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Psychology of Music 2013 41: 484 originally published online 13 April 2012
DOI: 10.1177/0305735612440609

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Article

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Psychology of Music
41(4) 484–498

DOI: 10.1177/0305735612440609
pom.sagepub.com
SAGE

Tal-Chen Rabinowitch, Ian Cross and Pamela Burnard
University of Cambridge, UK

Abstract

Musical group interaction (MGI) is a complex social setting requiring certain cognitive skills that may also elicit shared psychological states. We argue that many MGI-specific features may also be important for emotional empathy, the ability to experience another person's emotional state. We thus hypothesized that long-term repeated participation in MGI could help enhance a capacity for emotional empathy even outside of the musical context, through a familiarization with and refinement of MGI empathy-promoting musical components (EPMCs). We tested this hypothesis by designing an MGI programme for primary school children consisting of interactive musical games implementing various EPMCs. We ran the programme for an entire school year and compared the emotional empathy of MGI children to control children using existing and novel measures of empathy before and after the programme. Our results support our hypothesis: MGI children showed higher emotional empathy scores after the study compared to its beginning, and higher scores than control children at the end of the study. These findings shed new light on the emotional processes involved in musical interaction and highlight the remarkable potential of MGI for promoting positive social-emotional capacities such as empathy.

Keywords

children, empathy, empathy measures, intersubjectivity, musical interaction, musical programme

Introduction

Music can be a powerful medium for social interaction. In particular, musical group interaction (MGI), when two or more individuals play music together, tends to align and join individuals into states of togetherness (Huron, 2001; Cross, 2009). Such joint states emphasize other-directedness, whereby special attention is given to the actions and intentions of the other players, entailing greater understanding of their physical and emotional states (Cross, Laurence, &

Corresponding author:
Tal-Chen Rabinowitch, Centre for Music and Science, Faculty of Music, University of Cambridge, 11 West Road, Cambridge, CB3 9DP, UK.
[email: tcnr2@cam.ac.uk]

Rabinowitch, in press). It is noteworthy that understanding the emotional state of the other is a hallmark of empathy, the ability to produce emotional and experiential responses to the situations of others that approximate *their* responses and experiences, as well as an awareness and identification of their emotions (Lieberman, 2007). Empathy can thus be considered to have both *cognitive* and *affective* elements (Eisenberg, 2000; Rogers, 1959). As is evident, the basic characteristics of MGI, the cognitive abilities that it demands, and the psychological states that it can elicit; all seem to be potentially relevant also for empathy (Cross et al., in press). We thus collectively call such components of MGI, empathy-promoting musical components (EPMCs).

We have previously analysed in detail various potential EPMCs and developed a theoretical model (Cross et al., in press), showing how EPMCs might be shared between MGI and empathy. Briefly, EPMCs include several primary cognitive mechanisms, such as *movement* or *motor resonance*, which are deeply embedded in our perception of music (Langer, 1953; Scruton, 1997; Webb, 1769/2003) and in its production, but have also been suggested to facilitate action understanding (Blakemore & Decety, 2001); *imitation*, which is apparent in the physical mimicry of other players' movements as well as in the repetition of musical phrases and motifs, but could also promote the sharing of mental states and help us understand and experience empathy (Frith & Frith, 2006); and *entrainment*, the "process by which two or more independent rhythmic processes interact, leading in some cases to synchronisation" (Clayton, Sager, & Will, 2004, p. 4), which can potentially enhance attentional and motoric coordination and cohesion between listeners, and especially amongst performers, improving the ability to mutually adjust to another person's inner pace and to thus align affective states (Cross, 2005). Entrainment has also been shown to promote social interaction and cooperation (Macrae, Duffy, Miles, & Lawrence, 2008; Wiltermuth and Heath, 2009). MGI has several additional prominent characteristics that may promote a sense of empathy. These include: apparent compliance with conditions for *honest signalling* (see Számadó & Szathmáry, 2006), in that signals that are perceived and produced in music may be experienced as grounded in a necessary fit between sound structure and biological significance that provide a foundation for "natural meaning" in music, thus affording a sense of mutual "honesty" to interacting individuals (Cross, 2009); *floating intentionality* (semantic indeterminacy), which substantially distinguishes musical communication from the explicitness inherent in verbal communication as it permits specific, but not necessarily uniformly emotional experiences to peacefully coexist, and thus promotes accord between players (Cross, 2005); *flexibility*, a prerequisite for keeping in pace with the highly dynamic nature of the musical interaction; and *disinterest*, derived from the Kantian term *disinterested pleasure*, described by Kant regarding art in general as the experience of pleasure without presupposing the existence of a pleasurable object (Kant, 1790/1951), which makes the purely aesthetic appreciation of music the centre rather than an interest or desire for some functional outcome; this may enable players to concentrate purely on the musical interaction itself rather than on an instrumental non-musical outcome. All of these characteristics may afford an honest, ambiguous, flexible and disinterested mode of communication during musical interaction, which may lead to a state of *shared intentionality*, an understanding of each other's intentions and an adoption of a common object of attention (Tomasello Carpenter, Call, Behne, & Moll, 2005); and to *intersubjectivity* (Rabinowitch, Cross, & Burnard, in press), whereby it is not just objects of attention that are shared, but also a substantial part of the individual cognitive and affective dynamics (Trevarthen & Aitken, 2001), a very similar process to that of empathy.

These theoretical insights led us to hypothesize that repeated participation in MGI, and hence long-term exposure to EPMCs, might act to enhance the capacity for empathy also in non-musical contexts. We reasoned that routine involvement in MGI may lead to the

strengthening and refinement of cognitive mechanisms such as motor resonance, imitation and entrainment, and to a familiarity with joint psychological states such as shared intentionality and intersubjectivity, equipping the individual with an augmented and enduring aptitude for empathy. For the purposes of this study, and most befitting the characteristics of the EPMCs, we have specifically decided to concentrate on emotional empathy.

Previous research on music and pro-social behaviour demonstrated that 4-year-olds enhanced their cooperative and helpful behaviour following joint music-making (Kirschner & Tomasello, 2010). Studies focusing specifically on music and empathy showed that pre-school and primary school children who participated in a special musical-empathy programme that highlighted the essence and importance of empathy (through singing or composing songs about empathy, as well as discussing how the children empathize) demonstrated high empathy levels, evaluated either by the children's empathy-related responses throughout the study (Laurence, 2005) or as measured before and after the programme using the Feshbach and Roe Empathy Test (Feshbach & Feshbach, 1969; Feshbach & Roe, 1968; Kalliopuska & Ruokonen, 1986, 1993; Kalliopuska & Tiitinen, 1991), where the children are asked to describe how a child appearing in a picture feels. In these latter studies, the capacity for empathy was also compared to other same-aged children who did not take part in the programme (Kalliopuska & Ruokonen, 1986, 1993; Kalliopuska & Tiitinen, 1991). One additional study (Hietolahtiansten & Kalliopuska, 1990) surveyed 12-year-old children who had been active musically for 6 years on average and same-age control children who had not been active in music at all; empathy was evaluated using a modified version of the Mehrabian and Epstein Emotional Empathy scale (Mehrabian & Epstein, 1972), a self-report questionnaire, with the musically trained children scoring significantly higher mean scores than controls.

The present study took a very different approach. Instead of focusing explicitly on empathy we concentrated on the musical interaction itself with neither explicit nor implicit reference to empathy, but with strong emphasis on EPMCs such as entrainment and imitation, and the experience of EPMCs in a group context. This was done by designing a long-term MGI programme consisting of a large set of musical games and tasks, each dedicated implicitly to a particular EPMC and at the same time focused on self–other musical interaction. Another distinguishing aspect of the present study was the choice of measures used to estimate emotional empathy. Unlike previous studies, which used only verbal measures, we endeavoured to obtain a more direct evaluation of the children's capacity for emotional empathy, eliminating such confounding variables as verbal processing and verbal ability. Therefore, in addition to a self-report questionnaire, the Index of Empathy, we added a non-verbal measure, Matched Faces, as well a novel, non-verbal and implicit measure of emotional empathy, the "Memory" Task (see "Method" later).

As in previous studies, we chose to concentrate on children because they are amidst the process of developing their emotional and specifically their empathic capacities and may thus benefit the most from such a positive intervention in their natural course of empathic development. In particular, we focused on 8–11-year-old children, because at these ages children will have already acquired the basic tools needed for empathy such as *theory of mind* (being aware that other people have thoughts and feelings), *perspective-taking*, and the ability to *discriminate between emotions* (Eisenberg, Murphy, & Shepard, 1997). Moreover, by the age of 8, children have the motoric ability to play any musical instrument (McPherson & Davidson, 2006), their emotional perception of mood in music (mainly happy and sad) is firmly established, they have gained a significant wealth of musical experiences, but at the same time they are extremely open to all sorts of different musical styles (Schubert & McPherson, 2006), to new musical learning approaches, and to learning in general. Therefore, it seems that the age group of 8–11

years is particularly suitable for MGI and most importantly, has a substantially strong potential for integrating the special tools and perspectives acquired in MGI into social interaction in general, and empathy in particular.

The MGI programme was run for an entire school year in several small groups. We also ran in parallel a control non-musical programme consisting of equivalent games and tasks to the MGI programme, but without the music. An additional group of children who did not participate in either programme was used as a further control. We evaluated the children's emotional empathy before and after the study and found a substantial increase in empathy scores following the MGI programme and a higher average score in MGI children compared to controls at the end of the study. These results corroborate our hypothesis linking between musical group interaction and emotional interactions such as empathy. In addition, the MGI programme developed for the study may serve as a platform for a new approach for music education (Burnard, 2002) that can help advance not just musical skill but also social abilities and, in particular, the emotional understanding of the other.

Method

Participants

Children (28 girls, 24 boys, M_{age} = 10.3 years, age range: 8–11 years, SD = 0.64 years) from four UK primary schools participated in a year-long study following the receipt of a consent letter from their parents. All schools had similar socioeconomic and school aptitude ratings according to their latest Ofsted reports (Ofsted, 2006–2009). Within each school, the children were randomly assigned to either a music or control group. The majority of the children (67%) played at least one musical instrument (including the voice) during the course of the study. The make-up of the music and control groups, in terms of instrumental background, was statistically indistinguishable ($\chi^2(1) = .82$, $p = .37$). The study was approved by the Cambridge Psychology Research Ethics Committee.

Procedure and stimulus materials

The children performed a battery of tests at the beginning and end of the study to evaluate their capacity for empathy and their verbal ability (see details of measures below). Children met with the experimenter individually in a quiet room. The experimenter introduced herself to the child and explained the study and the upcoming tests and measures. The session included the Matched Faces measure, the Index of Empathy questionnaire and the "Memory" Task (the latter conducted only at the end of the study) described below. Then, more information (in addition to that which was supplied by the parents in the consent forms) on the children's musical background was obtained. The meeting ended with the two verbal ability tests (similarity and vocabulary sub-tests, Wechsler, 1974). Altogether, a typical meeting lasted approximately 45 minutes at the beginning of the study and about 55 minutes at its end, where the "Memory" Task was also included. Verbal ability data from one child was unavailable due to data recording errors.

Empathy measures

Emotional empathy was evaluated using three independent measures. The first two measures, Matched Faces and Index of Empathy, were performed at the beginning and end of the study. The third measure, The "Memory" Task, was developed during the time that the study took

place, and was thus performed only at the end of the study. All experiments were run on a PC using a custom written Matlab (Mathworks, from Natick, MA; student version) programme and Windows Media Player. Copies of the Matlab programme are available upon request from the corresponding author.

Measure 1: Matched Faces. The Matched Faces measure was based on several existing empathy measures (de Wied, Goudena, & Matthys, 2005; Roberts & Strayer, 1996; Strayer, 1993; Strayer & Roberts, 1997, 2004). Each child was shown a short movie clip in which a protagonist undergoes an emotional experience. The movie clips lasted between 25 and 76 seconds. They were excerpts from films and TV series featuring professional child and adult actors experiencing happy, sad, surprised, scared, or angry emotions, as part of a short emotional scene. All of the movie clips were suitable for the age range of the children in the study as approved by the Cambridge Psychology Research Ethics Committee. A picture of the protagonist with his or her name was shown right before the movie clip was played, so that the child would know who to focus on, in case there were other actors playing in the clip. After each clip, the child was presented with pictures of six different facial expressions (obtained with permission from the NimStim set (Tottenham et al., 2009)) and were instructed to select the facial expression that best described how *he or she* felt when watching the clip. Selection of a facial expression that reflected the same emotion as the protagonist in the clip was counted as a match. A matched response is assumed to indicate that the child's experience when watching the movie clip was similar or emotionally influenced by the emotional state of the protagonist, thus demonstrating a capacity for emotional empathy. The appropriate matching of the protagonist emotional experiences with a specific facial expression was predetermined in a preliminary study performed with both children and adults. The face-matching task was repeated 12 times with a short diversion task presented between repetitions in the form of a 2-Back game, where the child was asked to "Click on the black square if it is in the same place where it was 2 steps ago." This was done in order to make sure there was no emotional "spill over" between one repetition to the other. The final score was calculated as the sum of correctly matched faces divided by 12, the total number of repetitions.

Unlike our measure, previous similar tests either required verbal report (Roberts and Strayer, 1996; Strayer, 1993; Strayer and Roberts, 1997, 2004), or used cartoons rather than real human faces (de Wied et al., 2005).

Measure 2: Index of Empathy. The second measure, Index of Empathy, is a self-report questionnaire targeted at children and adolescents (Bryant, 1982). It contains 22 polar questions (YES/NO) and is specifically intended to gauge emotional empathy. Examples of questions include: "It makes me sad to see a girl who can't find anyone to play with"; "I really like to watch people open presents, even when I don't get a present myself"; and "It's hard for me to see why someone else gets upset". Each question has a "correct" response that demonstrates a capacity to experience emotional empathy. The final score is the sum of correct responses divided by 22, the total number of questions.

Measure 3: "Memory" Task. The "Memory" Task is a novel non-verbal and implicit measure of emotional empathy specially developed for this study. Children were shown a short movie clip, in which a protagonist undergoes an emotional experience. The movie clips lasted between 61 and 97 seconds. They were excerpts from films and TV series played by professional child actors, featuring happy, sad and scared emotions, as part of a short emotional scene. All of the movie clips were suitable for the age range of the children in the study as approved by the

Figure 1. Screen shot examples of "Memory" Task.

Cambridge Psychology Research Ethics Committee. Before each clip the protagonist's picture and name were presented. Prior to each clip children were briefly (250 msec) presented with five facial expressions corresponding to five different emotions (from the NimStim set (Tottenham et al., 2009)), none of which represented the protagonist's actual emotion in the following clip (as determined in a separate study with both children and adult participants). After viewing the clip the children were presented with a "Memory" Task, where they were asked to select the facial expression that they remember having seen among the faces presented prior to the clip presentation (two forced choice) (Figure 1). All of the facial expressions that were presented to the children were of the same actor. Neither of these two expressions was actually presented beforehand, but one of them did match the protagonist's emotion in the clip. Choosing the facial expression that matched the protagonist's emotion in the clip, as if from "memory" was considered to be a correct response. The rationale of this design was that participants who are

more empathic are expected to more readily take the protagonist's perspective and to a certain degree even experience his or her emotional state almost as if it were theirs. It has been previously demonstrated (Gray, Adams, & Garner, 2009; Harmer, Shelley, Cowen, & Goodwin, 2004; Niedenthal, Halberstadt, Margolin, & Innes-ker, 2000) that one's emotional state can enhance the perceptual processing of emotionally congruent information and can thus influence the response to emotionally related facial expressions. Thus, with no other cues to rely on, such enhanced processing may encourage participants to assume they "remember" having seen a certain emotionally related facial expression. Each correct response demonstrates a capacity to experience emotional empathy. The score of this measure is the sum of correct selections divided by 4, the number of repetitions. Thus, random selection should result in an average score of 0.5. As in the Matched Faces measure, the children performed a short 2-Back game between repetitions.

MGI programme

As part of the study, a specially tailored MGI programme was developed. The MGI programme is a novel programme, in which the children perform various musical tasks in the form of pre-arranged musical games. These games were designed to encourage specific elements in musical group interaction, (e.g. entrainment, imitation, flexibility), and were concentrated on self-other interactions. Importantly, the musical games did *not* require children to be aware of any explicit process of empathizing; they were designed to focus children's attention on the process of engaging musically and creatively with each other within the interactive constraints of each game. These musical games were all operationalizations of the EPMCs discussed above, suggested to underlie and facilitate interactional processes of intersubjectivity and empathy. For example, *entrainment* games were designed to encourage the interacting individuals participating in the joint musical interaction to experience the gradual process of entrainment, of trying to be as rhythmically coordinated as possible. One such game is the "Improvising Rhythm" game in which the group's task is to improvise together, while the rhythm is being constantly changed, either spontaneously, by one of the group members, or by someone from outside the group (Cross et al., in press). *Imitation* games were designed to highlight imitative musical and gestural encounters between the group members. One such game was the "Mirror-Match" game in which each participant plays a short musical phrase that either repeats or matches the phrase played by the previous participant (Cross et al., in press; Wigram, 2004). Other, more complex components such as *shared intentionality* and *intersubjectivity* were also represented by their own set of games, designed in this case to promote the sharing of intentions between the participating children through for example, composing music with a clear theme together (shared intentionality), and the sharing of cognitive and affective dynamics, through games that encourage social musical "mindreading" of either a musical theme in someone's play or even an emotion (intersubjectivity). These mechanisms and components were introduced to the children gradually, starting with games relying on the more basic mechanisms, such as *movement/motor resonance*, *entrainment* and *imitation*, to *honest signalling*, *disinterest*, *shared intentionality* and *intersubjectivity*. For a more detailed account of the MGI programme including additional examples of specific games see Cross et al. (in press).

Children in the music groups (13 girls, 10 boys) took part in the MGI programme, for 1-hour weekly meetings lasting either 9 months (27 sessions, $n = 16$) or 3 months (8 sessions, $n = 7$).

The meetings were held in a designated room in school during school hours, in small groups of between four and eight children (depending on the activity).

The control groups (15 girls, 14 boys) consisted of a games group, which similarly to the music group met 1 hour weekly for 9 months (27 sessions, $n = 8$) and the general control group ($n = 21$) including children who did not take part in any special activity as part of the study. The games group programme consisted of similar games to those played in the MGI group, only without the use of music; verbal story-telling, drama and other forms of interaction were used instead. In a very similar fashion to the MGI group, each of the mechanisms and components had its own set of non-musical games, introduced to the children gradually as the year progressed. For example, instead of musically repeating or matching another child's musical phrase as was done in the MGI group for implementing *imitation*, the games group children were asked to repeat and match another child's sentence in order to create a sense of a story that progresses. For the more complex components, such as *joint intentionality* and *intersubjectivity*, we used drama and play as means for interaction; all of which were close as possible variations of the games that were played in the MGI group.

The music and games sessions were facilitated by the first author, who has ample experience in working with children.

Experimental design

The experiment originally had a 3 (participant group: music vs. games vs. general control) × 2 (phase: beginning vs. end of the study) between- and within-subjects design.

A preliminary analysis of variance compared the performance of the two non-music groups (games and general control) in both the relevant parameters (i.e., verbal ability and capacity for emotional empathy). It found no significant main effects nor interactions between the performances of the two groups [$F(1,27) < 1$]. We thus pooled the games and general control groups into a single control group, yielding a 2 (participant group: music vs. control) × 2 (phase: beginning vs. end) between- and within-subjects design.

All *t*-tests were 2-tailed and Bonferroni corrections for multiple comparisons were introduced where relevant. Unless otherwise mentioned, all results are presented as mean ± standard error of the mean.

Results

Verbal ability

There were no significant differences in verbal ability between the music and control groups in the tests taken at the beginning (similarities $t(49) = 0.32$, $p = .97$; vocabulary: $t(49) = 0.1$, $p = .92$) and end of the study (similarities: $t(49) = 1.11$, $p = .27$; vocabulary: $t(49) = 0.8$, $p = .42$), nor was there any significant interaction between the children's scores at the beginning and end of the study and the group (music vs. control) they belonged to (similarities: $F(1,49) = 1.24$, $p = .27$; vocabulary: $F(1,49) = 1.67$, $p = .2$). Both groups scored significantly higher in the two tests at the end of the study compared to its beginning.

Empathy measures

For each participant the Matched Faces score was calculated and subjected to a 2 (participant group: music vs. control) × 2 (phase: beginning vs. end) repeated measures analysis of variance

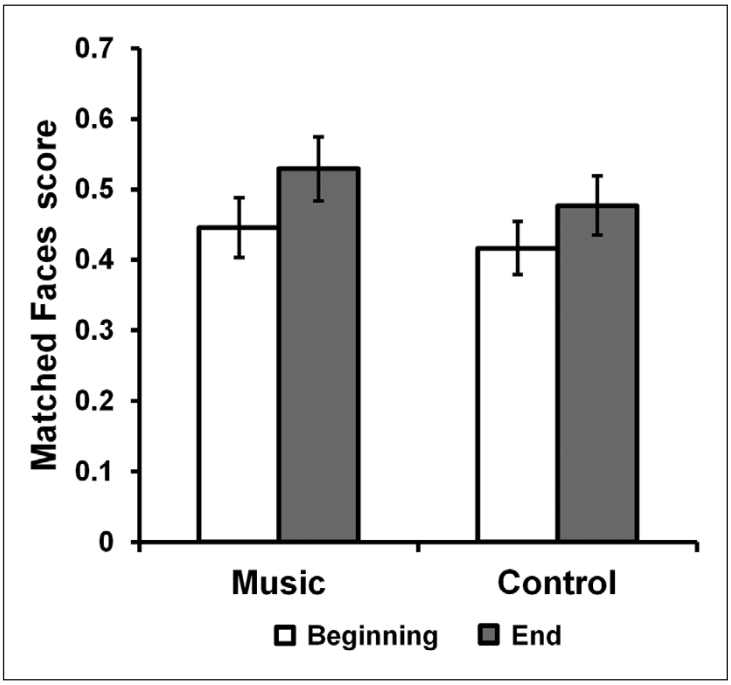

Figure 2. Matched Faces scores.

(ANOVA). We found a highly significant main effect of phase ($F(1,50) = 7.34$, $p = .009$), but no significant interaction. For reference, the scores for the music groups children at the beginning and end of the study were 0.44 ± 0.04 vs. 0.53 ± 0.04 respectively, whereas the scores for the control groups children at the beginning and end of the study were 0.42 ± 0.04 vs. 0.48 ± 0.04 respectively (Figure 2).

The Index of Empathy scores were similarly calculated and analysed. We found a highly significant main effect of phase ($F(1,50) = 10.76$, $p = .002$) and an interaction of phase X participant group that was marginal but very close to statistical significance ($F(1,50) = 3.9$, $p = .054$). Bonferroni *t*-tests (Figure 3) showed that only the participants in the music groups significantly enhanced their Index of Empathy score from the beginning to the end of the study (0.62 ± 0.03 vs. 0.72 ± 0.02, $t(22) = 3.51$, $p < .01$). No such effect was found in the control groups (0.68 ± 0.02 vs. 0.7 ± 0.03, $t(28) = .98$, $p > .05$).

Finally, we analysed the results of the "Memory" Task performed at the end of the study. Whereas children from the control groups exhibited chance "Memory" Task score levels (Figure 4), the music groups children's mean score was considerably higher than chance, and was significantly higher than the control groups children's mean score (0.79 ± 0.05 vs. 0.53 ± 0.06, $t(50) = 3.21$, $p = .002$). Since the "Memory" Task was only developed towards the end of the study, we have no results for this measure from the beginning of the study and thus cannot compare group scores before the study or changes in scores following the study.

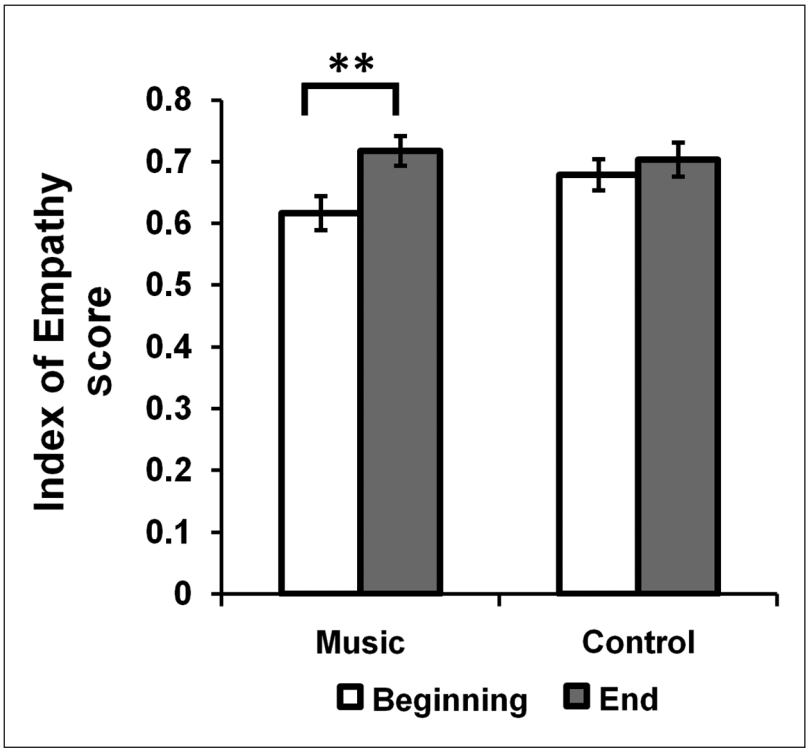

Figure 3. Index of Empathy scores.

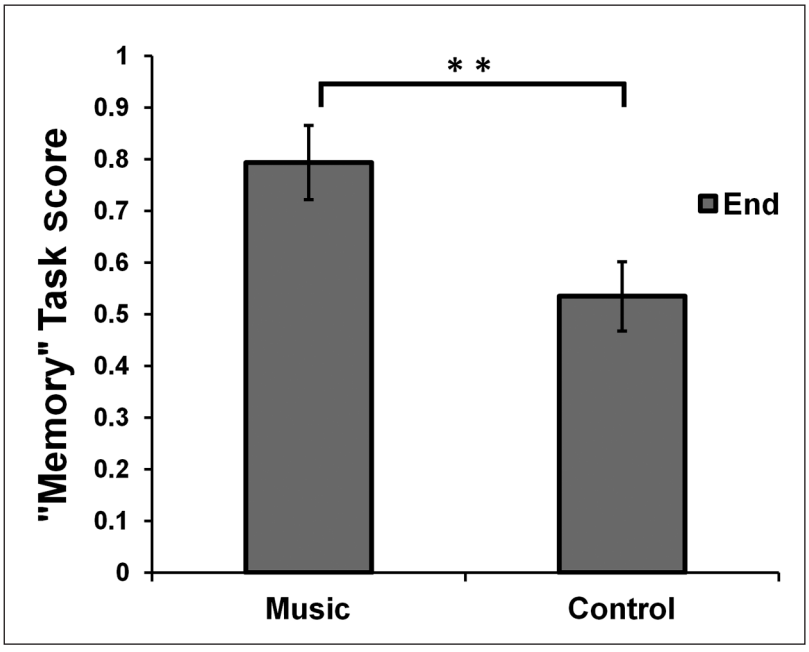

Figure 4. "Memory" Task scores.

Discussion

The results of this experiment are not definitively conclusive but do more than hint that our initial predictions were appropriate; on two out of the three measures of empathy that we employed, the MGI programme can be interpreted as having led to an increase in empathy scores in the participating children, but not in control groups. This lends more than tentative support to our model according to which particular skills and processes that are enhanced in MGI, the EPMCs, may extend beyond the realm of music to promote day-to-day emotional empathy, possibly through some mechanism of skill transfer. Further study will be required, involving larger cohorts of participants and, ideally, multiple group musical animateurs, in order to provide a robust test of our hypotheses. It also remains to be explored how long this effect can last and to what extent it requires reinforcement in the form of further MGI sessions.

Why is a sense of empathy so important for us as individuals and as a society? Many writers consider empathy to be the chief motivation for altruism and agree that empathy and sympathetic concern are critical factors mediating pro-social actions. Feelings of concern or sadness for the needy may precede acts of helping, sharing or comforting (Eisenberg & Mussen, 1989). The connection between empathy and pro-social behaviour has not been extensively researched experimentally so far (Singer & Lamm, 2009); however, there are a few supportive empirical findings (Eisenberg & Miller, 1987). For example, measures of role-taking in children were significantly positively correlated with behavioral indices of altruism and with teachers' ratings of pro-social behaviour, patience and cooperativeness (Krebs & Sturrup, 1982). In addition, it has been shown that individuals who scored higher in an empathy scale also reported to be more willing to help others when being bullied (Jolliffe & Farrington, 2006).

Consequently, practical implications of this study concern music education and perhaps also "empathy education"—working with children on social and emotional communication for gaining confidence in their ability to experience another person's emotional state and produce a relevant and supportive emotional response. First, in formal educational settings (e.g. schools and studio classrooms), ranging from music clubs to performance sites, by providing teachers with a highly specified programme that addresses empathy through a friendly, enjoyable and welcoming medium such as music. This programme could serve as an alternative, as well as an addition to existing music programmes and lessons that are within the curriculum. Second, in non-formal musical settings, such as youth movements or parents playing with their children, where one can use these MGI tools for extending social-emotional interactions and for developing emotional sensitivity.

Conclusion

In addition to the pleasure that it brings and to its possible contributions to linguistic, mathematical and spatial capacities (Graziano, Peterson, &, 1999; Schellenberg, 2001), academic performance (Ho, Cheung, & Chan, 2003) and even IQ (Schellenberg, 2004), music may be beneficial in yet another way, promoting empathy when experienced as group interaction. Future research will attempt to determine the identity and relationship of the mechanisms that are the most strongly responsible for this effect and describe the dynamics of their acquisition through musical interaction and their detailed roles in empathy.

Acknowledgements

The authors would like to thank Bhismadev Chakrabarti for advice in the development of the empathy measures and for helpful comments on the manuscript. This research was supported by an Overseas Research Studentship (ORS) award, Cambridge Overseas Trust award, AVI Fellowship and Kenneth Lindsay (Anglo-Israel Association) scholarship awarded to Tal-Chen Rabinowitch.

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Author biographies

Tal-Chen Rabinowitch studied psychology and musicology at the Hebrew University of Jerusalem, as well as performing arts at the Jerusalem Academy of Music and Dance (specializing in the flute). She has a master's degree in music cognition from the Hebrew University of Jerusalem, which focused on theoretical aspects of emotional perception of music and on the links between music and empathy. She is currently completing her PhD at the Centre for Music and Science, in the Faculty of Music, at the University of Cambridge, UK. Her research interests include uncovering the cognitive mechanisms and processes that underlie musical group interaction and their relevance to empathy.

Initially a guitarist, since 1986 Ian Cross has taught in the Faculty of Music at the University of Cambridge, UK where he is Director of the Centre for Music and Science and also a Fellow of Wolfson College. His research is interdisciplinary, guided by the aim of developing an integrated understanding of music as grounded in both biology and culture; he has published widely in the fields of music cognition, music theory, ethnomusicology, archaeological acoustics, psychoacoustics, and, most recently, music and language evolution.

Pamela Burnard works at the University of Cambridge, UK where she manages higher degree courses in Arts, Culture and Education, and in Educational Research. She is Co-Editor of the *British Journal of Music Education*, Associate Editor of *Psychology of Music* and serves on numerous editorial boards. She is editor and author of several books including *Musical Creativities in Practice* (OUP, forthcoming 2012), *Reflective Practices in Arts Education* (Springer, 2006/2010), *Music Education with Digital Technology* (Routledge, 2008) and section editor of the 'Creativity Section' in the *International Handbook of Research in Arts Education* (Springer, 2007), and the 'Musical Creativity as Practice' section of the forthcoming *Oxford Handbook of Music Education* (OUP, 2012, forthcoming). She is a co-convenor of the British Education Research Association Creativity-and-Education SIG.