Education through music – Another way of teaching
Dalcroze 100 years later

Eugènia Arús

1. Introduction

The music is present in many moments of our lives: when we share our affection, when our body and our brain need energy or relaxation, when we want to draw attention in an effective manner, or even to move deeply when words are not enough … Something so important in our lives should never be out of the school. However in recent years the music education has been concerned, perhaps in excess, about *how* it should be taught, that is the "how", forgetting *the why* and *what for* of music education, questions that give us the key and arguments to defend the need of its presence in school life. More than 100 years ago Émile Jaques-Dalcroze was concerned about responding to these questions and his main goal was to bring music to the school.

The Jaques-Dalcroze eurhythmics is an active musical pedagogy based on body movements. The student (child or professional) is brought to feel what he hears through moving his body to the sounds and rhythms. *"We do not only listen to music with our ears, it resonates in our whole body, in the brain and the heart"* (Jaques-Dalcroze, 1948: 131).

Learning through a eurhythmics lesson can be an enjoying and creative moment. We can have the opportunity of acquiring the knowledge of music from a wide and attractive perspective, and at the same time to stimulate many different abilities (listening, rhythm, sensitivity, reflexes, memory, creativity, etc.), in order to provide fluidity in learning.

The main aim of the research has been:

Evaluating the implementation of an education programme with a pre-school population (agedf ive), putting into practice procedures based on use of music and movement – Dalcroze eurhythmics – as a learning ve-

hicle for content typical of this stage – logic, quantity, shape, graphomotor skills and knowledge of the environment.

Our main aim was to address diversity in the classroom in multicultural educational environments. Evaluating a programme, which specifically includes promotion of the music and movement not only as an educational goal but also as a means of learning in an attempt to address the existing diversity in classrooms. According to Gardner, Feldman and Krechevsky, (2001) rich educational experiences are essential to the development of the particular set of interests and capabilities of each child.

$$\frac{\text{Pre-school education} + \text{Music \& movement} = \text{Address the existing diversity}}{\uparrow(\text{Creativity}) + \uparrow(\text{Emotional stability})}$$

In order to understand the reasons behind this research we should explain a little about our country: Spain. The importance placed on pre-school education in Spanish society has resulted in the current high schooling rates at these ages. The level of schooling is very high. According to the Ministry of Education's report entitled "Education at a glance: OECD Indicators 2012", Spain is among the countries with the highest schooling rates in pre-school education, despite the fact that it is a voluntary stage. Between the ages of 3 and 4 the schooling rate in Spain stands at 99%. In other words, it is virtually universal, whereas it is 71,9% in the OECD and 78,1% in the EU. In this almost universal Spanish schooling, the child's emotional wellbeing is vitally important; wellbeing which may be more fragile in multicultural environments. Affective aspects are vitally important to the child's learning and development. The emotional connotation of the arts can open up the child's receptivity and communication channels, whilst also helping them to learn artistic content usually found in other areas (Malloch, 1999; Parke & Gauvain, 2009).

2. Educating through the music and movement

At young ages, the education process takes place naturally and globally (Gardner, 1994). Educators can draw on a wide range of resources and procedures to help them get young children's attention. Pérez Moreno

(2011) shows how musical and artistic situations take place spontaneously at preschool (ages 0–3), especially in the presence of an adult with a feel for the arts.

At these early ages, motivation is key and lots of connections between different areas and subjects come into play. *"One encounters convincing evidence that children learn effectively when they are engaged by rich and meaningful projects, when their artistic learning is anchored in artistic production, when there is an easy commerce among the various forms of knowing, including intuitive, craft, symbolic and notational forms."* (Gardner, 1994: 87–88). This idea is still valid, as confirmed by recent research (Economidou Stavrou, N.; Chrysostomou, S. & Socratous, H., 2011).

Very interesting relationships have been identified between rhythmics and other areas of knowledge. Music and mathematics are directly linked through their use of proportions, series, patterns, numerical measurements ... so is there a relationship between developing rhythmic skills and mathematical skills? From a global perspective, recent research shows that better rhythmic skills also entail better mathematical skills; it also reveals variations in age and gender in a population of ages of between 5 and 6 (Mertoglu, 2010). More specifically, Habegger (2010) studied a possible analogy between the ability to count series of objects and the ability to repeat rhythmic patterns in children aged 2–4. The findings confirmed that there is a correlation between developing the concept of number and accurately interpreting rhythmic patterns.

Alcock, Cullen and St. George (2008) investigated the relationship between music and learning to read. Their interpretative study shows how young children's sense of music not only serves a communicative function but also adds to their enjoyment of the activity itself. It also shows how rhythm lays the foundations for developing verbal communication and learning to read and write. Educational research today is striving to show that music education can make an effective contribution to stimulating reading and writing (Bolduc, 2008), since rhythmic skills are closely related to phoneme segmentation skills (Moritz et al., 2013).

The arts can be beneficial in populations at risk of dropping out of school and/or with special educational needs (Seeman, 2008).

3. Methodology

Methodologically speaking, when preparing this study we have made use of the *participatory evaluation research model,* as our aim was to evaluate the efficiency of the implementation of an educational element, process or programme (Sandín 2003; Cabrera 2003).

The sample was made up of 96 boys and girls from five to six years of age (48 control group + 48 experimental group). They attend two schools in Madrid and Barcelona where the multiculturalism of pupils is manifest.

The programme was implemented for one month, with activities and worksheets regularly carried out every week. In this programme music and movement – Dalcroze eurhythmics – all intervene:

- As motivation.
- As a vehicle for the development of attention and concentration.
- As a stimulator for children's creativity in learning processes.
- As a procedure.

Objectives

1. Carrying out an initial evaluation in order to find out whether the proposal is appropriate to the interests and requirements of the institutional context in which the programme is to be applied, assessing the initial emotional state of five-year-old pupils.

2. Preparing and implementing a pre-school education programme distinguished by the use of the music as educational drivers, evaluating its feasibility and achievements according to the processes involved.

3. Carrying out a final examination in order to detect whether, having evaluated the pupils' emotional state again, any particular changes were observed in comparison with the initial evaluation based on the appearance or disappearance of emotional indicators.

4. Compiling teachers' opinions, evaluating the changes, which have occurred in their attitude based on self-reflection.

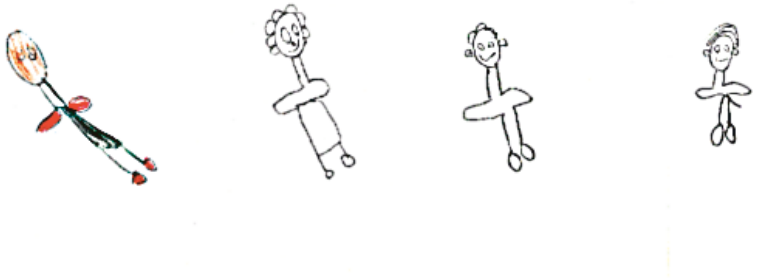
5. Being able to optimise the programme in the future.

The specific objectives are as follows:

- Evaluating the effects of carrying out rhythmic and artistic activities prior to table work on improvements achieved in writing accuracy (graphomotor skills).
- Evaluating the effects of working on geometric shapes and bodies through performance activities, as well as the observation and reinterpretation of works of art, on the understanding and recognition of five-year-old children.
- Evaluating the effects of listening to sound combinations on the solution of logic problems.
- Evaluating the use of the arts as an emotional enhancer in the completion of activities which involve understanding and autonomous work by five-year-old children.

4. Evaluation techniques and instruments

We used the following as evaluation techniques and instruments: Elizabeth Koppitz's *Human Figure Drawing test (2010):* This was chosen with the aim of obtaining information on the pupils participating in the study in an "objective" manner. It is not easy to find a suitable instrument for obtaining information on five-year-old subjects, but we chose the HFD test as it is well accepted by the pre-school population. It involves the child drawing a person however they want. Koppitz detected qualitative signs in the drawings which were not a result of the child's writing maturing, such as drawing a figure with no hands perfectly, or making a very small figure of less than five centimetres, and concluded that these signs were emotional indicators reflecting the child's emotional state at the time they drew the figure.



We also used a *systemised observation model*: It was chosen because it is an instrument, which encourages the participating observation of the teacher in the classroom. We aimed to obtain an overall view of the teacher with regard to the attitude of the class group towards the completion of each proposed activity. The structuring of the coding of the facts to be observed is systemised. However, it does include an open space in which to identify and record new variables.

Dynamic of the proposed activity	There is a general racket, which requires intervention by the teacher.	Works sporadically. Easily distracted and talk among themselves.	Works calmly in silence while looking at the worksheet. There are no spontaneous reactions (talking, singing ...).	Works in a focused way while looking at the worksheet. There are spontaneous reactions (talking, singing ...).
The proposed activity: Motivation	Not motivated.	Displays little motivation.	Sample some motivation.	Highly motivated.
Completion of the worksheet	There is a general resistance to doing the worksheet.	Some show resistance to doing the worksheet.	They do the worksheet mechanically without showing much enthusiasm.	They show enthusiasm for doing the worksheet. Everyone wants to participate.
Table work: bodily responses	There is a refusal to sit down. Intervention by the teacher is required.	Some pupils display rejection and use their body to express their refusal to do the proposed activity.	Displays tension and anxiety to complete the work.	Pays attention while sat down, in a relaxed manner, displaying a cheerful attitude.
Table work: verbal responses	Questions or interventions are generated by talking about subject matters unrelated to the activity.	There are no interventions by the pupils.	Questions or interventions are generated by talking about aspects related to the activity.	Shows understanding, does not ask questions, communicates with classmates and works with interest.
The time in which to do the worksheet, adapted to the content to be worked on	Needed more than one session to complete the worksheet due to incidents in the classroom.	Completed the worksheet using more than the usual period of time.	Did the worksheet within the usual time parameters.	Generally does the worksheet quickly and efficiently.
Handing in the worksheet	The teacher collects the worksheets from the pupils.	The pupils hand it in and some display a lack of confidence about their work.	The pupils hand in the worksheet without showing any emotion.	Generally hands in the worksheet showing positive emotions.

Lastly, we also carried out an open-structure interview with the teachers in order to compile qualitative aspects, which could help us optimise the programme in the future.

5. Findings and discussion

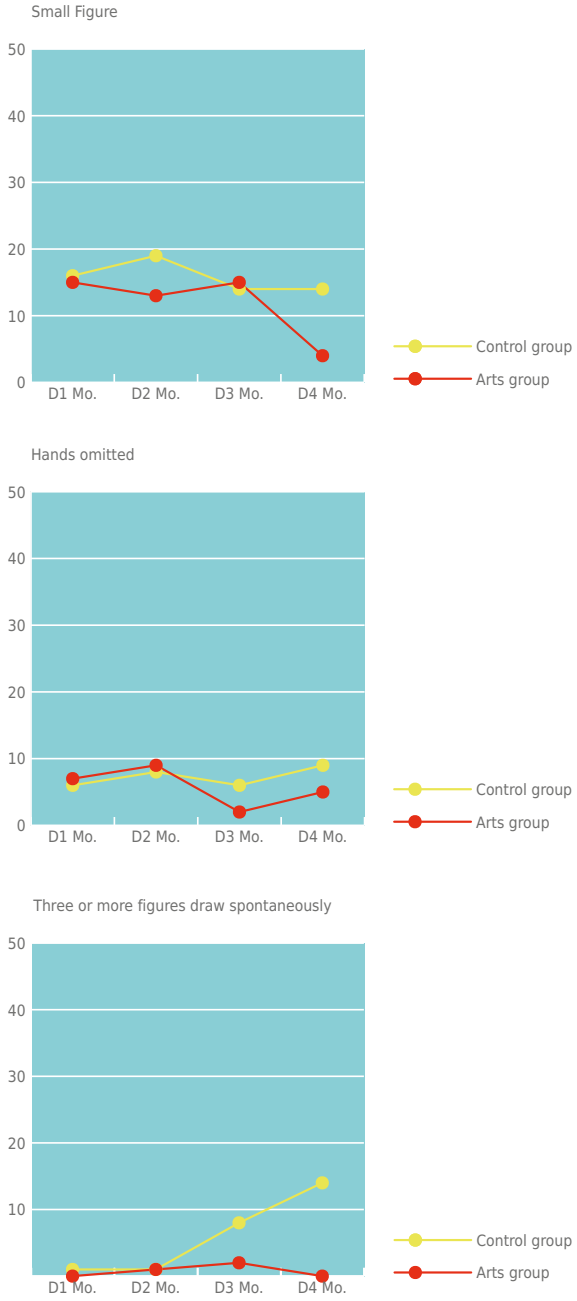
Koppitz's human figure drawing test was used on four occasions. First as an initial assessment of the emotional state of the sample: 96 boys and girls at P5 level. An educational activity to test graphomotor skills was carried out to assess the children's emotional state beforehand (D1) and immediately afterwards (D2). This was followed by the programme to encourage the use of the music and movement – Dalcroze eurhythmics – over the course of 1 month. Once the assessment period was over, a final evaluation was carried out to once again assess the children both before carrying out an activity (D3) and immediately afterwards (D4).

Four variables were created: Drawing 1, Drawing 2, Drawing 3 and Drawing 4, based on the sum of all the measurements recorded in each session. The following was also calculated:

Improvement 1 = Drawing 2 – Drawing 1
Improvement 2 = Drawing 4 – Drawing 3
Improvement 3 = Drawing 3 – Drawing 1
Improvement 4 = Drawing 4 – Drawing 2

It can be seen that the indicators, which appeared in the drawings were as follows: Size of the figure, hands omitted, omission of nose and spontaneous figures. Koppitz linked the size of the figure to the child's self-esteem at the time they do the drawing. When the figure is smaller than five centimeters it is considered to be an emotional indicator. Omitted hands could be associated with feelings of guilt, or the child's perception of having done something wrong. Omission of the nose is usually seen in children with a more reserved or shy nature. It is not an indicator on which too much importance should be placed at a young age. The fact that figures other than the requested one (the human figure) are drawn indicates a low level of attention or distraction, which could arise for any reason at the time the activity is requested. The diagrams below show the evolution of these indicators in the group that used the arts and the group that did not.

Descriptive evolution of the indicators, which appeared most often in the drawings (D1, D2, D3 and D4):


Small Figure
50
40
30
20
10
0
D1 Mo.
D2 Mo.
D3 Mo.
D4 Mo.
Control group
Arts group
Hands omitted
50
40
30
20
10
0
D1 Mo.
D2 Mo.
D3 Mo.
D4 Mo.
Control group
Arts group
Three or more figures draw spontaneously
50
40
30
20
10
D1 Mo.
D2 Mo.
D3 Mo.
D4 Mo.
Control group
Arts group

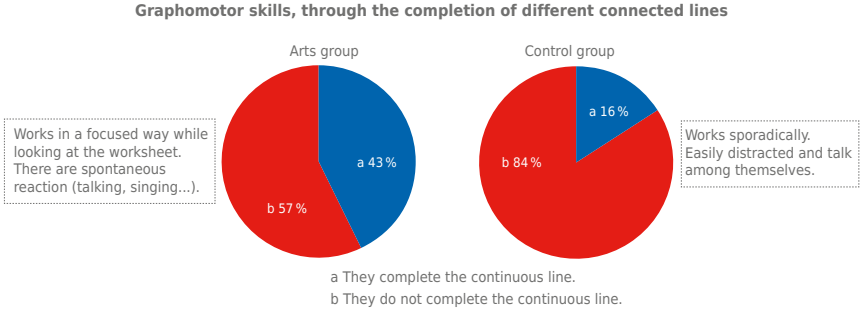
The experimental group showed significant differences in terms of the indicators gathered from the second drawing from the first period compared with the second period (p=0,001) and in the case of the two drawings from the second period (p=0,007).

In the experimental group, 9 children did not improve in the second drawing from the second period compared with the second drawing from the first period, while the remaining 39 children improved or stayed the same.

In the control group, 19 children did not improve in the second drawing from the second period compared with the second drawing from the first period, while the remaining 29 children improved or stayed the same.

A total of 960 school exercises were gathered during the assessment of the process. The findings show:

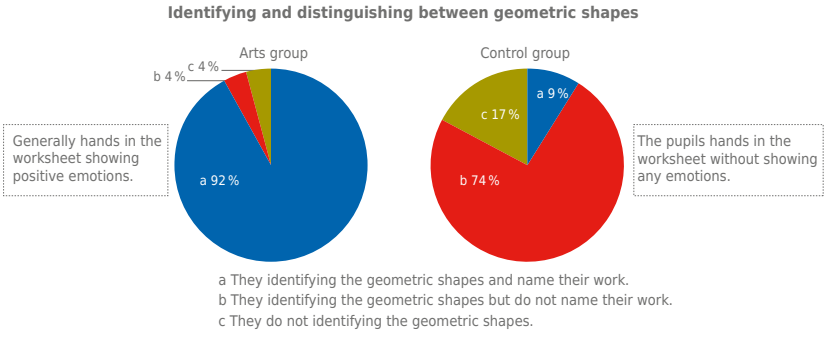
We get more positive results when we use music and expressive movement processes before expressing psychomotor activities in the form of pictures.



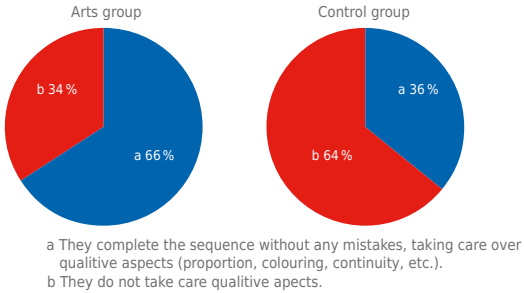
When trying to find our way through a maze, we have more creative problem-solving skills if we have previously heard sounds that paint a sound picture of what we are to see in the image, since this boosts our imaginative skills.

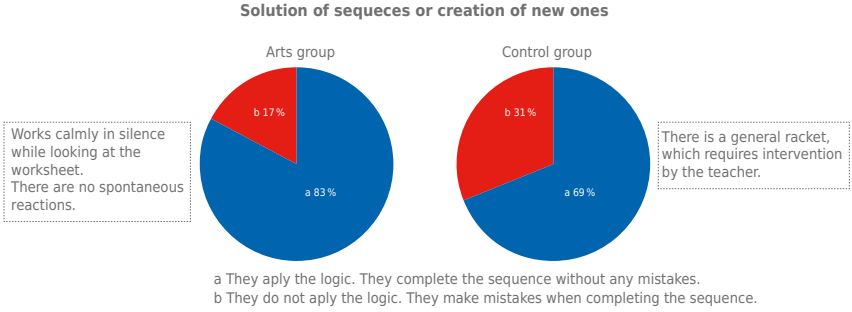
Looking at abstract works of art and moving through the music have a positive effect on recognising and creating geometric figures. It also means students find the pictures they draw more meaningful.

Listening to music that evokes or plunges you straight into an activity makes you feel peaceful and quiet and has a positive effect on qualitative aspects of solving series (proportion, colouring, continuity, etc.).



Introducing symbolic games with music and movement to identify geometric figures has a positive effect on autonomous table work to solve problems that involve identifying geometric figures.





In the educational context we researched, we observed that the use of the arts has a positive effect on young children's educational processes and learning results, since it has a bearing on their attention, creativity and

interest in learning. On their attention, since there are improvements in the use of qualitative aspects, which are reflected in their work in terms of both graphomotor skills (Moritz et al., 2013) and solving series (Habegger, 2010); on their creativity, since there is a greater chance of solving problems when they are involved naturally in the action (Csikszentmihalyi, 2001); and on their interest in learning, since the behaviour observed in the experimental group is typical of young children, because their fascination and curiosity help foster learning processes (L'Ecuyer, 2014).

We also saw that the use of the music and movement – Dalcroze eurhythmics – can even have an effect on children's emotional state as they learn. The initial assessment shows a group of children with low self-esteem or a feeling of frustration after carrying out school activities; this low self-esteem or feeling of frustration was reduced in percentage terms after the programme had been carried out. The key fact was that, in the experimental group, the number of children who, when asked to draw a person, drew other figures spontaneously was reduced to cero. This fact shows an improvement in young children's attention, as well as a better emotional balance when artistic channels of communication are activated.

Teachers' positive assessment of the use of the arts in class might lead us to think that their actions might have had an effect on the children's responses, since it has been shown (Pérez, 2011; Custodero, 2005) that the quality of the adult's actions has an effect on the quality of young children's educational experience and on their learning results in turn.

6. Conclusions

1. As an initial evaluation, the educational activities imparted had an effect on the appearance and disappearance of emotional indicators, with a significant presence of those indicating reserve, low self-esteem or in some cases poor school performance.
2. 40 observations were made in the evaluation of the group attitude responses of five-year-old boys and girls towards a school activity with or without use of the arts (music and movement, arts&crafts, drama). The results prove that there will always be qualitative differences in the attitude of the small children in the two groups: the group that has used the arts and the control group.

The procedural evaluation compiled 960 pieces of school work, and observed that use of the arts as a procedure can have a positive influence on the way they are done, specifically on the completion of connected lines, an increase in creativity in the solution of logic problems, associating and distinguishing between amounts and identifying geometric figures, as well as on emotional aspects that improve concentration and attention.
3. The emotional effect of use of the arts as an educational procedure was significantly beneficial for a large part of the sample group (81,2%), improving emotional stability and self-esteem in comparison with the initial evaluation.
4. The teachers participating in the research placed a high value on the use and presence of the arts for both the children and themselves, with a positive effect on the teaching action.
5. We consider it far more appropriate to optimize the program categorizing the artistic possibilities, which come together with the proposals, without limiting the creative liberty of the teacher.

To give the opportunity to children, to young people, even to us, to let grow the musicality, to develop communication skills in a different and sensitive language, to develop artistic thinking and foster the imagination should be a universal right. We must teach from the same brain of the one who is learning and who needs to use artistic languages.

References

Alcock, S., Cullen, J. & St. George, A. (2008). Word-play and "musike": young children learning literacies while communicating playfully. *Australian Journal of Early Childhood, 33*(2), 1–9.

Arús, E., Pérez Moreno, J. & Capdevila, R. (2013). Balance de la investigación sobre la educación musical temprana. *Eufonía. Didáctica de la Música, 59*, 8–19.

Bolduc, J. (2008). The effects of music instruction on emergent literacy capacities among preschool children: a literature review. *Early Childhood Research & Practice, 10*(1). Retrieved from http://ecrp.uiuc.edu/v10n1/bolduc.html [latest accessed on 11th of December 2016].

Cabrera, F. (2003). *Evaluación de la formación.* Madrid: Editorial Síntesis.

Custodero, L. (2005). Observable indicators of flow experience: a developmental perspective on musical engagement in young children from infancy to school age. *Music education research, 7*(2), 185–209.

Czikszentmihalyi, M. (1999). *Fluir*. Barcelona: Kairós.

Economidou Stavrou, N., Chrysostomou, S. & Socratous, H. (2011). Music learning in the early years: interdisciplinary approaches based on multiple intelligences. *Journal for Learning Through the Arts, 7*(1), 185, 209.

Gardner, H. (1994). *Educación artística y desarrollo humano*. Barcelona: Paidós.

Gardner, H., Feldman, D. H. & Krechevsky, M. (2001). *El Proyecto Spectrum. Tomo II Actividades de aprendizaje en la educación infantil.* Madrid: Morata.

Habegger, L. (2010). Number concept and rhythmic response in early childhood. *Music Education Research, 12*(3), 269–280.

Jordan-Decarbo, J. & Nelson, J. A.(2002). Music and Early Childhood Education. En Colwell, R. & Richardson, C. (Eds.), *The new handbook of research on music teaching and learning. A project of the music educators national conference.* New York: Oxford University Press.

Jaques-Dalcroze, E. (1948). *Notes Bariolées.* Genève: Edition Jeheber.

Koppitz, E. (2010). *El dibujo de la figura humana en los niños.* Buenos Aires: Guadalupe.

Lacárcel, J. (2003). Psicología de la música y emoción musical. *Educatio, 20–21*, 213–226.

L'Ecuyer, C. (2012). *Educar en el asombro.* Barcelona: Plataforma Editorial.

Malloch, S. (1999). Mothers and infants and communicative musicality. *Musicae Scientiae: Journal of the European Society for the Cognitive Sciences of Music: Special Issue 1999–2000*, 29–57.

Mertoglu, E. (2010). A study on the relationship between rhythm and mathematics skills of five to six year old children. *Gifted Education International, 26*(1), 26–34.

Moritz, C., Yampolsky, S., Papadelis, G., Thompson, J. & Wolf, M. (2013). Links between early rhythm skills, musical training, and phonological awareness. *Reading and Writing: An Interdisciplinary Journal, 26*(5), 739–769.

Parke, R. D. & Gauvain, M. (2009). *Child psychology. A contemporary viewpoint.* New York: McGraw-Hill.

Pérez Moreno, J. (2011). *La música a la vida quaotidiana d'infants de dos anys. Anàlisi de situacions musicals que es desenvolupen en context escolar.* Tesi doctoral. Universitat Autónoma de Barcelona.

Sandín, M. P. (2003). *Investigación cualitativa en educación. Fundamentos y tradiciones.* Madrid: MacGraw Hill-Interamericana de España, S. A. U.

Seeman, E. (2008). *Implementation of music activities to increase language skills in the at-risk early childhood population*. Saint Xavier University School of Education. Chicago, USA.