Johannella Tafuri[*1]

[*]*Centro in Canto, Bologna, Italy*

[1]johannellamusica@gmail.com

Expressive Performance of Children Aged 4–5 Years: Teaching Models and Vocal Abilities

ABSTRACT

Studies on performance usually deal with music intended for concerts. Very few of them are devoted to the genesis of expressive abilities that first arises in children's singing. Several studies observed the ability of children aged 4–5 years to sing in an expressive way using little variations in timing, dynamics and other musical characteristics. A question arises: would children show better expressive abilities if teachers attract their attention to some properties? Do they enjoy moulding their voice to show different emotions? The aims of this research are to analyze and compare the results obtained with a group of children when spontaneously performing two learned songs and when performing the same songs after receiving specific instructions by the teacher. First phase: two songs were chosen and five teachers prepared an expressive performance of both: particular parameters — timing, dynamics, phrasing, timbre quality, etc. — were accurately chosen. Each teacher sang them often with the expressivity chosen, to the 4–5 years-old children at their school without explaining/demanding any expressive character. When children knew those songs well, teachers recorded their performance individually. Second phase: the same teachers sang the same songs again inviting children to pay attention to the particular parameters chosen. Teachers recorded the children's individual performance. The analysis of the children's performances, through Sonic Visualizer, confirmed a weak presence of the teacher's expressive model. Nevertheless, if they receive specific instructions they are able to produce, with real enjoyment, a more expressive performance.

1. INTRODUCTION

Studies on performance usually deal with music intended for concerts and very few of them are devoted to the genesis of expressive abilities that arises in children's singing. This article has the aim of emphasizing that the 'concert performance' has origins that cannot be underestimated.

If we observe children aged 3–5 years singing in an expressive way it is possible to find that often they use little variations in timing, dynamics, timbre qualities of the voice and other musical structures giving in this way to their singing a certain vocal expressivity.

Considering the numerous scientific studies on early singing during the last 30 years, the majority of them has been mainly devoted to the problems of intonation and rhythm, that is to the acquisition of the basic properties of Western musical grammar. Some of them studied those aspects in children singing learned songs, whereas others devoted their attention to spontaneous singing looking at different aspects. After the studies carried out by the pioneers Moorhead and Pond (1941), Bjørkvold (1989), for example, was interested in studying the children's spontaneous singing in order to understand and identify the quantity and the quality of the invention processes, the musical forms and structures chosen by children, the functions attributed to the songs, like protesting, teasing, telling stories, creating a playful situation, etc.

Other studies dealing with spontaneous singing were more interested, for example, in identifying the songs 'embedded' in the activities, rather than the quality of the songs' performance produced by children 1–3 year olds and the difference between a situation guided by the adult or in which the children can freely sing what they prefer (Young 2003, 2004). Similarly, Tidoni (2011) studied what and how children sing when they are free to choose, if they prefer or not songs from the learned repertoire — traditional and/or commercial — and if they are more involved in respecting the musical structure of the songs or if they prefer to freely sing, that is to sing just some fragments, add some kind of variations — repeat some words or change them, add nonsense syllables like la–la–la, etc. — or mix different songs, etc. In short, how children like to play with the songs.

In the field of music-making, Barrett carried out a series of longitudinal research on the invented song-making of children aged 18 months to 4 years (2009, 2010 and 2012) with the aim of identifying the nature and the function of such activity in their general and musical development.

Other researchers have been more interested in the children's ability to reproduce the music they hear. For example, Dowling (1984) studied the development of the melodic contour while Davidson (1994) studied invented and rehearsed songs focusing on the development of tonal knowledge. A longitudinal research, the inCanto Project (Tafuri 2008), was undertaken several years later in order to study the development of musical ability from prenatal life to 6 years. The aim was to discover the appearance and the early development of different abilities: singing, with specific attention on singing in tune, moving, playing percussion instruments, with attention on isochronism, inventing in singing, etc.

In many of the mentioned research fields, it is interesting to notice that authors often refer to the presence of a relationship between singing activity and emotions. For example Bjørkvold considers children's spontaneous singing 'as a means of expressing, conveying, and arousing emotion, giving information and establishing contact' (Bjørkvold 1989, 216). Nevertheless, no specific studies appeared on this subject until 2010. Therefore we considered it necessary to deal with this aspect of music performance: the acquisition of expressive properties in singing since early infancy, even though it did not solicit, so far, specific attention by educational research.

2. VOCAL MUSIC AND EMOTIONS

Looking at the studies that explore the relationships between music and emotions, with the particular aim of understanding the underlying processes of an expressive performance — the aim of the present study — Juslin and Timmers (2010) pointed out that, in order to produce it, performers need to manage physical sound properties.

The term of expression, 'expressivity', is used here, according to Gabrielsson (2003) to refer to, on the one hand, the relationships between a performer's interpretation of a specific piece of music and measurable small-scale variations in timing, dynamics, vibrato and articulation that make up the 'microstructure' of the performance, and, on the other hand, the relationships among such variations in the performance and the listener's perception of the performance.

Are these variations produced only in vocal music performance? When we look at the studies it is soon obvious that the majority of them are looking for the same variations as those in speaking. The most diffused question is about the potentialities of the voice to communicate emotions.

The 'musical' aspects of the prosody, that is, the musical characteristics of speech, have been studied from different points of view. For example, Scherer (1986) studied the relationship between phonatory and articulatory aspects of spoken voice and different emotional states.

Looking more specifically at the acoustic variables, Banse and Scherer observe that they are 'strongly involved in vocal emotion signaling: a) the level, range and contour of the fundamental frequency (… it reflects the frequency of the vibration of the vocal folds and is perceived as pitch); b) the vocal energy (or amplitude, perceived as intensity of the voice); c) the distribution of the energy in the frequency spectrum (particularly the relative energy in the high-vs.-the low frequency region, affecting the perception of voice quality or timbre; d) the location of the formants (F1, F2…Fn, related to the perception of articulation); and e) a variety of temporal phenomena, including tempo and pausing' (Banse and Scherer 1986, 615-16).

Also Thompson and Balkwill found that the psychophysical dimensions of music such as tempo, timbre, loudness and stimulus complexity are strongly related to emotional judgements. These dimensions are not culture-specific and 'they may function as universal cues for the emotional evaluation of all auditory stimuli' (Thompson and Balkwill 2000, 45).

Going in the same direction but analyzing infants' behaviour, Papousek underlines the important role of the preverbal vocal communication between parents and infants. 'In fact pitch and melody, temporal patterns and rhythm, loudness and accent, timbre and harmony are the most salient features of both partners' vocal utterances and soon become the earliest means of reciprocal communication, preverbal vocal imitation and playful interchanges' (Papousek 1996, 90). As already said some years before (Papousek *et al*. 1991), it is possible to draw up a list of the main prosodic psychophysical dimensions of the mother-infant vocal interactions: higher pitch, greater pitch range, elongated vowels, simple pitch contours, slower tempo, rhythmic regularity, repetitiveness, etc. This variety confirms that during early childhood there is a clear preference toward the 'infants directed speech, songs and lullabies' (Trainor 1996).

The early dialogues have been particularly studied by Trevarthen (1999), Malloch (1999), Trehub (2002). In particular, Trehub (2002) pointed to the 'sing-song manner' of mothers when they speak to their preverbal infants, a behaviour that regulates the infant's attention and arousal and encourages the mothers to continue repeating their vocal patterns, introduce variations, etc.

This presence of various musical elements in the vocal interaction with the mother is so important for the child that, in cases where a mother is suffering from postnatal depression, the rhythmic attunement, reciprocity and overall satisfaction decline. As Robb demonstrated through her research, postnatal depression influences the mother/infant relationship and in particular their vocal interactions. In particular, the quality of the depressed mother' voice is low pitched and flat, while that of 'a mother in healthy communication is bright and high pitched with melodic and undulating contours' (Robb 1999, 143). The consequence for the infant of a depressed mother is 'the disruption to the flow of communicative musicality' (Robb 1999, 143).

Similar results have been found by Delavenne (2006) in her study on communicative musicality of mothers with borderline personality disorder.

It is clear that infants assimilate musical cues from their first months of life, and manifest this assimilation when they start to vocalize and sing very short sound sequences (2–4 months on), to produce spoken and singing syllables (babbling, 3–4 months on), words (10–14 months on) and when they start to sing phrases and short songs (20–24 months on) (Tafuri 2008).

3. CHILDREN EXPRESSIVE SINGING

All the mentioned studies gave us an important overview on the amount and quality of practice done by children since their first months of life. This overview is necessary before talking about expressive singing. One of the first studies on children's expressive singing (Tafuri 2011) analysed the songs performed by the children who participated at the in Canto Project, that is, those children who received an appropriate music education since their prenatal life to 6 years.

The research questions were:

1. Are the children of 2–3 years old able to sing in an expressive way?
2. If yes, which kind of structures are they able to manage?
3. What is the role of context in favouring their expressivity?

The method consisted in analyzing a *corpus* of songs performed at home by the children of the inCanto research project. The recording sessions had been made by parents following a protocol given to them by the researcher.

The results showed that children 2–3 years old are gradually developing the ability to sing in an expressive way; that the acoustical qualities to which they gave more attention and that they were able to manage easier were principally timing and loudness, even though some of them also changed the vocal timbre qualities; that they assimilated some structures, in particular the musical characteristics of the speech prosody, during daily life: parents speaking tenderly or a bit angry or scared, or pressing them to speed up or telling stories with playful or sad situations, etc. Consequently, children link those emotions with the sound structures conveying them, either during speech and during singing.

One of the best situations for children to experience different kinds of emotions conveyed by the voice is by listening to a story.

Story telling belongs to all cultures and expresses the fundamental situations of human life. A story leads children to recognise and imitate the fundamental emotions, with their various nuances, and to reproduce, through their voices — also when they sing —, different emotional aspects of the physiological parameters: anger for example is accompanied by considerable body tension therefore the voice is tense and strong, *forte*; sadness is accompanied by a sensation of lack of energy, of weakness in the body and the voice is often soft, *piano* and low pitched; in case of fear, the voice could be trembling because the breath is discontinuous, etc.

In the daily life of children there are always some people telling stories: parents, grand-parents, educators, etc. and the stories for children normally contain some basic emotion. More frequently joy and fear, but also anger, sadness, etc. How are these stories narrated? We come back here to the ability of the narrators to mould their voice by managing the prosody, which means those musical aspects that we mentioned before, principally timing, dynamics, pitch, and timbral qualities.

The voice of the wolf in the story *The Three Little Pigs* or in *Little Red Riding Hood*, for example, needs to be changed according to the different situations: soft and sweet when the wolf wants to charm his prey, strong and arrogant when it is threatening, etc.

The parents or teachers trying to capture the attention of children, perhaps with the help of a book, need to manage the different psychophysical dimensions in order to convey this kind of emotions. These experiences prompt the children to tell the stories to themselves and try to mould their voices too.

We can recognise this mechanism in the operas or in the lieder or vocal music pieces. One of the best examples can be found in the famous lied by Schubert, *Erlkönig* (The king of the Elves) in which the singer has to interpret four roles: the narrator, the father, the son and the king of the Elves.

The quality of the voice should be: detached and nearly neutral, for the narrator; calm and soothing, for the father; seductive at the beginning and violent at the end, for the king; progressively more and more scared, for the son.

Apart from the melodic, rhythmic and harmonic dimensions chosen by Schubert, what is more impressive are the necessary changes requested of the performer in the use of timing and dynamics and above all the timbral aspects. This is an extraordinary musical example that educators should know.

Coming back to the children's experience, it is mainly when they are playing that we can identify, by listening to the characteristics of their vocal productions, how they use their voices when taking pleasure in:

– experiencing the sounds resonating in their head and chest;
– accompanying their games;
– singing and doing it also in a strange way: with very high/very low pitch, very rapidly or very slowly, using strange qualities of voice: nasal, raspy, hoarse, etc.;
– feeling proud in front of parents and/or peers;
– manifesting different emotions by moulding their voice according to different musical structures (mainly rhythm, pitch and melody);
– expressing the emotional experience of episodes in the story (fear, sadness, anger, etc.) by using the prosodic elements they use spontaneously at home or at school or that are suggested by the teacher's performance model.

A second study (Tafuri and Baroni 2014) used the same method as that used for the previously mentioned research, analyzing the songs produced by a wide group of children, aged 2 ½–5 years, attending daily several Infant Schools in Tuscany (Italy), where teachers regularly sing a certain number of songs almost daily and it compared the results with those shown by the children of the inCanto project who were a bit younger and have received an early music education.

The *corpus* of songs performed by the children and recorded by the teachers, have been analysed with the software Sonic Visualizer, with particular attention paid to the children's use of timing, dynamics, timbre vocal qualities and other characteristics. The results highlighted the process of managing physical sound properties in order to produce an expressive performance.

These results, when compared with those obtained by children who received an early music education, gave interesting indications on the positive role of an early musical experience particularly at an age when their expressive abilities are first manifested.

4. VOCAL ABILITIES AND TEACHING MODELS

After having demonstrated that children are able to mould their own voice in order to obtain an expressive performance if they live in a musically rich family and surroundings, another question arose: what is the role of the examples given by parents, educators and media? This question was motivated by the fact that in some recordings we observed the presence of some expressions used by educators or media.

A first step was a pilot study dealing in particular with the presence of some characteristic expressive choice used by the educators in their singing activity related to the different emotions presented through the words of the songs (Tafuri and Fabbri 2016).

Three songs were chosen, each containing a little story, and two teachers prepared their own performance. Each teacher taught them with the expressivity chosen to the 4–5 year-old children of her own group attending music courses in two different Italian cities, without explaining or demanding any expressive character.

The results of this pilot study confirmed the presence of a certain ability of children aged 3–5 years to manage some sound features — mainly dynamics and timing — in order to be expressive in singing. About the influence of the teacher singing model, it did not appear to be particularly strong.

In the present study**,** carried out with Maria Grazia Bellia, the aims were firstly to enlarge on the results obtained in the pilot study with a wider group of children. Secondly, to understand better why, if children already acquired certain abilities in the use of the voice, they don't consider the proposal performed by the educator a model to follow. Is it a question of their attention ability, it being still quite short, or is it a question of considering the educators' proposal to be just like a suggestion, a general invitation to learn a new song that they are going to sing as they like?

As we already mentioned, the literature tells us that the singing of the educator or that of the media can give rise to several kinds of children's behaviour:
– repetition with many kinds of variations;
– repetition and invention;
– just invention but always motivated by the previous singing.

Children show their preference for the lyrics, or the melody, or they can feel attracted by the emotions communicated by the lyrics, and so on.

Beside this, it has already been observed how the activities of preschool children are based on the pleasure they experience when they 'do something'. This involvement often reaches the level of what is considered a real 'flow state'. The observation of children's musical activity by Lori Custodero, allowed her to recognize the presence of this 'flow state' through identification of the pertinent traits. In the present study we prefer to use the terms 'pleasure', 'enjoyment', because we did not analyze the children's behaviour with the method developed by Custodero.

By analysing different situations of the children's involvement in musical activity, we can just recognize the presence of the multiple possibilities children have to be pleasantly involved.

4.1 Aims and Questions

When children sing a song:
1. How much does the teacher's singing model influence the spontaneous performance of children aged 4–5 years?
2. Which structures are best assimilated?
3. How much do children enjoy singing?
4. Are they able to sing more expressively if they receive explicit orientation?

4.2. Method

Subjects: 30 children 4–5 years old, coming from 3 different groups:
– 2 groups of children attending weekly a music activity course (in Italy: 1 in Siracusa and 1 in Bologna);
– 1 group of children attending daily a private kindergarten in Ferrara.

Concerning materials, two songs were chosen by the researchers: *La strada che suona* (The Street That Makes Sounds) and *Quattro stelline* (Four Little Stars).

The lyrics of these songs are containing 2 little stories characterized by different kinds of emotions. Let's have a look now at the lyrics of the two songs and at the emotions conveyed. Let's start with *La strada che suona*:

Camminiam nella foresta
We are walking in a forest
Con un vento di tempesta
With a windy storm
Dentro il buio nero nero
In the darkness really black
Ho paura per davvero!
I am really scared!

Nella grotta presto entriamo
Quickly we go into the cave
E più freddo non abbiamo
And we are no longer cold
Ci riscalda un grande fuoco
We keep warm at a big fire
Di uno gnomo che fa il cuoco
Of a gnome who is a cook.

Let's read now Quattro stelline:

Sai quante stelle ho visto passare
You know how many stars I've seen going by
Quattro stelline sul bordo del mare:
Four little stars on the edge of the sea
una per me, una per te,
one for me, one for you
una la chiede la figlia del re
one is requested by the king's daughter

La quarta la vuole il reuccio cattivo
The fourth is required by the naughty little king,
Grida, comanda, la vuole per sé
he screams, orders, wants to possess her.

Ma la stellina resta a guardare
But the little star remains looking
poi sorridendo si tuffa nel mare. (2 v.)
then, smiling, it plunges into the sea.

In order to propose an expressive performance to the children, we decided to choose some parameters on which to make some particular changes and we asked the teachers to prepare their expressive performance to use with children, according to the choices we made.

For *La strada che suona*, the parameters chosen were: voice quality, articulation, timing and the teachers were asked to sing stressing the following characteristics:
A. First verse, during the first 3 lines:
– sing with a dark and tense vocal timbre;
– produce a quick, noisy breath before the 4th line and sing 'I am really scared!' with a trembling voice.
B. Second verse:
– sing the first and second line with a clear and relaxed vocal timbre;
– singing quite slowly and a pleasant voice the third line and very quickly the last one.

For *Quattro stelline* the parameters chosen were: voice quality, dynamics, articulation and the characteristics to be shown were:
A. First verse:
– 1st and 2nd line: very legato, *mezzo forte*, relaxed and tender voice;
– 3rd and 4th line: very staccato
B. Second verse:
– 1st and 2nd line: angry voice, heavy, tense;
– 3rd and 4th line: very legato, *mezzo forte*, relaxed and tender voice.

4.3 Realization

First phase: each teacher sang the two songs to the children for several days with the expressivity chosen, but they never explained nor demanded any expressive character. When children knew those songs well, teachers recorded their performance individually.

Second phase: after the recordings, each teacher sang the same songs again but, after her first performance, invited all children together to pay attention to the specific situation communicated by the song — 'we are in a forest, there is a storm with a strong wind… the forest is dark, how would we feel? How does our voice sound?'. Then she emphasised the physical sound properties that she produced in relation to the situation described by the lyrics. After some repetition, she

invited children to sing expressing what the lyrics are describing. Children took pleasure in trying to sing like her. After several days during which the children listened and sang again the two songs, paying attention to the expressivity, the teachers recorded again the children's individual performance.

5. RESULTS AND CONCLUSIONS

The analysis of the recordings of all the children gave various confirmations and some new elements. Looking at the research questions, it is possible to say, after listening to the first recordings, that the influence of the teacher singing model didn't appear to be particularly strong. The comparison between the first and the second recording shows a clear improvement but still not stable.

We should say that the expressive teacher model acts as suggestion, invitation not to sing mechanically but to change different elements of their voice according to what they are singing, but these suggestions are not taken as a necessity by the children who reproduce this or that model if they feel like playing, at this moment, with their voice in this or that way.

The structure best assimilated is timing. When some passage is particularly slow or fast, children are attracted by it and reproduce it quite immediately also because they enjoy exaggerating. In this research, all the children remembered to sing very quickly the last line of the *La strada che suona*, as the teacher sang.

It appeared to be more difficult to remember where and how to change the voice quality. When they play on their own, they do it easily and make a lot of strange sounds, but when a certain vocal quality is shown and requested, it does not appear so easy.

Undoubtedly this research confirms the ability of children 4–5 years old to recognise the emotions represented by the lyrics, mainly fear and badness; to produce a more expressive performance that means that they are already able to distinguish the sound differences between the educator's proposal and their own performance; that they are able to mould, more or less appropriately, their own voice, but it also confirms that their attention span is still quite short. Moreover, it is strongly linked to the enjoyment that this or that activity awakes in them. Generally speaking, children like to sing and the improvement reached in this research shows that children enjoy singing, but we never know if on this day and at that time the singing activity is creating enjoyment for this or that child.

KEYWORDS

Analysis, Performance, Children, Singing, Education.

REFERENCES

Banse, Rainer, and Scherer, Klaus R., 1996. 'Acoustic Profiles in Vocal Emotion Expression', *Journal of Personality and Social Psychology* 70/3: 614–36.

Barrett, Margaret. S., 2009. 'Sounding Lives in and through Music: A Narrative Inquiry of the 'Everyday' Musical Engagement of a Young Child', *Journal of Early Childhood Research* 7/2: 115–34.

———, 2011. 'Musical Narratives: A Study of a Young Child's Identity Work in and through Music-Making', *Psychology of Music* 39/4: 403–423.

———, 2012. 'Preparing the Mind for Creativity: A Case Study of Early Music Learning and Engagement', in Oscar Odena and Graham F. Welch (eds.), *Musical creativity: Insights from Music Education Research*. Aldershot: Ashgate, 51–71.

Bjørkvold Jon-Roar, 1989. *The Muse Within: Creativity and Communication, Song and Play from Childhood Through Maturity*, trans. W. H. Halverson. New York (NY): Harper Collins.

Custodero, Lori, A., 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.

Davidson, Lyle, 1994. 'Songsinging by Young and Old: A Developmental Approach to Music', in Rita Aiello with John Sloboda (eds.), *Musical Perceptions*. Oxford: Oxford University Press, 99–130.

Delavenne, Anne, 2006. 'Musicality of Mother-Infant Vocal Interaction' in Maria Baroni, Anna Rita Addessi, Roberto Caterina, Marco Costa and Alma Mater (eds.), Abstracts book of the *9th International Conference on Music Perception and Cognition (ICMPC)* and *6th Triennial Conference of the European Society for the Cognitive Sciences of Music (ESCOM)*. Bologna: Studiorum University of Bologna.

Gabrielsson, Alf, 2003. 'Music Performance Research at the Millennium', *Psychology of Music* 31/3: 221–72.

Juslin, Patrick, and Timmers, Renee, 2010. 'Expression and Communication of Emotion in Music Performance', in Patrick Juslin and John Sloboda (eds.), *Handbook of Musica and Emotion. Theory, Research, Applications*. Oxford/New York: Oxford University Press, 453–89.

Dowling, W. Jay, 1984. 'Development of Musical Schemata in Children's Spontaneous Singing', in W. Ray Crozier and Anthony J. Chapman (eds.), *Cognitive Processes in The Perception of Art.* Amsterdam: North-Holland: 145–63.

Malloch, Stephen N., 1999/2000. 'Mothers and Infants and Communicative Musicality', *Musicae Scientiae* 3/1 Special Issue: 29–54.

Moorhead, Gladys E. and Pond, Donald, 1978. *Music of Young Children*. Santa Barbara (CA): Pillsbury Foundation for Advancement of Music Education. (1st ed. 1941.)

Papoušek, Mechthild, 1996. 'Intuitive Parenting: A Hidden Source of Musical Stimulation in Infancy', in Irène Deliège and John Sloboda (eds.), *Musical beginnings*. Oxford: Oxford University Press, 88–112.

Robb, Louise, 1999/2000. 'Emotional Musicality in Mother-Infant Vocal Affect, And an Acoustic Study of Postnatal Depression', *Musicae Scientiae* 3/1 Special Issue: 123–54.

Scherer, Klaus R., 1986. 'Vocal Affect Expression: A Review and a Model for Future Research', *Psychological Bulletin* 99/2: 143–65.

Tafuri, Johannella, 2008. *Infant Musicality: New Research for Educators and Parents.* Farnham: Ashgate. (1st ed. 2006.)

———, 2011. 'Analysis of Expressive Singing in Children 2–3 Years Old', in Egidio Pozzi and Antonio Cascelli (eds.), *EuroMac VII European Music Analysis Conference: Programme and Abstracts Book*. Bologna: Gruppo Analisi e Teoria Musicale, 169.

Tafuri, Johannella, and Baroni, Mario, 2014. 'Expressive Singing of Preschool Children', paper presented at the *31st ISME World Conference*. Porto Alegre: Brazil.

Tafuri, Johannella, and Letizia, Fabbri, 2016. 'The Influence of Teaching Models in Singing on the Performance of 4 and 5 Year-Old Children', paper presented at *The International Conference 'Musicology Applied to the Concert: Performance Studies at Work'*. Baeza: Universidad Internacional de Andalucía.

Thompson, William F., and Balkwill, Laura-Lee, 2010. 'Cross Cultural Similarities and Differences', in Patrick Juslin and John Sloboda (eds.), *Handbook of Music and Emotion: Theory, Research, Applications*. Oxford/New York: Oxford University Press, 755–88.

Tidoni, Francesca, 2011. 'Cantare Spontaneamente', *Quaderni della SIEM* 25: 42–65.

Trainor, Laurel J., 1996. 'Infant Preferences for Infant-Directed Versus Noninfant-Directed Playsongs and Lullabies', *Infant Behavior and Development* 19: 83–92.

Trehub, Sandra, 2001-2002. 'Emotion and Music in Infancy', *Musicae Scientiae* 5/1 Special Issue: 37–61.

Trevarthen, Colwyn, 1999/2000. 'Musicality and the Intrinsic Motive Pulse: Evidence from Human Psychobiology and Infant Communication', *Musicae Scientiae* 3/1 Special Issue: 155–211.

Young, Susan, 2003. *Music with the Under-Fours*. New York (NY): Routledge Falmer.

———, 2004. 'Young Children's Spontaneous Vocalising', *International Journal of Early Childhood* 36/2: 59–74.