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“I’d rather play...than look at statues”:

An exploratory study of young children’s experience in an art exhibition.

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Abstract

Young children have been largely neglected in research dedicated to the art museum experience. The art exhibition “Tête à tête” (“Face-to-Face”), designed for 5-12 year olds, became an opportunity to bring an exploratory contribution to three research issues: the relationship that the young child has with works of art and interactive devices, the role the adult plays in this relationship and the benefits derived from the visit. Building on observation and interviews, the article shows that children’s attention is clearly drawn more towards interactive devices than art works, yet at the same time, the hypothesis that interactive devices are directly detrimental to children’s reception of art works could not be confirmed. The results also emphasize the limited role that adults play in guiding the children towards the art.

In the end, both adults and children appear to be satisfied overall with the playful and interactive dimension of their experience. Following this, art museums should question themselves on how to specifically help families to better guide the young child's perspective towards the art works themselves, and also rely on the adult to encourage, in the child, a more active approach to the art work.

Keywords

Art exhibitions, child, family, museum experience, interactive devices, learning, interpretation, interpretation aids

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Introduction

Museums are more concerned with their visitors today than in any other period in their history (Eidelman, Roustan and Goldstein, 2007; Gilmore and Rentschler, 2002; Mc Lean, 1997). Marketing, which can be defined here as the process by which the museum orients the behavior of its publics in a direction that would benefit its missions, is translated on a number of levels: pricing policy, ticket outlets, communication and promotional tools, comfort services, education and interpretation aids, etc. These marketing levers are multiplying (both on and off line) and adapting more and more to the various audience segments targeted (school groups, tourists, novices, families...) These tools, nourished by the knowledge of their public gained through research, have given museums a much larger efficacy in the pursuit of their educational and social missions.

Art museums are not lagging behind in this new strategic orientation. One of their essential missions consists of organizing access to their art works, not only concentrating on increasing the number of visits as much as possible but, and possibly above all, putting into place the conditions necessary to create an experience that would benefit the *encounter* between visitor and work of art. The challenge is not only to attain a social democratization but to produce experiences that are *meaningful*, that are sources for learning, pleasure and the development of a taste for art that in the long run create the museum visiting habits. Beyond the socio-cultural factors affecting museum attendance, lies the crucial issue of the museum experience itself (Falk and Dierking, 1992) and at the heart of this experience is the relationship of the individual and group to the works of art.

Among the different segments of museum visitors, children represent a major strategic targetⁱ within the social and pedagogic mission of the art museum. However, the experience of the

young child in an art museum has not been studied as such. The few works that do exist on the child and museum focus on the case of family learning within the framework of the science museum (Piscitelli and Anderson, 2001; Sterry and Beaumont, 2006). The object of this article is to contribute to a better understanding of the child's experience in art museums. To do this, we have made use of the results obtained from the study conducted on children's attitudes and reactions to the exhibition "Face to Face" ("Tête à Tête", Louvre Museum/Georges Pompidou Center; 2006). This exhibition, conceived for 5 to 12 year olds, was particular in that its modern and interactive presentation contained 63 works of art accompanied by 14 interactive devices (mirrors, auditory, tactile and computer devices, etc.) The analysis of its reception by the children and the adults accompanying them permits an exploratory contribution to the central question regarding the relationship of children to exhibits, specifically in the context of art exhibitions where the interactive displays theoretically act as a support for the the art works. This article concentrates specifically on three research questions relative to the experience of children in an art exhibition:

- Which relationship does the child have to the exhibits (art works and interactive devices cohabiting in the exhibition)? Does the interactive scenography of the exhibition serve the artistic project?
- What is the place of the child/adult interaction in the relation of the child to the exhibits?
- What benefits are derived from a visit experience which associates interactive displays and art works?

The first part of this article reviews the literature devoted to the childhood museum experience. The second part presents the methodology and main results of the reception study

of “Face-to-Face”. In the last section of the article, we will further discuss the results and propose several theoretical and practical implications of this exploratory study.

The encounter between the child and museum collections: a literature review

If, in the last few years cultural offering has been created with children in mind, and has significantly diversified in terms of museum aids and other cultural events (educative workshops, visit booklets, treasure hunts, audio guides, museum internet sites, etc.), the research regarding this theme has not shown much development (Piscitelli and Anderson, 2001) and above all remains extremely focused on the question of mediators of child learning (or the family with the child) in the specific framework of science museums (Jensen, 1994; Piscitelli and Anderson, 2001). The case of the child’s experience in an art museum remains little explored (Sterry and Beaumont, 2006). Our literature review has been organized around two principle themes: the relationship of the child to the exhibited objects and devices and the mediators of learning behavior at the museum.

The relationship of the child to the exhibits: how to focus their attention?

Children rarely visit an exhibition in the way the creators envisioned, even if their apparently “unpredictable” behavior is set off by the exhibits and do involve, most of the time, the exhibited objects (Hein, 1998; Hilke, 1989). The creators of the exhibitions come up against the manner in which children perceive and spontaneously “appropriate” the museum space: the museum is a place of a certain amount of autonomy, in particular during family visits (Jensen, 1994), and for the child, the visit is the occasion for intrinsically motivated behavior (as in games) as well as positive social interactions (Guichard, 1995; Jensen, 1994). This

apparently aimless visit behavior has oriented previous research towards the question of mediators of children's attention within the exhibition space.

The literature suggests three principal directions which would serve to better focus children's attention on the exhibits. The first is to emphasize interactivity. In effect, facing interactive devices, children have a much stronger tendency to manipulate, play and react to them (McManus, 1987) than adults have (Bitgood, 1993; Diamond, 1986; Hein, 1998). Even within family groups containing one or more children, being able to touch and manipulate (in hands-on exhibits) increases its utilization as well as the time spent at the exhibition (McManus, 1987). In one of the very rare studies dedicated to art exhibitions, Gottesdiener and Vilatte (2001) show that the attention given by the child to the art works also depends on the presence of those works within the booklet of interactive exercises and games given to the child.

The second direction consists of limiting parasite stimuli: the space around the exposed elements affect attention levels of families accompanying children. The more the surrounding environment is stimulating and invites play on the part of the child, the more the family group's attention is diverted (Borun and Dritsas, 1997). Reciprocally, neighboring exhibits that are poorly lit or less "appealing" do not attract the attention of the family group (Borun and Dritsas, 1997). Following the same idea, Guichard (1995, 105) explains that the "dispersion of children's attention in a large space that contains multiple solicitations" constitutes an obstacle to perception of the exhibition's meaning. As a consequence, Guichard advocates the spatial regrouping of exhibition elements treating a same subject.

Finally, a third research direction involves a greater familiarity with the museum: the more the child's familiarity with the museum increases, the more his/her concentration and self-confidence increase, and turbulent, aimless behavior decreases (Jensen, 1994).

Child learning at the museum: the role of interactivity and social interaction

According to Jensen (1994), the majority of children consider museums as places of learning, be the learning a source of pleasure or boredom. However, memories, interests and child learning seem very diverse and largely idiosyncratic (Anderson and al, 2002).

Concerning tools meant to increase learning, children read instructions and notices less than adults (Diamond, 1986; Falk and Dierking, 1992). This total or almost total absence of reading is also observed for family groups containing at least one child (McManus, 1987). If family groups in science museums read little or not at all, they do try however to give a meaning to the interactive exhibit: the family group members tend to, first of all, understand the working of the device by trial and error and then discuss the results amongst themselves. The instructions are then read only if trial and error, and the ensuing discussion, did not provide understanding (Falk and Dierking, 1992).

In terms of learning, interactivity again appears to be efficient. Developmental psychology has long emphasized the importance of games and physical activity in learning (Hein, 1998), as the young child learns "above all with his hands and (builds) his experience with all his senses" (de Vecchi, cited by Guichard, 1995). The ideal learning situation thus appears to be one where action, through physical manipulation, is necessary for understanding (Guichard, 1995). However, some previous works also question the pedagogical limits of interactive

devices and games and invite us to rethink the association among interactive elements, scientific contents and memorization:

- According to Guichard (1995), children not guided by adults appear to develop more of a memory for the tasks required by the interactive element than for the scientific content itself. Following the same idea, Hein (1998) found that, apart from situations of being specifically involved by their teachers, children rarely remember the information, but can, on the other hand, clearly remember what they did and can explain it to someone else a long time after the visit;
- According to Piscitelli and Anderson (2001), when children are interviewed on past visits, the most vivid memories concern experiences that are not interactive by nature (fixed images, animals, automobiles, etc.);
- Gottesdiener and Vilatte (2001) demonstrate that an interactive game booklet created for children does not increase the memorization of art works in a painting exhibition.

Another aspect of children's learning at a museum is the interaction between parents and children. Social interaction is the fundamental motivation for family group visits (Guichard, 1995; Jensen, 1994; McManus, 1987). Games and interaction constitute the essence of a family visit (Falk and Dierking, 1992). Parents and their children spend more than 80% of their time together at these visits (Hilke, 1989). Diamond (1986) emphasizes that the members of the family group learn more through social interaction than by interaction with the exhibits. In addition, collaborative exploration of the exhibition with the parents will be longer, more profound and more focused than an exploration done by a child alone or with a group of peers (Crowley et al., 2001). On the other hand, some previous works emphasize the fact that better learning takes place when social interaction and manipulation of an interactive element occur at the same time: the interactive devices stimulate the type of discussion that leads to socio-

cognitive conflict which, in turn, helps the child to better structure his/her thoughts and to learn (Blud, 1990; Guichard, 1995). In the same vein, McManus (1987) shows that being able to touch the exhibit (interactivity) increases questioning within the family unit and thus potential learning.

The literature suggests other means to positively influence a child's learning in a museum context, such as contextualizing the presentation of the exhibits (putting the object presented in context of its universe of reference; Guichard, 1995), increasing the association of the museum experience with other familiar activities of the child (Anderson and al, 2002) or interactions outside of the child's group (verbal or visual interactions by imitation; Guichard, 1995).

The young child and the experience of an art exhibition visit: the case of “Face-to-Face”

After describing the methodology used in our study, we will present the results relative to our three research questions: the relation of the child to the exhibits (art works and interactive devices), the role of the adult-child interaction in this relationship, and the benefits derived from the visit.

The exhibition and methodology of the study

The exhibition “Face to Face” was created as a dialogue between works of the Pompidou Center and the Louvre Museum, using an interactive scenography and devoted to 5 to 12 year olds. Situated in the “Children's Gallery” on the ground floor of the Pompidou Center, the exhibition was open to the public every day from Wednesday to Monday, 11:00 a.m. to 7:00 p.m. and was on-going from February 8 until September 4, 2006. The entrance for the

children's Gallery was free with a general admission ticket for the Center. The Children's Gallery is an area that is both extremely accessible and extremely visible. More than 90,000 people visited "Face to-Face" during the 177 days of the exhibition (an average of 512 visitors per day, a number considered very favorable).

Presented with works of art of various periods and styles (classic as well as contemporary), visitors progressed through the exhibition following a route that questioned the different forms of representation of the human head: drawn, sculpted, filmed or photographed, facing front or in profile, varying forms and materials. A circuit was proposed, marked out with various art works and interactive devices: mirrors, sound, touch and computer mechanisms, etc. While the space surrounding a work in art museums is traditionally an area that is clearly considered sacrosanct, allowing few human or material interventions, the modern and interactive scenography of the "Face to Face" exhibition more closely resembled a scientific exhibition in its willingness to allot a large place to devices that intervene to describe and explain the objects and concepts presented.

To evaluate the reaction to "Face to Face" by the individual and, foremost, by the child, a multiple methodology was used:

- 40 end-of-visit interviews (20 children aged 5-11 and the 20 adults accompanying them), with the child always being interviewed before the adult. For the child, the interview guide was centered on his/her recounting of the visit, and for the adult, it was centered on previous expectations and the benefits derived from the visit itself;

- 60 direct observations of the parent-child dyads, the observer having systematically followed a child who was accompanied by at least one adult, from their entry into the Children's Gallery and until their depart. The observations were done on all the museum opening days

(Wednesday to Monday), taking into account the average traffic estimated for each day, using the statistics given by the welcome staff at the Children's Gallery. The observer had both a chronometer and a detailed observation grid;

- 390 self-administered questionnaires put at the visitors disposal at the Welcome Desk just after entering the Gallery. The questionnaires gathered information on the profile of both the child and adult publics, using various kinds of variables: socio-demographic, behavioral (characteristics of the visit), perceptual and other items relative to cultural practices.

These three methodological parts revealed themselves to be very complimentary, as the information gathered in the interviews served to give a true interpretation of the observed behaviors within the socio-cultural context as furnished by the questionnaires. We will focus here on the results from the observations and interviews (the sociodemographic profile of visitors not being very relevant considering our research questions).

Art works and interactive devices: an unbalanced cohabitation

In the "Face to Face" exhibition, the art works and technological devices were spread out in three thematic sections (diversity/functions/expressions) that defined the visit circuit suggested to the public. Only 20% of the children observed followed this initial order logic. Most of the children and adults that were interviewed said not to have even noticed this order within the exhibition space.

Visitor observation showed that the works of art and the interactive devices did not cohabit in an equal manner in the exhibition. On average, the children interacted with 9 out of the 14 interactive devices (64%) but only looked at 18 out of the 63 artworks presented (29%). Interaction with the devices aroused the children's interest much more than observation of the

art works, with respectively 65% and 11% of the duration of the total visit, on average 17 minutes given over to the interactive devices and 3 minutes to the art works (for a total visit of 26 minutes on average).

The attraction power (percentage of visitors looking at the exhibit) of 46 works (out of the 63 works exhibited) and the 14 devices, as well as the time spent by the child-adult dyad in front of these elements, were observed and noted (Table 1).

Table 1: Attraction and retaining power of the art works and devices

		Art works	Devices
Attraction power (% of children)	Average	24.5	62.5
	Median	27	71.5
Time spent (seconds)	Average	12	104
	Median	6	74

On average the devices appear 2.5 times more attractive than the art works. The children also spend much more time in front of the devices, which could be explained by the time necessary for their manipulation. The interviews conducted with the children largely confirm this gap. Sixteen out of twenty of the children interviewed declared that their preference among the totality of the exhibit (art works and devices) was to go to the devices (only 3 stated the opposite):

*What I liked best was when you see, you turned the thing and it changed you and you saw that on the TV.
(Girl, 8 years old, with 3 other girls and an educator,)*

The concentration of the children's attention on the interactive devices could lead one to think that this enthusiasm may be detrimental to the art works. We could hypothesize that the specific attraction for the interactive devices could result in the children ignoring the art works around it. To test this hypothesis, we measured correlations between interest for an art work (its attraction power and time spent) and three variables characterizing the immediate environment (within a radius of 3 metersⁱⁱ):

- The number of interactive devices
- The attraction power of these devices (taking the highest score)
- Time spent in front of the devices (taking the highest score)

The results, still coming from observation of 46 out of the 63 art works, are represented in Table 2.

Table 2: Pearson correlations between the art work’s attraction power and the time spent in front of it, and the number of devices in its immediate environment, the attraction power for the strongest among them on this indicator, the time spent in front of the device with the strongest score on this indicator.

	Art work’s attraction power	Time spent in front of art work
Number of devices in the immediate environment (in an area of 3 meters around the work)	r=0,001 p=0,993 n=46	r= -0,071 p=0,638 n=46
Attraction power for the most attractive device in immediate environment	r=0,093 p=0,545 n=45	r= -0,101 p=0,509 n=45
Most time spent with a device in the immediate environment	r=0,102 p=0,504 n=45	r=0,050 p=0,744 n=45

As the absence of a statistically significant relationship in Table 2 suggests, the number and attraction power of the devices in the immediate surrounding area of the art works, as well as the time spent in front of these, do not seem directly responsible for the lack of attraction for the art works. However, the absence of significant results in Table 2 could be due to the fact that 14 works observed (out of 46) had no device in their immediate environment. Contrary to our starting hypothesis that works would actually benefit from the absence of devices close by, these could have, on the other hand, been ignored by the very fact of their positioning in a zone that was less stimulating and thus less attractive than another space in the exhibition. By only considering those works having effectively one or more interactive devices in their immediate environment (n=32) and in remeasuring the correlations in Table 1, it appears that the correlation between time spent in front of an art work and the time spent in front of the most “retaining” device in its immediate environment is significant (r=0,469; p=0,007). In

terms of time spent, the close presence of interactive devices could be a benefit, and not the detriment that we supposed it was.

Even if art works, in general, seem to have weak attraction power, there are some works that appear more attractive than others. Tables 3 and 4 indicate certain of the works' characteristics (animation, sounds, colors) in function of their attraction power and the time spent observing them (superior or inferior to the median).

Table 3: Attraction power of art works according to their characteristics. (in number of works*)

Art works	Animation	Sounds	Colors
Attraction power superior or equal to the median ($\geq 27\%$)	6	8	5
Attraction power inferior to the median ($< 27\%$)	0	0	8

*n=27. 19 out of the 46 art works observed had no animation, no sound and no color.

Table 4: Time spent in front of art works according to their characteristics (in number of works*)

Art works	Animation	Sounds	Colors
Time spent equal to or superior to the median ($\geq 6s$)	6	6	7
Time spent inferior to the median ($< 6s$)	0	2	6

*n=27. 19 out of the 46 art works observed had no animation, no sound and no color.

The children choose animated works with sound, in terms of attraction as well as time spent, voting, that is to say, for those art works most resembling the interactive devices. The four art works that distinguish themselves the most are works that have sound and are animated by video, as in the art work "It's really nice" by Pierrick Sorin (Photo 1)

Photo 1 "It's really nice" (P. Sorin)



The interviews largely confirm the lesser attraction of the children for those art works that have neither sound nor animation, as with statues or paintings:

You like the statues less?
I 'd rather play than...than look at statues.
(Girl, 9 years old, with mother))

Do the sculptures interest you?
I looked at those less.
(Girl, 7 ½ years old, with father and friend)

Why are they more boring?
When you look at a painting, nothing moves.
(Boy, 11 years old, with mother and little sister)

They have a harder time with the busts, statues and drawings. They tend to pass them by rather quickly and as soon as something moves...that...they really like more, I think.
(Mother with son, 8 years old)

We also noted the characteristics of the 14 interactive devices (manual interaction; sitting position required facing the device; use of a video medium) in function of the attraction power and time spent using them (superior or inferior to the median).

Table 5: Attraction power of interactive devices according to their characteristics (in number of devices)

Devices	Manual interaction	Sitting position	Video
Attraction power equal or superior to the median ($\geq 71,5\%$)	3	4	3
Attraction power inferior to the median ($< 71,5\%$)	2	1	1

Tableau 6: Time spent in front of devices according to their characteristics (in number of devices)

Devices	Manual interaction	Sitting position	Video
Time spent equal or superior to the median ($\geq 74s$)	5	4	3
Time spent inferior to the median ($< 74s$)	0	1	1

In terms of attraction power, the children tend to overwhelmingly select those devices that have them sit, as well as those that have a video medium (Photo 2). In terms of time spent, it is logical to note that even though both the sitting position and the video, once again, play a positive role, the necessity to manually manipulate the device is also important.

Photo 2 Visual effects (computer device)



The role of the adult in the relation between the child and the exhibit

Physical interaction observed within the child-adult dyads clearly illustrates that sharing is dominant during the visit. Adult and child spent on average 87% of their time together (91%

counting all adults of the group, 94% with all adults and other children in the group). The visit proved to be a collaborative experience between children and adults at almost every moment.

In order to more precisely approach the question of the adult's role in the relationship of the child to the art works and devices, we concentrated on two works and four devices and observed who actually initiated the approach (for the 60 dyads). Table 7 allows us to distinguish the approach according to if it is initiated by the child, the adult or both simultaneously.

Table 7: approach initiative for art works and devices (in number of approaches)

Approach initiative	At the two works	At the four devices
Children	26	109
Adults	30	61
Children and adults	3	9

The adults do not seem more inclined to take the initiative to approach the art works (children/adults: $\text{Chi}^2=0,284$; $p>0,10$). On the other hand, the children take the initiative for the approach to the devices significantly more than the adults (enfants/adults: $\text{Chi}^2=13,55$; $p<0,001$). The simultaneous approach initiative is exceptional.

Once the art work or the device is approached, we then questioned the role played by the adult in the transmission of knowledge to the child. This role of mediator can be studied by observing speech registers the adults and children use facing the art works or devices. Verbal interaction between adult and child was therefore the object of attentive observation for the same 4 devices and 2 art works observed previously. These interactions were classified into six registers: informative/explanatory, interrogative, invitation (inviting the other to look or to come), laughter, esthetic (expression of taste or sentiment: that's beautiful, that's ugly...) and other. Speech was, for the most part, initiated by the adults (63%). Tables 8 and 9 evaluate the

speech registers used by the children and the adults in front of art works and devices (in % of use):

Table 8: Speech registers of children and adults in front of art works

<i>Speech registers in front of art works (%)</i>	Informative/explanatory	Interrogative	Invitation	Laughter	Esthetic	Other
Children	37	22	8	0	13	20
Adults	72	4	11	3	10	0

Table 9: Speech registers of children and adults in front of devices

<i>Speech registers in front of devices (%)</i>	Informative/explanatory	Interrogative	Invitation	Laughter	Esthetic	Other
Children	50	18	7	8	5	12
Adults	42	14	21	8	5	10

Facing the art works, adults mostly use the informative/explanatory register (72%). They seldom use the invitation register (in order to orient the child's gaze: 11%) and even less the interrogative one (asking questions: 4%). The adults also rarely use the register of emotion, whether it is expressed as an esthetic appreciation (10%) or laughter (3%). In front of the art works, the children mostly use the informative/explanatory (37%) and the interrogative registers (22%). Overall, concerning the art works, the conversational form is largely characterized by a vertical transmission of information, during which the child produces most of the questions and the adults explains or informs.

Facing the interactive devices, adults and children tend to use the same registers (each one questions and explains). However, the adult remains more often the one to invite (21% vs. 7%), which is far from being the case when in front of the art works (11% vs. 8%). Compared to their relative passivity when in front of the art works, adults seem to participate actively in the success of the interactive devices with the children.

The adults' pedagogic involvement with the young children is also measured in their use of the available interpretation aids. In this sense, three written information supports were observed: the labels, the "Petit Journal" booklet of the exhibition, and plastic "fun" cards proposing a small game about the art works to visitors. The written support most consulted was the label. However, even if more than half of the children had access to the information coming from that source, a child only obtained information on an average of 6% of the labels studied. When labels were read by the child, it was as much by the child's direct reading (42%) as by oral retranscription by the adult (48%). Less than 15% of the children had access to the information in the "Petit Journal" booklet and less than 10% read, or had read to them, the plastic "fun" cards dedicated to a game about the art works. Reading behaviors, thus, remained in the minority. The difficulty encountered by the adult trying to transmit written information to the child was expressed in the interviews:

Did you try to read some texts to your child?

Well, yes, but not really, I tried to do it but he was always on the run. He wasn't very receptive to what I could read. He wanted to do things at his own pace (...) Sometimes I was able to bring him over and read something to him, but otherwise he is rather...It was done on the run.

(A mother with son, 8 years old)

The benefits derived from the visit: fun and/or learning?

All the children seemed satisfied with their visit when leaving the exhibition, with no spontaneous expression of dissatisfaction. In their interviews, the principal benefit of the exhibition was mostly found in the pleasure derived from the games and the interactivity. The feeling the most expressed by the children was pleasure and more particularly fun.

What did you like most in the "Face to Face" exhibition?

The little computer where you could change your face.

And why did you like that one the best?

Because I laughed the most at that one.

(Boy, 9 years old, with his grandmother and two brothers)

Was there something that you liked the most?

Yes, when we had to chose a shape for our head. With a little controller with the little buttons.

And why did you like that?

Because it was fun. I was totally distorted, I couldn't even recognize me anymore.

(Boy, 11 years old, with his mother and an adult male)

In terms of their own satisfaction, the adults all equally made direct reference to the games that sometimes even appeared to have turned the exhibition space into a children playground.

He takes it a little as a children's play area...more in the fun of it.

(Mother with 8 year old son)

I think it is a lot of fun and very interactive for the children.

(An aunt with her 7 year old nephew)

According to you, what are the exhibition's strong points?

The interactivity. The games. The fun.

(Mother with an 11 year old son and another adult)

Are you satisfied with the visit?

Yes. Firt because they can touch. They can get involved. They can try different things(...) It was rather fun.

(Mother with her 8 ½ year old daughter)

About childrens' short term learning, the majority of the children (15 out of 20) stated having learned "something" when questioned at the end of their visit. In a general way, it appears that the children did indeed understand the theme of the exhibition.

I learned that heads were very interesting. And that sometimes when they grow, the heads, the head changed a little.

(Boy, 6 years old, with his mother)

Lots of things. About faces.

(Boy, 7 years old, with his parents and sister)

When they relate their visit experience, the children voluntarily bring up the art works, but in a manner that is generally imprecise:

What did you see in the exhibition?

Masks, heads.

(Girl, 9 years old, with mother and sister)

It was an exhibition on masks...heads (...) There were others that were sculptures.

(Boy, 9 years old, with mother and cousin)

The devices that the children experimented with, and above all the manipulations linked to their functioning, are described in a much more precise manner than the art works themselves:

I saw a table, it had a cloth on it and there were holes in the cloth. You had to put your hand in the holes and there were heads in the holes.

(Girl, 5 ½ years old, with mother and brother)

We also saw, we were sitting, there was a control command and you turned the handle and there was a big red line and when it was done, you went on to the next one. And then you saw yourself. And it took a picture of you in the end .

(Boy, 7 years old, with mother, aunt and his 2 brothers)

For some, the learning appeared thus more concerned with certain know-how related to the interactive devices and the technology, than with the exhibition itself and its themes:

Did you learn anything in the exhibition?

To distort my face on computers.

(Girl, 9 years old, with mother and sister)

Formal learning on an artistic or historical levels appears indeed limited. For example, only three children spontaneously remembered artists' names (twice for Picasso, once for Brancusi). During the interviews, seven adults underlined their difficulty in going above and beyond the game in order to bring their children more towards an artistic and historical dimension of the exhibition:

It was difficult for them to stop, especially when it had to do with the history of the representation of the head. That really didn't go over at all. It was truly the aspect of playing with their own image that went over very well, I think.

(Mother with 11 year old son and her daughter)

Some parents hoped that their efforts to bring their young children to an art museum would, in the long run, be beneficial.

I wonder what he is feeling in fact. I can be disappointed right now because he (...) looks more for the fun things without stopping. But maybe it will all come around eventually. There is the present moment. I've noticed that with children. Afterwards they do remember. They can be very rapid in the moment. One would say they didn't see anything. And afterwards they will talk about it.

(Mother with 9 year old son)

It's true that they go directly to the animations and everything that is sculpture, painting, they run through very, very quickly. But at the same time, I think that just the fact that we are showing them some things, even if they don't really take the time to stop in front of them, it, will educate their eye all the same anyway. That's my conviction. We will see later.

(Mother with 8 year old daughter)

Discussion of results and implications

In this section, we will return to the main results of the analysis, formulating theoretical and practical implications. The discussion will successively address the research questions presented in this study, concerning (1) the relationship of the child to the exhibit (2) the role of the adult in this relationship and (3) the benefits derived from the visit.

1/ Concerning the relationship of the child to the exhibits (art works and interactive devices), several results observed in the exhibition did corroborate the main conclusions drawn from previous research concerning scientific exhibitions:

- The child behaves in an exploratory and open manner that appears to be guided not by the “order” as intended by the exhibition (museology) but by the environmental stimuli which are the most striking and visible;
- Among the devices, the most interactive (manual manipulation, video showing a distorted image of the child’s head) are the most used and retain children the longest;
- The attraction of the child for video, whether used for the art work or interactive device, as well as the sitting position proposed for some devices, suggests that young children value, above all, those exhibits which solicit their habitual practices (notably the use of television and computer);
- The appeal of written aids (labels, booklets, plastic “fun” cards) is very limited.

The research also produced some original findings in terms of the cohabitation between the art works and the interactive devices. There is a very clear dominance of the devices over the art works in terms of attraction and time spent. The literature allows us to hypothesize that the art works’ immediate environment, made more stimulating by the presence of interactive devices, diminishes the attraction for the art works and the time spent with them (Borun and

Dristas, 1997). As shown by vom Lehn and Heath (2005) for the adult visitor, the interactive interpretation tool seems, in effect, to “displace” the visitor’s interest to the detriment of the actual object on exhibit. In “Face to Face”, the attraction power and the time spent in front of these elements, as well as their respective placement in the exhibition space, does not allow for a global validation of this hypothesis. The number and “popularity” of the devices in the immediate area of the art work do not appear linked neither to the art work’s attraction power nor to the time spent in front of it. However, in taking into account only those works closest to the interactive devices, a positive and significant link emerges between the time spent with the art work and the time spent with the device. In other words, contrary to the literature, the results obtained here do not establish that interactive devices weaken the art works’ attraction. On the contrary, it was shown that they could, in fact, be beneficial to them in terms of time spent. In any case, the hypothesis that interactive devices are detrimental to those art works in close proximity could not be retained in this research. Inversely to that, but also contrary to the beliefs of exhibition designers that consider devices as a museological support guiding visitors “naturally” to the art works, the results obtained here also show that the attraction for the devices, if, in fact, do not damage the attraction for the art works, do not profit them either. The selection of the art works, the museological choices, and perhaps adult behavior (*cf.* following point) could thus be the principle elements responsible for the little attraction the young children have for the art works. To further qualify these conclusions concerning the link between the art work and the devices closest to it, it may also be interesting to adopt a more holistic perspective (the exhibition space in its entirety) as opposed to individual (the art work). Actually, it is possible that the exhibition space, rendered very stimulating by the presence of the interactive devices, has not worked in favor of the art works, even if, considered individually, the art work did not suffer from the close presence of a particular device (possibly even benefited from this in terms of time spent). In any case, further research

will be necessary in order to question the exact nature of the interaction between art works and devices, and to allow us to consider the most efficient means to exhibit static artistic works (statues, paintings) for an audience of very young children. Following this, we are able to propose a few directions for designers of art exhibitions for children:

- The first suggestion would be to render the experience of the work itself interactive, by using, for example, the devices' attraction power to guide the regard towards the work (using light, sound, computer tools...). It is important to note that one of the art works capturing the attention of the children for the longest time (the module "Head Words") benefited from sound devices that called out terms around simple fragments (mouth, eyes, nose) of the art works. The sound tapes were diffused as close as possible to those works sending the visitors' attention directly back to the art work. In the same sense, we could also propose an interactive system of lighting of this art work which, with each press of a button by the child, unveils and highlights different aspects of the art work. An interesting example of this was the Bruegel exhibition for children in Paris at the "Musée en herbe" in 2008. This exhibition focused on a single painting ("Children's Games") whose theme was appropriate to the target, with an immersive and game-like museology where the child, in costume, "penetrates" the universe of the painting, in 3D, to play the medieval games portrayed by the painter in his work;
- The attraction for video and the sitting position confirms the children's predilection for those exhibits that place them in a familiar and comfortable situation or position. A second possible direction would thus consist of more systematically linking the work to the child's universe by associating them with his/her daily practices (for example, telling a story to the child using the painting, letting the child put on a costume, or creating a game that involves the contents of the work, as in the Bruegel exhibition).

This direction presupposes an exhibition space specifically dedicated to children with a museological approach intending to separate the art work from its previous traditional sacred position in order to lead it to the child (and not the other way around);

- A last direction concerns the visit route in the exhibition. Not perceived in the “Face to Face” exhibition, a more playful and clearly indicated route could favor the appropriation of the exhibition in its entirety (orientation, hierarchy of works and devices...). It also could support the efforts of the adults who wish to avoid an exhibition approach that is too scattered, and could help to rebalance time spent with the works and the interactive devices by guiding the children, in particular, towards the art works.

2/ Having shown to spend most of their time together, the “Face to Face” study confirms the primordial role of adult-child interaction during the visit experience. The results show that while the children clearly initiate the approach to the interactive, more playful devices, the adults do not play an equivalent role for the art works. Very little intervention is observed on the part of the adult to try to compensate for the weak spontaneous attraction of the children for the paintings and sculptures. Specific information, destined for the adults, giving them the key to more easily and systematically play the role of interface between the art works and devices could be envisioned. For art works, as in science museums, the use of written information by the visitor is very limited. When reading behavior is observed, it originates as much from the children as from the adults. There again, it appears that the adults hesitate in fully playing their role as knowledge mediators. Without bringing into question the relevance of specific information labels designed for children, this result emphasizes the relevance of a

system of double posting, including labels for adults (clearly indicated as such), at their height, with adapted information.

On the other hand, the results concerning speech registers used when in front of the art works, suggest that the adult adopts a register that is essentially informative/explanatory, which is actually liable to improve the child's learning (Crowley and al., 2001). Yet the recourse to an almost exclusive use of this register (72% of adults' speeches) leaves little place for other registers that could incite the child to adopt a more active role in the discovery of an art work. To make the child more active in his/her relationship with the art work could consist, for example, of inverting the current hierarchy of speech registers, inviting the adult to more often question the child (interrogatory mode), who would then actively search for the answer and inform the adult using observation of the art work (informative/explanatory). Among other things, increasing the total speaking time by the child in front of the art works would allow for more balance in verbal interactions between the child and adult. The adult could also more systematically use the invitation register (which now represents only 11%), as is the case when faced with the interactive device (21% in this case). Another observation coming from the study of the verbal interactions is the relative rarity of the use of the affective registers (13% of the total for "esthetics" and "laughter"), even though one would think that, for young children, this would serve as an effective approach when faced with art works. These findings could lead to the creation of a parents' guidebook that suggests amusing questions to ask the child as well as emphasizing which elements of the work to point out to the child, favoring an approach to the art work that is both active and affective. These elements could conceivably be provided on the "adult" labels previously mentioned (allowing the adult to have "free hands"). Finally, one could imagine another family interpretation aid which includes one or more "breaks" where the child would become the narrator, asking

questions to his parents (intergenerational transmission reversed). However, all these recommendations are in written form and the “Face to Face” study has shown that the recourse to written text in the art exhibition has its limits for the child and for the adult. Other directions calling upon guidance tools that are non-textual should be explored simultaneously, drawing inspiration from the interpretation tools that are sometimes used for school groups (theater, role-playing, drawing, storytelling...; Anderson *et al.*, 2002).

3/ The visitors interviewed agreed on the success of the visit that was mainly perceived in terms of games and family sharing. Both adult and child report a high satisfaction with the playful experience they had with the interactive scenography. One might consider that the exhibition “Face to Face” was implicitly thought of by adults and children as an interactive exhibition whose theme was the head, augmented by several art works. The issue of learning on a strictly cultural level was raised by a minority of adults (7 parents) who underlined, and were disappointed by, their difficulty in transmitting information relative to the art works in an environment rendered very stimulating by the presence of the interactive devices. For these parents, the transmission of a taste for art seemed to be made more difficult by the presence of the interactive devices, which were, paradoxically created to facilitate learning. However, as games are known to be particularly important to the creation of meaning for the young child, the playful dimension of the exhibition does not imply the absence of learning. Only a longitudinal approach would allow the identification of the reality, and nature of, the knowledge acquisitions. Moreover, as Crowley *et al.* (2001) state, in terms of family visits to museums, what is at play at this age is also the progressive familiarization with the museum institution (able to improve concentration during future visits; Jensen, 1994) and an artistic “culture” allowing the child to develop the identity of someone “competent” in matters of art. We could also evoke the benefits in terms of sensory stimulation and general receptiveness to

the world around the child. In these conditions, “Face to Face”, rich, playful and multisensory, could be considered to have reached its social and cultural objectives.

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Notes

ⁱ In France, outside of school visits, museum visitors accompanying a child or children less than 15 years old represent from 5% to 30% of the total visits to art museums. This number changes to 33% to 78% for science or natural history museums (Mironer, 2001).

ⁱⁱ Measured by using the map of the exhibit noting the art works and interactive devices.