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Spring 2022

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Undergraduate Honors Thesis

Acknowledgements

Abstract

Children's museums are informal educational environments that foster creativity, support sensory exploration, and provide places for both free play and learning (Gong et al., 2020). This study aimed to more fully understand parental goals for taking their children to a children's museum, and how those goals varied based on characteristics known to play a role in how parents and children interact together. Subjects included 70 child-parent dyads. Each parent completed a demographic questionnaire, the Child Behavior Questionnaire-Very Short Form (Putnam & Rothbart, 2006) to assess temperament, and responded to an open-ended prompt related to visit intent. Dyads were then recorded interacting in 2 different museum exhibits that were coded for parental sensitivity. Results showed that parents had wide-ranging intentions for museum visits. Eleven themes emerged related to individual and social benefits, with most focused on learning and fun. Correlational analyses revealed several significant predictors of parental goals, which interestingly, varied as a function of parent and child characteristics (e.g. age and temperament of child, and sensitivity of the parent). These results add to what is known in the field and can be used to guide further investigation. They are also informative to children's museum administrators, as an aid to better understanding the motivations of their clientele.

Variables That Affect Parental Goals for Visiting a Children's Museum

While some research has shown that parents and guardians do not fully understand the benefits of museums or use the museums to their maximum potential (Swartz & Crowley, 2004), a number of parents perceive children's museums as a unique place for learning, and are a space to learn about their children (Luke et al., 2019). However, little research has been done assessing what goals parents and guardians have for their children while at a museum. Further, while we know that parents may engage with their children differently based on both their own personal characteristics (e.g., sensitive parenting behavior; gender; Lindsey et al., 2010), child characteristics (e.g., gender; Turner & Gervai, 1995), and family demographics (e.g., SES; Hoff, 2003), less is known about how these factors impact parental goals for children's learning experiences at the museum. Therefore, research is needed that examines how parent intentions for learning at a children's museum differ based on factors known to explain important variability in parent-child relationships. This analysis is important because it is likely that the ways that parents interact with children during and after a museum exhibit are driven by the specific goals they establish regarding what they hope their children will gain from their museum experience.

Overview of Children's Museums

For more than 100 years, children's museums have set out to cater to the needs of children by providing an enriching and interactive environment fostering a creative mindset. While traditional museums enforce "no-touch" policies to protect collections of antiquities and treasures, this would be an inappropriate approach for supporting the learning and development of children (Gong et al., 2020). Instead, children's museums are inspired by Piaget and Vygotsky's early learning models. From these perspectives, learning begins with curiosity and

exploration–a child is presented with stimuli that tantalize the senses, such as touch and sound. This draws them into experiences through concept-building, imagination, and creation, which in turn stimulates new exploration (Shaffer, 2016). In a children's museum, children are provided with the opportunity to explore and engage with a variety of materials and with exhibits that provide spaces for free play and experimentation (Gong et al., 2020). Designed with the child in mind, museums are arranged in an interactive and inviting format in which children can be inspired by their environments. For instance, they may encounter a doctor's office, grocery store, a boat, and other reflections of real-life conditions (Shine & Acosta, 2000), allowing children to try on and experiment with a variety of roles. In sum, these settings are natural and provide, as Mayfield (2005) states, a place where fun meets learning and both children and families can engage in a learning partnership through exploration of the museum exhibits and materials.

Learning Opportunities Provided in Children's Museums

Children's museums cultivate learning through the use of several learning themes (Mayfield, 2005). The first theme focuses on pretend play using dress-up clothes, different settings, and other objects. The second is the creation of both regional and country-specific exhibits. The third theme is the use of exhibits with an international or multicultural viewpoint, such as a market or grocery store in a different country or the representation of various housing structures that are common around the world. In these exhibits, children are able to make sense of the world around them and their position within the larger scope of the world. Another theme is the arts, such as a studio space or theater. In these spaces, children have creative freedom and can engage with a variety of materials such as musical instruments or art supplies to express themselves. The last theme is the use of science and technology. Science exhibits range from simple ideas such as making bubbles or exploring water in a sensory table to planetariums and

access to computers. When the themes are implemented, children are provided with a well-rounded learning experience catered to their learning needs and styles.

Children's Museums as Informal Learning Environments

It should also be noted that children's museums are often labeled as informal educational environments, settings where learning can occur everywhere and where children explore and investigate their surroundings to learn (Song et al., 2017). These settings allow children to voluntarily explore the exhibits on their own using a child-centered pedagogy to promote creative development. This use of child-centered learning is an element often missing from formal education environments (Gong et al., 2020), where there is more emphasis placed on developing children's thinking using a direct one-way delivery method from adult to child. In a study by Borun and colleagues (1996), the authors noted that in informal environments on the other hand, children learn through asking and answering questions, commenting and pointing at exhibits, and reading labels.

However, due to their informal nature, research suggests that parents often devalue these environments from an educational standpoint, considering them to be less beneficial than structured environments or tools (Song et al., 2017). Instead, parents often value more formal outside-of-school options such as using flashcards or reading a book as aids to support a child's learning. Further, a study at the Children's Museum in Pittsburgh (Swartz & Crowley, 2004) found that 16% of the parents viewed museums as a place for their child to have fun and play; these parents did not seek to foster any learning while visiting. These parents sometimes demonstrated how to use exhibits but did not place themselves in a teacher role. An additional 26% of parents did not recognize the potential for learning opportunities related to the specific contents of an exhibit and failed to fully engage with the exhibits. Instead, these parents used the

space to ask their children learning questions about more broad topics extending beyond the

exhibit theme, such as numbers, letters, or colors presented in the exhibit. About 21% of parents

felt like their child learned better when they explored the exhibits independently, and interacted

minimally with their children, allowing their children to take the lead. Sixteen percent of parents

engaged with a "learning together" approach in which they described aspects of the exhibits to

their children to guide learning. The remaining 21% of parents used explanations to help their

children reflect on their experiences to aid in making connections between the museum and

larger world. Clearly, there is great variability in parental strategies for navigating a children's

museum with their children. And while an increase of signage in a museum helped parents to

engage with their children in informal learning environments by providing a guide to the learning

potential of an exhibit, parents are still largely unaware of the learning value of children's

museums (Song et al., 2017), potentially leading to missed learning opportunities depending

upon the nature of the museum exhibits.

Play in a Museum Setting

Some argue that parental perceptions related to the learning value of children's museums

may be related to their use of play as a mechanism for learning (Song et al., 2017). Play, an

essential aspect of children's learning and development, is at the forefront of children's museums

as it is a central component of developmentally appropriate practices (Fleer, 2013; White, n.d.).

While play can occur independently, it also provides opportunities for interactions with parents

or other children. Children's museums are curated to provide experiences for children to engage

in both social and independent play as they explore various environments. While playing and

engaging with exhibits, children can collaborate and communicate their ideas, problem-solve,

learn to share materials, engage in imaginative play, and learn to cooperate with others (McInnes

& Elpidoforou, 2018). Importantly, successful social play indicates a child has positive

behavioral and social development (Coolahan et al. 2000; Fantuzzo et al. 2004), while

independent play allows children to learn about themselves and their feelings (Trevarthen et al.,

2018) contributing to happier moods (Larson, 1990) and emotional development (Harrist et al.,

1997).

Parental Support

As previously mentioned, in addition to encouraging independent play, children's

museums provide a space in which interactions with peers, as well as educators, and parents, is

promoted. In these settings, adults can support children's learning by taking a role, as either a

participant or leader (Gong et al., 2020). During interactions, parents can assist their children in

the initiation of play behaviors (McInnes & Elpidoforou, 2018). For example, in a market setting,

a parent can ask their child if they could buy an item or could pretend to eat food. Parents engage

in various methods of play with their children and as parents engage with their child, they have

positive effects on numerous developmental outcomes (Menashe-Grinberg & Atzaba-Poria,

2017). For instance, children who have parents who encourage creativity, imaginative play, and

display curiosity, display lower levels of negativity. In addition to the manifold benefits to a

child's emotional development, parent-child play also amplifies learning. In a study by Wolf and

Wood (2012), parents were happy to either engage in role- or pretend play with their toddler

(McInnes & Elpidoforou, 2018). This is because when parents engage with the exhibits in a

supportive environment, they can encourage their child to connect their play to various events

and develop new interests (Barron et al. 2013; Ching et al. 2016), strengthening their connections

and allowing families to make new memories together. A study also found that when parents

assisted in their children's learning, their children had longer attention spans and were more

focused (Crowley et al., 2001). Parent-child interactions also promoted the creation of more in-depth scientific hypotheses (Crowley & Galco, 2001). Thus, parent engagement in children's play and learning can help promote skills that aid in mastery (e.g., focused attention) and a deeper understanding of material.

To more fully understand parent-child play, there are differences worth noting between how fathers and mothers engage their children in play. Fathers tend to spend greater time playing with their children (Mehall et al., 2009) as opposed to mothers who spend more time engaging in caretaking activities (Hartup, 1989; Russell et al., 1998). During play, fathers engage in physical and energetic play and include the use of rough-and-tumble play while mothers engage in empathetic conversations as they guide and teach their children (John et al., 2013). Mothers tend to be more reserved, while fathers encourage their children to engage in and explore unfamiliar situations and take risks (John et al., 2013; Kromelow et al, 1990). Furthermore, research also suggests that mothers and fathers vary in their approaches to teaching young children (e.g., Brachfeld-Child et al., 1988). Yet, while research acknowledges that mothers and fathers engage in different types of play and teaching techniques that can influence the development of their children, there is a lack of research in identifying the goals parents have for their children as they engage in play in an informal learning environment.

Within the context of play and parental support, it should be acknowledged that parental support has been examined in many different ways. One important aspect of parenting in early childhood is caregiving sensitivity. Caregiving, or parental, sensitivity is defined as the ability to correctly interpret and appropriately respond to a child's signals in a prompt and consistent way (Ainsworth et al., 1978). Maternal and paternal sensitivity have been examined and related to numerous positive developmental outcomes among children,

such as secure attachment (e.g., Posada et al., 2016; Trumbell et al., 2019), but we know less

about the ways it relates to play. Some existing research on father-child interactions, which is

often done using a play-based framework (e.g., observations of father-child interactions),

suggests that fathers often engage in sensitive caregiving while playing with their children

(Bureau et al., 2020). However, less research on maternal sensitivity has examined

associations with play. Yet researchers did find that greater sensitivity was related to greater

use of imaginative play in one known study on the topic at a children's museum (Mannesto,

2021). Whether sensitivity is also related to the types of goals parents have for children at the

museum is further explored in the current study.

Child Factors

In addition to parental factors, child factors, including temperament and gender, may also

impact a child's experiences and learning outcomes at a children's museum. Temperament refers

to a child's emotional and physical reactivity and regulatory skills (Putnam & Rothbart, 2006).

First, temperament has been correlated with parenting; children with higher levels of positive

affect and sociability often experience more responsive parenting and have parents who are more

likely to participate in educational activities during parent-child interactions (Padilla & Ryan,

2019). Additionally, both temperament and parenting collectively affect children's experiences

and outcomes in play with others. A study by Gagnon et al. (2014) found that reactivity, as

indicated by a child's tendency to approach new situations and the intensity of their emotions,

buffered the impact of parenting style on peer relationships. Specifically, in the context of

negative caregiving, children with low levels of reactivity were less likely to engage in disruptive

play and have slightly higher levels of competent play behavior compared to their more highly

reactive counterparts. Importantly, temperament also significantly contributes to a child's

motivation and behavior in learning environments (Choi & Cho, 2020). In a study of Korean

children, Choi and Cho found that several dimensions of temperament such as, attentional

focusing, inhibitory control, and sensitivity to perceptual stimuli were all correlated with higher

levels of intrinsic motivation for learning. Additionally, how children rate the competence of

others as trustworthy teachers of information varies based on the children's temperament

characteristics (Canfield et al., 2015). While it is clear that temperament impacts children's

experiences of play and learning experiences, research has not determined whether a child's

temperament affects the goals parents have for their child in informal learning spaces.

Gender is also an important factor to consider, even if its effects on play and learning are

not yet fully understood. Researchers are still exploring how gender differences manifest. There

is also an ongoing debate among experts about whether the differences are biological or socially

constructed (O'Connor et al., 2017). The body of literature is too large to describe in detail, but

several studies provide perspective. A large-scale study of 1688 families in Ireland, the Irish

Neighbourhood Play Study, recorded the play patterns of children aged from birth-14 years

(Bedard & Cho, 2010). Researchers gathered information about how much children play outside,

types of play, places where children play, and how homework and the physical environment

affect play. Results showed that boys had more screen time; they watched TV/films and played

with electronics more. Boys also spent more time in planned or organized sports. Girls, on the

other hand, spent more time in spontaneous sports, and were much more likely to participate in

creative activities and social or communication-based activities. In learning, researchers are

trying to understand gender differences in math and reading. Data from many industrialized

countries has shown that by the time they complete elementary school, boys perform better on

math tests and the gap persists over time (Bedard & Cho, 2010). However, contradictory

information from the U.S., showed that by 2009, there was parity between math performance for boys and girls. Also, the gender gap for the highest levels of math achievement were significantly narrowed, and entirely absent, in certain ethnic groups and in some nations. The authors of the study concluded that the math achievement gap was a vestige of sociocultural factors, rather than biologically determined (Hyde & Mertz, 2009). Recent research also implicates sociocultural factors in reading differences. A 2012 meta-analysis showed that teacher perceptions affected students' overall academic achievement (Südkamp et al., 2012). Another study examined the effect of teacher's expectations on motivations, finding that teacher expectations were a predictor of reading self-concept and value of reading in girls, but not boys (Boerma et al., 2016). Historically, at least, there have been significant gender differences in play and learning. However, if these are due to sociocultural factors, the trends we saw in the past are likely to change as society evolves. This is important to note because existing (though perhaps changing) gender differences that have been found could potentially alter parental expectations and goals for their own children's learning experiences, in formal or more informal settings, like the museum.

The Current Study

While research has shown that parents have conflicting views regarding the benefits of museums, it is as yet not fully understood why parents choose to take their children to these institutions. Little research has been done to assess what goals parents have for their children while at a museum. Further, while we know that parents may engage with their children differently based on both personal characteristics (e.g., sensitive parenting behavior; parental gender; Lindsey et al., 2010); child characteristics (e.g., boys vs. girls (Turner & Gervai, 1995); and family demographics (e.g., SES (Hoff, 2003), less is known about how these factors impact

parental goals for children's learning experiences at the museum. To fill this knowledge gap, the

current study will examine the explicit goals parents have for their children while visiting a

children's museum. Further, I will investigate the extent to which various parental, child, and

familial factors are related to these parental goals. Given that we know little about the goals that

parents hold for their children, this study is exploratory in nature, with no direct hypothesis.

Methods

Participants

Eligible participants were parents who had legal guardianship of child(ren) ages 3 – 6

years and their preschool-aged child. Both parent and child had to be native English speakers due

to research questions related to prosody of speech that are beyond the scope of the current study.

Participants included 70 child-parent pairs. The parents were on average 36.66 years old ($SD =$

5.71), and included 64 mothers and six fathers. On average, children were 56.24 months old (SD

$= 12.42$). Thirty-nine girls and 31 boys participated. The majority of both children (95.60%) and

parents (97.14%) identified as non-Hispanic Caucasian, slightly higher than the percentage of

non-Hispanic White residing in the state of New Hampshire (U.S. Census Bureau QuickFacts,

n.d.). Eighty-one percent of parents held a bachelor's degree or higher with an average income

of $100,689.39 ($SD = $56,940.57$; Range: $20,000 – 275,000) . See Table 1 for more participant

demographics.

Procedures

Participants were invited to attend the museum for visits lasting 1.5 hours. Parents

provided consent, and the child provided assent at the start of the visit. Parents then completed a

questionnaire providing data on child and family demographics and child temperament.

Additionally, they answered open-ended questions, including: "How often do you come to the

Children's Museum?" and "When you come to the Children's Museum, what do you hope your child will get out of the experience?" After completing the questionnaire, parent-child dyads moved into the museum to explore two different exhibits–a river-themed exhibit and a castle-themed exhibit. Exhibit order was randomized. The two exhibits utilized in the broader study by Project ACME, one of a river and the other of a castle, were chosen on the basis that they clearly relate to several learning themes that are proven to promote, namely, pretend play and STEM. Specifically, in the river exhibit, beaver backpacks and eagle wings were provided for play, while a giant bird nest and boat were different settings stimulating make-believe. At the river exhibit, children explored boats and beaver dams. An ecosystem matching game was also available to use. In the castle exhibit, there was a large focus on math and science, where patterning was the main focus.

In each exhibit, dyads were invited into the exhibit alone so that they would be the sole occupants of the exhibit during the time of observation and to avoid potential distractions that might vary from one family to the next. Instructions varied a bit across exhibits. Regardless of which exhibit came first, dyads were told: "For the next 15 minutes, we would like to give you an opportunity to just play with your child as you normally would if you just had some free time. After the 15 minutes are up, we will ask you to clean up the exhibit. We do ask that you stay in the exhibit as we will be recording this interaction." For the second exhibit, dyads were told: "For this exhibit, the Children's Museum has some new materials that they hope will help children learn through exploration. We would like to give you an opportunity to engage with your child in the exhibit however you see fit for the next 15 minutes. We will then ask you to clean up again for 5 minutes." Exhibit interactions were recorded and later coded for parental sensitivity. Due to camera malfunction, videotaped data is missing for three families. Participants

were granted free admission to the museum to complete the study and received a $20 gift card

upon completion.

Measures

Parental Sensitivity

Videotaped interactions in the castle and the river exhibit were coded for parental

sensitivity using the Caregiving Behavior for Preschoolers Q-sort--44 Item for Videotaped

Interactions (CBPQS-44; modified from Posada et al., 1998). Two trained coders watched the

interactions and independently coded for quality of parental sensitivity based on parental

behavior using the 44 items of the CBPQS-44. Items included variables on parenting behaviors

of interest such as "behaves as part of a team, exchanges with the child are harmonious,"

"responds promptly to child's signals (vocalizations, smiles, reaches)," which are indicative of

sensitivity. Low levels of parental sensitivity include things such as "parent responses to child's

initiations (e.g., proximity seeking, smiles, outstretched arms, vocalizations) are incomplete or

unsatisfying at times" and "is over-controlling, intrusive, in interactions with the child, e.g.,

provides excessive instructions, or physically re-orients child."

Coders used a forced-method approach to sort the items (written on cards) into three

piles: behaviors characteristic of the parent, behaviors uncharacteristic, and inconsistent or

unobserved. Coders then sub-sorted those three piles into seven piles, from most uncharacteristic

to most characteristic (see Figure 1); the pile number into which an item is placed (e.g., Pile 1;

most uncharacteristic) indicates the score that item is given (e.g., Score of 1 for that item). The

total item placements for the 44-items then result in a q-sort behavioral profile for the parent

observed. The two coders' behavioral profiles were compared to assess inter-observer

agreement. Mean reliability was .86 ($SD = .07$) and .87 ($SD = .07$) for the castle and river

exhibits, respectively. Following calculation of reliability, disagreements of three or more piles were discussed to reach consensus on item placement. Afterwards, the two coders' q-sort profiles were averaged within each exhibit.

This profile was then compared to the profile of the "ideally sensitive caregiver in the museum"—a profile representing the hypothetically sensitive caregiver in this context generated by the item placements of 3 experts in the field of attachment and q-methodology. Thus, sensitivity scores were computed in each exhibit and are represented as a correlation (-1 to +1), with higher scores indicating that the observed parent's behavior aligns more closely with how we expect a "perfectly sensitive parent" to behave in the museum (i.e, higher scores mean higher sensitivity). For this study, sensitivity in the river and castle exhibits were correlated, $r = .44$, $p <$ .001. Thus, we used a composite score for sensitivity, averaging sensitivity scores across both the river and castle exhibits.

Temperament

To assess children's temperament, parents completed the *Child Behavior Questionnaire-Very Short Form* (CBQ-VSF; Putnam & Rothbart, 2006), which includes three broad domains of temperament (12 items each): surgency, negative affect, and effortful control. Surgency taps into activity level, pleasure seeking, shyness (inverse), and impulsivity (Berdan et al., 2008). Negative affect refers to sadness, discomfort, frustration, fear, and difficulty to soothe (Rothbart & Putnam, 2002, as cited in Berdan et al., 2008). Lastly, effortful control is a child's ability to regulate and control their attention, emotions, and behaviors (Putnam & Rothbart, 2006). Parents rated their child on each item using a 7-point scale ranging from 1 (*extremely untrue of my child*) to 7 (*extremely true of my child*), based on how they believe their child reacts in a variety of situations. Mean scores were calculated for each domain by averaging item scores on each

subscale. Internal consistency (α) was .82, .80, and .68, for the Surgency, Negative Affect, and

Effortful Control subscales, respectively.

Parental Goals for Visiting the Children's Museum

Parents answered the question, "When you come to the Children's Museum, what do you

hope your child will get out of the experience?" using an open-ended format. Using a constant

comparative method (Corbin & Strauss, 1990), themes among participant responses were

identified in a three-step process. First, the data was coded independently by the author and Dr.

Jill Trumbell (thesis advisor). While many similarities existed during this stage, some differences

also emerged. Specifically, the two coders discussed collapsing some overlapping categories,

and more clearly defining the criteria for inclusion in several of the categories. Next, the author

and advisor started "clean" (without referring back to previous notes of where responses were

coded), using the resulting 16 themes (including subcategories) to independently code participant

responses, forcing them into one of these themes. Note that responses were not mutually

exclusive and could [and often did] belong to more than one theme. After doing so, several

discrepancies (one or more differences among 11 out of 69 participants) emerged which were

discussed to reach consensus, resulting in the final thematic categories and distributions reported

in the results.

Analytic Strategy

To examine the research questions proposed in this study, I specifically first examine the

frequency of a variety of different goals parents have for their children when visiting the

museum using Microsoft Excel. Additionally, we used SPSS 16.0 to examine whether

demographic, parental, or child characteristics differentially impacted what parents hoped their

children would gain by visiting the museum. Specifically, we report descriptive statistics on the

variables of interest, and used Pearson correlations to see if continuous (e.g., sensitivity, temperament, child and parent age, income) or dichotomous (child and parent gender) variables were related to classification in each of the 16 different themes (0 = Not a goal for parent vs. 1 = Goal). Finally, chi-square analyses were used to explore whether frequency of visiting the museum was associated with any of the specific parental goals for the museum.

Results

Preliminary Analyses

Participants reported a wide range of frequency with which they visit the children's museum. Some (19.7%) parents noted it was their first time at the museum during the day of the research visit; 30.3% noted that go to the museum rarely (1-2 times per year), 30.3% go 3-6 times per year, 7.6% go monthly, and 12.1% more than monthly. Parental sensitivity ranged from .44 – .86 with a mean of .75 (SD = .09), indicating that overall, parents were highly sensitive to their children's signals in the museum context. In terms of child temperament, surgency, negative affect, and effortful control had means of 4.71 (SD = .91), 4.06 (SD = .95), and 5.34 (SD = .64), respectively. Children who scored higher on the surgency dimension tended to score lower on effortful control, r = -.30, p = .01. Overall, other dimensions of temperament were unrelated to each other and to parental sensitivity.

Qualitative Results—Parental Goals for Visiting the Children's Museum

A total of 16 themes (11 larger themes, 5 subcategories within themes) were identified and are described below, in order of most common to least common among participants. See Table 2 and Figure 2 for a summary of the various themes identified in regard to parental goals for visiting the children's museum.

Learning

The most commonly identified theme was learning. In total, 44 out of the 70 parents included learning as a goal for museum visits. Three subcategories of learning were identified: learning from exhibits, hands-on learning, and learning through play. Any responses that mentioned the word "learn" or any of its conjugations (e.g., learning) were coded under the learning category. Specific statements included language such as: "learn," "learning new things while exploring," and "learning about the natural world." The first subcategory, learning from exhibits, which had seven mentions, included any responses that discussed interacting and engaging with the exhibits. These responses included statements like: "learning from exhibits," "interacting with the exhibits," and "engaged in exhibits." The second subcategory, hands-on learning, involves using manipulatives to aid learning. Nine responses specified that they wanted the learning to be hands-on. "Hands-on learning," "hands-on activities," and "have tactile learning experiences" were common answers. The final subcategory, with six responses, was learning through play. This included any responses that discussed learning while playing with materials or other people. While most responses were "learning through play," another example of phrasing was "educational free play."

Fun

The second most stated parental goal for children was to have fun while visiting the museum. Fun was referenced in 35 out of 70 responses. One parent exemplified this impetus as follows: "I really just want them to have fun. If they learn a few things, great, but at this age, they are mostly just physically exploring." Another iteration of this intention is a statement by the parent that they wanted their child to be "entertained."

Play

Eighteen parents included the theme of play as a goal for their child. Parents either stated "play," or they offered expanded phrasing such as: "playing together with peers," "freedom to play," and "play with other kids." Within the category of play, two specific types of play were specified in half of the responses. These included free and pretend play. Free play allows children the freedom to engage in whatever they want, whether that be by utilizing materials in the exhibits or collaborating with their peers. Pretend play is defined as make-believe play. There were seven total pretend play responses, which included: "make believe," "pretending together," and "playing from imagination." Both responses for free play state clearly that "free play" is their goal.

Opportunities for Social Interactions

Seventeen responses included the opportunity for social interaction as a parental goal for their child's visit. Some parents discussed that they wanted their children to interact with others and play with other children. Parents hopes were reflected in language such as: "interaction with other children," "meeting/interacting with other kids," "peer interactions," and "being in large crowds/interacting with others."

Physical Activity/Movement

There were 17 responses that mentioned physical activity and opportunities for their child to move as a goal for visiting the museum. Some parents implied that they saw the museum as a space for their child to have "physical play" or "physical stimulation." Another response said a goal for their child was to work on their "fine motor/gross motor" skills. Several parents expressed an intention for their child to "burn energy" and "get some energy out" while visiting the museum.

Curiosity

Curiosity includes terms such as curiosity, exploration, creativity, discovery, and imagination. Sixteen responses included keywords falling under the curiosity theme. Typical wording used was: "discovery," "explore," and "develop curiosity." Others provided more robust details, such as that they wanted to "spark their [child's] creativity and curiosity." Curiosity was related to "Opportunities for Social Interactions," $r = .25$, $p =.04$. Parents who discussed the desire for their children to meet and interact with others were more likely to mention sparking children's curiosity as another goal they have.

New Experiences/Activities

The theme "new experiences/activities" represents the parent's intention for their child to try and explore new things. It is assumed that any learning involves learning something new; however, this theme is considered distinct from learning as it focuses on presenting a new experience instead of learning new content. 13 responses emphasized: "explore new things," "new cultures," "new experience," and "try new things." These responses take advantage of interacting with "objects/exhibits not at home" that are provided at the museum. In terms of how this theme relates to the others, those who reported wanting their children to try new things or activities while at the museum were less likely to focus on physical activity and movement as a goal, $r = -.27$, $p = .02$.

Making Memories

Three parents listed that a goal for their child was to make memories while attending the museum. While two respondents said, "have a fun and memorable day," and "create good memories," a third said, "learn things they can build on or reference later." This idea implies that the family uses the museum as a jumping-off point for further thought-development and perhaps

also as a reference for future conversations. In terms of correlations with other themes, parents

who reported "Fun" as a goal for going to the museum were also more marginally more likely to

report making memories as a reason as well, $r = .21$, $p = .08$.

Autonomy

Five parents emphasized that the museum is a space for their child to develop a sense of

autonomy through learning. They described it as a place where the child could explore their own

interests and become independent from the parents during child or self-directed activities.

Responses included such language as: "develop independence, explore what interests her,"

"explore exhibits in her own way," "self-directed learning," and "playing alone (without me)."

This theme was significantly correlated with the theme of "Opportunities for Social

Interactions," $r = .23$, $p = .05$. Those who wanted their children to have social opportunities were

also more likely to state that autonomy was an important goal for the museum visit. Furthermore,

parents who discussed play as an important goal for the museum were also marginally more

likely to indicate the role of autonomy in their visit, $r = .22$, $p = .07$.

Family Time

Four responses mentioned that they hoped to have "time together" as a family while at the

museum. The museum provides a space for parents to engage with their children and assist with

learning and exploration. One parent mentioned that the museum is a space for "fun shared

time." This theme was significantly correlated with "Opportunities for Social Interactions," $r =$

$.29$, $p = .01$. That is, those who wanted their children to interact with others while visiting the

museum also wanted to spend time together as a family too.

Home-Learning Connection

Two parents acknowledged that a goal for visiting the museum was to be able to connect learning done at the museum to learning completed at home. One parent said, "We homeschool, so it's a chance to apply some of their knowledge to actual exhibits or other activity." The other parent said, "I expect them to have fun and to have engaging questions to discuss both here and at home." Both parents hoped to continue learning in the home setting in order to form meaningful connections and real-world applications. Discussion of this theme in parental goals was significantly related to also mentioning curiosity as a goal, $r = .32, p = .008$.

Quantitative Analyses: Predictors of Parental Goals

Parent, child, and family demographics, as well as how frequently parents and children visit the museum, were examined as correlates of parental goals for visiting the museum. Overall, parental age and children's effortful control were unrelated to any parental goal theme. Furthermore, none of the predictor variables of interest were significantly related to the theme of "Fun." However, several other significant relationships emerged; see Table 3 for an overview. In terms of parent and family characteristics, four significant associations emerged. First, a significant correlation between parent gender and the "home-learning connection" was found, $r = -.25, p = .03$, suggesting fathers were more likely to discuss a connection between what is happening at the museum and connecting it back to learning at home than were mothers. Second, sensitivity was a significant predictor of both "learning through play," $r = .26, p = .04$, and "physical activity/movement," $r = -.23, p = .07$. That is, parents who were more sensitive to the needs of their children were also more likely to discuss the importance of learning through play than less sensitive parents. In contrast, those who were less sensitive were marginally more likely to focus on providing opportunities for their child to be physical active. Finally, income was

positively related to the theme of "family time" such that those of higher incomes were marginally more likely to be represented in this category, $r = .21, p = .09$.

Turning to child variables, child gender was significantly related to "new experiences/activities," $r = -.20, p = .09$; parents of girls were marginally more likely to discuss the goal of providing new opportunities for their child than were parents of boys. Age was also a significant predictor of several themes. Parents of older children were more likely to include "learning through play" as a goal for visiting the museum, $r = .21, p = .08$. Furthermore, child age was also significantly related to the theme of "play" ($r = .24, p = .05$) and subcategory of "free play" ($r = .29, p = .02$). Again, parents of older children were more likely to endorse play and free play as important goals for visiting the museum. Similarly, parents of older children were also more interested in their children "making memories" while at the museum, $r = .33, p = .006$. On the other hand, parents of older children were less likely to mention "opportunities for social interaction" as a goal for their children, $r = -.32, p = .007$.

Interestingly, in terms of temperament, both negative affect and surgency were associated with a few of the themes. Parents of children who had higher levels of negative affect were more likely than parents of children with lower levels of negative affect to discuss the desire to instill curiosity within their child as a main goal for visiting the museum, $r = .25, p = .04$. On the other hand, parents of children with high levels of surgency were less likely to discuss "new experiences/activities" or "making memories" as museum goals ($r = -.23, p = .05$, and $r = -.30, p = 01$, respectively), compared to parents of children with low levels of surgency.

Finally, frequency of visiting the children's museum was related to both fostering "curiosity" and "autonomy" in children. Chi-square analyses revealed that belonging to these

two themes differed significantly based on how frequently families went to the museum (X^2 [4, N = 66] = 10.53, p = .03, for curiosity, and X^2 [4, N = 66] = 13.51, p = .01, for autonomy).

Discussion

This study, while exploratory in nature, demonstrates that parents have diverse goals for their children when visiting a children's museum, but most focus on learning and fun. Interestingly, parental goals varied as a function of parent and child characteristics. A total of 16 themes (11 larger themes, 5 subcategories within themes) were identified. Learning had 3 subthemes (from exhibits, hands-on, through play), while play had 2 (free play and pretend play).

Parental Goals for Visiting the Museum

The inherent purpose of children's museums is to support the learning and development of children (Gong et al., 2020). Children's museums, though created as high-touch environments, clearly provide (and are promoted as) structured environments for exploration. These are distinctly different in design and presentation from indoor environments created purely for recreation, such as indoor children's gymnasiums. Thus, the emergence of learning as the most commonly identified theme is justified and aligns with earlier research that shows parents and guardians see children's museums as places for learning (Luke et al., 2019). In total, 44 out of the 70 parents included learning as a goal for museum visits, with three subcategories of learning identified: learning from exhibits, hands-on learning, and learning through play. Parents of older children were more likely to include "learning through play" as a goal for visiting the museum, which is perhaps due to the fact that older children are more likely to be approaching or already of a school-age and parents may feel that their child is able to focus on educational activities while playing by involving more complex play scenarios that provide learning opportunities, something they may have gained experience in after spending time in formal learning

environments. Another significant predictor of "learning through play" was parental sensitivity. Parents who were more sensitive to the needs of their children were also more likely to discuss the importance of learning through play than less sensitive parents. Interestingly, in another study using data from Project ACME it was found that highly sensitive parents are more in tune with their child's thoughts and emotions, and this was related to higher rates of their children engaging in imaginative play (Mannesto, 2021). The current study extends these findings by demonstrating that before even engaging in the exhibits with their children, sensitive parents have a goal of learning through play, and that this indeed then spills over to impact how parent and child interact in the exhibit.

The second most stated parental goal for children, to have fun while visiting the museum, was referenced in 35 out of 70 responses. The preponderance of parents who indicated "fun" as an intention is in concordance with earlier research. In a study by Swartz and Crowley (2004), 16% of the parents viewed museums as a place for their child to have fun and play. Interestingly, demographic variables such as parental income and education had no effect on "fun;" this may indicate that fun is a shared goal that families of all backgrounds have for their children when visiting a museum. Further, learning and fun do not need to be mutually exclusive goals. In fact, 20 participants included both learning AND fun as goals, indicating that parents often had multiple goals for visiting the museum, with some being more formal and others more informal.

Children's museums are also curated to provide children with the opportunity to explore and engage with a variety of materials during free play and experimentation in various exhibits (Gong et al., 2020). Play fulfills an important role in learning, even if people may fail to associate play with learning intention (Song et al., 2017). Eighteen parents, which is more than a quarter of respondents, included the theme of play as a goal for their child. Two specific

subthemes emerged: free play and pretend play. Overall, the theme of play is unsurprising because play has proven to be beneficial for children. Successful social play indicates a child has positive behavioral and social development (Coolahan et al. 2000; Fantuzzo et al. 2004) while successful independent play is linked to independence and maturity in children (Moore et al., 1974) and emotional development (Harrist et al., 1997). Interestingly, again as with learning, child age was significantly related to the theme of "play" and the subcategory of "free play." Parents of older children indicated "play" and "free play" as important goals. This aligns with parental selection of "learning through play" as an important goal for older children. However, this is contrary to what we might expect. Play-based learning is implemented more through interactions with younger children. Once children enter elementary school, direct instruction takes priority more traditionally. This finding helps to better understand that this trend may not apply in informal learning environments where the concept is reversed and that older children have more encouragement to play.

Seventeen parents included the opportunity for social interaction as a goal for their child's visit. Parents of older children were less likely to mention the goal of "opportunities for social interaction." A possible explanation is that social competence skills develop as children get older. Parents of younger children might stress social interactions as a goal in order to improve these skills. Older children may already have these skills, however, allowing parents to focus their priorities for the museum visit on other areas of development and growth.

In terms of physical activity and movement, 17 parents mentioned this as a goal. This is surprising as the learning themes presented in Mayfield's (2005) study fail to include gross motor exploration and instead identify activities that use fine motor and primarily focus on cognitive skills. Parental sensitivity was a significant predictor of "physical activity/movement."

Those who were less sensitive were marginally more likely to focus on providing opportunities for their child to be physically active. This could be because insensitive caregiving is often described as being more rigid and object-oriented. It may be that physical activity could be a "comfortable" goal for these parents because it is very concrete, compared to more abstract goals like learning. It is surprising that parental gender did not emerge as a significant predictor of physical play since fathers and mothers are known to engage in physical play at different levels ((John et al., 2013). During play, fathers engage in physical and energetic play. They incorporate rough-and-tumble play, as well, while mothers are more likely to engage and guide their children with empathetic conversation. The lack of finding may be because very few fathers participated in the study (6) compared to mothers.

Next, 16 parents listed keywords falling under the curiosity theme and parents who discussed the desire for their children to have social interactions were more likely to mention curiosity as another goal they have. A possible explanation is that while collaborating with others, children can expand their thinking. Both parents and other children can scaffold learning activities by providing support and modeling for others, aiding in problem solving and learning (Neale & Whitebread, 2019). While parents may provide verbal cues, children can also watch others and mimic their actions. Scaffolding can allow children to explore learning activities that may be too difficult for them to complete individually, furthering curiosity and allowing opportunities for their child to gain support from others.

When visiting a museum, parents often plan for their child to try and explore new things. The theme "new experiences/activities" was represented in thirteen responses, which is approximately 18%, indicated this was important. In terms of how this theme relates to the others, those who reported wanting their children to try new things or activities while at the

museum were less likely to focus on physical activity and movement as a goal. Knowing that

fathers encourage their children to engage in and explore unfamiliar situations, with mothers

remaining more reserved (John et al., 2013; Kromelow et al, 1990), one may have hypothesized

that parental gender would emerge as a factor. However, in this study, it was the child's gender,

not the parents', that played a role. Child gender emerged as a significant variable related to

"new experiences/activities." Parents of girls were marginally more likely to discuss the goal of

providing new opportunities for their child than were parents of boys. This adds to the body of

literature that suggests that boys and girls are parented differently (Turner & Gervai, 1995).

Three parents also identified that making memories while attending the museum was a

goal for their child. These parents were also marginally more likely to report "fun" as a goal as

well. This is unsurprising as parents want their children to have happy memories, most likely a

time when their child was having fun. Additionally, parents of older children were more likely to

list "making memories" as an interest while at the museum. A potential explanation is that

parents may believe that their children will be able to form stronger memories as their child gets

older. Research confirms this to be partially true—children's autobiographical memories develop

when children are 3-6 years old and improve as children age (Ross et al., 2020).

Turning to autonomy, in the Swartz and Crowley (2004) study, about 21% of parents felt

like their child learned better when they explored the exhibits independently, and interacted

minimally with their children, allowing their children to take the lead. In the current study, 7% (5

parents) also emphasized that the museum is a space for their child to develop a sense of

autonomy. Additionally, parents who discussed play as a goal were also marginally more likely

to indicate the role of autonomy for their visit. Thus, it is clear that a proportion of parents in this

study viewed independent play as an important goal for children. Independent play has been

related to several positive developmental outcomes such as opportunities for children to learn about themselves and their feelings (Trevarthen et al., 2018), improving their social-emotional development.

When visiting the museum, four parents mentioned that "time together" as a family was important. This theme was significantly correlated with "Opportunities for Social Interactions." Those who wanted their children to interact with others also wanted to spend time together as a family at the museum. Thus, the museum became a social experience for children, whether through spending time with family members or other children. As discussed earlier, social play is important for collaboration, cooperation, and communication (McInnes & Elpidoforou, 2018). Also, income was positively related to the theme of "family time." Those of higher incomes were marginally more likely to be represented in this category. It could be that parents from higher income families have more resources to pay to visit museums as opportunities to spend time together, or have more flexible jobs that would allow them to visit the museum together as their family. In contrast, families of lower income may perceive their income as a barrier to using the museum as an opportunity for family time. However, it should be noted that the museum does provide low and no-cost options for families who qualify for EBT food assistance. Perhaps this could be highlighted as an option for more families.

Lastly in terms of themes, two parents acknowledged that a goal for visiting the museum was to form a connection between learning done at the museum to learning completed at home. Parents who discussed this theme were significantly more likely to also mention curiosity as a goal. A significant correlation exists between parent gender and the "home-learning connection" as well. This suggests that fathers were more likely to discuss a connection between what is happening at the museum and connecting it back to home-learning than were mothers. However,

it is important to note that 2 homeschool families were part of this study, and in both families,

father's completed the questionnaire.

Temperament

The current study proves that parents adjust their learning goals for their children based

on the child's temperament. Both negative affect and surgency were associated with a few

themes while children's effortful control was unrelated to any parental goal theme. First, parents

of children with higher levels of negative affect were more likely to discuss a desire to instill

curiosity within their child as a main goal for visiting the museum, compared to parents of

children with lower levels of negative affect. Parents of children with negative affect may be

hesitant to focus on social interactions with others as their children are easily frustrated, which

can lead to anger or aggression (Berdan et al., 2008), posing potential difficult situations to

handle. Therefore, parents prioritize private learning goals, such as curiosity. Second, parents of

children with high levels of surgency, as compared to parents of children with low levels of

surgency, were less likely to discuss "new experiences/activities" or "making memories" as

museum goals. This is a new finding that adds to our understanding of how parents respond

differently to children's various temperaments.

Limitations and Future Directions

Several limitations were present in this research. First, the sample size was largely

homogenous in terms of race/ethnicity, parent gender, and income, presenting a sample that may

not represent the general population. Secondly, parent-child dyads were restricted to two exhibits

when observed, preventing choice and more natural exploration throughout the museum. This

was a conscious choice for some ecological control across participants, yet it does come at a cost

for validity. Further, while in these exhibits, background noise interfered with getting a clear

transcript and audio recording headsets had intermittent technical difficulties (e.g., lost signal, refusal to wear headset) in some cases.

In addition to increasing and diversifying the sample size, future directions should include exploration of the effect of childcare on parental goals and play. Parents may be asked whether their children are in a childcare program, and what type of pedagogy is taught (e.g., Montessori, Reggio-Emilia). This may help to explain why parents have certain goals for their children and if these goals are affected by the pedagogy of the childcare program and prior knowledge the may hold, such as child-directed learning or learning through play. Another direction is allowing parent-child dyads access to explore the entire museums and to observe what exhibits are entered and how they are engaged. It would be interesting to see who picks the exhibits visited (i.e., parent or child) and if parents, whether the goals that they have for visiting the museum drives their chose of exhibits.

Implications for Formal and Informal Educational Settings

As a future educator, I can reference these results and incorporate them into my classroom. The two main goals parents have for their children while at a children's museum are to learn and have fun; however, parents often overlook the connection between learning and fun (in 49 responses parents listed one or the other of these goals). While a classroom is a formal learning environment rather than informal, it can be assumed that these goals will translate, as both learning environments work to support children's learning needs. In addition to teaching the required curriculum, I plan to do so by incorporating lessons throughout the day that make learning fun and engaging. Additionally, I will allow time for students to interact socially and play so that they come away from the school year with positive memories. So that parents will not misconstrue these activities as purely recreational, I will be mindful of the need to

communicate with parents that incorporating fun is an effective tool for learning. I will also share

the importance of children's museums as educational settings to extend children's learning, as it

is important for families to engage in the community to facilitate learning.

This study also has implications for the museum. Unexpected themes like physical

movement and social interactions can be included in future exhibits. For example, an open area

can be used for gross motor work. Or, they may include an activity that allows children to

collaborate with others and meet new people, fostering social interactions. Museums can also

reference information on parental sensitivity and work to support parents in different exhibits by

having handouts or signage with directions on how parents can be sensitive such as following the

child's lead while interacting with exhibits.

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Table 1

Demographics of the Sample (n = 70)

Characteristic	*n*	*%*
Child Demographics		
Female	39	55.71
Ethnicity		
White/Caucasian	67	95.70
Multiracial	2	2.90
Black/African American	1	1.40
Parent Demographics		
Female	64	91.43
Ethnicity		
White/Caucasian	68	97.14
Asian/Asian American	1	1.40
Black/African American	1	1.40
Highest Level of Parental Education		
High School/GED	2	2.90
Some College/associate degree	11	15.71
Bachelor's Degree	26	37.14
Advance Graduate Degree	31	44.29
Family Demographics		
Marital Status		
Married	58	82.85
Single, never married	5	7.14
Divorced or separated	4	5.71
Cohabitating	2	2.86
Other	2	2.86
Frequency of Museum Visits (n =66)		
First visit	13	19.70
Rare visits (1-2 times per year)	20	30.30
3-6 times per year	20	30.30
Monthly	5	7.60
More than Monthly	8	12.10

Table 2

Frequency of Themes Related to Parental Goals for the Museum and Sample Responses from Each Theme

Theme	Frequency	Description/ Sample Response
Learning	44	"Learn something"
From exhibits	7	Interacting and engaging with exhibits. "Learning from exhibits"
Hands on learning	9	Learning through the use of manipulatives. "Hands on learning"
Through Play	6	Learning while playing with materials and others. "Learning through play"
Fun	35	"Have fun"
Play	18	"Playing together with peers"
Pretend	7	Imaginative play. "Make believe"
Free Play	2	"Free play"
Opportunities for Social Interactions	17	"Social opportunities" "Socialization"
Physical Activity/Movement	17	"A chance to be active" "Release some energy"
Curiosity	16	Curiosity includes terms such as exploration, curiosity, creativity, discover, imagine "Discovery" "Spark their creativity and curiosity"
New Experiences/Activities	13	The ability to try and explore new things. "'new cultures" "Try new things"
Making Memories	3	"Create good memories"
Autonomy	5	Independence from parent, or child- or self-directed opportunities. "Develop independence" "Self-directed learning"
Family time	4	"Time with family"
Home-Learning Connection	2	"We homeschool, so it's a chance to apply some of their knowledge to actual exhibits or other activity"

Table 3.

Correlations between Parent, Child, and Family Characteristics and Parental Goals for Visiting the Children's Museum[a]

	Parent Age	Parent Gender	Sensitivity	Child Age	Child Gender	Surgency	Negative Affect	Effortful Control	Income
Fun	.05	.00	.06	.12	-.14	-.09	.06	-.01	.09
Learning	-.09	.19	-.02	-.06	.09	.15	.03	.02	-.04
From exhibits	-.14	.10	-.04	-.14	.09	.15	.03	-.01	.16
Hands on learning	-.12	-.19	-.04	.09	-.09	.06	-.10	-.03	.03
Through Play	.08	.09	.26*	.21+	-.07	.14	-.13	-.13	.01
Opportunities for Social Interactions	-.02	.17	.01	-32**	.17	.05	.08	.07	-.04
New Experiences/Activities	-.07	.02	-.07	-.04	-.20*	-.23*	.07	.04	.02
Making Memories	.08	.07	.10	.33**	-.19	-.30**	.12	.05	.06
Play	.11	.06	.05	.24*	.00	-.05	-.02	-.16	.01
Pretend	-.14	.07	-.14	-.18	.10	-.19	-.18	-.19	-.03
Free Play	-.07	.05	.05	.29*	.02	-.03	-.06	-.01	.01
Physical Activity/Movement	.03	.17	-.23+	-.16	.17	.17	.07	.09	.13
Autonomy	.00	.09	.04	-.06	-.14	-.10	.03	.06	-.17
Family time	-.01	.08	.09	-.11	.03	-.05	.18	.11	.21+
Home-Learning Connection	.13	-.25*	.10	.14	.02	.03	.08	-.06	-.06
Curiosity	.11	-.08	.13	-.04	.13	-.10	.25*	.11	.01

[a]Parental goals were coded as "0" for absent or "1" for present. $+p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.
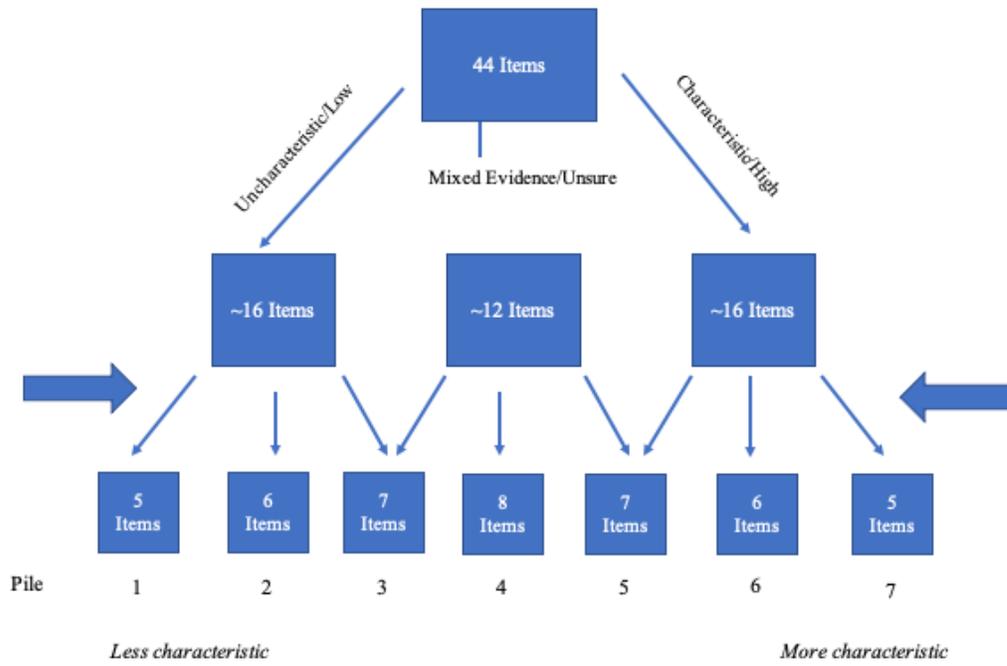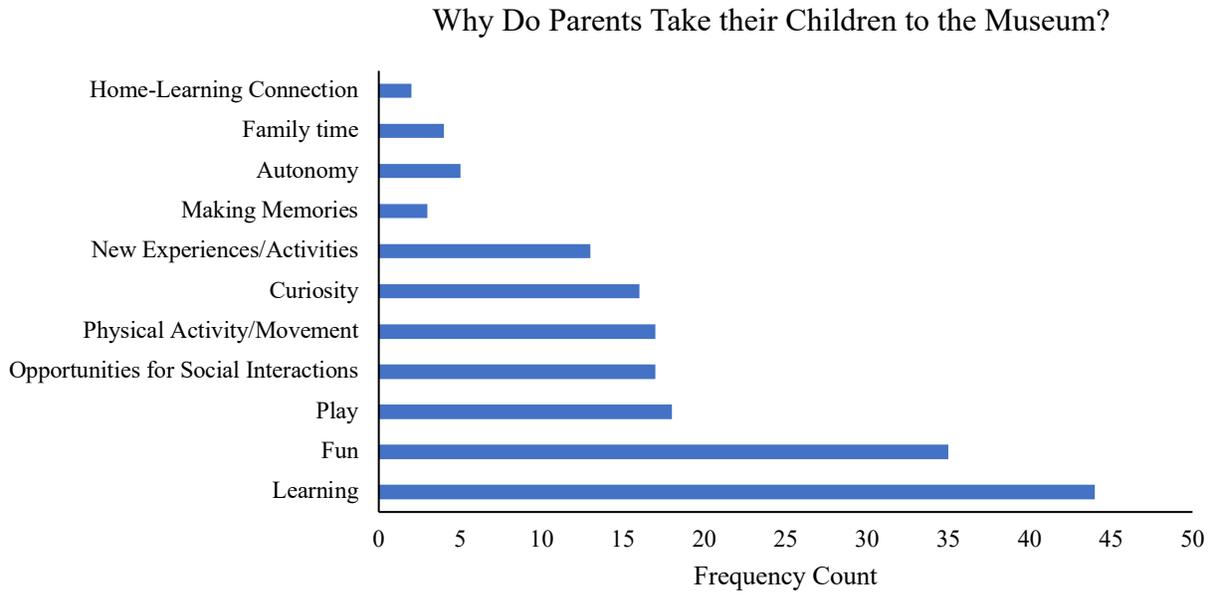
Figure 1. The q-sort procedure.

Figure 2. Frequency of thematic codes related to what parents hope their children will get out of their visit to a children's museum.