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The Ontogenesis of Musical Conducts and its Pedagogical Implications

Studying the ontogenesis of musical conducts is, in other words, asking ourselves “how does it begin?” How and why does a young child produce sounds more or less randomly, extend and enrich his sound “discoveries,” use them to express, represent, and more generally symbolise, and even organise them? How do these human practices arise, which will become specific later depending on the cultural environment and become what is called “music”?

There is obviously a pedagogical goal to this type of research. For 40 years, many teachers have been asking themselves how music education can make children sensitive to “music in general,” without distinction, that is to say, to introduce them just as much to non-European music in all its variety, and contemporary or ancient music, as well as to tonal music.

There is also an anthropological goal: what is “music in general?” And does this phrase have a meaning? Is it legitimate to use the same word “music” to describe the sound practices and productions that are highly dependent on a specific society and culture? Is there a common denominator?

“Music” from an anthropological point of view

This search for the characteristic features of what constitutes music can take two possible paths. The first concerns the sound productions that are called music, that is to say, what is heard. Comparative study leads to the discovery of “universals.” In fact, this path will not give us the answer to the question we are asking: “what is music?”

Universals are the formal features of those sound objects called “music”, that are found in most cultures¹. Traditionally, it is scales and rhythms that have been most frequently studied in terms of universals. The following two canonical examples will be sufficient for our argument. In almost all cultures (maybe in all of them), there is a method of organizing the pitch (height) of sounds on a scale. They are not always the same scales, of course, but organizing pitch on some sort of scale seems to be universal. However, here “universal” does not mean common to all music, but common to all cultures. There are some types of music with no scales, for example most percussion music. At the same time, there are some types of music with no rhythm, unless we give this word such a vague meaning that it includes everything that changes over time.

Thus nothing can be said to be common to all types of music, besides the fact that it consists of sound unfolding in time. A definition of music should not be sought in sound forms, but rather in the practices of those that produce or hear those sound forms. That is to say, we have to ask: why people do that, what are they looking for, what do they get out of it, what is the specific motivation of this sound activity. This is the second path, in contrast to what is traditionally called “universals”. Or, if you wish, this means seeking the universal, not in the sound objects produced, but in the social practices which are said to be musical.

This question has been the concern of musical anthropology; it can even be said that it is

¹ See for instance Mireanu & Hasher (1998), Molino & Nattiez (2007).

fundamental to it. Merriam (1964), in his *Anthropology of Music*, or Blacking (1973), with *How musical is man?*, (to only mention books that have made this question their main topic), define the musician man more by his musical practices, in which they discern a kind of universality, than by the sound objects he is capable of producing, which are so varied depending on period and continent. Thus, according to Blacking: “We cannot answer the question ‘how musical is man?’ until we know what features of human behavior, if any, are peculiar to music” (Blacking 1973, p.7). So far, this is now the most widely accepted position. Sound objects, instruments, “systems”, and the use of the voice differ from one continent to another, from one period to another; but making music, and using the body and certain objects to produce sound sequences which are intuitively recognized as music, corresponds to universal motivations and calls upon practices that are partially/fairly common.

Making music: a Piagetian game

This universal basis of the pleasure of playing with sound is something we will look for in the behaviour of very young children, before they have been too fashioned and regimented by their cultural environment. That is to say, while attempting to describe what is general in their practices of sound production which are called musical, we will see how these appear in childhood.

Producing sound and focusing one’s attention on sound is clearly a first characteristic which contributes to defining the act of musical production. Unlike a signal or language, whose sonority is not listened to for its own sake but which is interpreted first for its meaning, it is the sound produced by a musician which attracts the attention. And this is common to all cultures. Whether one is playing the violin, the nay flute or developing the guttural sonorities of *katajjaq*, the quality of the sound is sought by the producer and appreciated by the listener. For the musician, this implies a control of gesture. Controlling sound is regulating breath pressure on the labium lip, the weight of the bow, the tension of the vocal cords. The musician is constantly adjusting his gesture in response to these auditory, tactile and kinaesthetic sensations. It is virtually impossible for him to foresee and describe the gesture which will allow him to obtain a specific sound quality; it is by trial and instant adjustment that he finds it. It is by trial and error that the pianist’s hand finds the right position. Piaget described the mechanism of accommodation as follows: “La main épouse la forme de la chose”². [“The hand conforms to the form of the thing”]. Piaget did not realize that the accommodation he was studying in young children describes particularly well the instrumental gesture. It is in fact in the sensorimotor period of early childhood that this ability to grasp, move, rub, hold between the lips, and later to blow on the edge of a tube, is practiced. This is why we will call this level of research of a sound quality through constant adjustment of the gesture, monitored by the ear and other forms of sensory reception, the sensorimotor level. Music begins with sensorimotor control of sound and gesture.

Furthermore, sound is used to evoke, represent, and express – to symbolize. Margot, 21 months old, makes a window creak, and by chance obtains a melodic profile which evokes a vocal intonation which makes her laugh and say “baby.” She effects a double shift of her attention. She forgets the window to listen to a profile. That is to say, the meaning of the cause, a creaking window, is no longer the focus of her attention; now it is the sound profile. But the sound profile itself is no longer reduced to its form and substance. It is linked to what it evokes: a vocal intonation, with the whole palette of nuances that it permits.

² Piaget 1952, p. 98.

This symbolism through which sound evokes cultural elements is one of the best-studied aspects of musical anthropology. The forms which symbolism in music takes are extremely varied. They can sometimes be more or less conventional, associated to cultural representations. This is the case of the male and female drums in many cultures, the pastoral recorder in Bach, and the deep voice of the Christ of the Passions. They are sometimes more “natural,” based on associations between motor functions and their affects. This is the case of the “vigour” of the pianist’s gesture which evokes vigour as a psychological attitude or as a moral force. Symbolic reference in music relies on a wide range of analogies and conventions, which are intimately linked to cultural contexts. But attaching a symbolic value to sound really seems to be universal, and its genesis can be better understood when we hear a 21-month old little girl say “baby” while making a window creak.

However, creating or improvising music is not only producing sound while controlling its qualities by gesture, nor by using it to express, represent, or evoke, i.e. giving it a symbolic value. These sounds will only be called music if they are organized. That is how Varèse defined music: organized sound.

Producing music is constructing sound according to rules. But the word “rules” has to be clarified. Usually there is no moral value attached to it. Breaking the rules is not bad. But if they are not followed, part of the pleasure is lost. What is the nature of these rules? We will base our argument on two cases, while remaining aware that a comparative study of what musical rules imply about practice, both as a constraint and as intellectual gratification would be worthwhile. Consider the horn orchestras of Central Africa, studied by Simha Arom (1991). The musicians (about ten of them) form circles and each of them has an instrument that can produce a single pitch. Playing a melody implies that each one plays in turn, at the right moment, which is not simple. It becomes even more complicated if the group plays two melodies at the same time. Each musician must intervene if their note belongs to one or other of the two melodies. Yet these ensembles play three or four part polyphonies; it can be imagined what an accomplishment that is. Each musician plays a rhythmic formula on a single note, and it is the superimposition of these rhythmic formulae at different pitches that generates the polyphony. This polyphony, obtained through polyrhythm, is a game of interlocking different parts. Why do Africans play like this? They possess instruments that would allow them to play each part in its entirety, but if they prefer their single-note horns, it is obviously because the difficulty brings an additional pleasure, that of the game. The ability demonstrated is a source of admiration for listeners which is part of the pleasure of listening.

This game may seem gratuitous. However the fugue, jewel of our contrapuntal science, may seem gratuitous too. The mutual imitation of parts, and their harmonic complementarity requires a competence which, here again, compels the admiration of listeners. The simplest canon is an intellectual game: the voices maintain their autonomy and yet interlock like pieces of a puzzle, inciting surprise.

We all discovered *Frère Jacques*, not by reading music written on two staves but by following the rules of a game: “the second group will sing the same thing when I give the signal”, and by discovering with delight that these two voices, or even three voices, interlocked as if by magic. The fugue, and counterpoint in general, including inversions and retrogrades, is a sophisticated form of the set of rules we all first came across singing two-part canons. Long before the canon, children passed on simpler rules, like nursery rhymes, which are both games of inserting a phrase into a prosodic mould and, often, an alternation between two pitches or, in more highly developed forms, permutations of three or four notes. That they belong to wider categories of games with rules based on interlocking or permutation is clear, and the first signs of it can be seen in the alternations of early childhood.

Alternations are in fact the first kind of sound combination game, which appear in the first year of life: striking in turn two objects which produce different sounds. But more elaborate sound constructions can be observed.

Daniele (11 months) is sitting in front of two cymbals. First he rubs the left cymbal with a metallic spoon, producing a long, continuous sound, then he ends his sequence with a brief blow on the right cymbal. This same sequence – a long sound produced by rubbing followed by a short striking sound – is repeated identically three times. Not only that: he now produces a variation. Instead of rubbing the left cymbal with his spoon, he holds the spoon in place and turns the cymbal under it with his free hand. Again, he concludes with by hitting the right cymbal.

Ten months later, the same Daniele would produce a sequence of comparable form, sitting alone in front of a zither laid on the floor, again supplied with a spoon. He slowly rubs the spoon across all the strings and finishes his gesture by striking the wood of the zither. Here again, the sequence, which is repeated several times with variations, alternates a long sound produced by rubbing with a short sound of different sonority³. It is thus that a one-year old child can be seen capitalizing on his experience and constructing a style, which distinguishes him from other children: with Daniele, it's a combination of contrasting sounds.

We can thus see the outline of what the universal motivations the acts of sound production that we call “music” might be: sensorimotor control of sound production, the symbolic value attached to it, and a rule-based organization. They correspond word for word with the kinds of game described and analysed by Piaget: the sensorimotor game, the symbolic game, and games with rules, which take different forms, well known and well-described, depending on age. “Musical” production weaves these components together. It is the development of these types of game in a musical sphere, reinforced by pedagogical action, which we are now going to consider.

Sound exploration in early childhood: from circular reactions to the musical idea

From the age of a few months, children show great interest in the small noises produced by their gestures. At first, they are vocal noises or rattles, then an item rubbed back and forwards, or a door that creaks giving rise to prolonged variations. This activity, interpreted by psychologists, following Piaget (1936), as an assimilation of the outside world as a means to knowledge, is at the same time an authentic musical exercise.

The manipulation of sound bodies⁴ and the production sounds are just a particular instance of the wider range of activities, which are both motor and perceptive, and which are necessary for mental development. Sucking, manipulating, and shaking, are the means of conquering the practical universe in which the small child progresses by stages. His gestures, at first purely reflex, (sucking, grasping) are rapidly organized in repetitive cycles.

“It suffices that the infant’s random movements fortuitously produce something interesting [...] for him to repeat these new movements immediately. This ‘circular reaction,’ as it has been called, plays an essential role in sensorimotor development and represents a more advanced form of assimilation.” (Piaget, 1968, p. 18)

³ These recorded observations can be viewed on the two DVDs accompanying the book *La nascita della musica* (Delalande (ed.) 2009).

⁴ [Translator’s note – “Sound body” is an existing translation of Schaeffer’s “corps sonore”, designating “the material source of the sound”. (CHION, Michel, *Guide to Sound Objects*, transl. John Dack & Christine North (from *Guide des objets sonores*, 1983), London, 2009, p. 32-33)]

At the following stage, variation of gestures is added to simple repetition.

“In these ‘circular reactions’ the baby is not content merely to reproduce movements and gestures that have led to an interesting effect. He varies them intentionally in order to study the results of these variations and thus gives himself over to true explorations or to ‘experiments in order to see’. This is exemplified by the behaviour of the twelve-month-old child who throws objects on the ground in one direction or another in order to see how and where they fall.” (Piaget 1968, p. 11-12)

Piaget calls these exercises of repetition and variation “experimental practices”. Indeed, repetition and variation are the very principle of experimentation. In science, experimentation implies knowing how to reproduce a phenomenon as many times as one wishes. To define the relationships between causes and effects, the causes are modified independently and resulting differences in the effects are observed.

Thus repetition and variation, which are the techniques of experimental knowledge, dominate the period when the child’s universe is being constructed, first in the form of sensorimotor assimilation (until the age of 2) and then as intuitive experience of causality (from 2 to 7). We shall see that music also is engendered from repetition and variation, and this at two levels. First, at the level of instrumental or vocal gesture, and the creation of something like a melody. Then, at the level of the creative process itself, which consists in finding and developing a “musical idea”.

First level

In playing an instrument, the phenomenon which produces the sound is always the same. It loses its practical meaning (for instance one object hits another in a particular way) and becomes an activity devoid of a material goal, especially if the sound produced varies constantly thus taking on a new interest. So, according to Pierre Schaeffer, the repetition of the same causal phenomenon accompanied by a variation of something perceptible in the sound would be the simplest and most general definition of music (Schaeffer 1966, p. 43). For example, what is a melody? It is a musical structure made up of sounds which have an instrumental timbre in common but differ in pitch. Making music is rendering perceptible the variations in some sound qualities, while leaving others unchanged. Notice that musical instruments have always been designed for that: the best instruments have the most equal timbre across their pitch range. In more contemporary music, it will sometimes be the opposite: “timbre” or “texture” melodies, or melodies with any other sound quality are produced while keeping the pitch constant. Music, on an instrument or using some sound source, produces constructions of sound that are sufficiently close to create a relationship, and sufficiently different to renew interest.

When a child plays with a door, making it creak in every possible way, is he an experimenter or a musician? The answer is probably that there is no real distinction, that music is part of his knowledge acquisition. When he discovers by chance that the movement of the door creates a sound, the child is at first intrigued. He feels the relationship of cause and effect and repeats the phenomenon to make sure the same movement makes the same sound. Then, still to be certain, he varies the effects by varying the causes: a slow movement produces rhythmic impulses which, when accelerated, change in texture, then into an increasingly higher “smooth” sound

When he has understood his instrument’s potential, the child begins to play with it and, from observer, he becomes musician. It would seem that nothing has changed. Since repetition and variation are the keys to both experimentation and music, he continues to move

the door while varying its movements. But his intentions have changed. Instead of satisfying his curiosity, he now satisfies his pleasure. He forgets the cause (the door) to concentrate on the effects (the sound variations). In other words, what was an effect (the sound) has become the cause of new effects which he feels internally, or the source of an associative meaning (Margot's "baby"), and it is now this area of sensations and meanings that he explores

Thus, the need of young children to find out about the objects around them and their pleasure in making sound variations audible is achieved in their activity through the same gestures. There is then no need to urge them towards music: they make music spontaneously. What is needed (and we will see how it can be done) is to extend this taste and to use it to develop their musical aptitudes.

Second level

The exploration of variations within repetition, which develops during the first years of life, is also, on another level, at the heart of the process of musical invention.

What is inventing music? Let us forget about children for a moment, and consider musicians who compose or improvise. We will argue on the basis of a study of compositional strategies in electroacoustic music (Delalande 2007), but it is evident that, in analysis, it extends to jazz improvisation and to most musical production, from Europe and elsewhere. Composition presupposes having a project in mind. It can be explained verbally: it is often used in programme notes. But this is not sufficient to imagine music. It lacks what Michael Lévinas (composer and pianist) calls the "initial spark" (*étincelle initiale*), and what the musicological literature more generally calls a "musical idea" (Buci-Glucksmann, Lévinas, 1993).

The concept of a musical idea is frequently used but has not always been defined explicitly. It contains two ambiguities.

- First, does the idea have sound? The word "idea," does not encourage us to think so. In everyday language, ideas don't make noises. According to a convention which is now generally accepted, we will restrict the expression "musical idea" to a sound configuration, rather than a project one has in mind and that can be explicitly stated in words.
- Secondly, is the idea a moment in the work, like a motif or a theme, or a moment in the creative process? It is the second meaning which is now preferred. The musical idea is born in the mind or under the fingers of the composer – or improviser – during the weeks or months that the creation lasts – or during improvisation – and this is what stimulates his imagination⁵.

The initial spark (to use Levinas' term) can be envisaged or discovered concretely on an instrument or a computer: it is an original sound configuration that attracts the musician's attention and makes him want to do something with it. Do what? He does not know immediately, so he has to explore it. If it is a rhythmic or melodic formula, or a surprising stress which appears during improvisation, he will try to reproduce this more or less chance "discovery," but it will not be reproduced identically; he will introduce small modifications, a shifting in the stress, transpositions, modulations, slowing down or accelerating. In classical writing, the prototype of the musical idea is the theme. In contemporary music, the idea will

⁵ Analysis of the process of musical creation has been the topic of several international conferences and publications: *Circuits*, (2007 – vol. 17, n° 1: *Le génome musical*), *Tracking the Creative Process in Music* (TCPM conference, Montréal 2013, forthcoming in *Musicae scientiae*).

more often be a question of timbre or a unique sound shape. At a general level, we will say it is *a unique sound, heard or imagined, which retains the attention of the musician and makes him want to repeat it with modifications to observe all of its facets.*

It is clear that this behaviour corresponds to the “circular reactions”: being attracted to a unique sound, and wanting to repeat it with slight modifications is what a child does spontaneously at around seven to eight months.

Observing these moments when a young child imperceptibly moves from an attitude of discovery, where he explores in every direction, to an strategy of invention, which is still an exploration, but centred on a particular aspect which is chosen, explored and developed, was the main goal of an in-depth research programme which I carried out in Italy with a team of about 15 researchers. It was necessary to find out what were the most favourable conditions, which instruments were the most appropriate, and what was the role of the adult. We wanted to find out whether this desire for discovery wanes with acquired experience, or on the contrary, evolves from session to session. We wanted to find out how to guide it. Without going into the details of this research (which has been reported in a number of publications⁶), we will simply mention the method and main results, which will form the basis for a pedagogy of creation.

During the first year, 55 children from 10 to 27 months old were taken individually by a teacher into a room in their nursery school, where there was an instrument: it was either a zither or a pair of cymbals. It was hypothesized that curiosity would push the child to touch the instrument and that the sound produced would trigger exploratory behaviour. If necessary, the teacher could produce sounds herself, but then had to leave the child on his own. It was noted that two thirds of the children did indeed begin solitary exploration which lasted on average seven minutes. The sessions were filmed, and the video recordings transcribed and analysed, which allowed us to observe, among the most notable results, that:

- a third of the children only really begin exploring after the teacher left, and stopped when she came back (others, on the contrary, only explored the instrument when an adult was present).
- the “discoveries”, both sound and gesture, as hypothesized, lead to repetitions and variations, and these are preferred at the second session, two months later.
- differences in style between children are very clear, as much in the way they approach the instrument, with great caution or on the contrary rushing forward, as in the sounds/gestures preferred, and in the sequences produced;
- in particular there were significant differences between boys and girls;
- children who were active during the first session were active during the second also.

A second year of research allowed us to note, during four or five sessions, the evolution of the exploratory sound behaviour of some of the children: they did not become bored; children who were active the first time continued to be so and developed their discoveries. Other situations were suggested and analysed. On one occasion, pairs of children, chosen from those who were not active in the solitary exploration, were taken into a room where various instruments were laid out in a semicircle, become, on this occasion, active, imitating and answering one another. On one other occasion, it was noticed that a slight amplification of a zither modifies the exploratory behaviour. Since the resonance was longer, the children tended to slow down their gestures, waiting for the resonance to end. The third year of this

⁶ Delalande (2009a, 2009b), Delalande & Cornara (2010).

research allowed teachers from several nursery schools to appropriate the results and conceive their own “equipment” to favour the desired behaviour. This is what nursery school teachers should learn to do.

3 to 6 years of age: from exploration to creation

Circular reaction is still present at about 3-years of age, and can give rise to rich explorations, all the more if they are made easier by appropriate “equipment”. Here is an example recorded in the first class of nursery school.

The teacher has installed a microphone, linked to a tape recorder and speakers, with the object of recording a story that the children were to illustrate with various sound effects. But a little girl (3-years old) went up to the microphone, without having been told anything, and began to produce clicking noises with her tongue that were heard amplified from the speakers at the back of the class. This sound was new to her, which incited her to continue. It was new and surprising for other children too, who listened attentively.

The teacher had the good sense not to interrupt the child, but on the contrary to record her exploration. After a dozen seconds of clicking her tongue, the little girl who did not know how to obtain variations in her repetitions, changed her method of play and produced “m” sounds with a closed mouth. This time she could produce variations. The sound was repeated regularly (twice per second), first on a single pitch, but soon on three very close pitches – and this formula was repeated several times, always with the same rhythm – then glissando, and finally on two clearly distinct notes. The expression also evolved imperceptibly: tense at first, it gradually became relaxed. After a minute, without any transition, the child started using a completely different technique.

This is the prototype of “equipment” and a pedagogical attitude. The teacher would never have imagined that this long improvisation, particularly rich and original, could happen in her class. She had only – and indeed by chance – set up favourable conditions and realized that this exploration could be of interest, to the point of pressing the “record” button.

This is a lesson in the pedagogy of creation. Whether we are addressing nursery school children or students in composition, the pedagogical problem is the same: it is not for the teacher to tell the child or the student what result he should obtain; it is for the child or the student to find out by himself. The role of the teacher is to create favourable conditions and stimulate research.

In this case, we can see the virtues of amplification as “equipment”: it makes the sound new and unusual, and transforms it into a “unique sound” which encourages exploration. This child had never heard her own voice like that. Furthermore, sound came from speakers at the back of the classroom, and the child was in a situation of reception, standing back, as much as in a situation of production. Lastly, this amplified voice of a single child held the attention of the others – which is of more than a little interest in a classroom.

In order to encourage research and creation in children, the teacher should always discover or invent appropriate “equipment”, which can be a simple gathering of objects in a room, as we have seen above with a semicircle of instruments in a nursery school, stimulating the exploration of space and the mutual imitation of two children.

The development of the symbolic game

Symbolism intervenes early on in a child’s games. We recall Margot saying “baby” while making a window creak, and we know the interest dolls have. However, it is a little later, around the age of 4, when the child’s socialization is stabilizing, that the symbolic game can easily become collective and a support for creation in the life of the class.

The children in the middle section of a nursery school (4 years old) have together made up a story in which a character is at sea when a storm arises. Spontaneously, they mimed the storm vocally and gesturally. It would have been necessary to gag them and tie them up to stop them. The skill of the teacher (Monique Frapat) was, on the contrary, in encouraging them to coordinate this sound and gestural invention. The result was “the storm music,” that is to say vocal sound forms, which represent the movements of waves – something like waves of sound.

Note that this sound symbolism is not at all realistic sound effects attempting to reproduce the sound of a storm. It is the movement that is represented – an ample movement, covering a wide range, because it is a storm. Furthermore, these great sound waves have something of the scream – because storms are frightening.

Thus we are far from the kind of acoustic realism that might be sought after in cinema sound effects, and on the contrary close to the symbolism of gesture and movement, coloured by the direct expression of a feeling – in this case, fear, although it is a simulated fear: we are in class, nobody is really afraid - typical of the symbolism widely used in music (particularly in the serious western music of the 17th to 19th centuries, with a sound translation of affects and a search for expression). The search for acoustic realism, which might lessen the musical interest of the musical setting of a text at about 10 years of age (there will always be one child who will say “it doesn’t make that noise”) is no worry for a 4-year-old. The same teacher, Monique Frapat, wanted to check this and invited her pupils to tell the story of a person who first walked on grass then on gravel. The children transferred the walking into sound movement, but made no difference between grass and gravel. In contrast, the person climbed then descended a staircase. In this case, it was the effort of climbing and the ease of descending that was represented in sound. Ponderous going up, fluid coming down: we are immediately at the centre of the great classics of musical symbolism. A movement is represented, or more precisely, a movement which is a real-life experience.

Constructing music at 6 years old

Our three-year-old child who improvised long variations with a closed-mouth “m” had neither the intention nor the impression of building a form. She lived her experience in the present. In fact, there really was something like a musical form, because her exploration developed through repetition and variation. But the little girl was carried along by successive developments and never thought “here, I could come to a conclusion”. When she exhausted the pleasure or satisfaction of this exploration, she went on to something else.

A certain ease for genuine construction appears between four and six years of age. It is easy to ask a four-year-old child who is improvising a sequence on a sound body to finish his improvisation with a conclusion, particularly if he’s doing it in front of an audience, for example, other children in his class. This is what we will call the rhetorical motivation of form. It is necessary to hold the attention of one’s audience, that is to say, to create, from time to time, things which are surprising or unexpected, and then, if one really has their attention, to develop a “musical idea” with subtler variations, and then finally conclude in such a way that the audience understands it is the end.

At about five years of age it is possible for a recorder to replace the audience. The child, alone with a teacher who is recording his production, knows very well that the recording will be listened to afterwards, and can end with a conclusion intended for the virtual audience – which will be himself or his teacher.

At about five or six years of age, a new skill in constructing music and giving it form appears: this is the ability to anticipate. A 6-year-old child has no difficulty in saying: “I’ve done that, I can go in that direction”, and consciously foresee how his improvisation will

evolve. He is able to stand back from the present moment and to imagine the sequence he is producing as a whole, with a beginning, middle and an end.

Thus little Nicolas, 6 years old, improvising on a balafon, glances furtively to his left. We understand what he has in mind when we see him go and hit a suspended metal sheet on his left with a drumstick and come straight back to his instrument. Just in case we were in doubt about our interpretation, he repeats the same gesture a moment later.

Thus the ability to construct appears and develops during nursery school because of several factors.

Firstly, we recall how, at a year old, the game of rules led little Daniele to prefer alternations, and even (but this is quite rare) a constructed sequence formed from several elements whose succession was itself repeated and varied. Secondly, being in front of a listener, real or virtual, can facilitate the control of rhetoric of form. Finally, the development of the perception of time gives a five or six-year-old child the ability to anticipate, and thus a genuine and deliberate way of developing form.

In this case, the use of special “equipment,” here, a recorder, helps the child to move from an exploration experienced in the present to an extra-temporal representation of form, that he voluntarily conceives of as a construct, with a beginning, a development and a conclusion – that is to say, as a work. It is when these conditions are fulfilled, that it seems legitimate to talk about creation.

In older ages

It is in primary school, between 6 and 10 years of age, that musical creation, individual or collective, actually takes off. I will mention briefly two examples, observed under very different conditions.

A class at the end of primary school (about 10 years old) creates a collective composition. After several weeks of researching sounds, which has led them to collect objects, to explore their potential, then to try out combinations, the children record an umpteenth version of their project. The first minute is a kind of cloud of momentary interventions at various pitches: isolated syllables, pronounced briefly, sharp clicks (like those obtained by rapidly removing the tongue from the palate), and short soft whistling sounds. Listening to the sequence immediately creates a startling impression. It radiates a musical climate. What does that mean? That the whole thing is not a miscellaneous juxtaposition of brief sounds (which can be described in morphological terms), and that the children producing these sounds feel, as a group – and make us feel – an impression of restraint, calm, transparency, and discretion: we feel that they are living this fragile equilibrium of sound.

In this instance, the means were rudimentary: objects brought by children from their homes, voices, a tape recorder and equipment (of good quality) for listening to the result: an amplifier and loudspeakers.

For more than 20 years already, in secondary school and in primary school, it has been possible for the computer to change the conditions of musical creation, in school and elsewhere. But it is not indispensable: the voice or any instrument or object can be sufficient as a sound source. Yet it must be admitted that digital means are attractive to children and a limitless opening for creation.

We are building a website of children’s musical creations; some of them use digital means, others don’t; some are the result of group work in class, others are individual. Here is an example of what can be heard on this website⁷.

⁷ <http://creamus.inagrm.com/> > pratiques pédagogiques.

Silvia (10 years old) regularly visits a composer friend (Emanuele Pappalardo) who showed her how to use software for sound manipulation and how to compose by mixing and editing. On her own, and on her own initiative, she recorded a drop of water, which she transformed, then edited and mixed the different versions, which led to a short composition a minute long.

I must admit that the first time I heard this short piece, I wondered, in my ignorance, which composer might have created it, and some well-known names came to mind, so original and well-composed was this short piece.

In conclusion, let us remember, that children in whom a spontaneous taste for sound exploration has been encouraged throughout their schooling can continue outside school and join the ever increasing number of amateur composers. Admittedly, this is not the only method of musical education. Singing together, listening or analysing recorded music, even with gesture or dance, are rich musical experiences. However, from now on, since creating music no longer implies knowing music theory and writing, approaching music through creation is a possible path⁸.

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⁸ Translation: Nicolas Marty & David Banks.

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