

The grasp of melodic consciousness

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During the last years of his life, Piaget concentrated on a phenomenon, which had already interested him a few decades previously. This was the phenomenon of the grasp of consciousness. Evidently, he had not studied this point in the artistic realm, but rather in the domain of the sciences, and, more precisely in physics. So, at the beginning of the 70s he initiated a whole series of experiments with his Geneva team. For example, the children were invited to displace an object with the help of a bar pivoting around a central axe. Then they were asked to describe how they have proceeded. In doing so the purpose of the researchers was to pin-point on the relationship that exists between the know-how and the conceptualisation. That is to say, in a more general fashion, on the links between action and thought. The general results of these experiments allowed Piaget to establish a model of the development of the grasp of consciousness by children. (Piaget, 1976, 1978)

In the eighties, two researchers of the French tradition applied this model successfully to the language domain. They clarified the way in which young children gradually become conscious of the linguistic phenomena, i.e. how they progressively take cognisance of their role as speakers as well as of the laws which rule language. (Bonnet & Tamine-Gardes, 1984)

This paper is devoted to the transferring of Piaget’s conception in the context of a large experiment, which is called “The completing tunes experiment”.

The “completing tunes experiment”: Population and procedure

Sixty children participated in the experiment:

- 20 7-year-olds (10 girls and 10 boys)
- 20 9-year-olds (10 girls and 10 boys)
- 20 11-year-olds (10 girls and 10 boys)

They were not selected according to any particular criteria other than the fact that they had no solid music training. For this reason, children who had followed music lessons outside school for a period of two years or more were not chosen. So these youngsters could be considered as “ordinary” pupils in school life.

Each child was met individually for a tape-recorded session that lasted half an hour.

The procedure was as follows.

First of all we go to know each other. The child was asked several questions on his musical taste and practices. After this he was invited to sing his favourite song, then we went on to the "completing tunes" experiment itself.

The child was given the following instructions:

"We will invent melodies. I explain to you how we will proceed. I will sing the beginning of a melody for you. You will see, there are no words, I only sing *la la la*. You, you listen to what I'm singing and, when I make a sign to you, you continue and finish the melody. You sing like it comes to you, also with *la la la*. Do you understand..., these are not songs or melodies you already know, but tunes that we are inventing. I myself sing the beginning that I invented and you, you invent the continuation and the ending of the melody."

Then I sing him the first beginning and he must complete the melody.

After this first try, I say to the child:

"Now, I will sing the same beginning of the melody once again and you, you will continue and finish it. You don't have to repeat the same thing as the first time (it's impossible...). I will simply propose to you every beginning twice."

Then I sing the same beginning again, and the child completes it.

I then explain that I'm going to sing a different beginning and he continues and finishes it.

After this, I simply say "I will repeat the same beginning" or "Now I will sing a different one".

This was done for 5 different beginnings so that, at the end of this part, the child will have performed 10 completing tunes.

Once this part is terminated, the interview section follows up.

The clinical interviews: Purpose and method

The objective of the interviews was to collect from each child as many indications as possible about the way in which he figures out his past actions during the time he was completing the melodies.

The interview begins with global questions. First of all the child is asked: "Was it easy or difficult?" Then he is questioned on how he set about the task.

If the child doesn't talk spontaneously about the whole strategy he uses, he is presented with precise questions about what he thinks he has done:

- while he was listening to me sing
- when it was his turn to sing
- while he was singing

and

- for ending the melody.

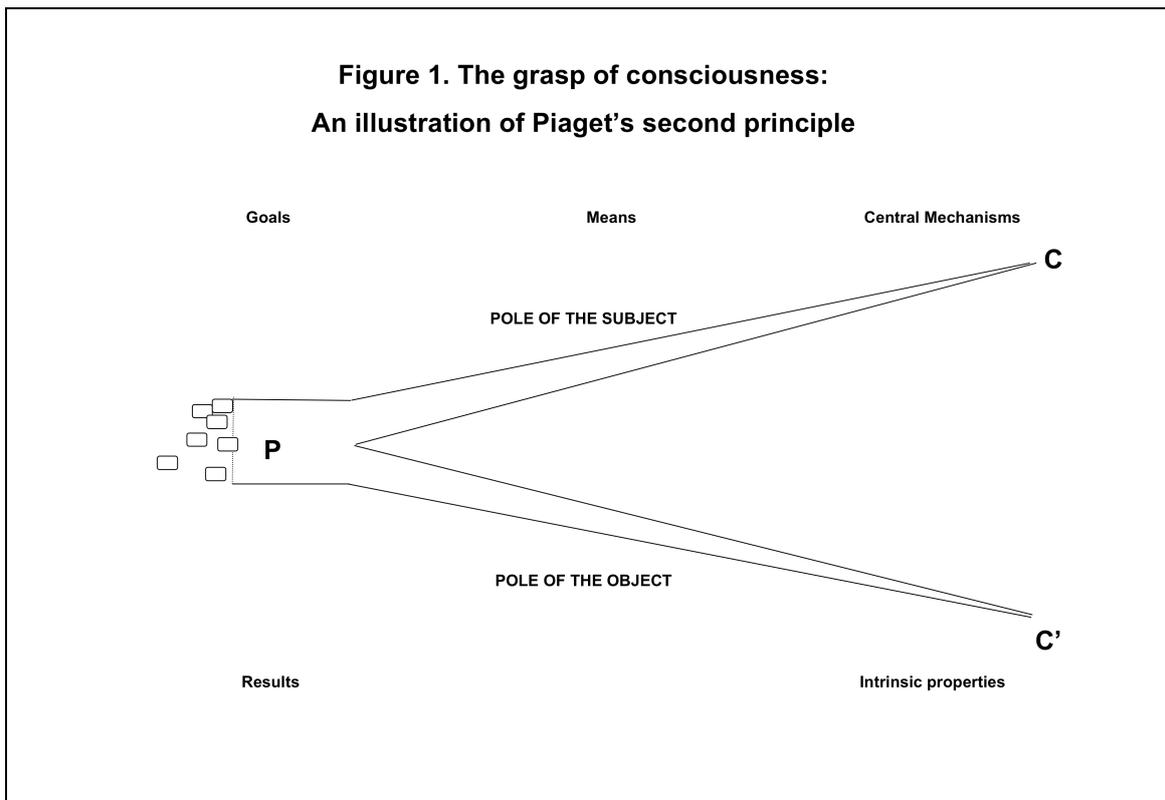
Throughout the interview, the questions are adapted to his answers, following the clinical method of Piaget.

The grasp of melodic consciousness: Suggestions for a sequence of development

Piaget's model of the development of the grasp of consciousness is based on two main principles.

The first one concerns the relation between the actions and the grasp of consciousness, i.e. between the actions and the conceptualisation. Piaget claims that conceptualisation at first lags behind actions. Indeed a child may easily succeed in an action before being capable of understanding it. Yet, progressively, consciousness catches up with actions and eventually, goes beyond them and, consequently, can guide them .

The second principle, dear to Piaget, concerns the very process itself of the grasp of consciousness, i.e. its progression during the child's development. (see Figure 1)



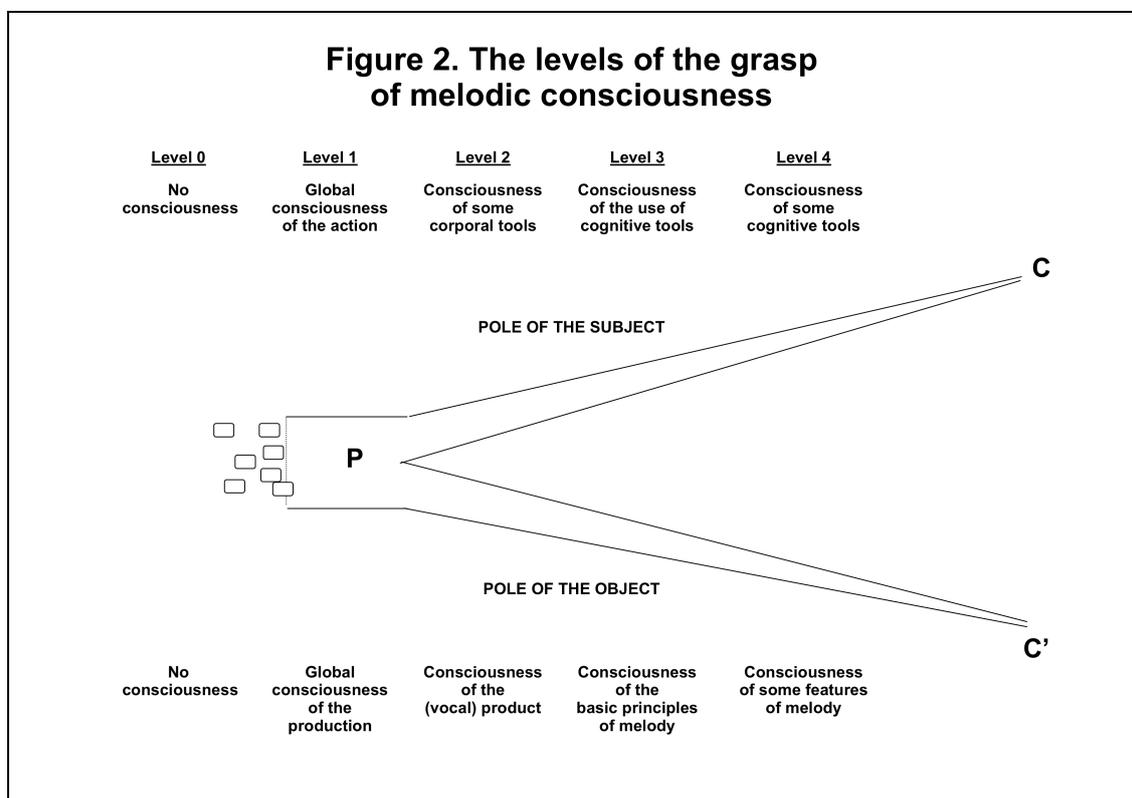
For Piaget, the grasp of consciousness is a constructive process, which goes from the periphery (P) to the centre, or rather, from the periphery conjointly towards two centres. The centre of the subject (C) on one hand and the centre of the object (C') on the other hand. What does he mean by this? Simply, that, at the beginning, consciousness only

takes into account the most external, the most peripheral elements of the action. In the first stage, the child is only conscious of the goal which he's trying to reach by his action and of its result, be it a success or a failure. So he's only conscious of one "event", perceived globally, and in which the two poles of interaction, the subject and the object, still tend to remain undifferentiated.

Later the child makes progress in his conceptualisation, by integrating the analysis of the means that he uses in his action, and then, by taking cognisance of the central cognitive tools which he employs. Conjointly he develops a better knowledge of the object, which will result in the understanding of its intrinsic properties and rules.

It is precisely this way of considering the grasp of consciousness as progressively developing from the periphery towards the centres, that guided the analysis of the data collected during the interviews in the completing tunes experiment.

Five successive levels of melodic consciousness can be distinguished among the sixty subjects, aged between 7 and 11 (see Figure 2).



- At level zero, the children are not conscious of what they did in order to complete the melodies. When asked to explain how they proceeded, they are either unable to answer, or they say that "It came by itself" or that they didn't do anything. They might also begin to sing something, as if, in doing so, they were explaining!

- Level 1 corresponds to what Piaget describes as the level of consciousness of goals and results of the action. The children notice that they had to sing something and... that they did so! Hence they are conscious that they acted in something, which is not yet clear to them. Indeed they are confusing the action (singing) and the result (what was sung).

- Now, at level 2, the children show the beginnings of consciousness of the means used in completing tunes. But it is limited to the corporal activities that are involved. They say for example "I did la la la" or "I did it with my lips". At the same time, they begin to be conscious of the fact that the act of singing results in something that has become an object, distinct from the person who produced it. They no longer confound the action and its result. Nevertheless they think that the characteristics of the objects, the produced melodies, depend entirely and directly on the characteristics of the subjects, they themselves. It is certain that the object is no longer a mere production of sounds, but it does not mean that it has already acquired the real status of a musical phenomenon. That is to say, the melody has not yet an intrinsic status.

- Level 3 marks a decisive change. The children at this level are conscious that, in order to complete the melodies, they were active in a mental sphere. Completing tunes, in their opinion, is no longer the result of something which is exterior to them (as in level zero) nor the result of a mere intention of fulfilling the task (as in level 1) nor the result of the involvement of corporal activities (as in level 2), but rather the outcome of what happened in their head. At this level, they are able to speak of their mental activity, even if their consciousness is still vague. Concerning the pole of the object, this level 3 shows the beginning of a consciousness that every melody has a "style", that it is an entity and, consequently, must present a certain unity. Children at this level often say they did their best to produce something which "fitted in with what you sang at the beginning". Yet, this obligation of creating a unity in the melody was not imposed in the initial instructions. No indications were given on how the continuation and the end of the melody should be related to what was sang at the beginning... Once the children have reached this level (3), they consider this obligation as being normal, which is a sign that they have now assimilated this constraint as a fundamental rule of every melody. Nevertheless, they are not yet able to explain how they set about making their product fit in with the beginning.

- It is only at level 4 that they begin to be able to do this. It is at this point that they talk about properties, which we would call musical components. They say for example: "If you went up, I started high, then I went down." (Pitch component) For them, the melody has now abandoned its status of a "compact" entity and is now considered as a succession of changeable elements. Conjointly they are now able to begin a description of the way in which they cognitively manage the succession of their actions.

An illustration: The awareness of the ending of melodies

The end of a melody, as the end of any musical composition is a very salient moment. Composers and performers stress the importance of this moment in such a way that, when we listen to music, we are able to foresee the moment when it is finishing.

Are children capable of this?

Coral Davies (1992) reports that, very early on, children are able to bring in closures in the melodies which they improvise. This has been confirmed by the present research. It can be said that all the children "finish" their melodies. Yet, their productions, especially among the younger ones, often give the impression that these have not been brought to a conclusion. This is due to the fact that, often, children do not finish their melodies according to the canons of our tonal system. Still they can use other means for finishing. For example, they repeat the last note, they lengthen it or they stress it in some special way. Some of them can even use little conclusive (melodic) contours.

Yet, if they are able to do this early on, it doesn't mean that they are automatically conscious of it. This consciousness will be the result of a long process of cognitive "reconstruction". The first steps are to be found below.

- At level zero, children, who are still incapable of being aware of their actions, even in a global manner, are, of course, not able to grasp the fact that there were beginnings and endings in what they did. So, when they are asked afterwards how they managed to finish their melodies, they are not able to understand the question and they can only reply that they do not know or they just give a look of surprise.

- At level 1, they understand the question, but it seems to them a little stupid! As a matter of fact, even if they notice that their action stops at a given moment, even if it is evident for them that sometimes they were singing and sometimes they were silent, they are not yet conscious that the end of the melody is an important moment. For example Gerald says "When I stop, that means that I've finished my song!" Susy expresses it even more succinctly: "It simply stopped". Really for them "It's finished when it's finished"! (Or "It's finished because it's finished"!) If one insists with the question "But how did you manage to make me understand that it's finished?" they speak about actions which followed the melodic production: "I looked at you" or "I gave you a little sign".

- Children, at level 2, do not find the question stupid. They are conscious that they have done something to finish the melody. Yet, this something is the use of a corporal means, which is the voice. Josiane, like several of her classmates says: "I made my voice a bit low". George says: "I did... certain times... speak a bit loud... and it was finished". At this level, children are not yet conscious of having really intended to do something with their voice. It is rather as if they were describing a fact which happened without their wishing it. So Magdalena says: "It was lower... The voice, it went lower."

- The consciousness of having fixed the moment when they intended to stop, appears at level 3. They know that they have used their minds to accomplish the action. The answers of the children at this level of consciousness, will often contain verbs like "try" ("I tried to finish"). We will also find verbs describing reflection or thought. (For instance: "I said to myself: here, I think I will finish." or "I thought it was time to finish.") At this level children have become conscious that the end of a melody is decided by the person who produces it and that the end is a salient moment. Yet their conceptualisation is still lacking in precision. For them, the end of a melody is composed of "not the same notes", it is "a little different from normal". For them, a melody must finish, and finish well, without their being able to explain what makes this moment so salient.

- At level 4, children have several ideas, both on the manner in which they have proceeded intellectually, and on the way in which a melody is brought to a conclusion. These concepts do not always correspond to reality. As in the previous levels, we find distortions and omissions. These belong to the process of the grasp of consciousness, as Piaget has demonstrated. For instance, most of the children at level 4 say that, in order to conclude each one of the melodies, they sang "a low note" or they say that they "went down". But actually, not all of them did so. And, even if they did, it was not to be found in all their melodies. They had other tricks available. In the realm of distortions and omissions, they are often very sure of themselves and they might proclaim rules such as: "A melody always finishes very low or very high. It never finishes in between." All the same, despite these distortions and omissions, they are now able to reflect on their cognitive strategies and also on some musical properties: mainly the pitch, the duration and the tempo.

Table 1. Progression of the awareness of the ending of melodies in 7- to 11-year-olds

	Level 0	Level 1	Level 2	Level 3	Level 4
7-year-olds	4	5	4	4	3
9-year-olds	0	3	4	5	8
11-year-olds	0	0	4	4	12

Based on the population of this experiment, it may be assumed that, with age, there is a progression towards a better grasp of consciousness. (see Table 1) For instance there are no more 11-year-olds at level zero or level 1.

Conclusion

This study of the development of the grasp of melodic consciousness is based on a sample of 60 students. The results of this work will, of course, have to be confirmed by studies on a larger scale.

First of all, it would be fruitful to deepen this technique of completing tunes.

On the one hand, we should widen the population, from the point of view of musical training and of age. For instance it would be interesting to collect data among older children in order to find out how the awareness of the ending of melodies progresses after the age of eleven. Can a level 5 be determined? (In fact, some of the 11-year-olds seemed to have already gone a little beyond level 4.)

On the other hand, we could modify the approach itself. We could, for example, ask the children to describe how they intend to set about completing the melodies, before they perform, and not after. Another way of proceeding would be to ask them to listen to and to comment on their own melodic products: and why should not they do the same for the products of their classmates? We could also suggest that they make drawings of their productions, which would surely allow us to make interesting comparisons with the results of several experiments on rhythm drawings, based on the work of Bamberger. (1980, 1982)

Several authors (Andrews & Deihl, 1967; Hair, 1977, 1981; Flowers & Costa-Giomi, 1991; Flowers, 1998) explored the children's comprehension of isolated musical concepts such as high-low, up-down, loud-soft, etc. These authors generally come to the conclusion that the comprehension and the verbal use of such concepts are less correct than commonly admitted. In any case, they are inferior to what the children are able to perform. I feel it would be useful to make a meta-analysis of their research and results, applying the sequence of development I propose for the grasp of melodic consciousness.

So, a lot remains to be done on the subject, which is worth while. Not only for scientific purposes, but also for possible practical ones. If it were possible to establish a comprehensive model of the grasp of melodic consciousness among children, this could eventually be useful for music teachers. Indeed, if the teachers can evaluate the level of musical performance which the pupils are capable of, it is possible that they are less able to determine the level of their conceptualisation. If we could offer them a model which would enable them to fix the level of consciousness of each student, they could adapt their teaching to the situation, especially concerning their verbal instructions.

Many people are inclined to think that Piaget's theory could not be scientifically applied to the realm of music. I feel they only take the peripheral elements of his theory into account. If one considers the more central, hence essential characteristics of his theory, i.e. those which concern the development of the thought processes themselves, one will become conscious that Piaget could really help our understanding of the children's development in the musical realm.

Translation from French: Gerald MacDonald

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