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## About the utilisation of children's conceptions to create an interactive book

### Introduction

Sexual education at school becomes more and more popular, especially as prevention against the AIDS problem. This education is generally given to young teenagers and presented by external persons who arrive in the classroom with a specific material. We are not against these practices. It is necessary and it is a very good way of opening the pupil's mind to the sexual world and its indispensable methods for protection and contraception.

But sexual curiosity doesn't wake up with the puberty. Children, and especially young children, ask themselves a lot of fundamental questions about their existence. Still this subject often remains taboo. Parents and even teachers don't know how to handle it. However, the children's book market abounds in publications on this subject. Unfortunately, most of them "explain" things but often don't dare to go right to the end of the children's curiosity. For example, the sexual act is generally not shown. Knowing that father's sex is not the same as mother's doesn't say a lot about "how it works", not only from the physiological, but also emotional, and sentimental point of view.

Indeed, children's questions are not limited to the "scientific" aspect only, even if they often begin with "how". They often are real research of identity. While talking about physiological phenomena, we have to keep in view that the acquirement of new knowledge could be stopped if the child is not able to cope with the affective feelings. To answer to these problems, we create a book for children between 5 and 9 years old. It relates human procreation and baby's life inside the mother's womb without avoiding the emotional part of it. The most usual questions about procreation asked by children are presented all along as fairy tale.

### **The book's presentation**

This book is conceived on the model of an interactive CD-ROM. A double entry is proposed through the utilisation of the face or the verso of the book, without one being indispensable to the other. One of the entries proposes a fairy tale like *Hänsel et Gretel* by the Grimm brothers. Two heroes, a little boy and a girl, are confronted with the birth of another baby. Jealousy pushes them to leave their family. They will have to face a lot of trials before coming back home. All along this fairy tale, the most usual questions about procreation coming from children are presented. Each question has a different coloured point. This one is sending the reader to the other side of the book, where a scientific approach of the physiological phenomena is proposed. The colour of the point shows the readers in which chapter they can find the information on this specific question. And so the child can always choose between the imaginary part and the scientific information. The latter offers the readers different levels corresponding to their own level of knowledge, their own questions and their own interest in the subject.

### **Creation of the book**

The importance of using learner's conceptions to create didactic tools does not have to be proved anymore. A lot of research about this practice shows the interest in this method. Yet, every time we must define exactly which are these conceptions and choose an appropriate method to go beyond them. First of all, we have to define what "creating a baby" means for young children and how they imagine the baby's life inside the mother's womb. In the same time, we put in relation what Bettelheim and the fairy tale's psychoanalysis say about the emotional part of this very important life's moment with the observations issued from the professional practice.

### **Using conceptions for creating the "Question book"**

In the special fairy tale part, the readers are confronted with a lot of questions for which they never get direct answers, because they have to go and find them themselves in the scientific information part. This part is especially used to show some conceptions we can often observe among young children<sup>1</sup>. First of all, the story brings up a conception that almost all the 5-year-old children recognise as an error.

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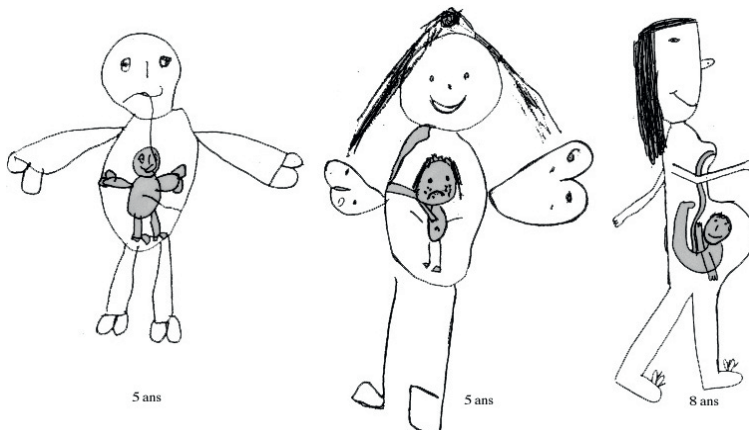
<sup>1</sup> The pictures of this part are taken as a pattern from *Cedric* by Laudec, Dupuis édition.



Jo: Mais non, idiot. Elle va bientôt avoir des bébés, alors elle a un gros ventre!  
 Dom: Pourquoi? Les bébés sont dans son ventre? Mais, comment sont-ils entrés?

### ***Puppies are put inside the mother's womb by a doctor***

The function of this picture is to give the children self-confidence, especially in their own knowledge. They can laugh heartily, like the heroine of the story, because they know that what they are looking at is not true. But the function of this picture is also to warn the child that this kind of picture (they are always inside a bubble) is not the reality. So, when the story proposes a similar situation, with the hero who is imagining answers, the reader knows that this is not correct, even if it corresponds to what they were imagining themselves.



***Drawings of children's conceptions about a baby's breathing and nutrition. Parallel with the drawing proposed by the Question book about these subjects.***



*Drawings of children's conceptions about a baby's breathing and nutrition. Parallel with the drawing proposed by the Question book about these subjects.*

The aim of this kind of visual presentation is to destabilise the child. For most children, this explanation is the same they could give themselves. But, without any help from the adult, the whole context raises doubt about this explicative model. Even if they dare not admit their ignorance, this confrontation with their own conceptions pushes them to find explanation in the other part of the book.

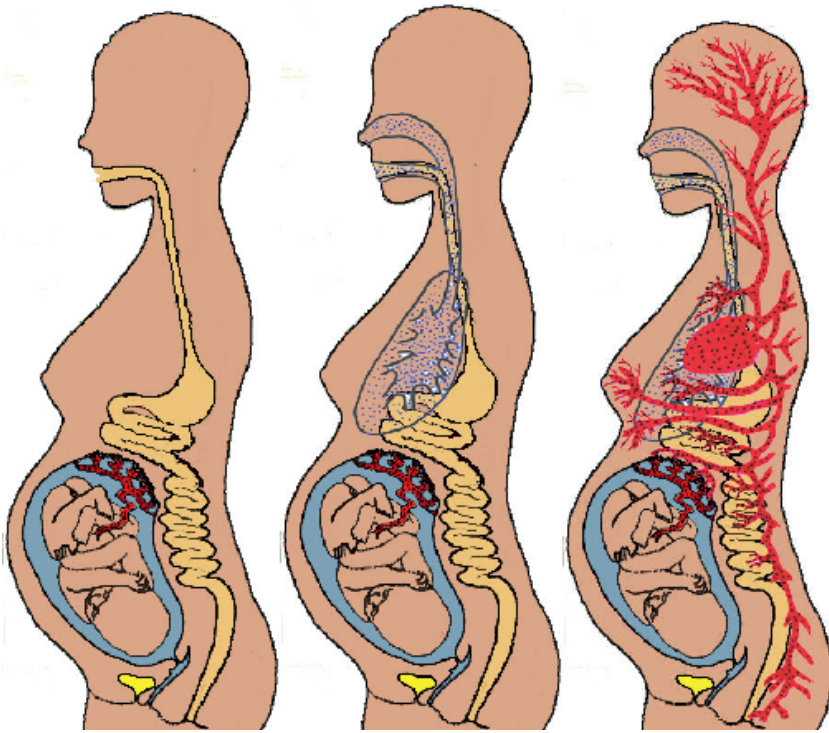
At this time, it is very important that the adults should not answer the child themselves. On the contrary, they must invite children to find the information they need on their own.

### **Conceptions utilisation for creating the Info-book**

The information part of the book never answers directly the questions of the fairy tale. The answer is principally included inside the pictures, since this book is especially made for children who cannot read yet. To create these pictures, it is important to define the principal obstacles to the comprehension of physiological phenomena. These were expressed in some interviews and drawings made by children. Several unchanging conceptions can be noticed. First, the sexual act is generally misunderstood, or unknown. Moreover, even if the children received information about this subject, it was usually very short and often misinterpreted. For example, children who are using the phrase "making love" put behind these words actions like kissing on the mouth or just sleeping in the same bed. For the older, 8 or 9 years old, some very rude words like "fucking" show not only misunderstanding but real fear, like this child's, who said: "the father fucks the mother and the mother suffers, endures".

This example shows us the importance of the child's being able to understand exactly what the sexual act means, making them realise that it should be something in which feelings are involved and during which both man and woman should discover pleasure.

In direct relation with the sexual act, we noticed confusion of the excretion and reproduction systems. The vagina and the uterus are usually completely unknown by the children. The baby is in the womb, this one could be stomach or intestine, without any distinction. When the children know that the baby goes out of the womb through a "hole between the legs of the mother", this one is generally mistaken for the urethra or more rarely for the anus. The book presents a model where the children could easily find the difference between these different organs.



***The different steps to present the baby inside the mother's womb***

This model is also corresponding to the conceptions about the way the baby is feeding and breathing inside the mother's womb, as you can see on the last illustration. This picture presents no direct connection between the mother and the baby. It is showing, very simply, the travelling of the food through the digestive tube, the isolation of the bladder and the specific place of the baby. Of course, everything is very schematized; the aim is not to give the child a lesson in anatomy, but a way to understand the bases of the bodily functions. Playing with the superposition of transparent sheets, the interaction between the different systems, and especially between the mother's body and the baby, appears when we are putting on the blood system.

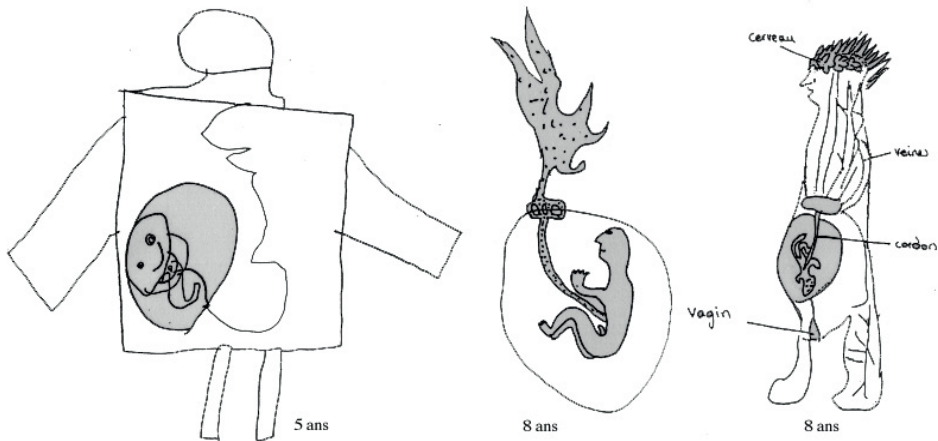
Many times during the interviews, some "scientific" words are used by children, but in a wrong way.

This fact usually hides serious misunderstanding of the processes. The language used in the book suppresses all scientific words inside the basic text going with the pictures. The urethra is just the "hole for the wee-wee", the anus, "the hole for the poo" and the vagina, "the special baby's hole". So, the children know exactly what the book is talking about, and refer to their own life experience. The utilisation of plain language allows going quicker over the embarrassment about this subject. If the child sees that the adult is using children's own vocabulary to speak about these

physical orifices, s/he is freer to talk about them. Of course, if children want to know more about a subject, each text has a second, even a third information level, where the specific scientific words are given.

## Conclusion

This presentation is just to give an idea of the incredible richness of opportunities when using children's conceptions in creating didactic tools. If we really want to help children to go beyond their representations, using such concepts is absolutely necessary, even if – as in the case of this book – we must accept that we won't be able to know all the conceptions of each child, and even if we have to make some definite choice. The originality of this book resides also in the direct confrontation between children and their own conceptions. It would be interesting to go further with this experiment, to see if this confrontation is a real help to improve and understand new scientific knowledge. Even if we couldn't clearly establish where the apprenticeship was coming from, we could see a real evolution or transformation of the conceptions for the majority of the children.



### *Post-test drawing of where the placenta is placed*

The experiments we made in different classrooms showed children's great interest in this book. We also received a lot of requests from parents and teachers who wanted to buy it for themselves. It seems that children love to have a look at it, on their own or with friends, even without the adult being present.

As it is shown through the evolution or the transformation of conceptions in children to whom this book had been presented, using them does not only mean creating didactic tools; it is also useful in the evaluation of their impact and in the evaluation of the pupils themselves. Children's conceptions give us the opportunity to really visualise where some remediation work should be done.

Creation, evaluation, and remediation are three complementary ways to use learners' conceptions without conceiving "a priori" some teaching aids or didactic sequences.

## Literature

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## About the utilisation of children's conceptions to create an interactive book

### Abstract

The article deals with using learners' conceptions to create an interactive book for children between 5 and 9 years old, about the human procreation and baby's life inside the mother's womb. A double entry proposes an emotional and a scientifically approach. This special combination offers to the child different ways to come into this complex knowledge. A special vulgarisation way proposes some different level of knowledge on the model of the CD-ROM.

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