

Children's museums: purposes, practices and play?

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(Received 12 February 2004)

Children's museums have been increasing rapidly since their beginnings in the nineteenth century, and especially so in the past 30 years. This article is based on my observations of 30 children's museums in Europe, North America, South America and the Middle East and the article briefly discusses the history and development of children's museums, their definitions, missions/goals and models of children's museums. Then, trends related to types of exhibits, programming and outreach activities are presented. Finally, some frequent challenges and issues around the establishment and continuation of children's museums such as funding, sponsorship, attendance, exhibit design and technology are discussed. A summary of research on children's museums is included.

Keywords: *Children's museums; Play; Museum development*

Introduction

One of the prerequisites for children's play is a place to play. In many communities, children's options for safe, accessible, stimulating, parent-approved play spaces seem to have become more limited in recent years. An exception to this has been the growth of children's museums. Children's museums are 'the youngest and fastest growing segment of the museum field as a whole' (Association of Children's Museums [ACM], 2002, Section Success and Growth). In addition, the children's museum 'movement is becoming increasingly global' (Atkin, 2002b, p. 15). This article is a synthesis of my observations of and thoughts about 30 children's museums in several countries in North America, Europe, South America and the Middle East in the past 20 years. (I have updated my information on these museums from their websites and

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by recent correspondence. See, Appendix 1 for a list of museums cited in this paper and their websites.) This article briefly describes the history and development of children's museums, their definitions, mission/goals and models of children's museums. Trends related to types of exhibits and materials, programming and outreach activities are presented. Finally, some challenges and issues around the establishment and continuation of children's museums are discussed.

History and development of children's museums

The first children's museum, the Brooklyn (New York, USA) Children's Museum in 1899, was 'a radical departure from traditional models' and very influential for subsequent children's museums (Cohen, 1989, p. 20). It began when the Brooklyn Institute of Arts and Science moved buildings and left behind natural history specimens that were not needed. In 1900, more than 900 books were added to the children's museum. The Brooklyn Children's Museum is credited with 'pioneering the philosophy that now governs all children's museums: that the museum was for somebody rather than about something' (Cleaver, 1992, p. 9).

Another early example of a different model of children's museum was the Discovery Room at the Smithsonian Institution in Washington, DC opened in 1901. It had displays housed in low cases with simplified descriptions and English (rather than Latin) names for specimens. In addition, live animals such as birds and fish were included. This has been an historically influential program (e.g. the continued use of the name Discovery Room). Some traditional museums label their children's area a 'Discovery Room' or a 'Discovery Gallery' (e.g. the Royal Ontario Museum, Toronto, Canada). Some children's museums use the term discovery in their name (e.g. Children's Discovery Museum of San Jose).

The 1920s was a significant growth period for children's museums. This was also a time of popularity and influence of the ideas of John Dewey and Maria Montessori, with their emphasis on learning through doing and the importance of children manipulating and exploring materials with the adult in a facilitative, rather than instructional, role. The next great growth period for children's museums was the 1960s when Piaget's ideas about children's thinking were influential. Another developmental force at this time was Michael Spock who became the director of the Boston Children's Museum, USA in 1961 (Cleaver, 1992). He expanded, revitalized and redirected this museum with creative exhibits such as What's Inside and innovative areas such as the Playspace for infants and toddlers (see Robinson & Quinn, 1984).

Another significant trend has been the increasing numbers of children's museums, especially in the past 20 years. When I first started observing children's museums, they were not that common or easy to locate. For example, in 1975, there were approximately 38 children's museums in the United States; 80 opened from 1976 to 1990; with 100 more since then (ACM, 2001). A parallel trend I have observed during this time is the increasing number of children and families using children's museums. According to the ACM (2003), attendance in their member museums in 2001 was more than 31 million children and families.

Defining children's museums

Ever since the first children's museum, people have asked, 'What *are* children's museums?' The definitions can be as varied as the museums themselves. However, one area of consensus is that they are not the traditional 'hands-off, don't touch' museums that many of us remember from our childhoods.

An ongoing issue has been what makes a museum a children's museum and are these truly museums. Children's museums also do not fit the traditional definition of museums as 'a collection of collections' (Schools Council, 1972, p. 11). Traditionally, museums 'are, first of all, collections of objects and specimens ... The basic function of a museum is to collect and preserve these objects and specimens' (Pitman-Gelles, 1979, p. 165). This definition is used by many in the museum field. One museum professional states categorically that children's museums 'cannot be considered museums if they do not have collections' (Spencer, 2002, Section Driving the Research). Whether or not children's museums can be considered to have collections and specimens or not, this is not their basic function. Rather, children's museums 'provide rich physical environments where children and families learn and play together ... [and] where childhood is respected, nurtured and celebrated' (ACM, 2001). Children's museums are user friendly, interactive, hands-on, attractive, non-threatening and stimulating places designed and developed for children.

Although from the beginning it was clear what children's museums were *not*, (i.e. adult museums), an ongoing issue has been what *should* a children's museum be? This debate still continues today. One way to consider this issue is to examine the mission statements or goals of children's museums.

Mission/goals of children's museums

The underlying philosophies, such as those of Dewey, Montessori and Piaget that support the rationale for children's museums, emphasize hands-on learning, interaction with real materials and intergenerational participation in a community context. From my content analysis of the stated missions or goals of more than two dozen individual children's museums, the following key words appeared most frequently:

- **Learning** (e.g. to enrich children's lives, broaden their cultural experience and provide them with a creative space in which to learn about the world [Canadian Children's Museum]).
- **Interactivelhands-on** (e.g. to teach children more about themselves and the world around them within an interactive learning environment [Manitoba Children's Museum]).
- **Funenjoymentljoy** (e.g. where fun meets learning [Minnesota Children's Museum]).
- **Play** (e.g. learning through play [and] a place for families to learn and play together [Santa Fe Children's Museum]).
- **Creativityl imagination** (e.g. to foster creative behavior in people—especially children [Children's Museum, Portland, or, USA]).

- **Discovery** (e.g. children are offered the opportunity to discover the mystery of how things function [Explora il Museo dei Bambini di Roma]).
- **Children/familiesintergenerational** (e.g. to engage children and families in a partnership of learning through interactive exhibits and educational programs [Children's Museum of Manhattan]).
- **Multi culturallintercultural** (e.g. children play and delight in diverse cultural expressions and celebrations of life [The Children's Museum, Seattle]).

The statements by the individual museums in my analysis were congruent with the statements on the role and goals of children's museums by professional organizations and in the literature on children's museums. In an analysis of the mission statements of 242 children's museums, Norris (1998) found that the stated intent was 'to provide a safe and free place where children can see, touch, do, explore, create, imagine, and interact with their environment' (p. 3). However, although they may have similar goals/missions, each children's museum interprets these in its own context. As Bollen (1995) notes, 'the broad focus of learning through play is individualized and uniquely defined by each museum' (Section Philosophy).

Models of childrens's museums

The first children's museum, the Brooklyn Children's Museum, was housed in a Victorian mansion and later replaced by specially designed buildings. Since 1899, children's museums have been developed in diverse facilities and locations. For example, I have visited children's museums housed in warehouses, a train repair facility, a former fish market, shopping malls, an old school, houses, storefronts, office buildings and other museums, as well as state-of-the-art buildings specially designed for children's museums.

Today, one can find a variety of organizational options. One option is to provide specific programming for children as part of a museum's larger mandate (e.g. the Natural History Museum, London, UK has Explorer Backpacks with pens, paper, activities and a map for use by children in their galleries). Another option, frequently used in science and technology museums, is to have interactive exhibits designed for children as part of the regular museum displays (e.g. Saskatchewan Science Centre in Regina). Still another option is a children's gallery or room (e.g. the Discovery Room at the Smithsonian Institution). Within a traditional museum, a discovery room allows children to touch and examine objects related to the museum's general exhibits. A children's museum may also be a wing of a larger museum such as the Youth Wing of the Israel Museum in Jerusalem. It may also be an annex in another location (e.g. The Children's Museum, Helsinki, Finland). The Canadian Children's Museum is a self-contained museum physically located within and organizationally part of the Canadian Museum of Civilization. However, the model most associated today with the term children's museum is probably the independent children's museum such as the Children's Museum of Caracas/Museo de los Ninos and Explora-il Museo dei Bambini di Roma. These are separate entities both physically

and organizationally from other museums in their areas. In addition, some mobile children's museums are housed in vans or buses.

Children's rooms or galleries sometimes develop into a wing of a museum and then a stand-alone children's museum. A general trend has been for children's museums to start small and grow. This happened with the first children's museum (Brooklyn Children's Museum begun in 1899) and other museums have repeated this pattern to the present. For example, currently the San Diego Children's Museum, USA is closed (2002–2005) as a new larger specially designed US\$20 million 50,000 square foot children's museum plus outdoor park are built on the downtown site of the previous museum. Not all children's museums 'grow into' new specially designed buildings. Some expand to existing buildings, such as the Manitoba Children's Museum's move into a former train repair facility. A characteristic shared by all these museums is that 'an imposing, institutional image seems completely inappropriate for a hands-on museum' (Educational Facilities Laboratory, 1975, p. 42). Children's museums are scaled to and made attractive to children of a wide range of ages.

Programming and exhibits

Another trend that I have observed in children's museums is an increasing variety of exhibits and programming. Originally, with the Brooklyn Children's Museum and most early museums, the emphasis was on natural history exhibits. This has changed.

Exhibits

There is great range in the exhibits found in children's museums today. Children's museums typically have both permanent and temporary displays. Some of the special exhibits planned by children's museums for 2004 are as follows:

- *Children's Games* (The Children's Museum, Helsinki).
- *Monkey King: A Journey to China* (Children's Museum of Manhattan).
- *Colours* (Explora il Museo dei Bambini di Roma).
- *Let's Grow!* [gardening] (Whatcom County Children's Museum).
- *AFLOAT — The Art (and Science) of Water Play* (Tucson Children's Museum).
- *Food in Art* (Youth Wing of the Israel Museum).
- *R & D Dream Lab* (Port Discovery).
- *Pack Your Bags! A Kid's Ticket to Travel* (Canadian Children's Museum).
- *Paradijs & Co. Iran* (Kindermuseum/Tropenmuseum).
- *Jump to Japan: Discovering Culture through Popular Art* (The Children's Museum, Seattle, WA, USA).

This list is only one example per museum from only a few museums of what is being offered.

Likewise, the range of permanent exhibits is also varied as a sampling of permanent exhibits in 10 children's museums shows:

- *Illusions* (Science World, Vancouver, Canada).
- *International Village* (Canadian Children's Museum).
- *How a Rocket Works* (Children's Museum of Caracas).
- *Imagination Station* (The Children's Museum, Seattle).
- *Artville* (Arizona Museum for Youth).
- *The Lab* (The Louisiana Children's Museum).
- *Viking Ship and Castle* (Copenhagen Children's Museum, Denmark).
- *Kid City Market* (Children's Museum, Portland).
- *Grandparent's Attic* (Children's Museum, Boston).
- *The Tree and Me* (Manitoba Children's Museum).

Children's work is typically included in children's museums. Many children's museums, especially those with an emphasis on the arts, provide space for the display of children's works. The Copenhagen Children's Museum takes this a level further and encourages children to create displays with artifacts provided and/or items they make. The children then arrange these in museum cases for display to other visitors.

In reviewing the contents of exhibits in children's museums, I have identified five themes. One of these is the fostering of sociodramatic or pretend play through the provision of dress-up clothes, regalia and settings such as houses, fire engines, boats, replicas of city/village streets, and so on. A second is the provision for both regional or country-specific exhibits such as a grain silo and now a beaver dam in Winnipeg, and Viking and Greenlandic exhibits and materials in a Copenhagen children's museum. A third theme is exhibits with an international or multicultural focus such as the replicas of houses from different countries and cultures found in many children's museums. Another theme is the arts; some museums have dedicated art or studio space, others have theaters, stages or an assortment of musical instruments for hands-on exploration. A fifth theme is science and technology, ranging from the relatively simple exhibits on bubble-making and water play or shadows to sophisticated planetariums and computer laboratories. The exhibits in contemporary children's museums have come a long way from the second-hand natural history specimens of the earliest children's museums. Most of the children's museums I have visited seem to have a judicious mix of exhibits themes—from the old favourites such as bubble-making equipment, to art supplies to those relevant to the local community, to those of a more global orientation, to those with sophisticated technology. In addition, some children's museums such as the Santa Fe Children's Museum, USA include well-planned large outdoor areas that function as play and laboratory space.

Technology in children's museums

One trend in exhibits in children's museums in recent years has been more varied and more high-tech exhibits. According to O'Connell (1995), 'all museums, to some degree, have responded to the explosion of electronic media with dramatic changes in exhibition presentation' (p. 10). This has included CD-ROMs, laserdiscs, HyperCard, video cameras and computer games. For example, some current exhibits on

technology include the Time Warner Media Center/CMOM TV (Children's Museum of Manhattan), OUR-TV (Manitoba Children's Museum), and MPT Studioworks (Port Discovery).

The place of technology in children's museums is an area of debate both inside and outside the museum community. This debate is often couched, perhaps simplistically, in terms of learning through play versus learning through technology. Much of this debate is situated in the larger issue of what is the purpose of a children's museum. Some people, both professionals and parents, perceive much of children's activities in a children's museum as 'just playing' while activities using technology are perceived as 'educational' or 'learning activities'. For example, some have described a children's museum as 'little more than an upscale playscape' (Schwartz, 2001, p. 126), while others have commented that 'children's museums are more about trying on costumes, pretending to be pioneers, or playing with water than pressing buttons or reading computer displays' (Atkin, 2002b, p. 15).

There has been a growing trend toward increasing complexity of exhibits, and this often includes more sophisticated and complex technology. The increasing use of technology for exhibits has been seen as a way to attract children, adolescents and adults to the children's museum (Gilbert, 2002). Some refer to this as 'edutainment'. (This is not a new term as R. L. Wolf and B. E. Tymitz of the Smithsonian Institution used it in 1978; Donald, 1991). Others argue that the technology found in today's museums provides access to more sophisticated technology than is available in homes, schools or workplaces and that this is what children of the twenty-first century expect to find in a museum. There are critics of some of the high-tech exhibits who point out that many are not really very interactive and are often more expensive than other exhibits, which is a concern as funding is often a challenge for children's museums. Some argue that these exhibits are not essential and are relying on a 'wow factor' to increase attendance and that museums think they must provide these types of exhibits in order to compete with theme parks and other options for families' recreational dollars (Lord, 2003). For example, where once children's museums encouraged children to make musical instruments or provided musical instruments for them to play, this has been replaced in some museums with large floor keyboards that are played by jumping from key to key or the provision of synthesizers or, in a few cases, sophisticated recording studios. Other critics question what it is the children are actually learning (for example, Shields, 1992); while others see value in these exhibits for developing positive attitudes toward science and technology (for example, Rix & McSorley, 1999).

This debate is not really new. Many of these arguments around technology are twenty-first century echoes of the arguments for and against the creation of children's museums in the first place. Also, the controversy of using modern state-of-the-art technology in museums has a long history. For example, in 1892, Frederick Horneman was criticized for having electric lighting in his Free Museum in London (Spencer, 2002).

In reality, I have found that most children's museums that I have visited seem to provide a balance (whether by philosophy, design, financial limitations or other

circumstances) between the more 'traditional' children's exhibits with familiar materials such as water play and art activities and high-tech exhibits. Many 'low-tech' exhibits have become more complex (e.g. the equipment in the waterworks exhibit or the equipment for bubble-making are more sophisticated today than 20 years ago). Children's museums, in general, have been quite successful in following Farmer's (1995) advice: 'museum planners must try to focus on technology and innovations without losing the human touch that helps make these museums special' (p. 169). According to Gallagher and Dockser (1987), 'a balance between the familiar and the novel is required in designing exhibits in children's museums. For a small child, too much electronic gadgetry may be overwhelming and necessitate a balance of family activities which encourage pretend play' (p. 44). Therefore, it is probably more accurate and more useful to see 'learning through play' and 'learning through technology' in children's museums as more complementary than competing.

Programming

In addition to exhibits, children's museums offer a wide range of activities for children, youth, and families. A current sample of these is as follows:

- *Family Science Workshop* (Brooklyn Children's Museum).
- *Ice Cream for Breakfast* (Manitoba Children's Museum).
- *Family Arts* (Minnesota Children's Museum).
- *Overnight Camp* (Children's Museum, Boston).
- *Make and Take* (Santa Fe Children's Museum).
- *Saturday Wonder Workshops* (Whatcom County Children's Museum).
- *Baby Chat* (Children's Museum of Manhattan)
- *Studio Workshop* (Port Discovery)
- *Safe Nights* (youth nights for adolescents at the Children's Discovery Museum of San Jose).

Outreach activities

The clientele of children's museums has been expanding. This is evident in the many, increasing and varied outreach activities. The outreach efforts of children's museums are popular and widespread (Judd & Kracht, 1997). They encompass an ever-growing range and number of individuals and groups. For example, ACM member children's museums reported providing outreach programs to 3.9 million people in 2000, which increased to 6.6 million in 2001 (ACM, 2003). Outreach activities can be of various types. One common type is the loaning of materials to schools and other organizations. This is not a new idea as the American Museum of Natural History was loaning boxes of materials to the New York City schools in 1909 (Marsh, 1987). Today's outreach materials range from the relatively simple Backpack Family Science Story Packs from the Minnesota Children's Museum to

the very elaborate and expensive travelling exhibits marketed to other children's museums, such as 'Bones: An Exhibit Inside of You' developed by the Children's Museum of Indianapolis. This is a 6000 square foot/558 square meter exhibit requiring 10–12 days for installation by five technicians and rents for US\$150,000 for three months. In addition, many children's museums have mobile exhibits in vans or buses as well as portable exhibits (e.g. StarLab—the inflatable, portable planetarium of the Louisiana Children's Museum).

One trend related to the expanding use of outreach activities is the collaboration of children's museums with other groups and agencies in the community. Part of this is due to financial reasons but much of it reflects the orientation that 'as the children's museum movement matures, it's taking on more civic responsibility' (Atkin, 2002a, p. 18). Some examples are: (a) 'Shelter' (an after-school program provided by The Children's Museum, Seattle and the Seattle Housing Authority), (b) programs for homeless families (e.g. Shelter Program for families living in temporary housing by the New York City Department of Cultural Affairs, private donors, and the Children's Museum of Manhattan), (c) 'Passport to Play', where families can check out a free admissions pass for the family (up to six people) at any branch of the Saint Paul (MN, USA) Public Library for use at the Minnesota Children's Museum sponsored by a local bank, (d) the Providence (RI, USA) Children's Museum's and the Rhode Island Department of Children, Youth, and Families' supervised visits to the museum for families with abuse or neglect issues accompanied by family therapists who assist families play and learn together to rebuild healthy parent–child relationships and to foster parenting skills (Brinig, 2000), and (e) the many informal and formal partnerships between children's museums and local schools districts to provide professional development activities.

Some children's museums also produce and market published materials for use by families (often those doing home schooling). These are often coordinated with current school curricula. Other museums provide libraries for children and their families as well as bookstores and materials for home-based activities such as science experiments. Some museums loan museum staff as resource specialists for activities such as school science fairs, family fun nights, school assemblies, class presentations, community festivals and audio-visual presentations to community organizations, as well as realia, animals, portable exhibits, laboratory workshops and art instruction.

Another type of activity that provides additional funds for children's museums is rental of facilities for birthday parties, sleepovers and community group functions. Most of the children's museums I have visited in the past 10 years offer to plan and host a birthday party for a fee.

One way most children's museums try to assist with funding is through the use of sponsors, especially for the more complex and expensive exhibits or areas of the museum. A few examples are as follows:

- Weyerhaeuser Science Theatre (Science World, Vancouver, BC, Canada).
- *Art Inside Out* [Merrill Lynch] (Children's Museum of Manhattan).

- *Winnipeg Jets Goals for Kids* [Foundation Gallery] (Manitoba Children's Museum).
- Home Depot Multipurpose Room and IBM Young Explorers (Tucson Children's Museum).
- *Petroleum Exhibit* [Petroleos de Venezuela] (Caracas Children's Museum).

Explora il Museo dei Bambini di Roma lists 39 sponsors and corporate contributors on their website, including 3M, Nestle, Telecom Italia, Pfizer, Sony and Colgate–Palmolive. Sponsors are often locally-based organizations, foundations or corporations with ties to that community. The increasing sponsorship of space and/or exhibits 'marks a reversal of children's museums traditional opposition to such sponsorships' (Fitzgerald, 1999, p. 32), although there is not consensus on this in the children's museum community. This trend is seen by some as either a necessity or standard practice among museums or by others as creeping commercialization of children's museums. According to one executive director of a children's museum, 'children's museums have extremely high credibility ... and we refuse to endanger that with overcommercialization, but there are a number of ways marketers can sponsor exhibits without such risk' (quoted in Fitzgerald, 1999, p. 32). Keeping that balance is just one of the challenges for children's museums today.

Challenges for children's museums

Children's museums today face a variety of challenges. Some are specific to a particular museum, such as shortage of space or difficulty in keeping well-trained staff. However, one issue common to many, if not most, children's museums is funding. Most museums are private not-for-profit organizations or are operated by municipal, provincial/state or federal governments. Establishing children's museums requires considerable investment in capital costs. It is estimated that children's museums cost approximately US\$250 per square foot (Atkin, 2002b). This is a significant cost as children's museums require considerable space. Once established there are ongoing costs such as exhibit development and/or rental, staffing, maintenance, insurance and possible renovation costs on a regular basis. A related challenge is the need to keep admission fees and memberships affordable to enable and encourage children and families to visit.

Another challenge is the need for children's museums to attract, keep and increase attendance. One component of this is publicizing the children's museum. This can be difficult when many people do not know what a children's museum is and many parents and grandparents did not experience one as children. Therefore, a children's museum typically puts considerable effort into publicizing itself and its programs. All of the children's museums cited in this paper have websites (see Appendix 1). These are generally quite sophisticated and require professional design and frequent updating. One drawback to some of these very sophisticated websites may be that because of the complexity (e.g. animation and sound), not all families will have computers that can access the full website. Websites can provide valuable planning information for family visits locally and internationally.

Another strategy to encourage return visitors is to make the children's museum as user-friendly as possible. This means appealing to both children and adults in terms of exhibits and facilities. Children's museums are typically physically attractive, colourful, non-threatening environments that also provide services for families. For example, some museums have added snack kiosks at strategic points in the museum, cafeteria menus designed specifically to appeal to children, family washrooms, wheelchair and stroller rentals, and so on.

Another challenge for children's museums is to provide interesting, creative, attractive exhibits that will appeal to the wide range of ages and backgrounds of the children and families (e.g. infants through teens, and more than one language such as English–Spanish informational materials in the Southwestern United States and English–French in Canada). Many museums 'specialize' and have become known for one or more of their permanent exhibits (e.g. the rock climbing wall at the Santa Fe Children's Museum). Permanent exhibits require ongoing maintenance and periodic refurbishment. Temporary exhibits may be developed by the children's museum's own staff or rented from other children's museums. Developing exhibits can be time consuming, labour intensive and costly. A trend I have observed in the past 20 years is the increased number of exhibits on loan from another children's museum. The loan of exhibits is one way for a museum to recoup the costs of the original exhibit and possibly raise additional funds. Some museums have 'special exhibits' to appeal to visitors (e.g. the Strong Museum has the National Toy Hall of Fame, and solicits nominations on its website).

In addition, as the mandate and interests of children's museums expand, the number of outreach programs continues to increase. This can be another challenge for children's museums. However, these outreach activities help to acquaint more people with the children's museum and its available resources. Children's museums are aware of the need to encourage and accommodate visitors from across their communities. One of their current challenges is to broaden their appeal and accessibility—to facilitate use of the museum by more children and families, to build future audiences and to build future clientele.

Some of the aforementioned challenges may lead to still more collaborative undertakings by museums and both private and public partners. One obvious collaboration is children's museums and the schools. For example, Howard Gardner (1993) modeled his Project Spectrum, in part, on children's museums. Children's museums can be a model for curriculum that is interactive, hands on, problem-solving and interesting for children

Another challenge for children's museums is the need to document what it is they do and the effects. There is relatively little research on children's museums and much of what is available is market research and user demographics (e.g. the number and types of people using a specific children's museum). Some research has been done in children's museums on 'holding power' (i.e. essentially the time a person spends at an exhibit). For example, a study at the Children's Museum in Boston found that children spent 5–10 minutes at an exhibit or activity in a children's museum compared with 10–30 seconds for adults at a traditional museum exhibit (Clever,

1992) and children spend considerably more time at interactive exhibits (Speaker, 2001).

Given that family participation and interaction is a stated goal of many children's museums, there is a need for more research in this area. There is a particular lack of research on children and family play in children's museums (Shine & Acosta, 2000). One study on this topic by Gallagher and Dockser (1987) investigated child–parent interactions in a children's museum, and found that 60% of the interaction were child-initiated, 32% were parent-initiated, and 8% were mutually initiated. Interviews with the parents confirmed that, in general, parents followed the interests and preferences of their children, rather than their own. Although children may initiate many of the interactions, a study by Gelman *et al.* (1991) found that adults organized and directed children's subsequent activities. The parents' perceptions of their role, especially as teacher, seemed to vary with the type of exhibit and the adults' feelings of competency in that area (e.g. there were differences between a grocery store and math/science exhibits).

In a study of parent–child interactions at a grocery store exhibit, Shine and Acosta (2000) found there was less 'mutually engaging, verbally responsive role play' at the children's museum than at home (p. 47). Although the children engaged in role play, parents tended to remain outside the play frame in a director or prompter role. Parents reported that they were reluctant to role play in a museum and thought they had a duty to teach in a museum setting. Shine and Acosta concluded that 'the process of play at the museum suggests that the parent-child play interactions we observed may have been too structured, too didactic, or too brief to engender the benefits of engaged social pretend play' (p. 51). One can speculate as to what understanding of the role and purpose of a children's museum was held by the parents in these studies. Overcoming some adults' reluctance to participate is a concern for children's museums (Robinson & Quinn, 1984). These studies raise several interesting topics for possible future research.

In conclusion, despite the challenges and issues facing children's museums today, they are still increasing in number and scope. They have a long and continuing history of supporting and promoting play and learning through interesting, stimulating, attractive, hands-on programs, exhibits and materials serving a wide variety of children and families in many countries. Children's museums are a valuable and valued resource for children, families and communities.

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Appendix 1. Children's museums cited

- Arizona Museum for Youth [Mesa] (<http://www.ci.mesa.az.us/amfy/>)
Brooklyn Children's Museum (<http://www.brooklynkids.org/>)
Canadian Children's Museum, Hull, PQ, USA (http://civilization.ca/mce_ccm/cmeng.html)
Children's Discovery Museum of San Jose, CA, USA (<http://www.cdm.org>)
Children's Museum, Boston, MA, USA (<http://www.bostonkids.org>)
Children's Museum (Helsinki City Museum, Finland) (<http://www.hel.fi/kaumuseo/english/lastenmuseo.html>)
Children's Museum of Caracas/Museo de los Ninos (<http://www.museodelosninos.org.ve>)
Children's Museum of Indianapolis (<http://www.childrensmuseum.org>)
Children's Museum of Manhattan (<http://www.cmom.org>)
Children's Museum, Portland, OR, USA (<http://www.portlandcm2.org>)
Children's Museum, Seattle, WA, USA (<http://www.thechildrensmuseum.org>)
Copenhagen Children's Museum (<http://www.natmus.dk/sw436.asp>)
Discovery Gallery at the Royal Ontario Museum, Toronto, Canada (<http://www.rom.on.ca/explore/kids.php>)
Discovery Room at the Smithsonian Institution, Washington, DC, USA (<http://www.si.edu/education/discoveryroom.htm>)
Explora il Museo dei Bambini di Roma (<http://mdbr.it>)
Kindermuseum/Tropenmuseum, Amsterdam, The Netherlands (<http://www.kit.nl>)
Louisiana Children's Museum (<http://lcm.org>)
Manitoba Children's Museum (<http://www.childrensmuseum.com>)
Minnesota Children's Museum, St Paul, MN, USA (<http://www.mcm.org>)
Natural History Museum, London, UK (<http://www.nhm.ac.uk>)
Port Discovery, Baltimore, MD, USA (<http://www.portdiscovery.org>)
San Diego Children's Museum (<http://www.sdchildrensmuseum.org>)
Santa Fe Children's Museum (<http://www.santafekidsmuseum.org>)
Saskatchewan Science Centre, Regina, Canada (<http://www.sasksciencecentre.com>)
Science World, Vancouver, BC, Canada (<http://www.scienceworld.bc.ca>)
Strong Museum, Rochester, NY, USA (<http://www.strongmuseum.org>)
Tucson Children's Museum (<http://www.tucsonchildrensmuseum.org>)
Whatcom County Children's Museum, Bellingham, WA, USA (<http://www.whatcommuseum.org/children>)
Youth Wing of the Israel Museum, Jerusalem, Israel (<http://www.imj.org.il/eng/youth>)

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