

# Improving interpersonal communication through music

Eva Brand and Ora Bar-Gil

Bar-Ilan University, Israel

[Evabrand.il@gmail.com](mailto:Evabrand.il@gmail.com)

[Bargil.lawoffice@gmail.com](mailto:Bargil.lawoffice@gmail.com)

## ABSTRACT

*This research describes an intervention where parallel activities in music and in social interaction were used to improve interpersonal communication among children aged 4 – 6. All children in the study, in both the experimental and control groups, received the same weekly hours of music instruction. The intervention included specialist music teaching, training of preschool teachers in music and in conflict resolution, creating an awareness of the connections between music and communication, and provision of a rich musical environment within which children could participate in music activities throughout the day, independently of adult involvement. Both the experimental and the control groups showed increased participation in musical activities and improved interpersonal communication in the post-intervention tests, but the gains were significantly higher for children in the experimental group. This research indicates that music has the potential for improving interpersonal communication, using the intervention program described here. The study describes a framework for making connections between music and communication, and contributes to a field where there is little previous research.*

## INTRODUCTION

Music forms part of our lives, and provides pleasure and satisfaction. At the same time, this research suggests that learning music may also carry side benefits. One of these is the potential for improved interpersonal communication, through the key factor shared by both activities: *listening*. Music offers boundless opportunity for developing listening skills but applying this learning outside of music does not occur automatically. The improvement of interpersonal communication through music is dependent upon making conscious connections between the listening skills developed in a musical context, and the application of these skills in other contexts. The research presented here describes an experiment with preschool children. The aim of the research was to examine whether musical skills developed in a rich musical environment, placing emphasis on the use of voice in singing and in speech and providing a broad range of musical activities, would improve interpersonal communication among children in a deprived neighborhood.

## LITERATURE SURVEY

Many researchers have documented improved social interaction and academic achievement related to activities in the arts (Catterall, 2002). Research conducted in schools has found that music offers a medium for personal expression in heterogeneous classrooms and encourages tolerance, open-mindedness and an acceptance of difference (Giles, 1991; Portowitz & Brand, 2004; Storr, 1992). The present study suggests that there may be parallel types of activity in certain areas of music and communication. The literature survey presents five such categories.

The first category relates to *self-awareness*, approached through *relaxation and expression of emotion*. Many performers, sportsmen and people in all fields of endeavor enlist the power of some form of relaxation or meditation to reduce stress

and improve general functioning (Kabat-Zinn, 1990, 1995; Kraag, Zeegers, Kok, et al., 2006; Napper-Owen, 2006). Relaxation influences the autonomic nervous system (Ackerly, 2001) and the regular performance of breathing exercises, attention and concentration, channel energy and influence the feeling of confidence and contact with others (Glanz, 2000; Hammann & Gordon, 2000). For music teachers, the practice of relaxation is not an innovation. Reducing muscle tension, breathing exercises, inhaling, and exhaling on vocal sounds – all are part of chorus warm up (Albrecht, 2000). These routines are less frequently used in general music classes and with young children, but the process is familiar to music teachers and may provide a valuable extension of accessible knowledge and practice.

The second parallel category is that of active *listening* as a way of attending and responding (Salem, 2003). Listening is a core skill that may enhance the interpersonal effectiveness of individuals. It is also a learnable skill that, although not typically taught in school, may have long-term implications for quality of life at an individual and at a community level. This skill can be learned at any age. Burley-Allen (1995) presents a list of “do’s” and “don’ts”, such as:

- |   |                     |
|---|---------------------|
| * be attentive                              | * don't interrupt   |
| * be alert and interested                   | * don't interrogate |
| * act like a mirror – reflect back feelings | * don't give advice |
| * reflect back what you understand          | * don't preach      |

However, it is easier to build good habits than to change bad ones, and attentive and empathic listening can be cultivated in the very young. Empathic listening legitimizes and encourages the expression of feelings (Brand, 2002a, 2002b; Gottman, 1997; Rogers, 1978) and listening to music also generates emotion (Jackendoff & Lerdahl, 2006; Jourdain, 1997; Langer, 1953; Livitin, 2006; Meyer, 1956). Music is an ideal medium for developing and practicing listening skills, and activities associated with active listening, such as moving, dancing, pantomime, creating visual and graphic representations, accompanying on musical instruments and singing along are central to most music lessons for children (Israel Ministry of Education, 2007).

Learning through *imitation* is the third parallel category of activity. This is the most basic form of social learning (Bandura, 1994) and models are central to the process. Imitation of models may be an unconscious activity in some situations, and in others, may require deep concentration, as in imitating musical patterns in drumming and singing.

The roots of *dialogue*, the fourth parallel category of activity, stem from antiquity and continue through the Middle Ages. Dialogue reached a particular level of sophistication through the Greek philosophers, Socrates and Plato, and so through history to philosophers of our time. Martin Buber included trust, mutual respect, value, affection and hope in the characteristics of dialogue (Smith, 2001). Musical dialogue is a form of improvisation readily accessible to young children. It encourages independent musical creativity and provides a non-verbal expression of emotion. It plays a central role in connecting musical activity and interpersonal communication.

The fifth and final category of parallel activity between music and interpersonal communication presented here is the spontaneous involvement of children in *collaboration - cooperative group activity*. Positive outcomes of cooperative learning are highly evaluated in all age groups (Ciaburri & White, 1999; Cohen, 1986; Johnson & Johnson, 1994), but these can only be achieved through effective communication. The intervention described here lays the foundation for cooperative learning that makes it possible for every child to maximize his or her potential.

To sum up, this survey examined five parallel categories of activity for children in music and in communication: *self-awareness, listening, imitation, dialogue* and *collaboration*. In each of these areas, music can be used to improve interpersonal communication.

## Hypotheses

This research proposes that children, who participate in an intervention including a broad range of musical activities that place emphasis on voice in speech and singing, will show significantly greater improvement in their interpersonal communication than children in a control group, who do not participate in this intervention. It is expected that the more active the child in these musical activities, the greater will be the improvement in communication by the end of the intervention.

## RESEARCH DESIGN

### Participants

A total of 93 children aged 4 – 6 years, from four different government religious preschools, participated in the study. Two of the classes formed the experimental group (n=45) and two classes the control group (n=48). Most of the children came from lower income group families in deprived neighborhoods. The total population of participants included 44 boys, (46.8%) and 50 girls (53.2%). Chi-square analysis showed no significant difference between the groups in gender distribution: Chi-square = 2.13,  $p > .05$ .

### Procedure

The guiding principles of the musical activities included in this research are drawn from the program “Musical Minds” – Music Education for Children, developed at the Institute for the Advancement of Teaching, Learning and Social Integration, at Bar-Ilan University. On the basis of this program a rich musical environment was developed in two preschools, with the support of the Ministry of Education. The preschool program for children in the experimental group included:

1. Music lessons given twice weekly for half-an-hour by a music teacher from the Ministry of Education, to all the children together. The lessons included singing, movement, listening and playing percussion instruments.
2. One extended music lesson per week given by an additional music teacher to groups of up to 15 children. These lessons included relaxation, breathing and vocal exercises and improvisation, singing, musical analysis through movement analogues (“mirrors”), creative movement, graphic representations, drumming, and exposure to many different types of music. The music teacher fostered interaction in pairs and in groups in the course of singing, moving and playing instruments, and made clear connections between music and social interaction.
3. Daily musical activity with the preschool teachers. The teachers and their helpers attended professional development courses where they participated in voice training, guided listening for young children, music of various ethnic groups, mediation for conflict resolution and problem solving techniques. They introduced the skills they learned into their preschool classes through singing, encouraging the children to listen and respond to music, allowing the children free access to musical instruments, and providing feedback.



4. The children's own independent musical activity took place in two main places in the preschool class:
  - (1) an improvisation space, equipped with a large gathering drum, xylophone, glockenspiel, guitar, and a small number of high quality percussion instruments. Children were encouraged to explore the sounds produced by these instruments, to create their own compositions and to interact in musical dialogue in pairs or small groups. A list, where children wrote their names, was posted on the wall for taking turns, and no more than three children participated simultaneously in independent music making.
  - 2) a listening space, in another part of the room, equipped with a CD player, a selection of recordings that the children had learned in music classes, a small number of musical recordings that had not yet been learned, drums, percussion instruments, scarves and a small selection of accessories. Children participated in self-directed activities in the listening space, situated in the centre of the room, with adequate space for free movement. Groups of 4–5 children took turns in choosing recordings to which they responded in song, movement, dance, pantomime and accompaniment, mainly based on activities initiated by the music teacher. The activities in both music spaces took place alongside children's participation in other creative learning and play activities throughout the day.
5. In the experimental group, preschool teachers made connections between musical activities and interpersonal communication, particularly in the context of problem solving situations. When conflicts arose among the children, teachers used techniques of “framing” and “reframing” (Brand & Bar-Gil, 2006), and issues were discussed at circle time. This began with relaxation and musical activities, directed towards reducing tension and encouraging participation. Emphasis was placed on listening to each child's “story,” using the listening skills developed through music.

Children in the control groups participated in the same number of music lessons per week – bi-weekly full class, half-hour lessons and an additional lesson by a different teacher in small groups. Musical activities during the week consisted mainly of singing with the preschool teacher. No facilities for independent musical activity were available to the children in these classes and specific connections were not made between music and interpersonal communication.

From direct observation of children's activities and repeated observation of videos showing musical and non-musical activities, five categories were suggested where parallel activities in music and interpersonal communication were observed:

1. Self-awareness and expression of emotion (listening to self)
2. Listening to music and to others
3. Imitation
4. Dialogue – musical and verbal
5. Collaboration and cooperative group activity.



The preschool teachers and the music teachers confirmed these five categories as a good way of grouping the observed activities, though they did not rule out the possibility of further parallel categories.

Table 1 presents examples of parallel activities in each of the five categories.

Table 1

*Examples of parallel activities in music and in interpersonal communication*

MUSICAL ACTIVITIES	↔	INTERPERSONAL COMMUNICATION
<p><b><i>Self-Awareness and expression of emotion</i></b>  Eyes closed, listening to breathing, directed relaxation of body, listening to musical background, adapting breathing rhythm to tempo of the music, breathing exercises, vocal exercises, expressive and unusual use of voice. Individual musical composition with voice or instruments.</p>		<p><b><i>Self-Awareness and expression of emotion</i></b>  Moving from one activity to another: "closing one door and opening another", relaxing, eyes closed, cutting off from the outside, making contact with the self, expressing emotions.</p>
<p><b><i>Listening to Music</i></b>  Listening to music, responding intuitively and consciously to salient elements, identifying: structure, patterns, repetition, change, moving away and coming back, energy levels, peaks, resting points, endings. Noticing sound properties: loud - soft, fast - slow, high - low, going up - coming down, short - long, texture. Using many forms of representation to express the above: movement, dance, pantomime, visual and graphic representations.</p>		<p><b><i>Listening to Others</i></b>  Listening to each other: applying principles: attention, interest, eye contact, empathy, appropriate response, reflection. Structures to provide the opportunity for children to express themselves, for example: pass around a soft toy; the one who holds it speaks – shares experiences, feelings, wishes, conflicts. All the children listen when one speaks – total attention. Summary of day's activities: each tells what he learned/ enjoyed/ would like to change.</p>
<p><b><i>Imitation</i></b>  Singing, echo clapping, drumming circle, rhythmic and melodic patterns. Accurate repetition on the basis of concentrated listening.</p>		<p><b><i>Imitation, Repetition</i></b>  Accurate repetition of texts, poems. Listening to a child speak; another child repeats what he has said and checks that he has understood correctly. Acting out, learning from modeled behavior.</p>



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### *Musical Dialogue*

Interacting with voice or instruments. Turn taking, response, using something that has been expressed by the other, adding, changing, varying, innovating, repeating.

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### *Verbal Dialogue*

“Framing”, “reframing”, problem solving based on listening to another point of view and relating to it. Expressing and responding.

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### *Collaborative Musical Activity*

Spontaneous musical activity with others, dancing to music, accompanying a recording, singing together, playing instruments together.

### *Cooperative Play with Others*

Making up games, building, drawing, telling stories, make-believe games with others.



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## **Research Instruments**

Two questionnaires, based on the above five categories, were developed for the purpose of this research and used to examine the connection between music and interpersonal communication among the children:

1. A questionnaire describing musical activities – five categories, a total of 33 questions.
2. A questionnaire describing interpersonal communication – five categories, a total of 40 questions.

The questionnaires were completed by the teachers for each child individually and the coding was anonymous. Coding allowed each child’s activities, before and after the intervention, to be compared.

The questionnaires were built on the assumption that in these five categories there are parallel activities between music and interpersonal communication and that the items in each category show internal consistency. After completion of the questionnaires by the preschool teachers, reliability analyses for internal consistency were calculated using Cronbach alpha coefficients. Relatively high internal consistency was found for all five categories (ranging between  $\alpha = .70$  and  $\alpha = .96$ ).

Table 2 shows examples of questionnaire items in each of the parallel categories. The response to each statement was made on a scale of 1 – 4, where 1 was the lowest score and 4 the highest score for each item. These scores were coded and used as a basis for statistical analysis.

Table 2

Examples of items in Questionnaire 1 (Musical Activity) and in Questionnaire 2 (Interpersonal Communication).

## RESULTS

Questionnaire 1 - Musical Activity	Questionnaire 2 - Interpersonal Communication
<i>Self awareness and expression of emotion</i>	<i>Self awareness and expression of emotion</i>
Expresses feelings in singing and vocal improvisation	Expresses feelings during circle time
<i>Listening to Music</i>	<i>Listening to Others</i>
Listens and follows graphic notation	Listens when another child tells a story
<i>Imitation</i>	<i>Imitation (repetition)</i>
Echoes rhythmic drumming phrases of other children	Repeats, when asked, what another child said
<i>Musical Dialogue</i>	<i>Verbal Dialogue</i>
Allows partner to complete playing a phrase during musical dialogue	Awaits his/her turn to participate in a conversation
<i>Collaboration</i>	<i>Cooperative Play</i>
Performs musical ideas suggested by others	Accepts ideas of others when playing games

The results of the research relate to the comparison between the experimental group and the control group regarding children's behaviors in musical activity and in interpersonal communication before and after the intervention. The hypothesis postulated that there will be greater improvement in interpersonal communication for children who participated in the intervention.

We begin by presenting the results for musical activities in the first four categories: *Self Awareness and expression of emotion (listening to self)*, *Listening (to music)*, *Imitation*, and *Dialogue*. The fifth category, *Collaboration*, could not be tested for musical activities in the control group because the children in these preschools did not have free access to musical instruments and a CD player and did not focus on independent cooperative music activities. Therefore, the results for the first four categories are presented first for the experimental and control groups, and the results for *Collaboration* are presented separately for the experimental group only for music activities.

In order to test the hypotheses, MANOVA 2 x 2 analysis (group x time) with repeated measures for time, was carried out. In this analysis significant differences were found between the before and after scores for musical activity,  $F(4, 88) = 46.38, p < .001, \text{Eta}^2 = .68$ . In addition, a significant interaction effect for group x time was found,  $F(4, 88) = 4.18, p < .001, \text{Eta}^2 = .16$ . Table 3 shows means and standard deviations for the first four categories of musical activities for each of the groups, before and after the intervention, as well as Univariate ANOVA results that were calculated separately for each category.

Table 3

Means and standard deviations for musical activities, before and after the intervention, in the experimental group and in the control group

Category of activity		Groups				Time		Group x Time	
		Experimental		Control		<i>F</i> (1,91)	Eta <sup>2</sup>	<i>F</i> (1,91)	Eta <sup>2</sup>
		<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>				
<i>Self awareness</i>	<i>M</i>	2.51	3.64	2.21	3.49	168.12***	.65	.65	.01
	<i>SD</i>	.14	.07	.13	.07				
<i>Listening to music</i>	<i>M</i>	2.73	3.59	2.98	3.56	87.79 ***	.49	3.45	.04
	<i>SD</i>	.12	.08	.12	.08				
<i>Imitation</i>	<i>M</i>	2.67	3.59	3.04	3.57	91.30 ***	.50	6.50 *	.07
	<i>SD</i>	.12	.08	.12	.08				
<i>Dialogue</i>	<i>M</i>	2.60	3.65	3.03	3.60	88.38 ***	.49	7.62 *	.08
	<i>SD</i>	.14	.07	.13	.07				

\* $p < .05$ . \*\*\* $p < .001$

As can be seen from the table, improvement was found in all four categories and the Univariate ANOVA revealed significant differences between the before and after scores. Significant interaction of groups x time was found for *imitation* and *dialogue* only and this increase was far greater in the experimental group than in the control group. Simple Effects tests, carried out in order to examine the source of the interaction, found a significant difference between before and after measurements in the experimental group for *imitation*,  $F(1,44) = 81.89$ ,  $p < .001$ ,  $Eta^2 = .65$ . The difference in the control group was also significant,  $F(1,47) = 22.54$ ,  $p < .001$ ,  $Eta^2 = .32$ , but the extent of the effect was much smaller than that of the experimental group. For the measurement of *dialogue*, the Simple Effect analysis showed a difference between the two groups for before and after measurements  $F(1, 44) = 109.77$ ,  $p < .001$ ,  $Eta^2 = .71$ . The difference was far greater for the experimental group than for the control group  $F(1,47) = 17.20$ ,  $p < .001$ ,  $Eta^2 = .27$ .

The fifth category, *collaboration*, was tested for musical activity before and after the intervention in the experimental group only. A one-way ANOVA analysis with repeated measures was carried out in order to assess the difference in musical activities before and after the intervention. In this analysis a significant difference was found between the two measurements for time, before and after,  $F(1,44) = 109.77$ ,  $p < .001$ ,  $Eta^2 = .71$ . The mean before the intervention,  $M = 2.60$ ,  $SD = .76$ , was far lower than the mean after the intervention  $M = 3.65$ ,  $SD = .52$ .

A further Manova analysis was carried out for interpersonal communication. This analysis also showed a significant difference between the two groups,  $F(4,86) = 43.05$ ,  $p < .001$ ,  $Eta^2 = .67$ , as well as a significant interaction of groups x time,  $F(4,86) = 9.06$ ,  $p < .001$ ,  $Eta^2 = .30$ . The means and standard deviations are shown in Table 4.

Table 4

Means and standard deviations for interpersonal communication, before and after the intervention, in the experimental group and in the control group

Categories of activity	Groups								
	Experimental		Control		Time		Group x Time		
	<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>	<i>F</i> (1,91)	Eta <sup>2</sup>	<i>F</i> (1,91)	Eta <sup>2</sup>	
<i>Self awareness</i>	<i>M</i>	2.53	3.66	3.25	3.62	125.55 ***	.59	32.11 ***	.27
	<i>SD</i>	.70	.54	.91	.52				
<i>Listening to others</i>	<i>M</i>	2.96	3.79	3.44	3.71	63.53 ***	.42	15.77 ***	.15
	<i>SD</i>	.69	.53	.73	.45				
<i>Imitation</i>	<i>M</i>	2.81	3.72	3.30	3.60	74.44 ***	.46	18.36 ***	.17
	<i>SD</i>	.65	.49	.88	.54				
<i>Dialogue</i>	<i>M</i>	2.90	3.74	3.28	3.66	115.88 ***	.57	16.82 ***	.16
	<i>SD</i>	.53	.32	.66	.35				
<i>Collaboration</i>	<i>M</i>	2.52	3.56	2.97	3.35	108.22 ***	.55	23.71 ***	.21
	<i>SD</i>	.71	.50	.83	.55				

\*\*\* $p < .001$

As can be seen in the table, the Univariate ANOVA for each of the measures separately shows an improvement in all categories from before the intervention as compared with after, as well as significant interactions for group x time in all five categories. An increase was found in both groups but was greater in the experimental group. In the control group, a difference was found for *self awareness* only, and here too, the difference was far smaller than that found for the experimental group. Simple Effect analyses carried out separately for each category found that the increase in the experimental group was far greater than the increase in the control group. These results are shown in Table 5.

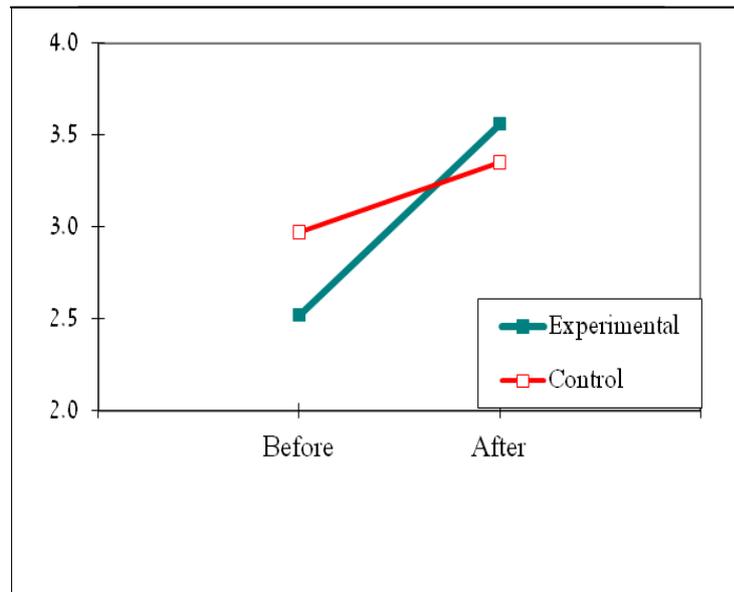
Table 5

Simple Effect tests for interpersonal communication, for the differences between before and after the intervention, for the experimental and control groups in five categories of activity

Areas of activity	Groups			
	Experimental		Control	
	<i>F</i> (1,42)	Eta <sup>2</sup>	<i>F</i> (1,47)	Eta <sup>2</sup>
<i>Self awareness</i>	187.74 ***	.82	12.97***	.22
<i>Listening to others</i>	58.16 ***	.58	9.89**	.17
<i>Imitation</i>	108.74 ***	.72	8.02**	.15
<i>Dialogue</i>	145.25 ***	.78	18.81***	.29
<i>Collaboration</i>	128.75***	.75	14.40***	.23

\*\* $p < .01$ . \*\*\* $p < .001$

Collaborative group activity was not evident in musical activities in the control group because the children had no independent access to a tape or to musical instruments and no focus for independent cooperative activity. However, *collaboration (cooperative group activity)* in non musical activities was tested in both groups. Univariate Anova analysis showed significant differences between before and after,  $F(1,89) = 108.22$ ,  $p < .001$ ,  $\text{Eta}^2 = .27$ , as well as significant interactions for group x time,  $F(1,89) = 23.71$ ,  $p < .001$ ,  $\text{Eta}^2 = .21$ . Mean scores for *collaboration (cooperative group activity)* in interpersonal communication activities, before and after the intervention, in the experimental and control groups are shown in Figure 1.



**Figure 1.** Mean scores for *Collaboration (cooperative group activity)* in interpersonal communication before and after the intervention in the experimental and control groups.

As can be seen from Figure 1, although the experimental group started lower than the control group, the increase for this group was far higher. Similar patterns of interaction of group x time were found in the other categories.

Finally, it was postulated that the more active the child was in musical activities, the greater would be the improvement in communication by the end of the intervention. Pearson correlations between the improvement in musical activities and the improvement in interpersonal communication were carried out separately for each category and were found to be positive in all the categories: *Self awareness*,  $r = .22$ ,  $p < .05$ ; *Listening(to music and to others)*,  $r = .50$ ,  $p < .001$ ; *Imitation*,  $r = .69$ ,  $p < .001$ ; *Dialogue*,  $r = .66$ ,  $p < .001$ ; *Collaboration*,  $r = .71$ ,  $p < .001$ . This shows that children who were more active in musical activities showed greater improvement in interpersonal communication.

## DISCUSSION

The children in both the experimental and the control groups in this study showed significant improvements in musical activities as a result of the music programs in which they participated. This included their ability to sing songs and melodies of musical compositions and to interact with peers in music activities. Those who showed improvement in musical activities also improved in interpersonal communication. These findings emphasize the importance of music education in preschool, both for its own sake and for the contribution it makes to social interaction.

For the children in the experimental group the gains were considerably greater. Their musical achievements included creative expression in singing, moving and improvising, memory of rhythmic patterns and musical knowledge, taking initiative and collaborating in musical activities. Similarly, in the parallel areas of communication their achievements included improved verbal expression of needs and emotions, the ability to cooperate in learning and in play, and non-aggressive problem solving skills based on listening.

It is clear from these results that while all music education is valuable, musical activities of the kind included in this intervention contribute to the child's musical, emotional, cognitive, and social functioning. Although there is no statistical proof that music brought about the improvement in behavior, and not the reverse, the preschool teachers who took part in this research state emphatically that, based on their own experience, it was the music that brought about improved behaviors. Through music, therefore, the children learned some basic skills that may improve the quality of their lives.

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