The Potential of Music to Effect Social Change

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Abstract

Can music effect social change? This is a complex question, because both music and social change exist in multiple forms and within diverse contexts. What types of music cause social change and what kinds of social change are generated by music are questions that deserve systematic empirical investigation. Addressing these questions may have important benefits for advancing society and for revealing the important aspects of the human connection to music. Several studies have begun to explore such questions, so it is useful at this stage to pause and consider what is actually meant by social change and what are the cognitive and emotional processes that underlie musical responses and behaviour, which is the goal of this interdisciplinary review paper. Social behaviour appears in different forms (e.g., collaboration, helpfulness), and contexts (e.g., dyad, group, community). At the same time, engagement in music involves a variety of behaviours (e.g., synchronisation). In order to better understand how these different musical and social behaviours interact, and in order to produce high-quality research in this area, it is necessary to carry out more investigations of the mechanistic basis of the links between music and social change. Such a research agenda will include a thorough deconstruction of music into its essential elements and, subsequently, and may involve a reconstruction of the most socially relevant components into novel forms of music.

Keywords
Change, empathy, music, social, synchrony

Introduction

In *The Republic* III (Plato, ∼360 BC/2006), Plato attributes to music a powerful influence on the personality of its audience. He and his contemporaries, as part of the Greek theory of musical ethos, argued that music can be a very powerful tool for education. They believed that a selection of particular modes in music could possibly reinforce positive human characteristics and inhibit negative ones (Plato, ∼360 BC/2006, pp. 398–412). This early philosophical perspective, that music may positively shape how we act, feel and behave, still holds in our present day and time and is manifested transculturally in both Western and non-Western traditions (e.g., Haddad, 2011; Mathur et al., 2015). However, in order to truly understand such processes, their underlying mechanisms and the benefits that we can derive from them, we need to establish a science that can systematically link between musical and social skill. Our task is to test such notions, evaluate them in the face of experimental evidence and devise ways to harness

what we learn for the benefit of society. This endeavour is already set in motion, but nevertheless merits some consideration of the origins of the relations between music and human social behaviour and reflection about the potential ultimate goals of music for society.

Origins of Music and Social Behaviour

Why might music have any influence on personality or on social interaction? Many thinkers have considered this question. According to prominent views expressed in the 18th century, particularly by Condillac, Rousseau and Webb, music originated as a means for emotional

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communication (e.g., Condillac, 1746/2001; Cross, 2001; Freeman, 2000a; Rousseau, 1781/1986; Webb, 1769/2003). In his *Essay on the Origin of Human Knowledge*, Condillac (1746/2001) conceived the origin of knowledge as stemming from the very first manifestations of social interaction in prehistoric times. He surmised that early humans had discovered the benefits of social interaction for prosperity and survival. Hand in hand a need for communication, and especially affective communication, arose. These early humans who initially may have uttered confused and indistinct sounds, gradually developed rudimentary lexicons that helped them convey basic meanings and sentiments. It was thus a *communication need* that brought early humans together in the first place, but also then helped them understand and sympathise with each other, since they now had the additional tools to recognise one another's joys and pains. According to Condillac, perhaps the first communication started with '*cries of the passions*'. These contributed to the development of 'operations of mind' through the 'language of action', which then served as the principle of the art of gestures, dance, declamation, music and poetry. To quote Condillac, 'In fact, what is the sound that is best suited to express a sentiment of the soul? In the first place, it must be the sound which imitates the cry that is its natural sign and is the same for declamation and music' (Condillac, 1746/2001, p. 146).

Rousseau (Rousseau, 1781/1986) in his *Essay on the Origin of Languages* agreed with Condillac that language was not an intellectual rationally designed invention, but rather based on instinct. However, unlike Condillac who maintained that physical survival needs were the primary reason for starting to communicate, Rousseau insisted that these were not physical but rather *psychical needs*, *feelings* and *passions*. The needs, he said, 'dictated the first gestures, and the passions wrung the first utterings [*voix*]' (Rousseau, 1781/1986, p. 245). Utterings, he continued, 'sounds, accent and quantity, which are by nature, would leave little to be done by articulations, which are by convention, men would sing rather than speak' (Rousseau, 1781/1986, p. 248). Thus, Rousseau speculated that the first stories, the first declamations and even the first laws were expressed in song and verse. Speech and song were considered to be one and the same thing since it was rhythm and melody that could most effectively convey sentiments and images.

Webb (1769/2003) approached these questions from the point of view of art rather than communication, a topic he was interested in for its own sake (Katz & Hacohen, 2003). Webb was interested in the origins of expressiveness and how feelings were first communicated, in order to better understand the foundations of music and poetry. His ideas were in line with Condillac's and Rousseau's who had arrived at the importance of emotional communication indirectly. Webb attempted to better characterise the possible path leading from initial emotion-bearing vociferations to music. His theory reasoned that since emotions can be viewed inherently as movement, the first 'words' and sounds must have followed the motion of their associated emotional sensations. By imitating these inner motions, vocal movements were produced by the concatenation of sounds, which Webb considered to be single impressions. The joining and composition of these distinct elementary sounds or single impressions, generated what Webb called successions of impressions, perceived as movement. Then monosyllables, the precursors of the earliest words were consolidated by repeated imitation of these elementary sounds. Since the monosyllables comprised distinct elementary sounds, they also indicated single impressions, becoming 'beads' in prosodic chains, which were likewise perceived as movement, and further qualified as different kinds of movement. Thus, the first music emerged as a 'succession of sounds, or impressions' and from this first music sprouted the first language. Similar to Webb, Smith (1795; in Malek, 1972) argued that the human voice was probably the first musical instrument, originally employing words with no meaning. Therefore, according to Condillac, Rousseau, Webb and Smith, it can be speculated that music, and then language, originated from an urge to communicate emotionally with one another as a foundation for social interaction. Thus, an expressive means for communication evolved, which Rousseau considered to have begun with melody and Condillac, Webb and Smith considered to be the precursors of music and poetry (developing later in the course of evolution into functional languages). Interestingly, Darwin's proto-language hypothesis (Darwin, 1871/2004) also postulated that the many similarities between music and language suggest that music served as an evolutionary intermediate to language.

The 18th-century debate on the roles of music and language as tools for social interaction has not ceased and has been continued by other scholars. According to Steven Brown (2000), for example, music and language may have evolved from a stage called 'musilanguage', sharing ancestral features of music and language. Preceding this musilanguage stage was a system of 'Referential Emotive Vocalisations', which were calls that served as immediate emotive responses to certain objects in the environment. Musilanguage was characterised by a unitary lexical-tonal system, followed by a phrase system involving both combinatorial syntax and expressive phrasing properties. How did musilanguage diverge into language and music? Sound systems possessing referential meaning became language, whereas sound systems with emotive meaning evolved into music. Thus, the evolution of music was primarily based on vocalisations, which served first and foremost as a means for emotional communication. The notion of music as a means for communication has further lent itself to psychological theories, two of which are 'communicative musicality' (Malloch & Trevarthen, 2009) and Stern's 'vitality affects' (Stern, 2004). The former describes how the human body communicates emotionally with another person

through gestures of the body and voice and how these gestures are timed with those of another person's, forming proto-musical interactions already from very early on, from the basic communications of babies with their caregivers (Malloch & Trevarthen, 2009). Similarly, vitality affects are an instantiation of emotions, of inner movements through the body, a process that can lead to a state of intersubjectivity and is naturally triggered by activities such as art, music and dance (Stern, 2004).

Another extension of the concept of music as a means of communication comes from ethnomusicology, where it has been shown that music is often used to resolve conflict. In fact, according to Ian Cross (2009), this may have been one of the main functions for which music had evolved. In an increasingly interactive community, misunderstanding and disagreement are bound to arise. Although language can be used in many ways to alleviate such conflict, language's main strength, of being precise, can actually be an obstacle for conflict resolution, mainly because where different individuals or groups see things differently, it may not always be possible to overcome these different perspectives. In contrast to language, music is not used for explicit and precise articulation of meanings and is rather considered to have 'floating intentionality'. Music thus leaves more room for personal interpretation allowing people of different views and attitudes to collaborate and share experiences while leaving irresolvable issues behind.

These various theories from different disciplines emphasise diverse ways in which music may have co-evolved with human social behaviour. Music may have enabled an effective emotional form of communication and coordination, and thus assumed a central role in social interaction. It could be argued that joint engagement in music entails paying attention to the emotional states of others, generating an experience of togetherness and a sharing of intentions and feelings. Music is thus considered to be deeply embedded in human social behaviour, and as such may have a significant impact on how we interact with each other.

Experimental Research

In order to evaluate theories about how music is linked to social behaviour and in order to unravel the mechanisms that underlie such links, careful experimental work is required. Indeed, a growing body of studies is providing evidence and detailed information about the nature and workings of the impact of music on specific classes of social interaction. For example, Cirelli et al. (2014) showed how 14-month-olds increased their propensity to extend help towards an adult following joint synchronous movement to a song. Other related studies have investigated how making music together influences older children's social behaviour. Kirschner and Tomasello (2010) have described how singing and dancing with other children can boost cooperation, while Good and Russo (2016) reported how

group singing led elementary school children to share more with each other in a Prisoner's Dilemma game. Other studies with elementary school children have demonstrated how shared musical experiences enhance prosocial skills (Schellenberg et al., 2015) and a sense of social inclusion (Welch et al., 2014) and how musical training enhances identification of emotions in others (Schellenberg & Mankarious, 2012). The author's own work has demonstrated a significant effect of ongoing facilitated musical group interaction on school children's capacity for emotional empathy (Rabinowitch et al., 2013).

How does music cause these behavioural effects? One of the most investigated mechanisms proposed to make links between music and social behaviour is synchronisation. For example, Rabinowitch and Meltzoff (2017) have demonstrated that moving 4-year-old children in synchrony by briefly swinging them together, increased their subsequent cooperative behaviour in comparison to swinging asynchronously or not swinging at all. Tunçgenç and Cohen (2016, 2018) reported how moving in synchrony boosted the propensity of 4- to 6-year-old children to help a peer, and helped 7- to 11-year-old children to feel more bonded with their peer, as revealed from self-report.

Several studies have examined the specific impact of synchronisation on children's social attitudes towards one another. For example, Rabinowitch and Knafo-Noam (2015) showed how synchronous tapping enhances 8-year-olds' judgements of their perceived similarity and closeness to each other. Recent studies conducted with adults have demonstrated that synchronised individuals who pay more attention to one another (Macrae et al., 2008), exhibit enhanced social attachment (Tarr et al., 2016) and increased affiliation (Hove & Risen, 2009) are perceived as having a stronger rapport (Miles et al., 2009), and show more compassion (Valdesolo & DeSteno, 2011), helping behaviour (Reddish et al., 2016) and cooperation (Wiltermuth & Heath, 2009). This body of work is thoroughly reviewed in Vicaria and Dickens (2016) and in Rennung and Göritz (2016). Much remains to be learned about how synchronisation induces behavioural changes and under what conditions. In addition, as has been previously suggested, synchrony is one of several potential mechanisms that emphasise social interaction in relation to music (e.g., Overy & Molnar-Szakacs, 2009; Rabinowitch et al., 2012; Trainor & Cirelli, 2015). For example, imitation is very prominent in music and has been repeatedly shown to be instrumental in fostering social relationships and interaction (e.g., Meltzoff & Decety, 2003; Overy & Molnar-Szakacs, 2009; Van Baaren et al., 2004). This and additional mechanisms (Rabinowitch et al., 2013) deserve further experimental analysis.

Designing New 'Engineered' Forms of Music-Making

In parallel to deconstructing music in order to identify its active ingredients (such as synchronisation), it is

interesting to speculate about the inverse direction. What if we could intentionally 'engineer' new forms of music or music-making designed to maximise the positive effects of music on social skills? Doing this would enable researchers to consolidate links between musical behaviour and social interaction and could have the potential to lead to useful applications. To engineer prosocial music-making, one might harness what we have already learned about what might be considered 'natural-occurring' music and how it impacts social behaviour. Several potential directions could be followed, discussed below.

Creating Music Together. Music is often practised as a social activity involving several individuals who collaborate in order to create music together. This kind of interaction can take various forms, and one can reflect on the aspects of joint music production that might be expected to provide an optimal design for engineered music. For example, on the one hand, joint music-making can be formal, such as in a concert hall performance or church choir. On the other hand, music can be an informal, play-based process such as an improvisation session or perhaps spontaneously starting to play or sing together. Similarly, the music being played can be notated, performed from memory, or improvised. It is conceivable that less formal and non-notated music might lead to a stronger social interaction between those involved. Rather than focusing on precision of representation, players feel freer to explore musical communication and interaction with others (e.g., Freeman, 2000b). For example, studies conducted in the field of music therapy have shown how musical improvisation between a therapist and a client can be a prominent, central tool in building a relationship, creating emotional change and reaching therapeutic goals (Erkkilä et al., 2008; Kim et al., 2008; Procter, 1999). Another aspect of joint music-making relates to inter-participant dynamics. In many musical interactions a pattern of leader–follower naturally emerges. However, Noy et al. (2011) have shown that not designating any leader or follower in a joint improvisation game, but rather fostering mutuality, actually contributes to the synchrony and flow of the interaction. Thus, it may be postulated that in order to optimise its social impact, engineered music-making should involve informal, even improvisational, highly mutualistic joint performance.

Music in Education. When considering the design of musical activities for the purpose of enhancing education, it is important to pay attention to the social environment in which the musical encounter takes place. First, having an embodied, motor, joint activity would seem to be advantageous for fostering a positive and socially constructive environment, especially for child participation (Overy, 2012). It is also reasonable to propose that emphasising collaboration as opposed to competition, and fostering inclusiveness and other-directedness as part of the musical interaction will play a significant role in accomplishing positive social outcomes. Indeed, in the author's aforementioned study on musical group interaction and empathy (Rabinowitch et al., 2013), a large effort was made to maintain such a positive atmosphere as part of the experience of joint music interaction. It might be similarly important to focus on the *process* of creating music rather than on its end result. That is, the aim of the activity might not be to produce a well-polished concert, but to participate in the music-making, contribute to it and learn from it.

Composition. Perhaps the most direct way to engineer music is to compose it. Might there be particular harmonies, melodies or rhythmic patterns that are especially effective in eliciting social responses? This is an open question, but it is interesting to consider whether certain composition styles might prove to be socially relevant. This idea resonates, for instance, with Paul Hindemith's suggestion that the process of composing involves skilful manipulation of musical forms that can awaken in the audience the emotional images that the composer has chosen to present (Hindemith, 1961). According to Hindemith, a competent composer knows and understands which musical patterns are most befitting to specific emotional reactions, and it could be postulated that, in a similar manner, may also learn how to master musical structures that reflect or imply specific types of social interaction (e.g., call and response). A further speculative approach for engineered composition might be based on composition through interaction. That is, the process of composition might occur while the composer, or even several composers, are interacting in a social context, such that the resulting music directly represents interaction and may naturally evoke the concept of social experience when replayed.

Art and Technology. A fourth approach to engineering music-making might be based on art and creative technologies. For example, a recent installation by Michal Rinott and colleagues from Shenkar College of Art at the Tel-Aviv Museum of Art consisted of two bicycles facing each other and fused into one apparatus that provided increasingly positive feedback the more synchronously coordinated was the pedaling of the two riders. One might imagine experimental extensions of such devices to induce coupled and coordinated music production. Technology can also create novel musical instruments for creating engineered music. For instance, the MADE lab in the Holon Institute of Technology, Israel, is creating engineered music, such as the recently designed bi-player electronic string instrument, called Syncopy, which encourages children on the autistic spectrum to play in unison. This new instrument helps children to understand and work their way through succeeding in playing synchronously with another player, no easy task in itself (Kana et al., 2011; Marsh et al., 2013) and may thus also lead to the social and emotional benefits afforded by being in synchrony and making music together (Cirelli

et al., 2014; Rabinowitch & Meltzoff, 2017; Tunçgenç & Cohen, 2016).

Cautionary Note. One cannot end this discussion without considering the potential down side of 'engineered' music for social purposes. Previous uses of music for propaganda purposes have been widespread and are still being used today (e.g., Moller, 1980; Oettinger, 2017; Perris, 1985; Rikard, 2004). 'Maximising' a tool such as music to effect social change, thus, requires careful examination of its potential uses and applications and robust science to test its efficacy in different settings.

Conclusion

Music has accompanied human civilisation since time immemorial. Musical behaviour has likely played an important part in forging human social behaviour, and continues to do so today. There is still much to be understood about the place of music in human society, as well as the mechanisms that link musical and social behaviours. In the future, we may be able to use this accumulating knowledge to design and engineer new forms of music-making that are specifically intended to enhance social aspects of human interaction. Such an extended research process will serve as a powerful test of our understanding of the social importance of music and may also serve to help in advancing different kinds of social progress. Ultimately, such a research programme could lead to new forms of music-making.

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