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Supporting Parent-Child Conversations in a History Museum

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Supporting Parent-Child Conversations in a Museum

Museums can serve as rich resources for families to learn about the social world through engagement with exhibits and parent-child conversation about exhibits. Frequently, however, families spend little time at exhibits (Crowley, Callanan, Tenenbaum, & Allen, 2001) and may not understand the message intended by the designers and curators (Crowley & Callanan, 1998). The present study evaluated two different types of activities in either a booklet or a backpack designed to accompany exhibits in a museum devoted to culture and history. The focus was on whether these additional props increased the time families spent at the exhibits and as a result, influenced the types of conversations families held at two museum exhibits.

The conceptual model for this study assumes that learning is a collaborative process in which children and their parents actively co-construct knowledge (Crowley & Callanan, 1998; Matusov & Rogoff, 1995). Rather than quizzing children on static facts to see what they have acquired after visiting exhibits in a post-test design, a collaborative model focuses on how parents and children engage with each other and with exhibits (Crowley & Callanan). Indeed, research suggests that it is the shared nature of conversations that supports children's future understanding (deRosnay & Hughes, 2006). Parent-child conversations may encourage children to reflect on and share their experiences whilst directing children's attention in ways that enhance their understanding of events (Thompson, 2006). Additionally, everyday parent-child conversations serve as a rich source of information, facilitating children's appropriation of and active participation in the cultural values of their socio-cultural community (see also Callanan, 2006; Vygotsky, 1978). For these reasons, we explored how parents and children interacted with each other whilst engaging at two exhibits from the same exhibition.

Research on visitors' activities and conversations at various museums has revealed how adults engage with each other and with exhibits whilst visiting museums. When visiting a science museum, the conversations tended to be mostly on-topic with 83% of utterances related to the exhibits (Allen, 2002). As evidenced by visual observation, slightly more than half of visitors were seen to read or glance at text in a natural history museum. However, when researchers relied on recorded conversations, they found that more than 70% of visitors were observed to use the text of the exhibit in their conversations. Combining recorded conversation with visual observations suggests that more than 80% of visitors read or echo text at exhibits (McManus, 1989). These findings suggest that visitors at science and natural history museums may show a high level of on-topic engagement at exhibits.

When families with children visit exhibits, they differ from other non-family groups. For example, in a study at the British Natural History Museum, play was more common at exhibits if the group contained children than if it did not (McManus, 1987). Family conversations were longer than conversations between peers or field trip groups with children. However, groups with children were less likely to read the signs provided by the museum than adult-only groups. Moreover, at a children's museum, families tended to spend less than two minutes at an exhibit (Crowley et al., 2001). Although parent-child conversations may generally be brief, they may involve more explanation than conversations between other groups of museum visitors (Feinberg & Leinhardt, 2002). Despite the fact that children may hear more explanations than other visitor groupings, these explanations tend to be brief and incomplete (Crowley, Callanan, Jipson, et al., 2001; Fender & Crowley, 2007). For this reason, we decided to test an intervention designed to increase the amount of time families spent at an exhibit to see if it would have a concomitant relationship with

their talk.

Differing from much of the past research on parent-child museum learning, the present study did not take place at a children's, science, or natural history museum. Instead, it was situated at the British Museum in an exhibition focused on culture and history. Moreover, the exhibition itself is not hands-on, possibly making it difficult for groups with families to engage with the exhibit and creating the need for a family activity greater than at other types of exhibitions.

Which types of talk may facilitate learning in a history and cultural museum as opposed to a science museum? Booth (1994) argues that an ultimate truth in history may not exist. Instead, students need to learn to ask open-ended questions about facts and knowledge to create an explanation of the past based on evidence (J. Davis, personal communication, 3 March 2008). Similarly, research from developmental psychology has suggested that question-asking may foster cognitive growth. According to Sigel (1981; Sigel, Stinson, & Flaughner, 1991), questions are more likely than statements to encourage children to engage in active thinking. He hypothesizes that questions are cognitively demanding because they force the responder to reconstruct knowledge and thereby to become engaged in representational thought. Indeed, the frequency of parental conceptual questions with preschoolers has been shown to correlate with children's later advanced scholastic reasoning skills (Sigel et al., 1991). Thus, the present study focused on parents' as well children's questions whilst visiting two related exhibits that formed part of a larger exhibition.

Some researchers of history education posit that learners need be able to incorporate facts into narratives and demonstrate evidence for arguments (Spoehr & Spoehr, 1994). Similarly, Leinhardt, Stainton, and Virji (1994) suggest that exemplary

history teaching involves placing facts into order and teaching students to understand the historical phenomena of and relations between events, structures, themes, and meta-systems. In addition to questions, we also focused on historical talk of this nature to examine whether the specific interventions used in this study facilitated visitors' engagement with the exhibits.

The Department of Learning and Audiences of the British Museum designed the two interventions in this study, which consisted of a booklet or a backpack with activities. These interventions were created to make the "traditional, adult-oriented format" of the exhibits less daunting to families (Department of Learning and Audiences of the British Museum, 2001). The Department of Learning and Audiences of the British Museum had been concerned that families may have been unsure about what children could do whilst visiting the museum. To address this concern, the department designed backpacks to accompany ten exhibitions and booklets for six exhibitions, both of which contained numerous activities focused within a single gallery. The museum intended the activities to be fun, interactive, and participatory, and of interest to people with different learning styles. Second, the museum wanted to provide parents with enough information to help them engage their children with the objects. Third, the designers wanted the activities to be focused on the museum and its collections rather than more general. Fourth, the museum wanted children to become excited about the museum. Finally, the museum also hoped that the skills learned at the exhibits could be generalised to other learning situations.

This study focussed on the use of backpacks and booklets in the Africa Gallery because this was one of the few galleries with both a backpack and a booklet and thus, the interventions could be compared within a single gallery. Although the interventions differed in their time involvement and were qualitatively different,

firstly we hypothesized that both types of interventions would increase the amount of time that families would spend at the exhibits. Secondly, we hypothesized that parents and children assigned to either of the intervention conditions would use more questions related to the exhibit and historical talk compared to families in a control condition, who visited the exhibits as they would independently.

Method

Participants

Participants consisted of 30 families visiting the *Animal Antics* and 28 families visiting the *Gone Potty* exhibits at the British Museum. The study examined the family as a unit. A family was defined as any multi-generational group with at least one child and one adult. There were 30 families assigned to the backpack condition, 13 assigned to the booklet condition, and 15 assigned to visit the exhibit without either a backpack or booklet (control condition). Random assignment across the conditions, participants who agreed to participate but did not visit the particular exhibits being recorded, and equipment failure (e.g., microphones that did not function) contributed to unequal numbers of participants in the three conditions.

There were 30 families with one child, 20 with two children, four with three children, and four with five children for a mean of 1.69 ($SD = .88$) children in each family. There were 33 families with one adult, 22 with two adults, and three with three adults with a mean of 1.48 adults ($M = .60$). The families ranged from having a mean of 1.63 ($SD = .81$) children and 1.53 ($SD = .63$) adults in the backpack condition, 1.92 ($SD = 1.04$) children and 1.38 ($SD = .51$) adults in the booklet condition, and 1.60 ($SD = .91$) children and 1.47 ($SD = .64$) adults in the control condition. The difference in the number of children or adults across conditions was not significant (all F s < 1).

The children ranged in age from 1 year to 12 years old. The mean age of the children in a family unit was 7.41 ($SD = 2.29$). The mean age of the groups of children at the backpack condition was 6 years 10 months ($SD = 2.11$), 7 years 7 months ($SD = 1.93$) in the booklet condition, and 7 years 11 months ($SD = 3.01$) in the backpack condition. These differences were not significant, $F(2, 55) = 1.25, n.s.$

Materials

The two exhibits, *Gone Potty* and *Animals Antics*, visited by families comprised part of the larger Africa exhibition and were located in the Sainsbury African Galleries at the British Museum. As visitors enter the galleries, the sign reads “These galleries provide an insight into aspects of the cultural life of Africa, past and present. They include artefacts drawn from the entire the entire continent and from many historical periods. The galleries also feature important works by some of Africa’s foremost contemporary artists, as well as films demonstrating the dynamism and continuity of cultural traditions as they are enacted in Africa today”. This sign sets the tone for the gallery in which the exhibits are located. The first exhibit of focus, *Gone Potty* consists of different types of handmade pots (e.g., a beer pot) from different African countries hanging on a tree. The display is very large, reaching the ceiling, with many large and decorative pots hanging from a central structure around which visitors can walk. The signage for the *Gone Potty* exhibit is displayed on a small board at child height, and on the wall near the exhibit. The signs explain that “pottery is one of the oldest arts of Africa” and that pottery has many uses in Africa. The second exhibit of interest, *Animal Antics* displays several shelves of different animals to see, made of varying materials and of differing sizes, inside a tall glass case. There is space to walk all the way around the case. The signs explain that in Benin animals were important in religious and political thought, which is why they

were displayed prevalently on regalia and altars. Animals represented qualities of political leaders and were also thought of as being messengers from the gods.

To accompany the Africa Gallery, the Department of Learning and Audiences at the British Museum developed a booklet and a backpack with activities. The booklet for *Gone Potty* asks visitors to look for the pots, decide which is the biggest, find specific pots (e.g., a beer pot, water pot), and estimate their length without touching the pots. An example of text from this booklet for this exhibit can be found in Appendix A. For the *Animal Antics* exhibit, the booklet asks visitors to find specific items (e.g., a dotted snake, a bird with a blue body) and has some illustrations to help the child find a particular object. See Appendix B for an example of text.

Similar to the booklets, the backpacks include a book of activities. Additionally, they include numerous props. The backpack activity for *Gone Potty* provides information about the pots and includes 4 pieces of clay, a blindfold, and sticky strings. Visitors are encouraged to close their eyes under the blindfold and then touch one piece of clay. Each piece of clay has a different pattern on it. The book in the backpack asks visitors to guess which one they touched. This book also asks them to match the pieces to the pots. Finally, they are told that the pots are constructed by laying strings of clay on top of each other. Visitors are invited to imitate the process of manufacturing pots by laying the sticky strings on top of each other. Sample text from the backpack for this exhibit can be found in Appendix C. The *Animal Antics* backpack activity includes plastic animals for the visitors to match to the sculptures. The accompanying book also lists proverbs (e.g., “don’t look into a snake’s mouth”) related to the animals in the display case and asks visitors to guess the meaning of the proverbs. See Appendix D for sample text.

Procedure

Upon entering the Africa exhibition, families were approached by a member of the research team who asked if they would be willing to be video-recorded if they visited the designated exhibits being taped. In addition, families were randomly assigned to either use the backpack, booklet, or to visit the exhibits without props, which was the control condition. Consent forms for the three conditions were placed randomly into a clipboard. As families entered the museum, they were allocated to the condition specified by the consent form. When families agreed to participate, stickers denoting the children's ages were placed on the child's back. The consent rate was 72% with the majority of families declining participation because they were in a hurry and not planning to stay at the exhibition. Digital camcorders and microphones were placed at the two exhibits. If the family approached either of the two exhibits, researchers turned on the digital camcorder. Families who did not approach the particular exhibits of interest were not recorded. There were no significant differences in group size or the mean age of the group between the children or adults assigned to the three conditions (all F 's < 1). Data were collected on nine days in one calendar year.

Conversation Transcription and Coding

All interactions were segmented by one of two research assistants. To be included in the sample, a group had to remain at an exhibit for at least 5 seconds and include at least one child and one adult. The research assistant noted the time at which the family approached and left the exhibit and the gender and ages of the participating children in a group.

Research assistants transcribed all conversations verbatim using minCHAT, a computerized transcription system (MacWhinney & Snow, 1990). The first or third authors verified the transcripts.

Parents and children's statements were coded if they fell into one of three categories. These mutually exclusive categories included the following:

Perceptual talk. If an utterance described the exhibit ("There's lots of pots"), gave affective information ("That's pretty"), or agreed with someone else's comments ("You're right"), it was coded as perceptual talk.

Labels. If an utterance labelled part of an exhibit ("That's a beer pot"), it was given a label code.

Questions related to the exhibit. If a question asked about an exhibit ("Which one is the pot used for beer?"), asked for a label ("What is the name of that animal?"), asked conceptual information ("How did they make the pots?"), or asked about the person's thoughts ("Why do you think that?"), it was coded as a question related to the exhibit.

Historical talk. This type of talk included reference to explanations ("The pots were made by putting long pieces of clay together"), historical knowledge ("Snakes were considered messengers from the god, Molon, so the people listened to them"), and interpretations of facts into narratives ("The problem with Africa is that a lot of white people from Europe went over there, then saw the place and thought I want to own this place").

Directives. Directives were coded when someone was told to do something ("Look over there.")

Off-topic. All other intelligible utterances, including questions, were considered off-topic. For example, if a parent asked, "which exhibit do you want to see now?" or "do you want to have lunch?", it was coded as off-topic.

Finally, unintelligible utterances were given a code of unintelligible.

Reliability

The first author trained an MSc research assistant for 3 weeks over 4 hours a week. The research assistant was blind to the condition to which families were assigned and to the hypotheses. To test for inter-rater reliability, each coder independently coded 14 of the transcripts (24% of the data set). Reliability was evaluated with kappa coefficients. Kappa coefficients above .75 reflect acceptable agreement (Fleiss, 1981). All kappa coefficients were above .79. More specifically, coders achieved a kappa of .80 on perceptual talk, .90 on labels, .90 on questions related to the exhibit, .95 on historical talk, .87 on directives, and .92 on off-topic utterances.

Results

Data Reduction and Descriptive Statistics

All questions related to an exhibit, asked by any adult member of each group, were combined and tallied respectively for an adult questions related to the exhibit score for each family group. Similarly, all adults' historical talk provided by any adult member of each group was combined and tallied respectively for an adult historical talk score for each family group. The same procedure was conducted with children's questions related to the exhibit and children's historical talk.

Additionally, every utterance spoken by adults in a family unit was combined for an adult utterance score. Finally, the same procedure was carried out for the child utterance score. This tallying procedure was conducted to control for unequal group size across the family groups.

Families spent a mean of 5 minutes 6 seconds ($SD = 6$ minutes, 27 seconds) at the exhibits, which was counted when the first member approached the exhibit until the final member left the exhibit. The combined number of utterances spoken by children in a family unit was 17.03 ($SD = 20.67$) and by adults was 20.10 ($SD =$

28.50). Table 1 displays the mean frequency of each type of utterance by parents and children. Inspection of the means indicates that a large proportion of overall talk was perceptual. After perceptual talk, the next most frequently type of talk parents used was questions related to the exhibit.

Relations between Total Time and Conversational Variables

As might be expected, the total time a family spent at an exhibit was correlated significantly with the number of questions related to the exhibit asked by children, $r(56) = .54, p = .0001$, and by adults, $r(56) = .44, p = .001$. Neither adults' historical talk, $r(56) = .21$, nor children's historical talk, $r(56) = .11$, in contrast, was related significantly to total time at the exhibits. However, adults' historical talk was related to children's questions related to the exhibit, $r(56) = .37, p = .004$. Children's historical talk was not related to adults' questions related to the exhibit, $r(56) = .16$, nor was it related to adults' historical talk, $r(56) = .12$. Finally, the more questions related to the exhibit that adults asked at the exhibits, the more questions related to the exhibit that children asked, $r(56) = .56, p = .0001$.

Hypotheses Testing

We expected that families assigned to use a backpack or a booklet would spend more time at the exhibits, ask more questions related to the exhibit, and use more historical talk than families in the control condition.

To examine whether families spent more time at the exhibits when assigned to the backpack or booklet conditions than when assigned to the control condition, a 2 (*Gone Potty, Animal Antics*) x 3 (Backpack, Booklet, Control) ANOVA was carried out with total time as the dependent variable. There was no effect of exhibit nor was there a Condition x Exhibit interaction effect, both $F^2s < 1$. Confirming the first hypothesis, there was a significant effect of condition on the amount of time families

spent at the exhibits, $F(2, 52) = 3.92, p = .03, \eta^2 = .13$. Follow-up least significant difference tests indicated that families assigned to the backpack ($M = 6$ minutes, 45 seconds, $SD = 7$ minutes, 32 seconds) and booklet ($M = 5$ minutes, 38 seconds, $SD = 5$ minutes, 45 seconds) conditions spent more time at the exhibits compared to families in the control condition ($M = 1$ minute, 20 seconds, $SD = 1$ minute, 34 seconds). Families assigned to the booklet and backpack conditions did not differ from each other in the amount of time spent at the exhibits.

The second hypothesis was that parents and children would use significantly more historical talk and ask more questions related to the exhibit when assigned to the backpack and booklet exhibits. To test this hypothesis, a 2 (*Gone Potty, Animal Antics*) x 3 (Backpack, Booklet, Control) MANOVA was carried out. The number of questions related to the exhibit asked by children, the amount of historical talk provided by children, the number of questions related to the exhibit asked by parents, and the amount of historical talk provided by parents served as dependent variables in the analysis. There was no effect of exhibit, $F(4, 49) = 2.13, p = .09$, nor was there a Condition x Exhibit interaction effect, $F < 1$. As expected, there was a main effect for Condition, $F(8, 100) = 2.08, p = .008, \eta^2 = .18$. Univariate analyses were not significant for children's questions related to the exhibit, $F(2, 55) = 2.33, p = .11$, or adult's historical talk, $F(2, 52) = 2.26, p = .08$. The one-way ANOVA carried out with condition as an independent variable and adults' questions related to the exhibit as a dependent variable was significant, $F(2, 52) = 3.96, p = .02, \eta^2 = .13$. As hypothesized, least significant different tests indicated that adults assigned to the backpack ($M = 5.67, SD = 6.20$) and booklet ($M = 5.62, SD = 9.06$) conditions asked more questions related to the exhibit compared to adults in the control condition ($M =$

.27, $SD = .59$). Adults assigned to the booklet and backpack conditions did not differ from each other in the number of questions related to the exhibit asked at the exhibits.

Similarly, the one-way ANOVA carried out with condition as an independent variable and children's historical talk as a dependent variable was significant, $F(2, 52) = 5.71, p = .006, \eta^2 = .18$. Partially confirming this hypothesis, least significant different tests indicated that children assigned to the booklet ($M = 1.23, SD = 1.17$) used more historical talk compared to children assigned to the backpack ($M = .33, SD = 1.17$) or the control ($M = .13, SD = .52$) conditions. Children assigned to the backpack and control conditions did not differ from each other in the amount of historical talk spoken at the exhibits.

Discussion

Families spent more time at the exhibits when assigned to the booklet and backpack conditions compared to the control conditions. Parents also asked more questions related to the exhibit in these two former conditions compared to the latter condition. However, children used more historical talk in the booklet condition only compared to the other two conditions. In sum, there was support for the first hypothesis and partial support for the second hypothesis. The findings of this study suggest that something as simple as well designed, child-friendly activities may increase the amount of time that families spend at exhibits. More importantly, there was a concomitant increase in the number of questions related to the exhibit parents asked.

Although one might argue that an effective intervention should have increased parents' historical talk as well as their questions related to the exhibit, the findings may be explained by the dyadic and shared nature of conversations between parents and children. Rather than lecturing children, parents may engage children in

naturalistic learning conversations to facilitate children's learning. Indeed, Booth (1994) suggests that asking questions may help learners generate the types of information and facts needed to understand history. Moreover, from other domains, discovering material on one's own enhances learning in comparison to being told information (Bruner, 1961; Slamecka & Graf, 1978). In one study, 5- to 9-year-old children did not improve as much in their understanding of balance beam problems after watching an experimenter demonstrate a correct solution as when the experimenter also encouraged children to explain the correct solution (Pine & Messer, 2000). Pine and Messer posit that verbalizing strategies aid conceptual understanding in physical science. Parents may have thus been helping their children to generate information on their own as the following example between a mother and her 8-year-old daughter in the booklet condition demonstrates:

Mother: Mudfish are on land and sea. (historical talk).

Mother: Why do you think a king would want mudfish to represent him?
(question related to the exhibit)

Daughter: To show he's in charge on land and sea and everywhere else.
(historical talk)

Using the booklet, the above mother supports her daughter in generating historical talk through asking a question suggested by the booklet. Compare the previous conversations with that from a mother and her 7-year-old daughter in the control condition at the same exhibit:

Child: What's that? (question related to the exhibit)

Mother: Cats. (label)

Child: Is that what they are? (question related to the exhibit)

Mother: Yes, what other animal do you see? (question related to the exhibit)

Child: Snake. (label)

The above conversation from the family in the control condition demonstrates that the family is engaged at the exhibit. Indeed, they spend more time than typical (1 minute; 50 seconds) in conversation for a family in the control condition. However, their conversation does not seem to progress beyond a simple low-level conversation. As the conversation continues, they continue playing the labeling game.

The increase in parents' questions related to the exhibits also demonstrates to children that questions are valued in a museum of history. As Booth (1994) argues, history learners must ask open-ended questions. Indeed, such conversations may teach children to how to ask on-topic questions.

Another way in which these conversations may facilitate future learning about history comes from the psychological literature on the development of memory. Such work finds that elaborated parent-child conversations during an event contribute to children's ability to remember an event (Fivush, Haden, & Reese, 2006). Moreover, when parents and children engaged in joint conversations characterized by mothers' questions and children's answers, children were more likely to recall events than when conversations were less elaborated (Haden, Ornstein, Eckerman, & Didow, 2001). As Ornstein, Haden, and Hendrick (2004) suggest, conversations may constitute a process through which learning occurs with mothers' questions guiding children to focus on important details. Given the increase in mothers' questions when provided with the booklet or backpack compared to the control condition, children in families using these props should demonstrate superior memory and enriched schemas for history compared to children visiting the exhibits without such props.

In addition to elaborated conversations, content talk itself may also increase children's knowledge. Indeed, past work on parent-child talk in science has

demonstrated links between content talk and children's future learning. For example, whilst visiting a museum, children who heard explanations demonstrated superior conceptual understanding about a zoetrope compared to children who did not hear such explanations (Fender & Crowley, 2007). In another study, mothers' talk about the scientific processes involved in magnetization correlated with children's scientific literacy two years later (Tenenbaum, Snow, Kurland, & Roach, 2005). Future research should examine what children learn from parent-child conversations about history and which specific types of talk (e.g., questions, historical facts, etc) facilitate learning about history.

While not all the talk at the exhibits was related to the content of the exhibit, the majority of the talk was on-topic. More specifically, about 84% of both parents' and children's talk was related to the exhibit. Past research at a science museum in the US similarly revealed that an impressive 83% of talk was related to the exhibit (Allen, 2002). The similarity in percentages across the two types of museums in two countries suggests that there may be commonalities in talk in different types of museums.

Of course the families in the present study may have focused their talk on the exhibit more than they would have on other occasions because they were part of the research study. Equally, the families may have engaged with the activities in the backpack and booklets specifically for longer than they would have had they not been part of the research study. Informal observations, however, of families using backpacks at other exhibits suggests that families spend quite a lot of time when using the backpacks.

Relying on family activity kits to structure visitors' experience raises two distinct concerns. First, too much guidance could detract from the visitors' experience. Indeed, some museums have found success through the creation of less

prescriptive exhibits that enable participants to engage actively. One past intervention project at the Exploratorium, a science museum, focused on increasing visitors' "active prolonged engagement" (APE) through the creation of specific APE exhibits that would enable visitors to participate actively with the exhibits (Humphrey & Gutwill, 2005). APE exhibits were designed to foster open-ended activity with minimal guidance. Rather than being directed by the museum to discover a pre-planned concept, the participants would explore, observe, investigate, and construct as joint partners with the museum. The findings suggested that visitors spent more time, asked more questions, and were generally more engaged with APE exhibits compared to directive exhibits that instructed the visitor to follow a more scripted activity to discover a pre-planned idea. In contrast to ideas of the designers in the APE exhibits intervention project, the addition of the booklet and backpack at the *Animal Antics* and *Gone Potty* exhibits made these exhibits more prescriptive. However, these interventions resulted in visitors becoming more actively engaged with the exhibits as measured by the time they spent at the exhibits and their conversations. Rather than relying on a constructivist approach whereby participants are able to generate knowledge with minimal guidance (Mayer, 2004), some exhibits may be best served with more guidance. Indeed, conversations were longer and involved more parents' questions and children's history talk with the addition of the guidance. Moreover, examination of the conversations in this corpus suggests that families did not follow a set, contrived script when using the backpacks or booklets. Instead, informal observations suggested that families enjoyed themselves and were able to engage in spontaneous conversations using the backpack as well as the booklet as guides for their visits. What this may suggest is that the content of an exhibit may determine how much guidance is necessary to increase visitor participation. A second concern may be

that the activity kits can often be difficult for family groups with more than four members to use. In science institutions, kits may result in lower performance indicators for large groups (Borun, Chambers, Dritsas, & Johnson, 1997). Future research needs to examine systematically whether such a problem extends to museums of history and culture. If history museums are similarly affected, then practitioners and researchers would need to focus on ways to ameliorate this difficulty.

Unexpectedly, children did not use more historical talk when assigned to the backpack condition compared to either the booklet or control conditions. Perhaps the particular activities in the backpack did not afford this type of talk. More research is required to assist in our understanding of what types of activities are both enjoyable and increase historical talk when children are visiting a museum. Perhaps some of the activities in the backpack could be changed to be more in line with a child's understanding of historical thinking.

Nor did adults use more historical when assigned to the intervention compared to the control conditions. Adults may not have considered themselves to have enough knowledge to provide historical facts. Research in science museums has revealed that mothers with prior museum experiences provide more explanations than mothers without prior museum experiences (Tenenbaum, Callanan, Alba-Speyer, & Sandoval, 2002; Tenenbaum & Callanan, 2008). Future research needs to examine whether adults' comfort level influences their talk at exhibits.

Additionally, research could examine whether additional signage at the exhibits could engage the families in similar types of activities as those suggested by the booklet. For example, the discussion of the proverbs might be facilitated by simply posting the proverbs and accompanying child-friendly text near the exhibit

(see Appendix D). Similarly, the activity in which the families tried to find pots of different sizes and uses (see Appendix A) could be amended for signage near the exhibit. Additional signage might be a less expensive and more permanent means of engaging families in these exhibits than the booklets.

Future research should also examine whether similar types of interventions at other types of museums can increase the length of time spent at exhibits and the ability of such interventions to promote learning environments. In many ways, the exhibits selected differ from those investigated in past research in not being child-friendly in the traditional sense of being hands-on and interactive. However, many important and interesting artifacts, for reasons of conservation, do not lend themselves to being touched and need to be kept behind glass - but are intrinsically interesting for children to see and discuss (e.g., jewelry, pottery, textiles). The challenge is to find ways of explaining such items to children and to maximize enjoyment and the educational nature of their visit. For this reason, the necessity of interventions may be even greater. Nonetheless, findings from the present study suggest that simple interventions, such as booklets or backpack activities, may be effective in increasing children's and parents' learning conversations in museums.

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Table 1

Mean Number of Adults' and Children's Speech Acts

	Type of Talk					
	Perceptual Talk	Labels	Questions related to the Exhibit	Historical Talk	Directives	Off-topic
Adults	8.12 (12.05)	1.09 (2.15)	4.21 (6.51)	1.64 (4.58)	1.83 (2.24)	3.22 (7.49)
Children	8.59 (11.06)	.98 (2.03)	1.93 (3.92)	.48 (1.01)	.84 (1.47)	2.79 (4.60)

Note. Standard Deviations are in parentheses.

Appendix A

Booklet instructions for the *Gone Potty* exhibit

Behind you... A tree of pots!

For thousands of years, clay from the earth, has been rolled and coiled, smoothed and painted, and baked in fire!

Can you find us?

Time to Look!

Look at all the round pots (photographic images of 3 round pots)

Some are bigger than others.

Find a pot with spikey points.

Which is the BIGGEST pot you can see? Show how big it is with your arms!

Lots of pots are round with no corners so they don't need a flat place to stand.

Now you know some shapes and colours from Africa you can catch shapes and colours where ever you go!

Appendix B

Booklet instructions for the *Animal Antics* exhibit

Try and find

a man with a hat shaped like this (illustration of a hat)

a dotty snake (illustration of dotty snake)

a spotty leopard (illustration of spotty leopard)

a bird with a blue body

a woman with her hair like this (illustration of African woman with her hair covered
in a scarf)

What else can you see?

Appendix C

Put on the blindfold and take out a pot pattern. Feel it carefully. Now show the pattern to your group before putting it back in the bag. Take off the blindfold and look at the pots.

Can you find one with the same pattern as the one you felt?

Take turns doing this activity so that everyone has a go.

These pots have been made by making long sausages of clay and then coiling them one on top of another. Have a go at making your own coilpot using the Wikki-Sticks.

Appendix D

Backpack instructions for the *Animal Antics* exhibit

Animals are very important in the Kingdom of Benin as they were sacrificed to the gods. Some of them were also thought to represent the king and queen.

Open Bag 2 and take out the animals in it. Can you match any to objects in case 7? Can you find any mudfish in case 7? Mud fish hop in and out of the water and are at home both on land and sea. They were like the Oba who had authority over both land and sea and also was thought to be able to move between the spirit world and the world of men.

Here are some proverbs.

Animal	Interpretation	Proverb
Snake	Snakes were messengers from the sea-god Olokun.	Do not open the mouth of a snake to see its teeth.
Leopard	As Leopards were kings of the forest, only the kings of Benin could sacrifice them to the gods.	To wear a leopard's skin.

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