

## **The effects of music and creativity on child's development an innovative educational program**

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**Abstract:** Can music be the springboard for an intervention program based on its structural languages and on the view that all children can develop musical abilities and skills? This paper analyzes the contribution of music and creativity to the completion of a child's personality based on scientific studies in the field of neuroscience and psychology. The educational intervention program that took place in kindergartens of Athens was based on the universal language of music, music education and singing and brought children in contact with Aesop's fables which they "sang" and played with.

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### **Introduction**

“Music are the sounds organized by man, in order to express himself and communicate artistically, in order to make art. Music is an art. It is one of the ways with which people can express themselves creatively, to participate and communicate, to play and invent” (Tsiridis P., 2003, p.22).

The effect of music on humans is considered, due to its compelling character (McClellan, 1997), especially significant and that is made evident on multiple levels (Stamou, 2004).

In *The Republic*, Plato mentions that music, according to him, is the science of the Muses (Plato, *Ion*, 534 D-E). He argues that musical education is most important, because rhythm and harmony enter the depths of the soul and act upon it with great force. Whoever feeds upon rhythm and harmony becomes “καλός τε κάγαθός, τὰ δ' αἰσχροῦ ψέγοι τὰ ἄν ὀρθῶς και μισοῖ ἔτι νέος ὢν”.

He argued that rhythm is a sequence of movements; rhythm and music imitate the movements of celestial bodies, thus delineating the music of the spheres and reflecting the moral order of the universe. Plato viewed music as an integral part of morality and admitted and valued music through its ethically approved forms. His interest initially focused on the effects of music and, therefore, considered it as a psycho-social phenomenon.

Furthermore, the great philosopher emphasized the fact that music and gymnastics, properly balanced, can contribute in the formulation of a desired educational program (Britannica, 2003). In *The Republic*, by the mouth of Socrates, he mentions that musical education is crucial, because rhythm and harmony penetrate into the depths of the soul and make a great impact, bringing and offering beauty, if one is properly educated, and vice versa (*The Republic*, 401 e).

Aristotle placed emphasis on motor exercise and play as means of education for young children stressing the importance of music for moral and aesthetic education (Sergis, 1995, p.24). The important position of moving to music in musical education programs which are addressed to young children is largely due to the impact of the ideas of Dalcroze (1967) on the connection of music and movement. The collaboration of Dalcroze and Claparede stressed the value and importance of musical education in the general education of children and its correlation with the science of psychology.

### **Music and Neuroscience**

An important theory, which is the background of the reflection of this study, is the transfer of learning theory, according to which knowledge, skills and attitudes obtained through a certain education topic – in this case, music - could be transferred to other fields of learning. It is also generally accepted that the aesthetic, emotional and cultural dimension of music, as well as the other arts, add appeal, a deeper meaning and pleasure to other areas of the curriculum.

As Fowler (1996) argues, when the arts are interweaved with areas of the curriculum during the course of teaching and learning, a maximization of learning results is observed. He further claims that transferring the arts from the periphery of the curriculum to its center, would mean that the arts stop being separate, specialized lessons and are instead a part of the general educational curriculum, and intertwined with daily life situations (Fowler, 1996)

Such a view of the arts as an integral part of the entire education of children, according to our reflection as well, would result in wholesome education which would lead to shaping an unimpaired personality. Our

reflection will then extend to learning theories which support the notion that education through music positively develops the personality of the child and contributes to the acquisition of appropriate learning skills. A theory such as this is also the theory of transfer of learning, to which we will refer further on.

According to Wolff (1996) the study and practice of music, offered within the general context of musical education, may be considered as mental exercise which expedites learning of other cognitive subjects and specifically the Aesop's fables. The habits of the mind which develop when an individual focus on a subject or attempts to solve a problem, are considered learning processes or skills that can be transferred to learning situations of other subjects or scientific fields (disciplines). Through this point of view, learning processes in musical education may serve as a means of learning the way to work and the study processes of other subjects.

Jung has discussed the musical properties which form the basis of GIM, suggesting that music can touch the deeper archetypal material that we occasionally touch with forms of verbal communication (Jensen, 1982). A University of California research team presented results of experiments conducted on adults and pre-school children at a conference of the American Psychological Association in 1994.

Those results open a new window on how the human brain could function better and demonstrate the fact that engagement with music, either on the part or the performer or the listener, can fortify brain function centers. Besides, for a child, coming into contact with personal exploration and active learning, creates within them representations which remain undimmed for the rest of their life.

In his work *Politics*, Aristotle, argues that (Shaboutin, 2005): The ability of music to affect the mental states of listeners correlates to emulating one character or another.

Three of Rousseau's suggestions and the main goals of musical education today, are the following:

"The need for adequate musical experience before any efforts at musical reading are attempted, the value of composition by the children themselves and the importance of enjoyment."

Pestalozzi also acknowledged the value of musical education for children. Music had such an important position in his school, so much so that he was attributed "its practical introduction to the curriculum of elementary school" (McDonald & Simons, 1989, p.6).

Pestalozzi believed that children learn through experience and self-discovery and that experience should precede theory. Therefore, musical theory learning must derive from practical occupation with music. Pestalozzi's ideas regarding musical education were presented by two of his students in the book "The Teaching of Music in Pestalozzian Principles" which was published in 1810. In that book, it was argued that musical education is necessary for all children and that the implementation of an appropriate educational methodology in musical education could help all children learn how to sing correctly and read music (McDonald & Simons, 1989).

The educator who was about to place musical education in the center of education was Froebel, who claimed that because children act by playing, musical education should derive from game activities. His book "Mother-Play and Nursery Songs" includes songs and games for young children (McDonald & Simons, 1989). He argued that music is linked with the first positive experiences of children and that the songs that mothers sing to their babies is a vital element of the education of young children and makes music "one of the first means of creation and expression of happiness".

The contribution of Montessori was important to the configuration of musical education programs for pre-school ages. Music had a special position in her program. With the assistance of her associate, Anna Maria Macheroni, she designed a musical education program through which personal and group activities would lead to an understanding of the structure of music.

In kindergarten, music gives the children the ability to express in different ways and with different means their comprehension of the world which surrounds them.

"The relationship of music with the child and education can be described as such: through music, children can "play and invent", discover the world and themselves. They can express themselves and communicate, share their experiences and participate in the experiences of others, developing their psycho-emotional world through artistic creativity. They can pose questions, about themselves and others, which will help them mature through the experience of creation" (Tsiridis P., 2003:23).

Research which has been conducted prove that educational programs which include song, rhythm, musical games and listening to music, since birth and then during the first five years of the life of the child, are useful to children for their social, emotional and cognitive development, as well as early learning (Trehub, 2003).

According to McClellan, any active preoccupation with music, either on a composition level or a performance or listening level, activates the participation of both brain hemispheres, resulting in balancing both sides of the cognitive function (McClellan, 1997). Regarding research conducted by Neurosciences, exposure to music listening and systematic musical teaching, if they begin before the age of 7, can cause the human brain to

develop more neural pathways that, in case of damage of neural pathways which are linked to speech or language, “the brain will possibly ensure communication via musical neural pathways” (Dritsas, 2002).

### **Music and singing**

Since the age of three and until kindergarten, children, according to Ostwald (1973) in Sakalak (2004), have acquired an increasing ability of singing melodies, repeat rhythms and utilize instruments which produce sounds; they demonstrate the first indications of absolute pitch or other special interests and are in the position to develop beneficial skills through group or private teaching, while since its 24th week inside the womb the fetus responds to music by opening and closing its eyes and moving as though it was dancing (Fonseca – Mora, 2000).

When listening to music, we are calm, we are soothed, we are pleased. Comenius was one of the first supporters of the inclusion of music in the pre-school curriculum, among other subjects, “in order to awaken the senses, soothe the spirits, contribute to speech generation and promote good health” (McDonald & Simons, 1989, p.5).

Music develops creative attitude, imagination and inventiveness of pre-school children who, through using and constructing musical instruments, as well as various musical games – singing, dancing, selected music listening, orchestration of various songs taught in Kindergarten with improvised musical instruments, recognition of sounds, dramatization of musical fairy tales and fables - exercise not only their cognitive, emotional and mental development, but their knowledge as well. Thusly, they develop elements of their personalities which subsequently help them develop into mature and cultured individuals.

Songs have always been useful educational material for educators, as they allow the individual expression of students, while at the same time promoting cognitive and communicative objectives. Moreover, as argued by Derrington, the process of writing lyrics for a melody is linked to both cognitive and emotional goals (Derrington, 2005). It constitutes a very familiar and intimate process for children which links their school life to their social life and for this reason, it acquires a special meaning for them. Therefore, it is a creative process which, if realized in a participatory manner, has the ability to enhance the relationship and the interactions between individuals of a group (Wigram & Baker, 2005).

According to Colin Baldy (2010), singing is simple, as long as we comprehend that what we are trying to do when we sing has communication as its main objective, broadcasting both information and emotions. The issues the educator is called to resolve are, primarily, tonal accuracy and, secondarily, characteristics such as volume, breathing, correct articulation and vocal expression which leads to song performance.

According to the CTCF and the UCC (Unified Cross-thematic Curriculum), the goal of Musical Education is, primarily, the development and cultivation of the ability of aesthetic pleasure during listening, creating and performing music as one of the manifestations of human artistic expression and creativity. Through this objective and parallel to it, Musical Education aims at the general cultivation of student creativity and personality, through active listening and musical creation and performance activities (GG 304/v. B/13-3-2003, p.4070).

According to Jaffrey Marc, the objective of the English program called “National Singing Program” or “Sing Up”, which was created under the auspices of the British Ministry of Culture, was to provide each child the opportunity to feel the joy of music and to develop their skills through song. Singing on its own is the most dynamic incentive for young children to engage with music through the participatory process of singing, within a group which “builds” unique personalities.

Similar efforts regarding singing in education were made also in Australia. Research was conducted in elementary and secondary schools in Sydney in between 2004-2007. This research demonstrated important aspects in the song teaching design in school, where a structured program is required, and it is something beyond arranging how a song is supposed to be played or performed:

A) Knowledge of the anatomy and physiology of the vocal mechanism is required (Gallahue,2002)

B) The singing teacher must be well aware of how to protect the voices of children from misplacement, as well as of strategies and activities for better vocal performance of the students. This research initiated the creation of a national curriculum in Australia, aiming at supporting vocal studies as an essential element of musical education (Hughes et al. 2009).

Using the cognitive theory of Piaget and the psychoanalytical theory of Freud, Howard Gardner (1993) formed a theory about artistic development, making an effort to combine emotion with knowledge, resulting in the formulation of three systems concerning action, perception and emotion. Those systems, he claims, exist at the birth of a human and combine the sensorimotor actions and perceptions with emotional reactions.

Gardner (1983) suggested four major stages for human artistic development which correspond, in a

way, to the cognitive development stages of Piaget.

The four stages of artistic development which are characterized by the behaviour of each age are the following:

The stage during which the child communicates directly.

The stage during which the child uses symbols.

The stage during which a young individual acts as a craftsman.

The stage during which a young individual acts as a critic and fully participates in the artistic process.

The first two stages have a direct relation with early childhood. The child, since birth until the age of two, communicates directly, whereas from the age of two until the age of seven, uses symbols.

By proposing the theory of multiple intelligences, Gardner specifically mentions musical intelligence as an autonomous intelligence. He argues that the musical education of early childhood is intertwined with the theories of development of the child and especially the theories of musical development and intelligence; and that it is necessary for pedagogues to conceive and understand this form of child development as well.

The artistic activities of an infant depend, sometimes on a smaller and other times on a larger scale, on a cognitive process during which the child assigns new meanings to elements of their various experiences, combining them with various new and original ways. The result of this process, which is achieved through the symbolism function and the combinational ability of the mind, constitutes what we refer to as creative expression of the infant (Sergi, 1994).

But why was the “union” of music to language chosen in this educational intervention program of Aesop’s fables set to music?

Music and language possess common characteristics such as intonation, rhythm, volume, pauses, pitch, but they also have a direct relation with the processing of sounds that both carry in their own unique way. For language, clarity is the main characteristic, whereas for music, that is emotion.

### **Description of the educational intervention program**

The short allegorical narration from the animal or the human world which means to teach something (Kanatsoili, 1997, p. 59) with its animism and anthropomorphism, the fable, is as suitable to pre-school children as it is pleasant; but understanding it and comprehending its meaning, which is “a structuring process of a cognitive representation, which draws its elements from the text (Sphyroera, 1998:108) can be achieved by using appropriate techniques.

The well-chosen of the Aesop's fables by their simple version, animism and the animating of the animals was shaped as a combinatorial material, organized in a way that could be taught to children, activating linguistic and musical intelligence, and formed in the basis of this educational intervention program that took place in kindergartens of Athens.

The musical songs created by the researcher were based on simple measures of 2/4 and 3/4 and with simple rhythmic motifs, consisting of quarter notes and quavers, which the children repeated after encouragement from the researcher. The process of learning the songs was the following:

First, the researcher sang a capella (voice only) the melody of the fable set to music – song, that had many simple spaces during which children can sing

Then, she rhythmically performed the song while clapping and encouraged the children to follow her example

The accompaniment of the song with any musical instrument she had (either a keyboard, or a pianica or a flute) came later

She urged the children to follow the song, with the accompaniment of the musical instrument

They performed the song with percussion instruments as well, orchestrating it, and finally,

They accompanied the song rhythmically but also kinetically, with free movements and creative expression.

### **Methodology- Action Research**

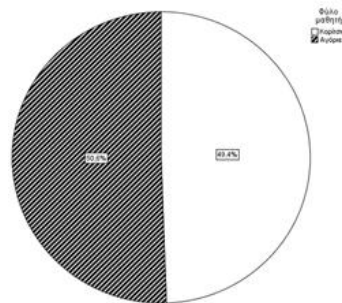
This research - action took place in schools and was in a small scale with specific purpose, it was collaborative, with the participation of class teachers, participatory, with the participation of all the members of the groups, as well as self-evaluative, because the modifications are constantly evaluated, since the final goal is to improve the practice in one way or another.

We used the random sampling method for the formation of the total sample and the six groups from the existing kindergarten classrooms. The method of participatory observation was used to extract information and collect data, as the observer was an element directly related to the situations under observation (Delamont & Hamilton, 1984).

Regarding the sample of children participating in the intervention, 87 of them were girls (49.4%) and

89 were boys (50.6%) (see Figure 1), i.e. the total sample consisted of 176 children. The relatively large number of both the children involved in the research and the measurements required by our research tool resulted in lots of time required to collect the necessary data.

Figure 1.  
Gender percentage ratio of students participating in the intervention.



According to the McDonald & Simons (1989) Musical Behaviour Sample List, which was modified by the researcher and based on the book of Music of the Pedagogical Institute, one-factorial models of variance analysis for 6 repetitive measurements in specific categories were designed:

**ATTITUDE TOWARDS MUSIC** and specifically:

Whether they participate in music activities of their own free will.

If they wish to participate in this music activity and even seem to enjoy it.

If they show their preference towards the specific kinds of music activities.

**SONG**

Imitates melodic motifs of rhythmic and tonic precision with their voice.

Simply sings the fable being taught.

Sings with expressiveness (fluctuations in dynamic, tempo, etc.) following the teacher's instructions.

**MOVEMENT TO MUSIC**

Freely moves to music responding to its elements (rhythm, dynamic, tonal pitch, etc.).

Accurately imitates simple rhythmic motifs with sonorous body movements.

Moves in sync with the music to which they are listening.

**MUSICAL INSTRUMENT PERFORMANCE**

Controls the sounds produced by musical instruments regarding intensity, rhythm and tonal pitch.

Accurately imitates the simple rhythmic and melodic motif by playing the musical instruments of the class.

Shows interest in exploring the sound potential of musical instruments.

**CREATIVITY**

Invents their own movements in response to the melody.

Shows interest in experimenting with little instruments in the classroom and other sonic objects.

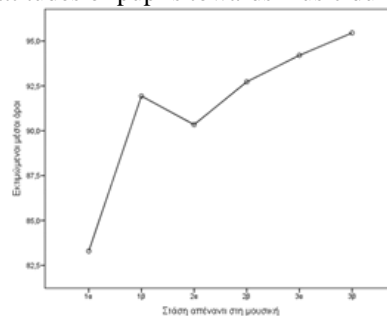
**LISTENING**

Listens to music with attention and concentration during the musical group activity.

The results of the contribution of music in this specific intervention program are analyzed in each of the five parameters of the music behaviour observation list.

In terms of listening to music the results that the children produced had an upward trend throughout the educational intervention. Specifically, the first fable-song in both assessments was 76.70% and 83.92%, in the second fable-song 86.31% and 88.41% and the third fable-song rose to 90.45% and 92.33% (see Figure 2) indicating that there was a significant increase and success in the educational intervention program.

Figure 2.  
 Evaluation averages of the attitudes of pupils towards music during the first 3 fables



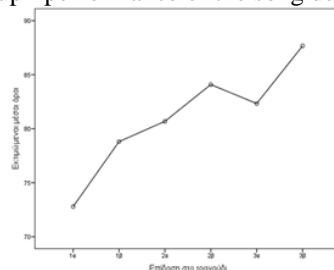
Research has shown that the importance of listening to music has to do with the activation of all areas of the brain, i.e., the whole brain is activated and "reshaped", as reported by Laurel Stewart, 2009, Oxford Handbook of Music Psychology.

In terms of listening, but also singing, as well as the ability to simply imitate melodic motifs with rhythmic and tonal precision, research has shown that music strengthens oral memory, which although controlled by the left hemisphere along with thought and judgment, also collaborates and communicates with the right hemisphere that controls music and movement, while a satisfying number of research has shown that music listening has a positive effect on the development of both the upper cerebellum and cognitive functions of humans (Dritsas, 2010).

Through a survey conducted on pre-school children, Cromko & Poorman (1998) concluded that music in pre-school age helps in developing spatial perception, as well as mobility and memory, while it also contributes to concentration an element that was necessary for carrying out the activities and worksheets that followed the educational intervention.

As for the children moving to music, or else music with movement, intertwined concepts (Young, 2003), the results produced by children had an upward trend, proving that the program which had music as a basic element helped them to develop their movement and rhythmic-kinetic skills. Specifically, in the first fable-song the two evaluations were 70.40% and 75%, in the second fable-song 80.97% and 81.25% and in the third fable-song 81.25% and 84.49% (see Figure 3)

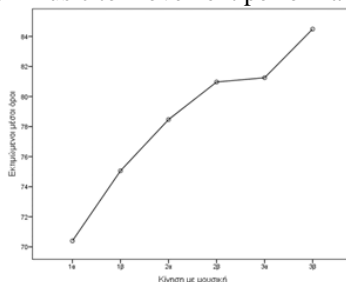
Figure 3  
 Evaluation averages of pupil performance of the song during the first 3 fables



Similar conclusions on investigating the impact of a musical education program on the development of movement skills have also been demonstrated by Pollatou & Xatzitaki (2001) in pre-school children (4-6 years), while rhythmic ability can and does develop during ages 4-7 where children can developmentally react to different types of sounds and simple rhythmic motifs (Martin, 1998).

Regarding children's performance in singing - song-story, the results produced by children had an upward trend, with the song of the first fable-song in the two assessments being at 72.72% and 78.81%, the song of the second fable-song being at 80.68% and 84.09% and the fable-song of the third at 82.33% and 87.67% (see Figure 4)

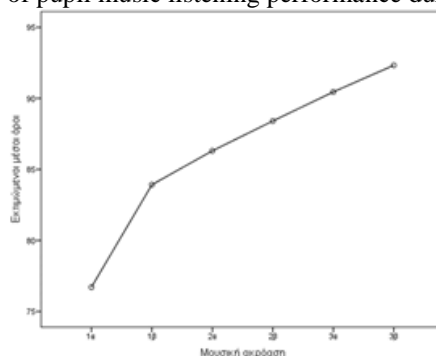
Figure 4  
Evaluation averages of pupil music to movement performance during the first 3 fables.



In the educational intervention program, the synthesis of the songs by the researcher was done with simple intervals and with simple notes for the age and the voice of the children. The researcher has taken into account that the songs influence the short and long-term memories by providing opportunities for repetition, which constitutes "a trick for language acquisition" (Krashen, 1983).

Regarding the C. Orff system use of percussion instruments, the results of the children had an upward trend in both evaluations and specifically the percentages in the first fable-song were 72.27% and 73.52%, in the second fable-song 81, 65% and 81.88% and, finally, in the third fable- song increased to 84.26% and 85.51% (see Figure 5)

Figure 5  
Evaluation averages of pupil music listening performance during the first 3 fables.



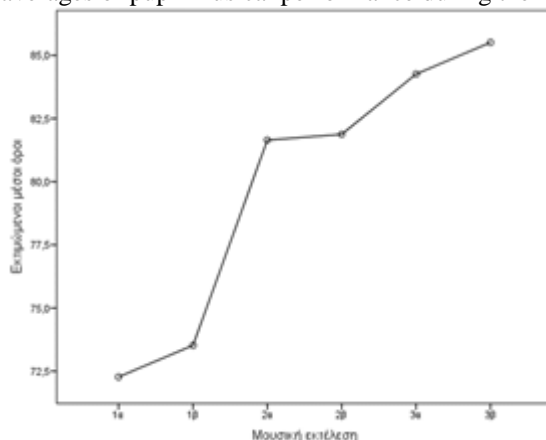
The combination of sound, speech and movement combined with the percussion instruments have managed to stimulate the interest of the children, thus making them respond throughout the duration of the educational program.

"Every concept of rhythm - flow in time - but also of measure derives from the ancient Greek poetry (accents, long, short, measures, yambus, rolling, reversed, etc.). Thus, speech and movement are ideally tied to sound and music" (Karadimou - Liatsou, 2003, p.55).

The use of percussion instruments by children, apart from the great pleasure that it offered them, also helped them to imitate the song rhythmically and to "orchestrate" it by helping them to imitate the musical motifs (Kenney, 1997) and to contribute to the creativity of the educational intervention. In addition, a Swanwick and Tillman research (1986) has shown that pre-school children creatively experiment on the exploration of sound sources.

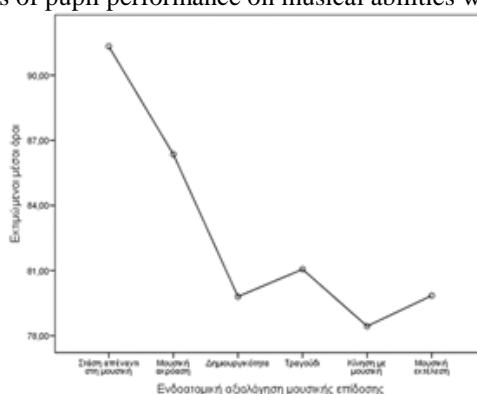
Concerning the Creativity of the music-based educational intervention program, progress has been made in children responding to both evaluations and with an average performance rate of 79.80%, a very high percentage which demonstrates the contribution of music to children's creativity (see Figure 6)

Figure 6  
 Evaluation averages of pupil musical performance during the first 3 fables.



The attitude towards Music also showed the highest rates of evaluation results in both evaluations of the fables, with the first fable-song being at 83.30% and 90.34%, the second increasing to 91.93% and 92.73% and the third fable-song being at 94.20% and 95.45%; noting the greatest success in an age such as pre-school, which is also a critical period for forming a positive attitude towards music in general (see Figure 7)

Figure 7  
 Evaluation averages of pupil performance on musical abilities which were evaluated



The songwriting that was created was a practical method of combining song, speech and music and constituted the prototype of this teaching with an increasing course, according to the statistics listed for each of the three Aesop's fables we approached:

- Hare and turtle
- Dog and fox
- Cucumbers and ants

The accompaniment of singing history has been made with the voice, body and instruments of the ORFF system, which experience has shown to excite and keep the interest of preschool children unmatched. Music, singing - song-story, the children moving to music, or else music with movement, helped us to attract the interest and attention of preschool students and keep it unmatched.

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