Inclusive Museum and Its Impact on Learning of Special Needs Children

Liya Deng
University of South Carolina
School of Library & Information Science
1501 Greene Street
University of South Carolina
Columbia, SC 29208
dengl@email.sc.edu

ABSTRACT
This study investigates the effect of learning in museums, an informal environment different from the traditional classroom, on children with special needs. The purpose of the project is to examine how the museum experience influences learning and socialization of children with developmental disorders. The author aimed to quantify and understand the value and impact of the museum experience through a mixed methods study design. Both quantitative and qualitative data were collected through a standardized scale, observations, parental surveys, and pre- and post-activity task evaluations. The results revealed a positive impact of the museum learning on knowledge acquisition and socialization demonstrated by increases in the total number of the participants’ information sharing and communication behaviors. The study contributes to improving our understanding of information and cultural needs of children with disabilities in an unconventional learning environment. It also raises public awareness of museums’ capacity to serve increasingly diverse user communities and provide wider access to cultural heritage.

Keywords
Diversity, inclusion, information access, special needs education, community-based research.

INTRODUCTION
In the current dynamic, complex, and technology-driven information universe, providing unimpeded access to information and addressing the needs of increasingly diverse audiences are among the top priorities for a wide range of information agencies and service organizations. Cultural institutions are currently making a thoughtful effort to create inclusive environments for audiences who have historically been underrepresented or marginalized. Children on the autism spectrum represent one of those populations. Autism is one of the fastest-growing developmental disorders in the United States. This condition is known to cause social, communication, movement, and behavioral delays in children (American Psychiatric Association, 2013). Communication problems are often due to the unusual way information is processed, organized, and used by an autistic individual. As a result, children diagnosed with autism may face challenges in traditional education settings that require extensive communication with teachers and peers and significant attention span. Therefore, providing alternative information access solutions is imperative for the overall well-being of this special group of information consumers. On the other hand, current research (Baldino, 2012) indicates that alternative learning environments, such as museums, offer opportunities for free-choice, visitor-oriented, and inquiry-based learning suitable for the educational and social needs of autistic children. However, there is a paucity of professional literature assessing the impact of such unconventional settings on the learning experience of children with autism.

To narrow this gap in our knowledge, this research investigates how the museum cultural experience influences learning and information behaviors of children with autism. For years, museums have demonstrated their public value as educational providers, community anchors and stewards of our national heritage. Today, they are adding to their already established roles by becoming more and more integral to public health (American Alliance of Museums, 2014). Numerous museums nationwide are beginning to take action in response to the American Alliance of Museums’ Diversity and Inclusion Policy Statement (Ibid., 2014). Although they are opening their doors to special needs populations, extensive research is needed to grasp the not yet fully-understood capacity of cultural institutions to reach out to users who have long been marginalized. In addition, our understanding of visitors with special needs
and the nature of their learning and social interactions in leisure settings is not yet well-established.

The main research question posed in this study is: How does the museum experience influence learning and behaviors of children diagnosed with Autism Spectrum Disorders? Museum experience is operationally defined as a series of six museum visits consisting of an inquiry-based guided gallery tour followed by a related hands-on art-making activity. Furthermore, learning is operationally defined as changes in the knowledge of the exhibit content, as well as improvement in social interaction skills and behaviors of autistic children.

LITERATURE REVIEW
Museums can be effective public educational institutions only when they meet the needs and expectations of a diverse population of visitors (Adams, Falk, & Dierking, 2003; Chang, 2006; Hooper-Greenhill, 1999). Visitors with disabilities present both an opportunity and a challenge for the cultural sector. Millions of Americans with physical or developmental disabilities pay taxes, attend schools, and are part of the workforce. Their number has been on a steady rise. For example, it estimated that 1 in 68 children and 1 in 42 boys are currently diagnosed with autism (Centers for Disease Control and Prevention, 2014). Often disabled populations receive some form of social and educational support, but their cultural engagement is still insufficient (Museum Access Consortium, n.d.).

At the same time, the existing museum scholarship and practice (Baldino, 2012; Gardner, 1991; Stringer, 2014) indicate that autistic children tend to be interested in museum activities and may benefit from unique interactive opportunities available in the museum environment. Falk & Dierking (2000) call museum learning free-choice as it happens through visual thinking, craft making, storytelling, and other forms of engagement. Additionally, the sensory needs of autistic children can also be best satisfied through object-centered, inquiry-based information behavior that is at the forefront of most modern museum education initiatives (Stringer, 2014).

Thus, leisure pursuits and participation in organized recreation, such as museum visits, is an important factor in enriching the lives of autistic children (Coyne & Fullerton, 2004). In fact, scholars such as Fine (1991), and Dattilo and Schleien (1994), have repeatedly claimed that recreational opportunities and leisure experiences need to be prioritized in the education and preparation of citizens with disabilities. Further, the American Alliance of Museums (AAM) published the Diversity and Inclusion Policy Statement that calls for promoting diversity of participation, thought, and action (American Alliance of Museums, 2014). In doing so, museums are recognizing their increased role in promoting social justice and advocating for human rights. Accordingly, museums are making efforts to respond to the AAM call by prioritizing programming that supports individuals with special needs in their learning and recreation activities (Golden & Walsh, 2013).

THEORETICAL FRAMEWORK
This research employs the Contextual Model of Learning (Falk & Dierking, 2000) as a theoretical construct for examining the process of knowledge acquisition within the free-choice museum environments. The Model is widely considered to be centerpiece for helping understand why and how people learn, as well as what they may take away from the museum experience. Drawing from a number of constructivist, cognitive, and sociocultural theories, Falk and Dierking (2008) expand on their original research to portray learning as both the process and the product of the interactions over time between three contexts: personal context, sociocultural context, and physical context.

The personal context is represented by a learner’s motivation and expectations, previously-developed interests, prior knowledge and experience with the subject-matter, as well as the choice and control over what is to be learned and in which way. The sociocultural context consists of the following essential parts: learner’s cultural background, within group social mediation, and mediation by others outside the immediate social group. Finally, the physical context describes the physical environment in which learning occurs, such as advanced organizers (supervisors), orientation to physical space, building architecture and the overall environment, as well as programming and technology available to learners (Falk & Dierking, 2008).

METHODOLOGY
To answer the main research question of the study, the author chose the Columbia Museum of Art (CMA) in Columbia, SC, as the research site. As a flagship cultural institution, CMA has recently made a consistent effort to become an inclusive museum and diversify its audience. To investigate the effect of the museum experience on cognitive and communicative behaviors of special needs children, a six-week access program was designed and implemented in April and May of 2015.

Study Participants
The subjects of the study were a group of children with clinically diagnosed Autism Spectrum Disorder. All the participants were recruited in collaboration with special education coordinators in local school districts, as well as with special needs advocacy organizations. To control the variability within the group, inclusion and exclusion criteria were used to select the study subjects, along with their parents. The inclusion criteria were: officially diagnosed autism; functional language ability; no additional clinical diagnosis; and availability to attend museum workshops on predetermined dates. The exclusion criteria were severe vision and hearing impairments and severe behavior problems. Eligibility for the study was determined through parental screening addressing participant selection criteria.
As a result, ten families were selected for participation in the study. The participating children were aged 8-15 and included nine boys and one girl. Among the ten children, seven participants were identified as “White,” two were identified as “African American,” and one was identified as “Biracial.” Academically, six children received education in a combination of inclusive and self-contained classes, two children participated in inclusive settings, one was in a self-contained setting, and one was home schooled.

**Mixed Methods Design**

Since the goal of the research project was to develop a more complete and in-depth understanding of the impact of museum experience on children with special needs, the mixed methods approach was chosen for data collection. The strength of the mixed methods design is in the possibility of triangulation, or the use of multiple sources of data to validate the findings (Creswell, 2014).

A combination of measures was used to collect the data:

- **Parental pre- and post-visit surveys.** The surveys were administered before the start and at the end of the project. The pre-visit surveys inquired about family motivations, needs, and expectations for visiting the museum. At the completion of the project, the parents were surveyed again to identify their perceptions of the effect the museum experience had on their child.

- **Behavioral Observation Sheet.** The sheet included specific observable indicators of the children’s behavior change, such as asking questions, answering questions, and making requests for self. The observation sheet was used during the gallery tour and group activity of each museum visit.

- **Task evaluation sheet.** The sheet was designed to assess the knowledge of the art-related topics demonstrated by the children before and after the gallery tour that took place during each museum visit.

- **Social Responsiveness Scale (SRS).** This standardized instrument allows the researcher to assess a range of social and communication behavior of the study subject throughout the six-week museum program. Observer comments, which were also part of the observation sheet, allowed to identify additional behaviors of the study subjects not included in the tally.

- **Data from behavior observation sheets show a 58% increase in total instances of group communication per visit, going up from 115 interactions during Week One to 181 interactions during Week Six. In particular, a 41% increase in the area of “Answering Questions” was registered by the end of the program, going up from 83 instances in Week One to 117 instances in Week Six.**

Regarding the cognitive aspect, data collected from the task evaluation sheets show that the program provided a successful learning experience for the study subjects, as six...
children completed the final comprehensive task during Week Six with 100% accuracy before and after the gallery tour while four children increased their accuracy. Eight subjects registered faster completion times for the final task after the gallery tour than before, while two subjects required longer time but their accuracy improved. Finally, parents’ ratings of the items in the Social Responsiveness Scale improved from the baseline to the end of the program. The scores show that the greatest improvement occurred in the areas of Social Communication and Motivation. However, there were no significant changes in the scores of the Social Awareness area.

LIMITATIONS
There are several limitations that need to be acknowledged in relation to the study. One pertains to its scope since only ten families were selected for participation in the project. The second limitation is related to the length of the CMA access program. Due to feasibility and scheduling concerns, the museum was not able to offer the program for a longer period, which would have been desirable for this type of study. Offering the program on weekends would have allowed more qualified families to participate, thus increasing the number of the study subjects. Finally, although the study involved primarily male participants, this representation reflects the prevalence of autism in the general population. According to the CDC (2014), autism is almost five times more common among boys than among girls. Conducting similar research over more extended time in the future would result in recruiting a more equal ratio of male and female participants.

CONCLUSION
This study demonstrates that learning in museums, with its emphasis on freedom of choice, visitor engagement, active participation, and object orientation provides an innovative and promising solution to the challenges of the traditional education practice. Therefore, it is necessary to develop alternative or supplementary educational offerings in order to provide quality learning experience for all students, regardless of their ability. The implication of this research is that there need to be more opportunities for collaboration between the special needs community and museums because the holistic museum experience plays a vital role in cognitive and social development of special needs children.

REFERENCES