

MUSICAL STRUCTURES IN SPONTANEOUS SONGS OF CHILDREN AGED TWO TO THREE YEARS

Johannella Tafuri

Conservatory of Music, Bologna, Italy

ABSTRACT

This report is a stage of a longitudinal research dealing with the development of the ability to sing.

To what extent does such behaviour depend on the maturity of perceptual and vocal processes, or on a specific educational programme?

In order to answer this question, and after reviewing the research literature, we decided to pursue a longitudinal study, the *inCanto* Research Project, starting from the 6th month of prenatal life until the 6th year.

In 1999 my co-researcher Donatella Villa and I organised a weekly course of music for 119 mothers-to-be and for their children after birth; the results are being studied step by step as the children grow up. In the last study we analysed the imitation of previously learnt songs produced by the children aged 2-3 years and the results were notably higher than those obtained by other researchers.

In the present study we analysed the inventions sung by the same children aged 2-3, in order to verify the increasing presence of the intervals of our musical scale.

The results show that, at this age, it is already possible to observe the presence of clear intervals from our musical scale. Nevertheless these results are lower than those reached by the same children in the imitation of already learnt songs.

1. BACKGROUND

In the wake of the early studies on spontaneous singing by Moorhead and Pond (1941) and by Sundin (1963), some of the earliest, many other researchers (Davidson 1985; 1994; Moog 1976; Dowling 1982; 1984; Hargreaves 1986; Lucchetti 1987; Björkvold 1990 etc.) have studied this behaviour focusing on various aspects: contexts, functions, originality, modalities etc.

As a very good analysis of the extant literature has already been made by our first colleague in this Symposium, S. Young, I would just like to recall here some details. Firstly the different orientations of Moog (1976), Dowling (1982; 1984) and Davidson (1985): Moog is more interested in describing the most characteristic aspects of children's vocal productions, while Dowling and Davidson are more interested in explaining the cognitive processes underlying this behaviour and mainly with regards spontaneous singing.

Hargreaves (1986) points out, reflecting on his own findings, and those of Dowling and Davidson, that pitch control develops gradually from a floating situation to an accurate reproduction,

through what Davidson (1985) call the "outline song", that is a basic form of song in which intervals (the precise pitch relationship in our musical system) are progressively appearing and stabilising themselves. Children at 2 years mainly produce brief phrases repeated several times.

One question raised by Hargreaves and taken up in our study, is "the degree of similarity and interrelationship, between the child's versions of standard songs and their spontaneous songs" (p. 72).

In our previous study (Tafuri, Villa 2002b) we analysed the development of the ability to sing in tune in children 2-3 years old musically accompanied since prenatal life. Their vocal productions were classified according to a model containing 3 levels, drawn up on the basis of the Model of Vocal Pitch-Matching Development by Welch (1997):

- 1st) approximately in tune: children reproduce the melodic contour of a song without precise intervals
- 2nd) nearly in tune: children reproduce melodic contour and intervals in some phrases of a song
- 3rd) acceptably in tune: intervals of a whole song are mostly accurate although shifts in tonality may occur.

Rating the productions of these children 2-3 years old on a seven point scale, we found that at this age 78% of them scored between point 5 and 7, point 5 meaning that children produced phrases or songs covering all three levels, point 7 exclusively the 3rd level. The production of whole songs is clearly more abundant than phrases. These results were notably higher than those obtained by other researchers, in particular Moog (1976) and Welch (1997).

After that, we began to look into the relationship between the child's version of imitated songs and their spontaneous songs. In the present study we are dealing with the melodic structures used by the same 2-3-year-old children as in the previous report, this time focusing on spontaneous singing.

2. THE *inCanto* RESEARCH PROJECT

Our longitudinal *inCanto* Research Project is spanning from the 6th month of prenatal life until the 6th year. Its main goal is to verify the singing abilities (to sing in tune, to invent songs etc.) developed by children exposed to an appropriate musical environment during the above mentioned period.

The project, carried out with my co-researcher Donatella Villa, started in 1999 and we have already studied the effect of pre-natal memory (Villa, Tafuri 2000), the musical elements in the vocalisations produced at 2-8 months (Tafuri, Villa 2002a), the effects of musical interactive communication, that is, of infant-directed songs and recorded music on infant listeners aged 2-15 months (Tafuri, Villa, Caterina 2002) and the melodic accuracy in imitated songs at 2-3 years (Tafuri, Villa 2002b). In the present phase we studied the use of melodic structures in invented songs.

We hypothesized that children exposed to music during prenatal and neo-natal life and reinforced with encouragement and appreciation, are able to invent songs in which a melodic contour and some intervals of our musical scale are present.

3. METHOD OF THE *inCanto* RESEARCH PROJECT

In 1999 we organised a weekly course of music for 119 mothers-to-be and for their children after birth, principally based on singing (rounds, nursery rhymes and infant songs), listening (tonal music of different genres and styles), playing percussion instruments and movement (different kinds of dances).

The mothers were requested to sing and listen to music daily at home in interactive communication with the child and to do other musical activities; to fill in specially prepared diaries in which they answered a series of questions such as the amount (if any) of singing and listening activity per day, the effects of the mother singing in different situations of the child, the use of singing games etc.

They were also requested to record periodically the vocal productions of their children using an appropriate research protocol provided by us. The mothers returned the completed diaries and also gave us the recordings of the children's vocal productions (audio or videotapes).

4. RESULTS

Not many mothers could record their children when they were producing spontaneous songs because it was not easy for them to be unaware of being recorded. Children often stopped (or didn't start) when they noticed the tape-recorder. Normally mothers started inviting children to sing "something", leaving them the possibility to choose. In many cases children started with songs already learnt and after a while they started to invent. In other cases mothers left the tape-recorder on for a long time. In another few cases mothers invited them explicitly to invent some songs (for the cat, for the puppet, for dad etc.). During recordings children were often playing with toys, sometimes they were taking a bath or walking around the mother.

The sung productions of 21 children were firstly classified into two broad categories: 'imitative' and 'original'. The former including the repetition of a previously learnt song, the latter including the productions in which children invent music.

The 'original' category was subdivided into phrases, monologues and songs. Phrases, when children invent just one or two phrases (for example teasing someone or asking something or starting and stopping a song very quickly etc.). Monologues when they are singing on their own, doing some activity and using a few repeated sounds often with vowels or syllables. Songs when they are telling a story singing, sometimes on their own, sometimes to their mother. All the inventions were analysed according to a three level model:

1st level: the invention has a certain melodic contour without precise intervals (mc)

2nd level: the invention has a clear melodic contour with some intervals of our scale (mcsi)

3rd level: intervals are clearly present, prevalent and quite accurate even if some passages of inaccurate pitch persist; sometimes a tonal centre appears (pai).

The inventions produced by children were 99 distributed as follows: 26 phrases, 26 monologues, 47 songs.

All the productions have been rated accordingly to a seven-point scale (Table 1) going from point 1, when there is not any invention to point 7 when the inventions are exclusively on the 3rd level.

	Ratings	Phrases	Monolog	Songs
1	no inventions	52%	33%	33%
2	only melodic contour (mc)	14%	19%	19%
3	only melodic contour (mc) + melodic contour with some intervals (mcsi)	0%	5%	5%
4	only melodic contour with some intervals (mcsi) or only melodic contour (mc) + prevalent accurate intervals (pai)	5%	38%	23%
5	only melodic contour (mc) + melodic contour with some intervals (mcsi) + prevalent accurate intervals (pai)	5%	0%	10%
6	melodic contour with some intervals (mcsi) + prevalent accurate intervals (pai)	14%	0%	0%
7	only prevalent accurate intervals (pai)	9%	5%	10%

Table 1: The seven-point scale with the percentage of children

Looking at the Table 1 we can observe that the majority of children (52%) did not invent phrases, and many others did not invent monologues (33%) or songs (33%). As far as the melody is concerned, we can observe that children use clear intervals mainly during the invention of monologues at level 4 and of whole songs at level 5 and 7.

5. CONCLUSIONS

The results reveal that before 3 years of age, if the family environment is strongly supportive of the activity of singing right from the beginning of life, the physiological, perceptual and cognitive mechanisms can be ready for the use of certain melodic structures in invented songs.

The presence of more songs than phrases and monologues, contrary to what previous research found, could be explained by the fact that children have already developed the form of a song because mothers tend to concentrate more on the overall song than its phrases, as we also do during our weekly meetings. Moreover at home, if the children stop after a phrase mothers frequently say “and then?”, stimulating them to go on.

Comparing these results with those found in our previous study (Tafari, Villa 2002b) which were notably higher than the results obtained by other researchers (in particular Moog 1976 and Welch 1997), we observed that there is less control of pitch accuracy in the invention than in the imitation. In the latter we found that the 61% of children aged 2-3 years scored point 5 and 17% point 7, while in the former, using a similar scale, we found that 10% reached point 5 and 10% reached point 7 (see Table 1).

We suggest that the control of accuracy in imitation at the age of 2-3 years is better than during invention probably because the imitation is supported by a concrete instance to reproduce while the invention is improvised, therefore it is guided by an extempore idea. We thus agree with Dowling (1984) who, on finding the same results with his two daughters, pointed out that the use of precise intonation during the invention of new melodies “requires considerable experience with a variety of well learned instances. (...) pitch production at this age is not under the control of a pervasive scale schema” (p. 165) as happens in the repetition of well known songs.

No evidence was found of the pattern “sol la sol mi”, considered by Moorhead and Pond and other researchers as a universal pattern. Moreover, no frequent use of parts of learnt songs was found in the spontaneous singing (pot-pourri songs).

As far as the rhythmic structures are concerned, we found that rhythm tended to be better structured than melody, but this aspect will be analysed in more detail in our next work.

6. REFERENCES

1. Bjørkvold, J.-R. (1990). Canto ergo sum. In F. R. Wilson and F. L. Rochmann (eds), *Music and Child development. The biology of music making*, Proceedings of the 1987 Denver Conference (pp. 117-135). St. Louis: MMB Music.
2. Davidson, L. (1985). Tonal structures of children's early songs. *Music Perception*, 2, 3, pp. 361-373.
3. Davidson, L. (1994). Songsinging by young and old: A developmental approach to music. In R. Aiello with J. A. Sloboda (eds), *Musical Perceptions* (pp. 99-130). New York, Oxford: Oxford University Press.
4. Dowling, W. J. (1982). Melodic information processing and its development. In D. Deutsch (ed), *The Psychology of Music* (pp. 413-429). New York: Academic Press.
5. Dowling, W. J. (1984). Development of musical schemata in children's spontaneous singing. In W. R. Crozier and A. J. Chapman (eds.), *Cognitive Processes in the Perception of Art* (pp. 145-163). Amsterdam: Elsevier.
6. Hargreaves, D. J. (1986). *The Developmental Psychology of Music*. Cambridge: Cambridge University Press.
7. Lucchetti, S. (1987). *Il comportamento vocale infantile: dal gioco sonoro all'espressione musicale*. Thesis in D.A.M.S., University of Bologna.
8. Moog, H. (1976). *The Musical Experience of the Pre-school Child*. London: Schott.
9. Moorhead, G.E. and Pond, D. (1941, reprinted 1978). Music of Young Children: 11. General Observations. *Music of Young Children: Pillsbury Foundation Studies*. Santa Barbara: Pillsbury Foundation for Advancement of Music Education.
10. Sundin, B. (1963). *Barns musikaliska skapande* (Musical creativity in childhood). Stockholm: Liber
11. Tafari, J. and Villa D. (2002a). Musical elements in the vocalisations of infants aged 2-8 months. *British Journal of Music Education*, 19, 1, pp. 73-88.
12. Tafari, J. and Villa, D. (2002b). Singing a song: melodic accuracy in children aged 2-3. Poster presented at the Conference “The Neurosciences and Music”. Venice 25-27/10/2002 (in press).
13. Tafari, J., Villa, D. and Caterina, R. (2002). Mother-Infant Musical Communication in the 1st Year of Life. Paper presented at the XXIV ISME World Conference 2002. Bergen 11-16/8/2002 (in press).
14. Villa, D. and Tafari, J. (2000). Influenza delle esperienze musicali prenatali sulle reazioni del neonato. In J. Tafari (ed), *La ricerca per la didattica musicale*. Proceedings of the SIEM Conference 2000 (pp. 391-398). Bologna: SIEM.
15. Welch, G. F. (1997). The developing voice. In L. Thurman and G. F. Welch (eds), *Bodymind & Voice: Foundations of Voice Education* (pp. 481-494). Iowa City: National Center for Voice and Speech.