s *St. Matthew Passion*, writes of how the listener does not just find her or his own subjectivity passively reflected back, but reconfigured: “The pathos of Bach’s introduction, and its elevated style, are quite

unmistakable, and recognition promotes empathy. Once involved with the unfolding of the phrase's subjectivity, the listener does not, however, find a simple reflection of his or her own expectancies. The music forms the listener's experience, and in its unique negotiation of the tension between striving and grief, it creates a knowledge of something that has been formerly unknown, something that asks to be integrated in the mind of the hearer" (Cumming 1997: 17). Cumming identifies three principal attributes of music that confer a quality of human subjectivity on the musical materials: 1) instrumental timbre and its relationship to vocality; 2) the rhythmic and melodic shaping of the violin's line, and its consequent gestural attributes; and 3) the sense of harmonic and tonal direction and movement, and the resulting sense of variations in goal-directedness or drive.

A criticism of this type of approach might be that it is unclear to what extent such an interpretation is the projection of a highly subjective reading – perhaps even a purely personal fantasy – onto the material, rather than some more shared response. Cumming was herself a violinist and a Christian, and is quite explicit about the way in which these specific experiences, skills and beliefs sensitize and attune her to aspects of the music that another listener might not pick up. There are questions here about the relationship between representations of human subjectivity that offer opportunities for reflective interpretations, as opposed to more directly perceptual engagements that have the immediate and non-reflective character of the 'mirroring' that is discussed in sections 3.1 and 3.2 above. A skeptic might see accounts such as Cumming's as reading more than is warranted into the material, but it is also a fundamental principle of perceptual learning that expertise shapes and refines the perceptual acuity with which the affordances of complex stimuli are picked up (Gibson 1969; Gibson and Pick 2000). Studies of music in everyday life (DeNora 2000; Dibben 2001; Clarke,

Dibben and Pitts 2010; Herbert 2011) have increasingly documented with explicit qualitative data how richly detailed listeners' experiences can be, and the complex relationship between individual differences and underlying commonalities. Focusing specifically on music's capacity to afford listeners ways to manage their affective states, DeNora (2000; 2003; 2013) has written of the manner in which music acts as a technology for listeners to structure and organize their identities – in the immediate circumstances of 'mood management', and in longer-term processes of identity construction and maintenance. Writing of one of her informants, DeNora points out how 'Lucy' uses music as a medium in which she can draw a connection between the musical material to which she is listening, her own identity, and a kind of social ideal. As Lucy herself expresses it, she 'finds herself', the 'me in life', within musical materials, in a manner that allows her to reflect on who she is and how she would like to be – a process that DeNora points out is not just private and individual: "Viewed from the perspective of how music is used to regulate and constitute the self, the[se] 'solitary and individualistic' practices … may be re-viewed as part of a fundamentally social process of self-structuration, the constitution and maintenance of self. In this sense then, the ostensibly private sphere of music use is part and parcel of the cultural constitution of subjectivity, part of how individuals are involved in constituting themselves as social agents." (DeNora, 2000: 47-8)

Music and musicking, then, can be viewed as a rich environment in which more or less active participants (listeners and makers) can engage with the real and virtual subjectivities of other real and virtual participants, and in doing so come to experience (and perhaps increasingly understand) the cultural perspective that those others (real or virtual) inhabit. Music is in this way both a *medium* for engagement with others (who may be more or less empathic or antagonistic), and an *environment*

in which to explore and experiment with a range of more or less projected, fantasized and genuinely discovered subjectivities.

### 3.5 Sociological Perspectives

In the previous sections we have discussed accounts that consider the possible bases of empathy from largely individualistic perspectives. These accounts have featured matters such as individual capacities (for example traits), neurological and other biological processes, and emotional responses. In this and the following section (3.6) we turn to perspectives that conceptualize empathy and its musical bases through a social lens.

As a point of departure, we begin with the 'new sociology of art' (de la Fuente 2007), which investigates aesthetic materials for the ways that they may be seen to frame, shape or otherwise have an impact on and in social life. That 'new' perspective begins with a concern about what artworks can 'do' – specifically, with a theory of how they may be understood to organize action and perception, so as to capture how the arts 'act' in time and space. The more theoretical end of this perspective is concerned with conceptualizing art as agency, inspired by the work of Alfred Gell (1998). As de la Fuente (2010a) puts it, our responses to artworks confer on art objects (or musical objects) a 'causal' character, or 'displaced agency' that can be associated with consequences for action. The agency of artworks arises through the capacity of artworks to 'abduct' the agency of the beholder of the work (de la Fuente 2010a: 5, citing Gell, 1998: 14). In a similar vein, Georgina Born has described how cultural production constructs relations between people, and between people and things, across space and time (2010: 183).

The key question, then, is *how* do art works – or musical works – give rise to forms of agency? It is in relation to this question that the more explicitly theoretical side of the 'new sociology of art' gives way to more empirical, ethnographic, and grounded investigations and their associated concern with real time and situated action. This involves a focus, as de la Fuente observed, on the social life of art objects, 'as they move in and through society' (Fuente 2010b: 220); and on how art objects come to be connected to a wide range of other objects, practices, stances and discourses that enable them to have power over us (Gomart and Hennion 1999). Such a focus points to a level that is neither macro nor micro, but meso – devoted to networks of people, practices (conventions, operations, activities with histories of use) and things (Fine 2010), offering considerable scope for examining the question of just how cultural forms, including musical forms, actually enter into action and experience (DeNora 2003).

The concern with how aesthetic materials 'get into' action (Acord and DeNora 2012) is associated with a focus on embodiment, extension (Clark and Chalmers 1998) and feeling (Colombetti 2013), in which embodied conditions and sensations are understood both to take shape in relation to things outside of individuals and to inform cognitive appraisal. Indeed, significantly for the purposes of this review, bodily sensations may give rise to cognitive appraisals, because, as Colombetti has described (2013: 46), emotions involve complex dynamical patterns of brain and bodily events. Colombetti's account draws upon the work of other philosophers and neuroscientists to describe how emotional episodes are loosely linked to other psychological components that include evaluations of situations, feelings, and action tendencies. Importantly, she highlights how, 'an emotional episode is not a matter of biology, so to speak, but depends on available "mental scripts"' (2013: 47), which

offer categories for organizing and making sense of otherwise complex and multifarious forms of experience. This is the point at which neuroscience and philosophy of consciousness meet cultural sociology. And that point in turn provides the point of departure for a temporally engaged cultural sociology of musical engagement and thus, of music, empathy and understanding *in real time.*

The focus on real time cultural engagement and real time cultural attunement has roots that extend back to Adam Smith's notion of sympathy and the capacity for fellow feeling (Section 2). While Smith makes it clear that sympathy must be distinguished from what we would now call empathy, his focus on the prerequisites for achieving sympathy highlight the importance of bodily processes. Specifically, Smith describes how, if sympathy is to be achieved, it is necessary for actors to moderate their passions (to tamp down, or raise up levels of intensity or 'pitch' as Smith calls it) so as to encourage mutual engagement through shared modalities of feeling (Smith 1759: I. I. 36-39). His interest in mutual emotional calibration, understood as a prerequisite for mutual understanding (and indeed mutual appraisal), resonates with Alfred Schütz's (1951) concept of attunement, understood as the prerequisite for making music together. Schütz's focal example is the performance of a string quartet, used as a case in point of social action more generally, and the need for mutual orientation, entrainment, calibration and the gestalt to which these processes give rise – namely, shared feeling forms. In this respect, classical sociology can be read as offering important leads for the study of empathy, understood as emotional and embodied mutual orientation, predisposition and preference. It can also be read as offering an excellent basis for appreciating 'art in action' and the role of music in underwriting communicative action, or how we bind ourselves together in time – whether in conversation, or more generally, as Trevarthen (2002: 21) puts it, as

‘the dynamic sympathetic state of a human person that allows co-ordinated companionship to arise’. Music (and the arts more generally) can be conceptualised as offering materials for shaping up the feeling body from infancy to old age, in a wide range of roles and guises.

But if music ‘gets into’ action, the question, as stated earlier, remains: how does this happen and (how) can we trace that process? In relation to empathy, this question can be posed in terms of how shared feeling states, sensibilities and predispositions come about, and how they can be cultivated and thus also how they may be – more problematically – controlled (DeNora 2003; Born 2012; Hesmondhalgh 2013) within actual social spaces and in real time situations. It is here that the ‘new’ sociologies of the arts offer important perspectives, concepts and – critically – methods for observing and analysing these processes, in ways that can compensate for the limitations of the more purely theoretical work discussed above. These perspectives have been greatly enhanced by Howard Becker’s ‘Art Worlds’ (1982) focus on collaborative production, by Becker’s classic earlier study (1953) of informal learning in the context of marihuana use, and by the work of the music sociologist Antoine Hennion. In addition to music, Hennion has written on the appreciation of wine, and describes how, if one pays attention to a wine, one is giving oneself over, albeit fleetingly, momentarily, to a thing, in this case, a glass containing wine. As Hennion puts it, ‘[t]he object also shifts, advances a notch, to deploy itself and deliver its *richesse*, involving a more marked contrast and a rising in its presence’ (Hennion, 2007: 105). The agency of the wine, in other words, has – to revert to Gell for a moment – abducted the agency of the taster, *in real time* and in a manner such that the external movements, utterances, gestures and forms of interaction (with other people, with the glass, the bottle, the liquid, the tongue and mouth…) can be observed

and even, to some extent, recorded. It is here that we can begin to consider action and orientation in time in ways that highlight change *over* time. For example: attitudes (toward wine) are brought to the occasion of engagement; engagement occurs and new things are added to the repertoire of 'tasting' skills and categories (cf. Colombetti's notion of 'script' described above); and these new things are taken away, perhaps to be mobilized at a later time. The parallels with music are clear – substituting music for wine, perhaps recording medium for glass, listener for taster, and so on; and the three-fold temporal framework outlined here in relationship to Hennion's wine-tasting example has been used within socio-musical studies to map musically instigated change over time. It has been described in some detail by DeNora, as the 'musical event' scheme (DeNora 2003; 2013), and has been used by other researchers seeking to specify just how music can be said to contribute to altered states, conditions, and situations (Stige et al 2010; Stige and Aarø 2012; Regev 2013; Wade 2014).

Influenced by Becker's marihuana study, and studies of how individuals and groups (such as women) learn to feel and respond sexually (DeNora 1997; Jackson and Scott 2007), there have been equivalent studies of the social learning of musical/emotional experience, such as Gomart and Hennion's study of how to experience musical 'highs' (Gomart and Hennion 1999), and Pieslack's (2009) study of how soldiers engage with music as part of their psychological equipment for warfare. Similarly, music sociologists have considered how individuals and groups deploy music or are exposed to music for the purpose of managing and modifying emotions and energy levels, whether as part of everyday self-care (DeNora 2000, 2013; Batt-Rawden, DeNora and Ruud 2005; Skånland 2012) or in scene-specific settings such as retail outlets (DeNora 2000). These studies have followed how

individuals and groups engage in processes of modelling, adjustment, tutoring and directing, and attempted alignment with musical materials, drawing out emotional and embodied sensations and experiences in musically guided ways. This work helps to highlight just how deeply culture can come to penetrate embodied processes and experiences, and thus dovetails with more recent work on the culturally mediated experience of health and well-being. Critically, this work focuses on *how* people become integrated with, take on some of the properties of, and become transformed in relation to music.

On this point, and standing between the philosophy of (extended) mind and empirical music sociology, Joel Krueger has observed that music cognition offers an excellent site for considering extended cognition more generally, and that this consideration needs to focus on musical engagement in terms of the four Es of embodiment, embeddedness, enaction, and extension (Krueger 2014a: 211). The 4E focus highlights the ways in which it is possible to understand emotion episodes as emerging in the spaces between individuals and social, material, symbolic and aesthetic contexts; and the focus on emergence in turn empowers the study of shared emotions. It points researchers to the ways in which emotions, when shared, structure the agentive character of groups of individuals in ways that, when coupled with forms of appraisal, *ready* individuals for action and configure psychological and physiological features of those readied actors (Krueger 2014b). Music, Krueger suggests, effects emotion regulation – and thus readiness for action and orientation – through entrainment processes, in which motor capacities become attuned to and guided by musical properties such as rhythm. Similarly, DeNora (2000: 76-108) has described how entrainment processes may enhance bodily capacities in ways that allow music to become a form of prosthesis, extending the limits of what would

otherwise have been possible without music. Krueger further uses the concept of entrainment to understand how listening to music – including expressive non-vocal music – elicits spontaneous facial mimicry mirroring the affective tone of the music (i.e., happy music elicits happy expressions, sad music sad expressions; Krueger 2014b: 7). Shared emotions arise, Krueger argues, from mutual entrainment through complex feedback loops. In short, music can take over otherwise subject-centred processes of self-regulation, and it can do so in ways that may facilitate shared emotions and thus shared readiness for action. Social cohesion, then, or the enactment of a public form of empathy, is produced through 'bodily movements, facial expressions, postures, gestures, instrumental behaviors, gaze patterns, and vocalizations with those with whom they are interacting' (Krueger in press). This brings music psychology together with philosophy of mind, and philosophy of mind with cultural sociology's 'in action' perspective – from which it is a short step to cultural and intercultural perspectives more broadly.

### 3.6 Cultural perspectives

In this section, we do no more than indicate and relatively briefly touch upon the potentially vast question of cultural and cross-cultural understanding. Within the psychology of music there has been an interest in the relationship between possibly 'universal' and culturally specific aspects of musical communication, dating back to the very beginnings of both the psychology of music and ethnomusicology in the work of Carl Stumpf (Stumpf and Trippett 1911/2012). Among other more recent empirical studies, Balkwill, Thompson, & Matsunaga (2004) have shown that music can successfully communicate emotional meanings across different cultures, but ethnomusicologists, rightly suspicious of simplistic notions of inter-cultural

communication, have pointed to issues of representation, and of the incommensurability of concepts (or in this case emotional meanings) across cultural contexts, as factors that might undermine the validity of a naïvely empirical approach (Stock 2014).

Nevertheless, a recent study by Neto, da Conceiçao Pinto, and Mullet (2015) provides an intriguing empirical illustration of music's potential to facilitate cross-cultural understanding. Neto and colleagues assigned 229 light-skinned[8] Portuguese children (aged 11-12) to either a cross-cultural or a non-cross-cultural (only Portuguese) music education program. The cross-cultural music education program consisted of 20 sessions involving exposure to (and interpretation of) music performed by dark-skinned Cape Verdean artists, as well as the study of song lyrics, cultural context, and singer biographies. Neto and colleagues found that participation in the cross-cultural program significantly reduced anti-dark-skin prejudice compared to the Portuguese music education program. Remarkably, the significant reduction in anti-dark-skin prejudice persisted even two years after the program had finished. Although it is not possible to attribute these effects solely to the musical component of the program, the findings nonetheless provide evidence for the potential value of such applications.

A number of authors have recently proposed the value of a 'relational musicology' that might tackle issues of inter-cultural understanding, including Cook (2012: 196) who argues for relational musicology as "a means of addressing key personal, social and cultural work that is accomplished by music in today's world." One specific kind of 'cultural work' that has recently been addressed in ethnomusicological writing that is of direct relevance to this review is the affective and social work that is accomplished by and within cultures and sub-cultures in which

the public expression and circulation of emotion is encouraged and embraced. Following the work of Bell (2000), Berlant (2008) and others, and making a link back to Adam Smith (1759), some authors (e.g. Stokes 2007; 2010; and see below) have framed this phenomenon in terms of 'sentimentalism' – a word that deliberately engages both pejorative and more positively subversive connotations of the 'culture of feeling' to which it refers. A closely related idea is encapsulated in the anthropologist Victor Turner's term 'communitas' (e.g. Turner 1997/1969; Turner 2012), with which he identifies those intense feelings of collective belonging, in which distinctions and hierarchical differences between participants are blurred. This condition is often associated with the liminal or transitional states that are incorporated into many rituals, and with other kinds of social action that stand outside normal social structures, representing a kind of counter-cultural empathy. Sarbanes (2006), for example, uses the concept of communitas to argue for the operation of a particular mode of sociality in the specific context of Greek *rebetika* music (and its associated sub-culture) that draws its participants into powerful intersubjective affiliations. She argues that the state of musical co-subjectivity (cf. DeNora 2000), which characterises separate individuals simultaneously focused upon a common musical object of attention (music, or the musicking performers), can generate the more powerful and empathic state of intersubjectivity: a genuinely collaborative and reciprocally structured common subjectivity shared between two or more people. To put it somewhat simplistically, if I witness the same emotionally moving music as you, and if I believe that you and I have both been moved by it (i.e. that we have had an empathic experience), this then may cause me to feel drawn into an intersubjective relationship with you.

Drawing on Adam Smith's discussion of sympathy and 'sentiment' as the basis for moral judgement, but extended to the flourishing of a number of modern 'sentimental' cultures, Martin Stokes (2007; 2010) has provided vivid accounts of the emotional, intimate and affiliative character of contemporary musical cultures in Egypt and Turkey, as has Butterworth (2014) in relation to Peruvian huayno music. In the work of these authors, sentimentalism is understood as a cultural construct or condition, to which musicking (both the musical materials, and the social practices that are entangled with them) makes a powerful contribution. It is the rather free circulation of public emotionality, and the high value placed upon it, by comparison with the more severe and restrained quality of 'unsentimental' cultures, that acts as a catalyst for empathy, of which music's capacity to afford emotional communication is a significant part. As Stokes puts it (2010: 193), one might view "sentimentalism as a kind of civic project, a way of imagining affable relations of dependence on strangers in modern society." This is a very different perspective on empathy – one that sees it as a social achievement, rather than personality trait; a collective skill, rather than the expression of a circuit of ten interconnected brain regions (cf. Baron-Cohen 2011).

**4. Empirical implications: Can 'mere exposure' to music evoke empathy?**

As outlined in section 3.2, previous research has shown that music-related, participatory activities may promote empathy and affiliation (e.g., Valdesolo & DeSteno, 2011; Rabinowitch et al., 2013). These findings are in line with theories suggesting that music-making may have served an evolutionary function by promoting group cohesion and affiliation (e.g., Cross & Morley 2008; Perlovsky 2010). But are these affiliation-inducing effects limited to musical activities involving actual interpersonal participation, or could passive music listening produce similar

effects? Previous work has revealed that listening to music with prosocial lyrics may promote prosocial behaviour by increasing the accessibility of prosocial thoughts and empathy (Greitemeyer, 2009, 2011; Guéguen, Jacob, & Lamy, 2010), and the research by Neto et al. (2015) described above provides additional evidence of a more musically-directed kind; but the contribution of the specifically musical component nonetheless remains unclear.

To investigate whether music listening – without any accessible semantic content, such as song lyrics – might evoke empathy and affiliation in listeners, we carried out an empirical study based on a 'mere exposure' paradigm (Vuoskoski, Clarke & DeNora, submitted), using an implicit measure of outgroup prejudice (cf. Inzlicht, 2012; Neto et al., 2015) as a proxy for the degree of affiliation. We hypothesized that – should music listening indeed evoke empathy and affiliation – listening to music from a particular culture would reduce prejudice and increase affiliation towards members of that culture more generally. To this end, two cultures with distinct and recognizable musical styles – Indian and West African – were selected. Since dispositional empathy has previously been associated with sensitivity to the emotional effects of music listening (Vuoskoski & Eerola, 2012), we also hypothesized that participants with high dispositional empathy would be more susceptible to the effects of music listening than those with low dispositional empathy. In other words, participants with high dispositional empathy listening to Indian music, for example, should subsequently display a more marked implicit preference for Indian (relative to West African) people than participants with low dispositional empathy.

Sixty-one adult participants were randomly assigned to one of two conditions (Indian music or West African music) in which they heard either a recent Indian

popular music track or an equivalent West African popular music track of the same duration, the lyrics of the songs being in both cases in a language (Hindi or Wassoulou) that was unfamiliar to the participants. Participants' affiliative attitudes towards Indian and West African people were measured using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), which measures the strength of association between categories (in this case Indian and West African) and attributes (good and bad) in an implicit manner, and can thus reveal unconscious relative preferences for categories. Following IAT materials designed to measure racial bias (Cunningham et al., 2001), the stimuli consisted of 12 grey-scale pictures of the faces of Indian and West African people, and 8 pleasant and 8 unpleasant words; *joy, love, peace, wonderful, pleasure, glorious, laughter,* and *happy;* and *agony, terrible, horrible, nasty, evil, awful, failure,* and *hurt,* respectively. The Interpersonal Reactivity Index (IRI; Davis, 1980) was used to measure participants' dispositional empathy.

In the main part of the study, the participants listened (individually, and over headphones) to either the Indian or the West African music, having been told the name of the performer and the music's geographical origin (India or West Africa), and were instructed to "allow [themselves] to be immersed in the music". They then completed the IAT, answered some questions about the music listening task (ratings of liking and felt emotional impact, and free descriptions of thoughts that occurred during the music listening) and pertinent demographic questions, and completed the IRI.

An analysis of covariance revealed that there was a significant interaction effect of dispositional empathy and type of musical exposure (Indian or West African) on participants' IAT scores (see Figure 1). Individuals with high IRI scores showed a

stronger association between positive words and West African faces after listening to West African music, and a stronger association between positive words and Indian faces after listening to Indian music. In other words, empathic individuals appeared to be more susceptible to the affiliation-inducing effects of music listening. Preference ratings for the musical pieces were not associated with either the IAT or IRI scores. We also discovered that individuals who engaged in spontaneous, culturally relevant visual imagery or thoughts during music listening (as indicated by their free descriptions) displayed a significantly stronger preference for the ethnic group to whose music they were exposed, though the tendency to engage in culturally relevant imagery was not related to levels of dispositional empathy (IRI score). However, because of the method employed, we cannot establish whether engaging in culturally relevant imagery actually amplified the affiliation-inducing effects of music listening, or whether those who engaged in culturally relevant imagery had more positive attitudes towards the cultures to begin with.

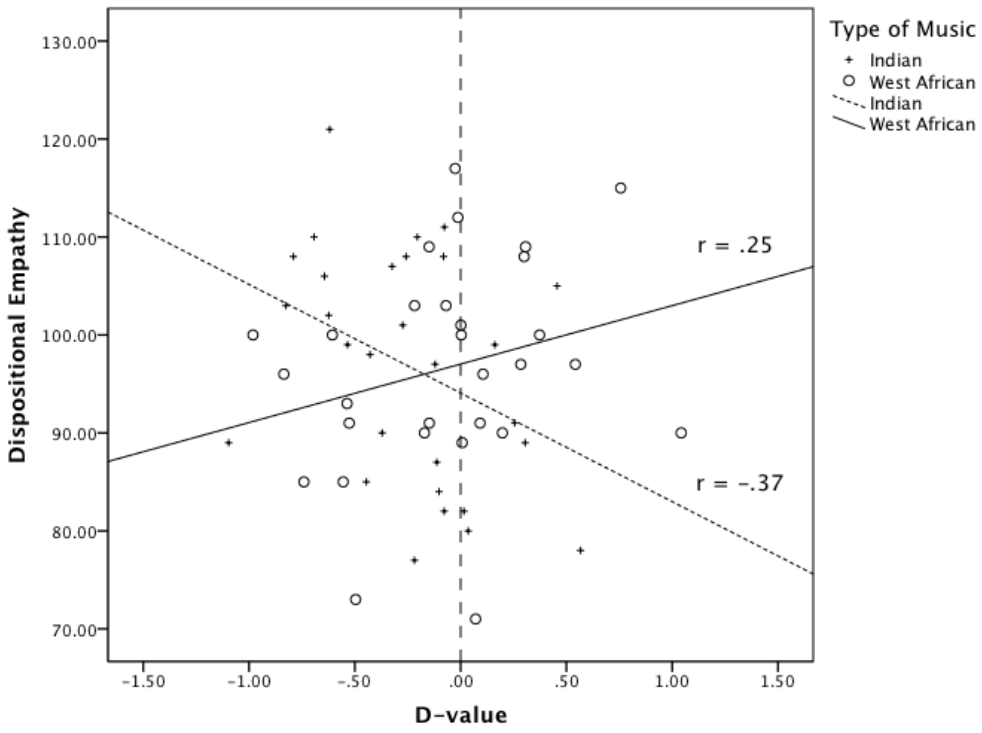

*Figure 1.* The relationship between dispositional empathy and IAT-scores (D-value), grouped by condition. Pearson correlation coefficients refer to the covariance between dispositional empathy and the D-values in the two groups. Positive D-values indicate an implicit preference for West African (relative to Indian) people, and negative values indicate an implicit preference for Indian (relative to West African) people.

These empirical findings provide support for the hypothesis that listening to music without any accessible semantic content can evoke empathy and affiliation in listeners. Participants with high dispositional empathy appeared to be particularly sensitive to the effects of musical exposure, which suggests that our findings cannot be explained solely in terms of priming or knowledge activation effects (North, Hargreaves & McKendrick, 1999). Furthermore, the effects appeared to be unrelated to differences in liking for the musical pieces. We propose that our findings can best be explained by an empathic 'resonance' with the music – a process involving: i) internal mimicry and emotional contagion; ii) the kind of entrainment of attention that Jones and Boltz (1989) and Bolger, Trost & Schon (2013) have proposed as the basis of rhythm perception; and iii) the entrainment of the music's gestural properties with listeners' own internal bodily states that Labbé and Grandjean (2014) have called 'visceral entrainment'.

Since empathic individuals have been found to exhibit stronger motor and sensory resonance to the observed actions and pain of others (e.g., Gazzola, Aziz-Zadeh & Keysers, 2006; Avenanti et al., 2009), it is possible that individuals with high dispositional empathy are also more likely to resonate with the acoustic and gestural features of music. Furthermore, as imitation and entrainment in general have

been found to both reflect and elicit affiliation (possibly by increasing self-other overlap and stimulating the brain system that underlies motor resonance; e.g., Chartrand & Bargh 1999; Hove & Risen 2009; Inzlicht et al., 2012), it is possible that stronger resonance with a musical performance might also lead to stronger affiliation. An intriguing possibility is the potential contribution of the social neuropeptide oxytocin that is associated with social bonding and affiliation (for a review, see Heinrichs et al., 2009). Although Sheng et al. (2013), in a study that used intranasally administered oxytocin, found increased *in*-group favouritism rather than increased affiliation for an out-group, it is nevertheless possible that oxytocin may have contributed to the effects observed in the present study. Elevated levels of oxytocin have previously been documented in association with music listening (Nilsson, 2009) and choral singing (Kreutz, 2014), suggesting that musical activities can at least temporarily increase oxytocin levels. If this were true in our study, it may have led to the increased sense of affiliation to the specific music (and its associated culture) to which each group of listeners was exposed. Further investigation is needed to understand the phenomenon more fully, but this initial study has provided preliminary evidence for the factors that may be involved.

## 5. Model, Applications, and Implications

### 5.1 A model of music and empathy

The result of our empirical study provides some evidence for the capacity of music – even when encountered in arguably the most passive circumstances (solitary headphone listening in a 'laboratory' setting) – to positively influence people's unconscious attitudes towards cultural others. Specifically, people with higher dispositional empathy scores show more differentiated positive associations with

images of people from two different cultural groups after listening to music explicitly belonging to one of the cultural groups than do people with lower dispositional empathy scores. This is a striking result, and provides what might be characterized as narrow but 'hard-nosed' evidence for music's positive inter-cultural potential, and we have speculated on the broad psychological mechanisms (including entrainment, mimicry, emotional contagion, and semantic elaboration) that may be responsible.

Having critically reviewed a broad range of evidence and theory relating to music, empathy and intercultural understanding, and having briefly presented the outcome of our own empirical study (reported fully in Vuoskoski, Clarke & DeNora submitted), we now turn to a summarizing and integrating model that is intended to organize and focus the wide range of elements and processes that have been discussed so far (see Figure 2). The model is intended primarily to represent the empathic engagement of a listener with musical events presented across a range of circumstances (live and recorded, in the concert hall, at home, out clubbing with friends); and while we present an apparently solitary listener (in part to reflect the circumstances under which our own empirical study was conducted), we view the model as applying equally to collective listening circumstances, with appropriate modifications (as we outline below).

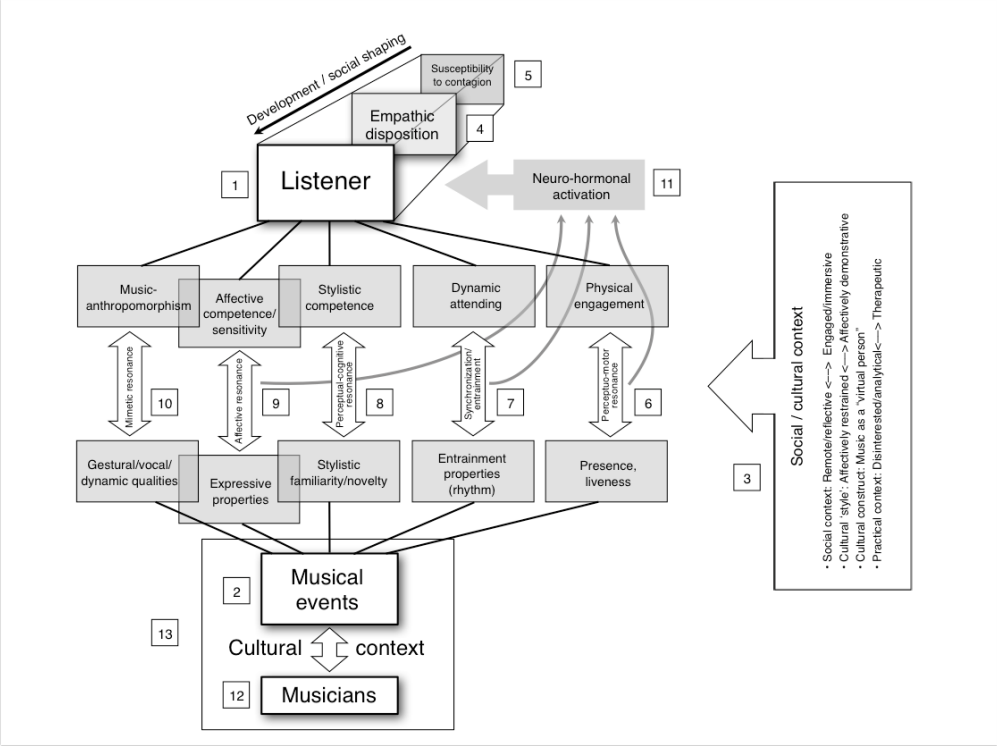


*Figure 2.* A model of musical empathic engagement, from a listening perspective. Numbers in the model (1 to 13) relate to explanations and discussions in the text below.

The model is understood as functioning as follows, with bracketed numbers in the text referring to corresponding parts of Fig. 2:

• A listener (1) engages with musical events (2) that may be the immediate live manifestation of a musician or a group of musicians, or may be the recorded or broadcast sounds (and perhaps associated images) that specify the actions of real or imagined musicians.

• This engagement takes place in reciprocal relationship with a dynamic social/cultural context (3) that both embeds and constitutes this engagement, and is in turn partially constituted by it.

• Among many other attributes, listeners may be characterized by their empathic dispositions (4) – which may be measurable by the IRI or Empathy Quotient (Davis, 1980; Baron-Cohen & Wheelwright, 2004), for example. These are in turn the consequence of the listeners' contagious susceptibilities (5), dynamically shaped by developmental and social factors that operate over the lifespan of the individual. As noted above (Section 3.3), empathic disposition is i) understood as an environment-complementary action tendency, rather than a fixed trait; and ii) despite appearing to be the only 'person attribute' in the model, is neither an attribute in that narrow sense, nor (of course) the only such complementary action tendency.

• Based on our review of the literature, we propose five principal channels of primary empathic engagement, or 'resonance' (Goldie, 2011):

– Perceptuo-motor resonance (6) arising out of the more or less physical (from dancing and singing along, to passive attentiveness) engagement with musical materials that vary in their 'liveness' or presence (from live musicians, to poorly reproduced telephone-hold music, for example).

– Synchronization or entrainment (7) resulting from aimed attention (Jones & Boltz, 1989) engaging with the entraining affordances (rhythmically specified) of the musical events.

– Perceptual-cognitive resonance (8), arising from the style competence of the listener in relation to the stylistic familiarity/novelty of the musical events.

– Mimetic resonance (10), arising from the variable tendency to hear musical events in 'anthropomorphic' or more broadly animated ways (e.g., Stern, 2010), according to their gestural, vocal or dynamic qualities; and incorporating mirror neuron and other components of perception-action mimicry.

– Affective resonance (9), arising from the listener's affective competence and sensitivity in relation to the expressive properties of the musical events. This resonant relationship is shown as overlapping with both perceptual-cognitive resonance (8) and mimetic resonance (10), in recognition of the fact that style properties (8) and the gestural properties (10) constitute important parts of (but do not exhaust) the expressive musical properties. Affective resonance represents a significant component of what a listener experiences as his/her liking of, or preference for, the music – although liking or preference is not reducible to affective resonance alone.

• As discussed above (section 3.4, references to Lee, Andrade & Palmer, 2013; and van den Tol and Edwards, 2013), listeners on occasion describe experiences in which they feel themselves to be the *object* of music's empathy – a reversal of the subject/object relationship between listener and musical material that is normally assumed to hold. This subject/object indeterminacy or fluidity is, however, entirely consistent with the type of 'merged subjectivity' (Rabinowitch, Cross, & Burnard,

2012) or ‘loss of self’ (Clarke 2014) that intense engagement through music can afford. The model is therefore to be understood as genuinely having the bi-directionality that the five central double-headed arrows indicate.

• One of the consequences of perceptuo-motor resonance (6), synchronization/entrainment (7), and affective resonance (9) may be the release of a variety of neurohormones (11) (Tarr, Launay, & Dunbar, 2014) which have a direct impact on social bonding and empathy, with potentially feed-forward effects (heightened social bonding leading to greater affective resonance, entrainment and perceptuo-motor resonance; leading in turn to increased neuro-hormonal activation; and so on).

• An array of social and cultural factors (3) modulate and mediate all of these resonance channels, of which we identify four broad example categories: i) the social context, which may vary along a continuum from remote and dispassionate (detached, discriminatory listening – as by an adjudicator in a performance competition) to engaged and immersive (club dancing); ii) the cultural ‘style’, which may vary along a continuum from affectively restrained (a highly controlled or affectively inhibited cultural context), to affectively demonstrative (e.g., the Egyptian or Turkish contexts that Stokes (2007; 2010) documents); iii) the cultural and historical prevalence or absence of the cultural construct of “music as a virtual person” – as documented by e.g. Butt (2010); and iv) the practical context, which may range from the disinterestedly analytical to the committedly therapeutic (e.g. Ansdell, 1995).

• Finally, while the musical events (2) may themselves constitute a sufficient environment within which these empathic processes play themselves out, there is a marked tendency to hear those events as the products of, or specifiers for, one or more real or virtual persons (12), such that the listener is brought into empathic relation with that *person/people*. Those people, and indeed the musical materials themselves, belong to their own wider cultural context (13), such that that the empathic listener is brought into empathic relationship with the culture more generally.[9] It is in this way that music, empathy, and cultural understanding may be brought together.

Our purpose in presenting this model is to give some order and focus to the considerable diversity of factors and associated conceptual frameworks that have been proposed as components of the complex relationship between music, empathy and culture. The aim of the model is to provide clarity, but there are inevitably risks in presenting a 'boxes and arrows' account of a multidimensional phenomenon of considerable complexity. The most obvious of these is the rather stark subject-object, person-environment, or listener-music dualism that dominates the structure of the diagram, against which we have elsewhere argued strongly (e.g. Clarke 2005, 2014; DeNora 2000, 2013). We justify the approach here, however, on the basis of its utility as an initial ground-clearing operation, and as an admittedly over-simplified first attempt at a model that we hope will become more sophisticated and refined. A second, and related, shortcoming is the apparently very 'solitary' perspective that the model seems to imply. As already mentioned, we do this in part as a reflection of the rather solitary nature of our own empirical study, and in part to avoid visual clutter. However, we conceive of the model as being adaptable to a more collective perspective, by imagining a 'multiplication' of the upper half of the diagram for

different circumstances. If we imagine a club dance context, for example, with 120 people in a room, and around 12 listener-dancers in reasonably immediate proximity to one another, we could imagine (though it might be hard to represent!) a 12-fold multiplication of the upper part of the diagram, with each individual listener-dancer (1) embodying his or her own empathic disposition (4) and susceptibility to contagion (5), engaging with the music according to his or her particular 'tuning' of the five resonant principles (6 – 10), and bringing their own somewhat different expression of their social and cultural context (3). However in addition to this simply additive elaboration, the model also suggests and can (in principle) represent the potentially powerful interactions or additionally emergent factors that we would anticipate: contagion between individuals, inter-personal mimicry and synchronization or entrainment (particularly in the case of listeners dancing together), and either the collective dis-inhibition or inhibition that can be elicited under such circumstances. In a similar manner, though with rather different specific features, the collective listening circumstances of the standard Western concert hall audience can be modeled by the same principle of 'multiplication' combined with the dynamics of genuinely co-subjective and intersubjective factors. In these and other ways, the ecologically distributed (cf. Hutchins 1995, 2010; Heft 2001) character of empathic engagement can be progressively built into the current 'base' model, and while not wishing to imply that these significant considerations can be quickly or simply solved, we do not regard these as fundamental or insuperable shortcomings.

### 5.2 Application

In the light of our model, and having considered a number of conceptual frameworks and possible mechanisms to understand music's empathic potential, we now turn to a

domain in which this empathic character finds practical application. In more or less formal and informal ways, music has been involved in therapy and well-being for millennia, and while there are many dimensions to music's therapeutic value (such as the exercise of motor skills, bolstering of self-esteem, cathartic release), a central quality is music's capacity to act as a medium of empathic communication. In the active engagement between a therapist and client that characterises creative music therapy (Nordoff & Robbins 1977), the most fundamental principle is for the therapist to find (through improvisation) a type of music that makes contact with, reassures, and engages a possibly distressed, frustrated, fearful, or isolated client. As the documentation of music therapy sessions illustrates, imitation or other kinds of semi-imitative or complementary mirroring are the standard methods in creative music therapy for 'making contact with' or 'holding' a music therapy client; and this kind of mirroring is often the first step in establishing a perhaps subsequently more complex relationship with the client. One way to understand this is as an enactment of empathy by the therapist with the client, *enacting* through music the empathy that the therapist has for the client's feelings of (e.g.) isolation, frustration, anger, fear. Drawing on their Shared Affective Motion Experience (SAME) model, Molnar-Szakacs, Assuied and Overy (2012) argue that music is heard not as abstract and disembodied sounds, but as the physical actions and gestures of another person, and that finding a 'common music' that therapist and client can play together (with the therapist usually in the role of adapting to the client's music – meeting the client in his or her own musical space) is the musical enactment of empathy: taking the part of the other.

The focus on music, health and well-being is a growing area (Koen et al 2008; MacDonald et al 2012; MacDonald 2013). It encompasses music therapeutic perspectives, community music, psychotherapeutic perspectives and more overtly

medical applications as well as the history of medicine and healing. At the level of the individual, and in overtly medical contexts, research in these areas has documented music's potential for the management of pain (Edwards 1995; Hanser 2010), anxiety (Drahota et al 2012), palliative care (Aasgaard 2002; Archie et al 2013; DeNora 2012), and immunology (Fancourt et al 2013; Chanda and Levitin 2013), all of which emphasise mind-body-culture interactions; and at the broader level, where music connects with and can be seen to contribute to well-being, music has been described ecologically as part of a heterogeneous salutogenic (health-promoting) space (DeNora 2013). In a variety of ways, all of this work engages with considerations of empathy – understood as sensibility, perception and orientation – as musically mediated. Specifically, the focus on the malleability of consciousness and self-perception (Clarke and Clarke 2011) points to a human capacity for entering into different modes of awareness that are simultaneously sensitizing (aesthetic) and desensitizing (anaesthetic), and in so doing indicates the importance – and power – of the cultural technologies through which alternative states can be achieved.

The case of music and pain management illustrates many aspects of this theme. As Hanser (2010) has described it, recent theoretical understandings of pain have moved toward a multi-dimensional conception of pain perception, in which pain is not unmediated but rather comes to be experienced in relation to cultural and situated interventions, including music. In part, musical stimuli simply compete with neural pain messages; but more interestingly, music stimulates both oxytocin and embodied sympathetic responses (Grape et al., 2002; Hurlemann et al., 2010). Recent interdisciplinary perspectives highlight how music, in tandem with other biographical and contextual factors, may lead a person in pain into alternative situations, ones in which she or he becomes sensitized to musically inspired associations and

desensitized to the former situation of being in pain. Thus, music cannot necessarily address the cause of pain but it can redirect sensations of pain by capturing consciousness in ways that recalibrate them (DeNora 2013). So too, in the Bonny Method of Guided Imagery and Music (Bonde 2012) music may provide a grid or template against which knowledge-production (memory, self- and mutual-understanding, historical accounts) can be elaborated and scaffolded in ways that can be used to diminish 'negative' emotions and associations, effectively recalibrating perception and, in this case, the self-perception of pain.

More generally, and in ways that draw music therapy and music and conflict resolution into dialogue, musical engagement may be used to transform psycho-social situations, again leading the actor or actors away from the perception of distressing features of the body or environment, and toward more positive features and scenarios, in ways that may also contribute to hope, patience and general mental well-being (Ansdell et al 2010; Ansdell 2014), as well as broader forms of cross-cultural and interactional accord, linked to music and guided imagery (Jordanger 2007). Community Music Therapy has perhaps most notably described music's role in the production of communitas (see above, Section 3.6) through collaborative improvisation. Within the growing field of music and conflict transformation studies (Laurence 2008), a key theme has focused on the importance of shared practice and grass-roots musicking as a prerequisite for enduring forms of change (Bergh 2010; 2011; Robertson 2010). In particular, as Bergh has described, if music is to contribute to enduringly altered practice, or altered consciousness of the other, that endurance requires continued and repeated practice – continued and repeated participation in musical activity. And as we have already indicated, music is by no means an unmitigated 'good' within the conflict transformation literature: as Bergh has

observed (Bergh 2011), music can be – and has been – used to inculcate feelings of animosity, or for purposes of oppression and torture (Cusick 2008); and historically has been incorporated into military culture through drill, marching and, more recently, through psych-op motivational techniques (Gittoes 2004; Pieslack 2009). Indeed Laurence (2008: 33), even while writing of music's potential in conflict resolution, argues that inculcating peaceful values is one of music's *rarest* uses, and that "of music's purposes, many and probably most, serve the on-going ends of power relationships one way or another."

### 5.3 Implications and cautions

In the same way that a significant degree of caution must accompany claims for music's therapeutic potential, so too the currently very limited extent of any direct evidence for empathic and culturally mediating effects of listening to music must be recognized. We have no evidence, so far, for the robustness or duration of the effects that we have observed in our own empirical study: it may be that any kind of attitudinal change is a very temporary shift that is easily disrupted, casting doubt on the practical efficacy of music as an agent of change in cultural understanding (though the study by Neto et al., 2015 encouragingly suggests otherwise). And in the light of the statistical interaction with dispositional empathy, our result suggests that any practical efficacy might be confined to those individuals who are already predisposed to be empathic towards others – arguably those people who are (to put it crudely) the least urgent cases. Are we then forced to conclude that music has little or no power to change attitudes among those people who are most resistant? Perhaps more seriously, music – as we have already indicated – is arguably as capable of distinguishing between, dividing, and alienating people as it is of bringing them together (cf.

Bourdieu 1984/1979). In the context of what is broadly speaking a defence of music's social significance, Hesmondhalgh (2013: 85) points out that "music can reinforce defensive and even aggressive forms of identity that narrow down opportunities for flourishing in the lives of those individuals who adhere to such forms of identification", and provides a vivid anecdotal example of just such a defensive or aggressive encounter. He describes a Friday night out with friends at a pub in the North of England, where an Elvis impersonator happens to be performing. Having initially dreaded the performance, Hesmondhalgh and his friends, along with the regulars and other serendipitous strangers who are also in the pub, are quickly won over by what turns out to be a very persuasive performer, and join in with one another, and the performer, with increasing intensity. The chorus of the final song "elicits an ecstasy of collective singing, women and men, all at the top of our voices. There are smiles and laughter, but there's melancholy too. It seems that bittersweet lines from the Elvis repertory are invoking thoughts about relationships, past and present… [We] stagger out of the pub feeling we've had a great night, and that the working week has been obliterated by laughter and bittersweet emotion. Unwittingly, I brush against a man's drink as I'm leaving, and he follows me out demanding an apology for his spilt beer… The power of Elvis's music, it seems, has brought strangers and acquaintances together, and with a formidable intensity. But my pursuer has reminded me unpleasantly that there are those who feel excluded from such collective pleasures. If music-based gatherings answer to our need for sociality and attachment, and combat loneliness, might they also evoke envy when others miss out?" (Hesmondhalgh 2013: 103-4)

Are we to regard music's affiliative and divisive attributes as two sides of the same coin, or as a more fundamental incompatibility between emancipatory and

oppressive qualities? Indeed, rather than considering how music might help to make a bridge between apparently pre-existent cultural ghettos, should we not be asking in what ways music is already implicated in the establishment and maintenance of those very ghettos in the first place? These are significant challenges to the potentially starry-eyed representation of music that an uncritical attitude might project; but as Hesmondhalgh, again, puts it: "Music's ability to enrich people's lives [and expand their empathic understanding] is fragile, but I believe it can be defended better if we understand that fragility, and do not pretend it floats free of the profound problems we face in our inner lives, and in our attempts to live together" (Hesmondhalgh 2013: 171).

Part of understanding that 'fragility' is considering what, if anything, is special about music as a force for (admittedly complicated, and perhaps compromised) cultural benefit. Why not football, or food – both of which can lay claim to mass engagement and global reach? Is there anything about music that affords either particular, or particularly powerful or efficacious kinds of inter-cultural empathy and engagement? One way to tackle these questions is to consider what the mechanisms for empathy and cultural understanding might be, and in what ways those mechanisms are engaged by different cultural manifestations – whether those are music, food or football. As our critical review of the literature reveals, this is a fascinating but considerable challenge, which turns in part on how broad or narrow a conception of empathy is entertained. One approach might be to admit a considerable range of broadly intersubjective engagements as occupying different positions on an empathy spectrum, from conditions of self-other identity in the context of what Rabinowitch et al. call merged subjectivity (perhaps emblematically represented by the primal oneness between mother and infant); through the powerfully allocentric disposition of

Baron-Cohen's (2011) hyper-empathic individuals, and the more general and widespread distribution of compassionate fellow-feeling; to the operation of more controlled and deliberate rational and imaginative projection into the circumstances of others. Some (such as Coplan, Laurence and Trevarthen – and Adam Smith in rather different terms) might want to make – and have argued for – firm distinctions between, say, empathy and sympathy. But an alternative might be to agree on an umbrella term (and empathy might be as good as any), and then focus on what distinguishes different positions under the umbrella, and what the implications (practical, functional, conceptual) of those differences might be.

A common thread that runs through most of these positions is the central role of embodiment in empathy. From the most neuroscientifically reductionist approach (e.g. a 'fundamentalist' mirror neuron perspective) to the position of Smith or Stokes, a capacity to *feel* the situation of another underpins the inter-subjective character of empathy/fellow-feeling/sympathy. And arguably it is in this respect that music has 'special properties' – properties of enactment, of synchronization and entrainment in situations ranging from a single individual alone with their music (the solitary headphone listener 'lost in music' – cf. Clarke 2014) to massively social contexts (pop festivals, simulcasts) where enormous numbers of people can participate in collective, synchronized, embodied engagement. As others have pointed out (e.g. Cross 2012), music is a uniquely widespread, emotionally and physically engaging, social, participatory and fluidly communicative cultural achievement – a powerful cultural niche that affords extraordinary possibilities for participants,[10] and which both complements and in certain respects surpasses those other global cultural achievements in which human beings participate (language, religion, visual culture, craft). There is little, perhaps, to be gained by attempting to set any one of these up on

a uniquely high pedestal – but equally it is important not to flatten the terrain by failing to recognize music's particular combination of affordances in this rich cultural mix: cognitive and emotional complexity, solitary to mass-social engagement, compelling embodiment, floating intentionality (Cross 2012), synchronization/entrainment, flexible mimicry, temporal and ambient character, and digital-analog (or categorical-continuous) mix.[11]

As this review has demonstrated, the empathy-affording character of these affordances has been explored and theorized across a very wide range of disciplines – invoking mechanisms that range from mirror neurons to semiotics and the cultural history of sentimentalism. Are these kinds of explanation in any way compatible with one another? And is there a way to avoid a simplistic and potentially reductionist 'layers of an onion' approach in which supposedly 'fundamental' biological attributes (whether those are genetic – in the case of a narrowly 'trait' perspective on empathy – or neurological) underpin progressively more ramified and arbitrary cultural constructs? We have already seen (Heyes 2010) that from within the scientific literature itself (quite apart from outside it) there is plenty of evidence for the plasticity of so-called fundamental properties, and for the reciprocal relationship between biology and culture. Mirror neurons may be as much a *consequence* of a culture of intersubjective engagement as they are foundation for it. But it clearly remains a considerable challenge to develop in detail the more flexible and relational approach that we point towards here.

Finally, there is the question of the utility of the concept or term empathy itself. Perhaps rather like the word 'meaning', it both enables and suffers from the capacity to bring together a wide range of phenomena, which critics may find unhelpfully heterogeneous. We share the concern not to confuse chalk with cheese,

but against a drive to compartmentalize we are persuaded of the value of sticking with a word and its associated conceptual field which, although still just a century old, offers a rich and powerful way to try to understand a central building block of human sociality. The debates about whether to understand empathy as a genetic predisposition, a personality trait, an emergent attribute of perception-action coupling, a skill, or a social achievement are symptomatic of the conceptual reach of the term. Engelen and Röttger-Rössler (2012), in their introduction to a special issue of the journal *Emotion Review* devoted to empathy, declare in their first sentence that "there is no accepted standard definition of empathy—either among the sciences and humanities or in the specific disciplines" (Engelen & Röttger-Rössler 2012: 3), but nonetheless endorse the importance of continuing to develop better understandings of that fundamentally social capacity "to feel one's way into others, to take part in the other's affective situation, and adopt the other's perspective… to grasp the other's intentions and thus to engage in meaningful social interaction." (Engelen & Röttger-Rössler 2012: 5) We, too, are committed to the value of that enterprise, and to the specific role that music may play in understanding empathy, and as a 'medium' *for* empathy. In addressing the complex network of relationships between neighbouring terms (sympathy, compassion, contagion, entrainment, 'theory of mind', attunement…) we see the prospect of a more nuanced and differentiated understanding of what Baron-Cohen (2011: 107) has characterized as "an important global issue related to the health of our communities" and "the most valuable resource in our world".

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Notes

[1] "In 1999, Daniel Barenboim and Edward Said founded the West-Eastern Divan as a workshop for Israeli, Palestinian and other Arab musicians. Meeting in Weimar, Germany – a place where the humanistic ideals of the Enlightenment are overshadowed by the Holocaust – they materialized a hope to replace ignorance with education, knowledge and understanding; to humanize the other; to imagine a better future. Within the workshop, individuals who had only interacted with each other through the prism of war found themselves living and working together as equals. As they listened to each other during rehearsals and discussions, they traversed deep political and ideological divides. Though this experiment in coexistence was intended as a one-time event, it quickly evolved into a legendary orchestra." From http://www.west-eastern-divan.org/, accessed 20 August 2014.

[2] http://www.unicef.org/people/people_47229.html, accessed 4 August 2015

[3] http://cultureofempathy.com/obama/VideoClips.htm, accessed 4 August 2015

[4] Baron-Cohen and Wheelwright have developed their own psychometric tool – the so-called Empathy Quotient (EQ; Baron-Cohen and Wheelwright, 2004).

[5] The title of Baron-Cohen's book is *Zero Degrees of Empathy*, and he takes psychopaths and autists as negative and positive manifestations of the 'zero degree' condition, while he cites an exceptionally sensitive counselor as an example of the 'six degrees' condition.

[6] The discovery was first made in relation to visual observation (monkeys *watching* another individual reach for an object) subsequent research has also revealed the operation of auditory mirror neurons (e.g. Kohler et al. 2002) – a matter of obvious significance for music.

[7] Since music has no facial muscles! Arguably, however, though at a stretch, musical sounds may specify 'musicking bodies' sufficiently to admit a mirroring explanation.

[8] This, and the corresponding 'dark-skinned', is the authors' terminology.

[9] It is a deliberate feature of the model that it embraces two cultural contexts ((3) and (13)): one (3) represents the cultural context of the listening experience 'here and now', while the other (13) represents the cultural context to which the music belongs. Thought of in the particular circumstances of our listening study described above, these two are clearly somewhat distinct: (3) is the specific context of sitting at a computer with headphones on in the Faculty of Music at the University of Oxford in 2015; while (13) is the cultural context to which the piece of music (either Indian or West-African) belongs. In other circumstances, these two may overlap very substantially, or even completely – such as when a person listens to music of their own current culture in an everyday, culturally normative context.

[10] Participation in music ranges from the obviously enactive (improvising, composing, performing) through various modes of more or less active listening, dancing, and singing along; to a whole variety of digitally/web-mediated engagements with music such as down/up-loading, and the limitless discourse about music. Small's (1998) term 'musicking' is an attempt to embrace all this.

[11] What we have in mind with this last is the entanglement of discrete categories (pitches, rhythmic units, formal structures) with continuously variable attributes (intonation, expressive timing, improvised ramifications/extemporizations); and of presentational attributes (sound, movement, palpable presence) with representational systems (notations, modes of recording, discourses).