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Welcoming Families to the Museum: Reconsidering Forms of Cultural Mediation for Parent/Child Autonomous Visits

Valérie-Inés de La Ville, Cristina Badulescu, Charles-Alexandre Delestage

Abstract

Most of France's local museums are coping with a contrasting situation: school visits are very successful and receive appreciative comments, whereas autonomous leisure family visits are disappointing and are sometimes damaging to the museum's reputation. Welcoming families for a leisure museum visit raises two issues: the impossibility of offering a guided visit to every family because of a lack of staff and finances, and the need for innovative interactive pathways that allow families to visit without the benefit of a guide or curator. The authors engaged in an action-research process with the Angoulême paper museum, with the aim of designing an autonomous leisure visit for families with "tweens." A constructivist framework was elaborated to design an interactive family visit using two interconnected mobile applications and to support the scaffolding role of parents with respect to their child.

Keywords

Museum, family visit, tweens, joint activity, scaffolding, cultural mediation

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Introduction

A majority of French local museums are coping with a contrasting situation: school visits are very successful and are receiving appreciative comments, whereas leisure family visits are disappointing and are damaging the image of museums, especially through online comments such as those found on Tripadvisor and social networks. Most museums have made an effort to adapt their offer to schoolchildren by designing guided or interactive tours in collaboration with teachers, with the aim of meeting their curricular objectives. By contrast, welcoming families for a leisure activity remains a challenge for local museums, raising two issues. Firstly, because of the lack of staff and financial resources, a guided visit cannot be offered to every family that comes to the museum in search of a shared outing. Secondly, a family visiting the museum on its own, without the benefit of a guide or curator, calls for the design of innovative interactive visit pathways.

Digital technologies could be an opportunity to meet the two challenges posed by the family leisure museum visit. The need to introduce technological mediation into the museum space is also a result of the changing economic context in which museums develop their activities. The gradual decline in funding by governments and foundations has induced local museums to attract new audiences in order to generate additional revenue streams. In this context, the design of an autonomous family visit is based on distinct choices aimed at providing a joint experience that the protagonists – parents and children in a leisure context – should be perceived as different from the canons of scholarly museum visits (Renard et al. 2018) to which most children are accustomed.

Beyond the undeniable success of school visits, the staff of the Angoulême paper museum saw a need to offer interactive visits for families with children aged 8 to 12. Thus, the point of departure for our inquiry, in interaction with the museum's curators, was a managerial one: to offer a new, autonomous visit path for vacationing families that might generate positive comments on social networks. In accompanying the museum on this project, through an action-research process that would unfold over two years, we first conducted a naturalistic observation of individual visitors to the museum. This revealed opportunities and constraints due to the cramped premises. To follow a consistent heuristic theoretical framework when designing a visit, the curators needed to develop the museum within its unique socio-institutional and economic environment. We therefore carried out a review of previous research on family museum visits. Our pragmatic, action-research perspective led us to co-design, with the curators, an interactive family visit. The next step was to decide which guiding principles should be retained in the design of a digital application that makes the family visit an autonomous one.

Cultural mediation is a complex narrative construction (Jeanneret 2014) that is logical (it requires material conditions) as well as poetic (mediation is not a simple transmission but consists of inventing and transforming objects) and symbolic (mediation not only regulates sense-making processes but also fosters relationships). We therefore reconceptualized family mediation as consisting of curatorial, parental and digital mediations. We elaborated a constructivist design framework of an interactive family visit drawing on two interconnected mobile applications aimed at the parent/child dyad. Next, we analyzed the reception of this interactive family visit that serves to intensify the scaffolding role of parents during an autonomous museum visit with their child.

1 - Welcoming Families to the Museum: A New Research Agenda

1.1 - Families Attending Museums: Social Changes and New Expectations

Until the mid-1990s, family museum visiting was seen as a social practice determined by education level, with cultural transmission taking place mainly within the bounds of the family (Bourdieu and Darbel 1966). In this perspective, the museum visit signifies cultural distinction – reserved for the upper classes and resulting from a cultural habitus structured by a family’s social position and lifestyle. A more recent research trend is development of profiles and expectations for various museum audiences, providing evidence that museum visiting by families is less socially determined (Jonchery 2010). Since 2010, analyses of attendance at national museums in France have revealed an increase in families from the lower and middle classes. This phenomenon also applies to local museums, where half of all visitors are from the lower and middle classes. Recent investigations have explored the reactions of socially disadvantaged families when they visit museums: their accounts of the experience suggest contrasting feelings of disorientation, fun or construction of meaning (Archer et al. 2016). The perception of the informal learning space offered by museums shows a disjuncture between the cultural habitus of families and the normative institutional curatorship focused mainly on middle-class practices and attitudes: “There is an inherent inequality within social inclusion projects that seek to change ‘non-traditional’ groups to fit an unchanged institutional offer” (Archer et al. 2016, 25). Thus, reinforcing families’ participation and engagement in museums implies reconsidering cultural mediations to better welcome and guide newcomers in this institutional space as well as families that do not fit the typical visitor profile.

Family expectations exceed the social mission of those museums whose role consists of transmitting established knowledge. Parents value the informal educative dimension of museum visiting and are keen to please their children while contributing to their personal growth by exposing their minds to new areas of interest (Jonchery 2015). For them, a family museum visit represents an opportunity to immerse their child in a different world, so that the child discovers hidden facets of his/her personality. During a family visit, the child discovers not only his/her own tastes but also those of other family members: grandparents, parents, siblings. In museums, parents are eager to immerse their child in a context that allows them to establish authentic communication with him/her. Thus, the family museum visit can be seen as a dialogic device – an opportunity for parents and children to use their respective skills to build a joint perception of a collection (Melvin et al. 2020). Most families seek opportunities to create shared memories that have the performative effect of enacting the family itself (Falk 2012). “In other words, people go to museums to foster the needs of their identity, such as the desire to be a parent or a supportive spouse” (Falk 2012, 9). From a parental perspective, a museum visit reinforces one’s self-appreciation as a “good enough” parent (Winnicott 1988), thus making oneself available to one’s child by devoting time to him/her and sharing discoveries and experiences. Parents focus mainly on building their child’s identity and creating the conditions for his/her fulfilment.

1.2 - Supporting Families’ Shared Practices: A New Challenge for Local Museums

While French local museums offer diverse cultural outings for school audiences, few of them meet the expectations of diverse family audiences, such as the opportunity to enjoy social experiences or to share and exchange; their expectations also have hedonistic dimensions such as relaxation, surprise, pleasure and reverie (Jonchery 2015). Sharing is one of the primary ways of transforming a family museum visit into a shared moment of relaxation, conviviality and discovery (Jonchery and Biraud 2014). It appears that every family museum visit includes both an individual and a communal element: it is a dynamic and iterative process with elements

such as quality time spent together or unusual dialogical interactions that strengthen family bonds in the “here and now” (Cicero and Teichert 2018; de La Ville and Badulescu 2018). Nevertheless, we need to better understand “how individual, relational and collective family engagement contributes to their joint experience outcomes” (Melvin et al. 2020, 1). By considering the family unit as a dynamic and complex means of exchanging individual, relational and collective resources, we can identify seven ways that families engage with the content of museums: absorbing, interacting, sharing information, explaining, constructing meaning, competing, deviating. This perspective highlights the role played by visitors who use their own knowledge and resources to transform the curatorial resources displayed in the institutional space into individual and shared experiences: “It is the combination of core, enhancement and extra-ordinary practices that shape the family’s joint visitor experiences” (Melvin et al. 2020, 5).

Although research on child museum visiting has enlarged its focus from child-centric to family-centric, museum offerings for families rarely include activities designed for sharing among family members (Barbieux 2011; Leseur and Steffen 2016) – and when they do, the objective is reached mainly through mediation by a curator. Empowering families to achieve an autonomous visit is a key issue for local museums with limited financial and human resources. This relates to various issues surrounding the introduction of digital technologies into the museum experience, such as the interaction, adaptation, personalization, ownership and participation that accompany the design and deployment of digital online and in situ cultural mediation tools. The figure of the museum visitor has shifted from that of mere spectator to that of user, or even hyper-actor, of the museum system (Andréacola 2014). New forms of participatory mediation exemplify the transformation from a museology of the object, according to which the patrimonial object is sufficient for sense-making and directly operates as a cultural mediator, to a museology of the point of view (Davallon 2011), in which the visitor is placed at the centre of the interactive and immersive devices that nourish his/her museum experience. This paradigmatic shift entails a move from the sending base (the curatorial exhibition with its intrinsic significance) to the receiving base (the differing audiences, whose expectations, apprehensions and universe of representations need to be analyzed in detail). This standpoint sheds light on the experiential learning path that organizes a child’s museum activities through exploring, touching, listening, watching, moving, interacting with the exhibition and mediating digital devices (Moorhouse et al. 2019).

1.3 The Family Museum Visit: Reconsidering the Role of Parent as Cultural Mediator

Nevertheless, some digital issues are specific to the family museum visit. As a child’s attention span is limited, the support of parents is crucial in helping their child to fully enjoy a visit pathway, whose temporal dimension needs to match the age of the child. However, parents are not always experts or enlightened amateurs with respect to a museum’s theme. Thus, museum digital services should facilitate parental mediation – for example, by providing information about conservation goals and key messages that may be of interest to children. Parental scaffolding of the experiential learning process of the child visitor is key to a gratifying experience for both parent and child. Scaffolding has a threefold function: it supports not only the child/adult relationship but also mastery of digital devices and discovery of the museum environment by the child (Andre et al. 2017). Technological mediation expresses the choices in interactivity previously made in the field of museum mediation – storytelling, unveiling of hidden meanings – while also taking into account the usual media practices of children to guide parent/child play activities (Rennick-Egglestone et al. 2016). In some situations, the best technological mediation is unsophisticated – a mere pen and notebook will equip the child to

pick up clues and carry out an exploration of the museum – whereas in situations involving “tweens,” for example, digital mediation is needed to integrate their expertise into the use of multiple screens that might lead them to be critical about the form of interactivity offered on the family visit. Indeed, displaying digital interactivity within the museum facility might also reinforce children’s influence over family activities through their preferred tactics: nagging to make the parent feel guilty, negotiating to obtain certain items, and pestering for no specific reason (Cicero and Teichert 2018).

Thus, our careful reading of previous investigations of the museum experiences of families highlights three transformations that enable us to better understand the managerial and cultural complexities that the Angoulême paper museum had to embrace in order to design an autonomous visit pathway for families with children aged 8 to 12.

2 - Longitudinal Action Research with the Angoulême Paper Museum

Despite its know-how regarding school visits, the Angoulême paper museum appeared to be poorly equipped to develop family leisure visits, a situation that called for theoretical elaboration. “Contexts and occurrences that seem puzzling or paradoxical move us to search for explanations or resolutions from our own unique combination of perspectives derived from our theoretical exposures: they stimulate discovery” (Arnould et al. 2006, 107). Empirical contexts matter in terms of research, as they may provide “opportunities for uncovering the boundaries of how, when, where and under what conditions our theories apply” (Arnould et al. 2006, 110; March et al. 1991). Moreover, our concern, in taking a grounded theory approach, was to situate our contribution at the level of substantive theory with limited scope in terms of generality (Glaser and Strauss 1967); and, consistent with a pragmatist approach, we were aware that “the outcomes of research should be useful . . . audiences” (Fischer and Otnes 2006, 19), in this case the paper museum’s curators and family visitors.

2.1 - Key Features of the Angoulême Paper Museum

Since 1988, the museum has been situated within the Angoulême paper mill, which initially was operated by Lacroix and then was known as the Joseph Bardou Nil paper mill until its closure in 1972. These buildings are the living memory of the rich industrial past of the city of Angoulême and its surroundings, incorporating paper-making and related industries such as the manufacture of cardboard and felt. The museum’s collections form a coherent set of testimonies on various aspects of the paper industry since 1845: the design and production of machinery for paper manufacture, then paper, with and without watermarks (from the 18th to the 20th century), and paper products (cigarette papers, stationery, cardboard packaging, posters).

The museum is located within the former factory structures that were built directly on the river Charente to benefit from its hydropower. The ground floor features an interpretation centre devoted to the history of river-related industries since the Middle Ages (paper mills, foundries, brandy-producing and felt-making facilities etc.). Due to its cramped quarters and the humidity rising from the river, the museum is unable to exhibit its rich collections and therefore displays facsimiles only. Despite a staff of just 4.5 full-time employees, school visits are successful, with an average of 5,000 schoolchildren visiting per year.

Having secured a special budget for its 30th-anniversary festivities, the museum launched an investigation to determine how to put the relatively technical content of its permanent collection within the grasp of children aged 8 to 12 accompanied by their parents. Our research with the museum took place over two years, during which time we conducted

several complementary studies.

Our first step was to familiarize ourselves with the museum's facilities. We carried out detailed naturalistic observations of 50 visitor routes (adult individuals and families with children), followed immediately by semi-structured interviews. The results show that the authentic factory atmosphere of the buildings appealed as much to adults as to children. Visitors also mentioned some negative aspects, such as difficulty circulating in the cramped spaces and orientation problems due to the absence of signs throughout the museum.

We carried out a series of formal interviews with the museum's managers, who specified their objectives: to innovate through the introduction of digital technologies in order to modernize the museum's image and to send a positive message to its partners within the public funding ecosystem. The interviews revealed that empowering families at the Angoulême paper museum implies rethinking the museum experience as a form of participatory museology – that is, questioning the multiple mediations that take place to reinforce parents' role as cultural mediators vis-à-vis their child. Indeed, rendering the family visit autonomous implied designing a digital application that would retain a number of guiding principles. In formulating these design principles, we conducted an analysis of previous research on family museum visits to better understand the role played by parents during such visits.

2.2 - Interweaving Three Mediations to Design an Autonomous Family Visit

The second step in our action-research work with the paper museum was to elaborate a heuristic framework, which provided an opportunity to approach the family experience as a complex parent/child activity (Bruner 1986) and introduce it to the museum's curators.

Considering the transformations evident in previous research on museum attendance by families, we elaborated a heuristic socio-semiotic framework comprising different forms of mediation – curatorial, parental, technological – to support a joint parent/child museum experience aimed at strengthening family ties. The purpose of these constructivist theoretical underpinnings is to “understand the museum visit in contextual terms as a complex and dynamic interaction” (Jensen 1994, 300) through which children engage in an interactive process of guided learning and participate in the social construction of meaning through a shared experience of the scenography. This framework consists of the three types of mediation – curatorial, parental, technological – to enhance the museum experience for parents and children and to strengthen family bonds.

2.2.1 - Curatorial mediation

Curatorial mediation is based on the notion of symbolic operation (Davallon 2011): a form of narrative efficiency as well as the nature of the relationship – that is, the scenographic features that it offers to the hybrid parent/child visitor. This mediation draws on the perspectives of the curators, who develop educational strategies for different publics based on their expertise regarding the interactions that diverse audiences establish with the museum's scenography. Through close collaboration with teachers, the curators were able to provide specific paths into the scenography for pupils accompanied by their teacher, taking the pupils' knowledge level and the curriculum into account (Della Croce et al. 2019). Welcoming a family for a leisure visit raises new difficulties, as, in the absence of a teacher to guide the visit, the museum must rely on parents to make the visit a successful experience for the whole family. Confronted with wide variability both in the socialization of families with regard to museums and in the level of knowledge they bring to their interactions with the scenography, the curators became aware of the need to “support adults accompanying children, thus bringing about an emphasis on family leaning” (Wolf and Wood 2012). Indeed, active guidance by parents and others with respect to children's learning experiences during museum visits appears to be a key issue for

curators when designing experiences to enhance family interaction.

2.2.2 - Parental mediation

Parental mediation is based on the notion of the “zone of proximal development” (Vygotski 1934/97) made possible by the communication established between parent and child with regard to the exhibition. According to Vygotski’s socio-cultural education theory, adults play a key role in children’s learning, as they facilitate open-ended questioning and elaborate new knowledge through their dialogue with the child. In the zone of proximal development, the adult guides the efforts made by the child to decipher a new situation through a process of scaffolding, which sets supportive conditions to help the child ask questions, experiment, provide explanations and verbalize his/her emotions. “Scaffolding (for any learner) requires simplification of ideas or tasks and encouraging the learner toward successful experiences with that idea or task” (Wolf and Wood 2012, 33). By providing parents with specific content, curators trigger the natural scaffolding of their child’s learning process. Parents are the adults best placed to provide customized scaffolding so that their child gets the most out of a museum visit. Moreover, it is the parent who is most attuned to the child’s knowledge about museums and the child’s personal interests and motivation to engage in a museum visit; the parent is able to use the child’s experiences to help make the visit meaningful for him/her. The design of an interactive family visit should bring scaffolding opportunities in a subtle way: “The scaffolding provided should be an engaging, diverse, and balanced approach to stimulate interactions, rather than didactic instructions that parents may perceive as arduous” (Wolf and Wood 2012, 36).

2.2.3 - Technological mediation

“How to best design for integrated family experiences is an open question” (Rennick-Egglestone et al. 2016, 11), which implies a need to understand how families appropriate the use of technological devices in the museum environment. Naturalistic observation of families using tablets in a science education centre reveals that children do not have a direct relation to technology and sheds light on the “complex facilitation work that parents need to engage when supporting their children’s experiences with a tablet” (Rennick-Egglestone et al. 2016, 12). Technology is not sufficient per se to ensure a successful family museum experience. By enhancing a strategy of situated parental scaffolding, digital mediation offers benevolent guidance for a child to actively participate in the joint activity of a museum visit. Research has found that the aim of technological mediation is twofold: to structure the interactive joint visit path, considering the affordances and constraints of the museum space, and to enable adult facilitation work for the child user of a digital device; the challenge is to create the most appropriate technological mediation to support a joint parent/child activity (de La Ville and Badulescu 2018). Digital technologies should not only encourage the parent/child dyad to discover the exhibited items and the appropriate use of digital devices in the museum but also trigger curiosity and sharing in order to produce narratives that enable the emergence of critical thinking and aesthetic sensitivity.

Welcoming a family to the museum for an autonomous visit requires a structuring of these three mediations and “intentionally applying the strategy of scaffolding by building on simple concepts and working toward mastery of ideas that [can] inform adults and simultaneously help children stretch to new levels of understanding and achievement” (Wolf and Wood 2012, 29). It also induces reflection on the links between the three mediations and helps identify the specificities of autonomous family leisure visits compared with other mediated situations (guided tours, school visits, audioguided visits, adult visits). The discussions triggered by this framework offer systematic guidance for exploring different ways of consolidating the three mediations to achieve a rewarding leisure experience for both parent

and child. Through this first step in our action-research process, we were able to determine the conceptual underpinnings allowing for the design of a joint parent/child museum experience.

3 - Designing and Evaluating an Interactive Family Visit

Having conducted an in-depth analysis of the literature on children in museums, we extracted key elements likely to enhance the appeal of a museum visit for a young audience: opportunity to apply reading skills, learning motivation, limited duration, playful activities, digital devices, emotional support, guiding avatars, rewards for attention and learning efforts, post-visit experience.¹ The literature review, combined with our heuristic theoretical framework, led to the design of four script proposals that were discussed with the museum staff.² The curators chose to prioritize the development of the first script, focusing on the history of paper-making techniques from the craft era to industrial production, as they considered it the basic information to be presented to the museum's family visitors.

3.1 - Designing an Interactive Family Visit Focused on the History of Paper-Making Techniques

The objective was to design an interactive family visit scenario interconnecting two mobile applications on two tablets, one each for the child and the parent. The scenario comprised four topics: the role of the river Charente in the development of the paper industry, the making of paper by hand in the Middle Ages, the industrial manufacture of paper in the 20th century, and differentiating the quality of local paper-based production. The application design would have to avoid disconnecting the joint visit from the “expography” implemented by the museum; its main purpose was to interest the child in discovering elements of the permanent scenography and lead him/her to build a personal relationship with the objects on display. The design of the interconnected applications using two tablets follows a triple mechanism that differentiates the content appropriate for the child from the content addressed to the parent and synchronizes the tablets to allow for joint activities.

Firstly, to make the content of an exhibition understandable to an eight-year-old, the curatorial mediation offers new elements unavailable in the limited space of the museum. This enriched cognitive mediation fills some narrative gaps to help the child understand the scenography. The application introduces elements of the exhibition from an angle different from that of the museum's signs, or adds elements that help the child understand the functioning of the complex industrial machinery used in a paper mill. A stop-motion video animates the mechanical elements of an engraving reproducing a paper-making machine and details various steps, from the production of the pulp to the drying of a sheet of paper. This video complements the museographic device – a scale model of a paper mill – and embeds the sequence of the visit experience in transmedia form (De Bideran and Bourdaa 2017). This type of mediation enables the child to live the experience in the “here and now” and to achieve a good understanding of industrial details in an interactive form (Schiele et al. 1987).

[Figure 1 about here]

Secondly, two paper-doll characters, Rizlo and Edouard, accompany the child and play a scaffolding role to facilitate his/her visit, complementary to that of the parent. Rizlo interprets advertisements for the Bardou Le Nil factory, drawn by the famous artist Cappiello, with an elephant as the brand's mascot. Rizlo embodies the memory of the paper museum, and

of the whole paper-production industry in the Charente region. On the child's tablet, Rizlo is benevolent and caring; he tells the paper-making story in a didactic way, by adding details that are not presented on signs in the museum. On the parent's tablet, Rizlo's role is limited to explaining how to operate the application and introducing the various joint activities offered to the parent/child dyad. Edouard is an energetic and curious boy of about 10 whose interventions are meant to make Rizlo's didactic speech more playful. On the parent's tablet, Edouard merely introduces himself. As the child's friend, he urges him/her to persevere on the visit path and congratulates the child every time s/he has successfully completed a joint activity. Sometimes Edouard summarizes key elements to remember in language that is appropriate for his young friend. For the child, the scaffolding role of these two characters is obvious: they provide informal benchmarks for exploring an unknown universe and encourage the child to remain motivated and persevere to the end of the visit (Debenedetti 2003). For the parent, these characters are not only cute cultural mediators but also interlocutors, sharing in the activities during the course of the interactive visit.

[Figure 2 about here]

Thirdly, in designing joint parent/child activities under these different themes, we introduced playful forms unlikely to diverge from the museum's mission of delivering structured knowledge. We referred to canonical forms of interactivity and games fully mastered by parents and children: puzzles, riddles, quizzes, seven differences. These shared games invite the parent to play one of two roles, depending on the particular game: that of player, cooperating with the child and then doing the activity with the child, in synchronicity; or that of referee, knowing the answers beforehand. The parent plays a dual mediating role, "guessing" the answer with the child but also trying to interest the child in the exhibits while seeking the answer. These are opportunities for parent and child to enjoy engaging in an activity together – that is, to "be a family" during the museum visit.

[Figure 3 about here]

These joint activities involve the child cognitively, physically and emotionally, while also helping to transform the young visitor into the creator of his/her own museum experience: s/he benefits from guidance to develop his/her own interests from among the objects exhibited. Parent and child have a different series of screens providing information about the current joint activity as well as photos or engravings that are not in the museum. The information is different for the child and the parent. The child benefits from more progressive and graphic information, while the parent has direct access to iconographic and textual content. Thus, the parent can take on the role of facilitator and provide explanations to the child when s/he deems it necessary. Each of them is free to explore the theme at his/her own pace, by moving through the exhibition and by using the tablet.

3.2 - Three-Step Evaluation of Autonomous Family Visit Path

After designing and developing the two interconnected mobile applications, our next step was to carry out a two-month naturalistic evaluation, within the museum, of the new interactive family visit by its first users: families with children aged 8 to 12. Our aim was not to measure

the success of the autonomous interactive family visit but to understand how parents and children had experienced it and to grasp the meaning each of them gave to different elements: the exhibition, the duration of the visit, use of the tablet, the role of scaffolding and so forth.

Firstly, we developed an observation grid to shadow the 37 parent/child dyads recruited directly by the museum (see Appendix 1). We observed the parent/child interactions with the tablets, focusing on different aspects: how the parent managed to motivate the child to engage in the visit, signs of interest shown by the child, and whether the child asked for help when joint activities had to be completed.

Secondly, we invited the children to produce a “drawing” narrating the visit they had just made. A total of 37 children between the ages of 7 and 14 were interviewed (50% male, 50% female). The children were 9 years old on average. Four of them had already visited a museum interactively using a tablet or a mobile application or through virtual reality. In order to understand as much as possible about a child’s “drawing-in-the-making” (Bougenies 2015; Nicol 2014), we used various means of asking the children to comment on the structure of their drawing and the elements they wanted to represent: What are you drawing? What does this represent? What did you like about this museum visit? Would you be able to explain to your best friend how this device works? Did your dad or mom help you during the visit? Such drawing-based interviewing enabled us to gain access to the children’s experience and the vocabulary they used to describe their feelings during the family visit.

Thirdly, in parallel, a semi-directed interview with the parents dealt with issues such as their general feeling with respect to the visit, their personal observations concerning their child’s visit, parental guidance during joint activities, and their opinion about the role of the tablet in a family museum visit.

Two researchers each conducted a manual analysis of child and parent post-visit interviews using a common thematic grid (see Appendix 2) and then compared their results.

4 - Findings, Discussion and Limitations

The paper mill was the most common theme the children chose to represent in their drawing to relate their visit experience. They expressed how much they appreciated learning about the paper-making process by activating the different levers included in the application. The second most represented theme in the drawings was the tablet itself. Only four of the 37 children had already had an interactive museum visit with a tablet. Having their own tablet for this visit enabled the children to have their own such experience for the first time, as most of them commented that their parents did not lend them their tablet. Handling a tablet was a motivation for the children, who clearly led their parents during the joint visit, following the route to the end. The scaffolding role of the characters in the application was much appreciated: “It was great, because we had a tablet with characters – the elephant and the little boy – who taught us a lot about the history of paper. It is very interesting.” – GABIN (AGE 8) The main argument children gave for motivating their best friend to visit the museum was the possibility of manipulating his/her own tablet: “I would say that there is a tablet.” – MESSALINE (AGE 9) “We would talk to them about the tablet.” – COLEEN AND LUNA (AGE 8) “We had a tablet to do the tasks.” – NATHAN (AGE 7) “There was a tablet, so it helped a little and it was good!” – LUCIE (AGE 9)

[Figure 4 about here]

The parents believed that the use of interconnected tablets boosted the motivation of

their child to explore the museum and spend time trying to decipher some of the more complex exhibits. One father underlined the motivation of his daughter: “She likes to reflect. I think what she liked most was making this visit with her dad. She was also interested in using a tablet, because she recently asked me for one and I refused.” – FATHER OF MESSALINE (AGE 9) Parents mentioned synchronization problems, as they read at a faster rate than their children and found it difficult to keep the two tablets at an even pace: the parent either read the texts quickly to follow the child or read them slowly while the child waited to perform the joint activity. Several parents saw joint activities with a child over the age of 10 as irrelevant, as such a child is an autonomous reader and does not ask for help. Many parents commented on the museum’s lack of sensory activities (touch, feel etc.) for perceiving different paper qualities. “I think that physical activities . . . real activities would have made me appreciate the visit even more. For example, seeing or helping to make paper in a workshop would have been great.” – MOTHER OF MARIANNE (AGE 10) AND NATHANAEL (AGE 7)

Parents had no difficulty with their scaffolding role, as they obtained the relevant information at each stage of the visit to help their child understand the collection. “The tablet makes it possible to learn things in a different way. The absence of sound is positive – it forces the child to read.” – FATHER OF LUCIEN (AGE 8) Parents commented that having their own tablet with additional information about the collection helped them to make the museum content available to their children. “The tablet brings in the collaborative side of the visit – the fact that we are really together around a common point where we can help each other, as we are really obliged to be together to play little games or [do] little things.” – MOTHER OF EMILIEN (AGE 9) “The use of the tablet may increase children’s interest. And it is another way to visit, as it creates a bond between children and parents, different from when you read the signs. It’s complementary at the same time.” – MOTHER OF AKIM (AGE 8)

The evaluation revealed that, to be perceived as successful, the family visit had to not only unveil a new universe but also give parents and children an opportunity to share a situated sensory experience that is enriching and entertaining. By offering the possibility of a performative benefit – a temporary “family” – the joint museum visit allows for an updating and revaluing of the structure of family bonds. Since its official launch in July 2019, the interactive visit has been used mainly by grandparents and their grandchildren, who leave happy, having shared an entertaining activity. Some grandparents who were accustomed to the museum setting remarked that, finally, paper-making was easily understood by their grandchildren. From a pragmatic standpoint, the research process generated useful knowledge for both museum curators and families. The curators increased their knowledge concerning key issues to be treated when designing cultural mediations for an autonomous leisure family visit. They also learned that museum mediation aimed at both parents and children must open up spaces for family bonding. Three other visit projects will come to fruition when the museum has the means to invest in scripting and development in the form of mobile applications. The parent/child clusters made it clear that the content added by virtue of the two interconnected mobile applications facilitated the involvement of parents, thus making the museum content readily available to their children.

5 - Implications for Management

The scope of our research was limited to a case study of the Angoulême paper museum and the results cannot be generalized to other museums. However, the results open up new design heuristics and research avenues and point to some subtle managerial issues for museum curators. It is apparent from the findings of this rich case study that the policy of welcoming families as part of a leisure museum visit raises questions at both theoretical and managerial levels (Kotler et al. 2008).

Firstly, studying the autonomous family visit to the museum leads us to investigate the role of digital tools. These tools, without replacing the museum discourse, encourage the parent/child dyad to produce symbolic links (Gentes and Jutant 2012) based on the development of critical thinking, curiosity, sharing and aesthetic judgement. The exchange that takes place between parent and child about the exhibits allows the child to exploit his/her skills using the screens and to feel valued and motivated during the visit. The challenge for the museum is to adapt digital tools to support the child's discovery, taking into account his/her familiarity with the use of certain digital devices: "the [child] visitor is no longer there to passively receive knowledge and benefit from transmission, but [is there] to test, verify properties, build his own knowledge etc." (Pinel-Jacquemin et al. 2019, 4). Introducing digital tools in museums to attract young audiences is a matter not of staging the latest technological innovations for an ephemeral surprise effect (Balloffet et al. 2014; De Bideran et al. 2020) but of finding the relevant interactive modalities to help children make sense of an exhibition within a caring, open and trusting relationship with their parents.

Secondly, our results confirm the need for museums to question the knowledge they have about the expectations of their different audiences (Gurel and Nielsen 2019). Although the segmentation practices of the Angoulême paper museum include only two visitor profiles – individual adults and groups of pupils accompanied by their teacher during school hours – the visit experience was highly appreciated by both targets. As Birch (2018) points out, museums tend to package the child audience as a group of learners, thus possibly overlooking other motivations that children are likely to have during their visit, such as an opportunity to discover, share, play, imagine or be amused. This restrictive packaging of the child by museums exemplifies a more widespread normative perspective through "which children have been negatively packaged and othered in public space where they are not wanted or wanted only as a certain kind of body" (Birch 2018, 516).

Thirdly, attempting to attract another type of visitor (parent/child dyad) for another kind of experience (autonomous leisure joint visit) leads us to examine the main characteristics of a museum's collection, in order to suggest new paths of meaning likely to frame a non-scholarly experience. Designing a non-scholarly museum experience for children does not mean creating a child-centric exhibition or mapping out a child-friendly visit that will be different from an adult one, as this conceptual divide is anchored in the perception of the museum visitor as a stable actor with a predetermined identity, be it adult or child. Falk's theoretical framework (Debenedetti et al. 2011; Falk 2009; Falk and Dierking 2000) leads us to ask whether an exhibition offers an array of visual, textual, material and sensory resources such that children and parents can be mobilized jointly to enact emotional family bonds understood as situated temporary embodied relationships. A child/parent visit might also be an opportunity to reconsider the role of facilitator (Falk 2009), which is usually ascribed to a parent. The facilitator seeks to satisfy the wants and needs of a person s/he cares about and uses the museum's resources to strengthen the bonds of sharing, interaction or cultural transmission. As for the child, this view emphasizes the scaffolding role of the parent as mediator of child learning. As parenting is a creative situated practice, some parents might take on other roles during the museum visit, such as instiller of aesthetic values, enhancer of curiosity, emotional confidant, alleviator of discomfort, contradictor of opinions, or playmate. According to Birch (2018), shifting away from the museum as a place of learning to a place of leisure that might enhance family bonding implies a reconsideration of the ever-evolving relationships that shape both adulthood and childhood, as well as offering the child/parent dyad a visit that is equivocal – that is, open to multiple interpretations. This experiential perspective calls for creative experiments in which artifacts are transformed into social objects that allow the "gifting" of interpretations among family members or the donation of rewards earned during museum activities (Fosh et al. 2016). Beyond child learning, the family visit will emerge as a joint

experience within the material, social, and discursive museum environment and the self-inventing joint activities of the child/parent dyad.

Notes

1. This specific literature review is not described in detail in this article.
2. The four scenarios were as follows: history of papermaking techniques; preparations for the 100th anniversary of the Lacroix paper factory; global success of the cigarette papers made in Angoulême; and the hidden side of cigarette papers (brothels, drugs, health risks).

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[Appendix 1 about here]

[Appendix 2 about here]

FIGURE 1 SCREENSHOTS OF APPLICATION DURING STOP-MOTION ACTIVITY (PARENT'S SCREEN AT LEFT, CHILD'S AT RIGHT)



FIGURE 2 PAPER-DOLL MEDIATORS: RIZLO AND EDOUARD



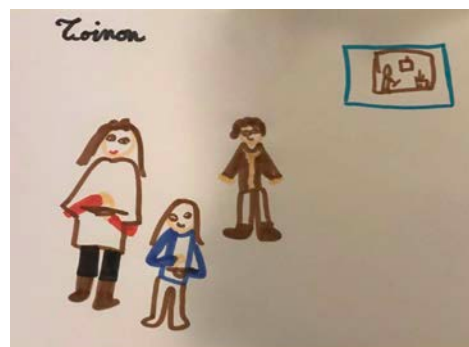
FIGURE 3 SCREENSHOTS OF APPLICATION DURING SEVEN-DIFFERENCES GAME (PARENT'S SCREEN AT LEFT, CHILD'S AT RIGHT)



FIGURE 4 DRAWINGS CREATED DURING POST-VISIT INTERVIEW



Drawing by Toïnon (girl, age 8)



Drawing by Camille (boy, age 9)

APPENDIX 1 OBSERVATION GRID

	Reception desk introduction	Map of the river Charente	Paper mill model	Watermark rolls	Showcase of different kinds of paper that were produced locally	End and back to reception
Accessibility						
Ability to orient oneself						
Tablet/exhibition concordance						
Parent/child interactions						
Parents' ways of motivating child						
Parent/child interactions with tablet						
Parent/child interactions without tablet						
Child asks for help						
Child verbal expressions						
Parent verbal expressions						

APPENDIX 2 THEMATIC CODING GRID OF CHILD AND PARENT POST-VISIT INTERVIEWS

Child	Parent
Describing the visit to best friend	Overall feel of the visit
What surprised the child during the joint visit	The child's visit from the parent's point of view
What the child found boring during the joint visit	Parental experience of the joint visit
Use of the child's tablet during the visit	Parental scaffolding role
When the child needed to ask the parent for help, and why	Assessment of the interactive joint museum experience
What the child would say to make best friend eager to make a joint visit	Recommendations for improving the joint visit