

Why Family Learning in Museums?

by Minda Borun

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There is a long literature on family learning in museums. An article by Borun and others in the 1995 issue of *Curator* summarizes the literature up to that date (Borun, et al). When we think about learning, we can focus on two fundamentally different models:

Formal learning takes place in school classrooms. Students are fairly uniform in age. Instruction is planned and facilitated by a teacher. This is a certification process for children as they move towards becoming adult members of society. Their progress is measured periodically by tests. In school the learner is an individual student.

Informal learning takes place everywhere else—at home, at community gatherings, in parks and playgrounds, and in museums. It is how we learn to use utensils, put on our clothes, brush our teeth and carry out the activities of daily living. Informal learning often occurs through observation, imitation, and apprenticeship rather than through deliberate instruction.

Learning in the public sector of most museums is informal, and the learning unit is generally a small group. The most common of these groups are the family and the school “pod” (6-10 students and a teacher or chaperone). Since school classes visit museums on weekdays, they are the visitors most often seen by museum staff. But, their actual numbers are only 18-25% of the museum audience (American Association of Museums, 2006; Association of Science-Technology Centers, 2004). The larger group consists of families which make up 40% of all museum audiences and significantly higher percentages of science and children's museum visitors (Doering, 2004).

Whether a visitor was alone or with others varied by museum type. Visitors to art museums typically came alone or with other adults. Visitors to science museums and American subject matter museums were twice as likely to have come with children than was true for visitors to art museums (43% and 34% respectively, compared with 17%).

The following discussion will focus on the family, but its message applies to school pods and to other small groups.

The “family” is defined here as a multi-generational visiting group. It can consist of people who are related to one another by blood, residence, or close personal association. Thus, the term “family” can apply to extended and intentional families of all sorts. Families come to the museum with a mixed agenda that includes learning, social exchange, and entertainment. It's not a question of either/or. Voluntary museum visitors (as opposed to field trip groups) are generally people who enjoy leaning. But they want to learn effortlessly. It is the task of museum professionals to develop exhibitions and programs that allow families to learn easily and pleasantly. An impediment to this process is a tendency among exhibition developers to revert to a classroom-based model of learning and to design for an individual user.

Designers have to move from designing for the individual user to creating experiences for multi-age groups. Educators have to become more involved in the exhibition development process in order to bring their understanding of the learning styles of different age groups into the exhibition design process. It is only recently that museum developers have begun thinking about users as groups.



The Family Science Learning Project. Courtesy of The Franklin Institute.

In their seminal work *The Museum Experience*, John Falk and Lynn Dierking (1992) emphasized that museum visits have a social context as well as physical and personal contexts. They diagrammed this “Interactive Experience Model” as a set of three intersecting circles. Since that publication, there have been numerous studies of family groups in children’s museums (Crowley, 2001; Gaskins, 2000), science museums (Ellenbogen, 2002), history museums (Dierking, 1989) and art museums (Korn, 2007). Kevin Crowley, Gaia Leinhardt,



Program at a children’s museum. Courtesy of Minda Borun.

and others in the Learning Research and Development Center (LRDC) at the University of Pittsburgh have done fascinating work that offers a close analysis of conversations at exhibits (Leinhardt, 2002). What was needed was a study of how we can change exhibitions in order to serve groups. In 1998 the Philadelphia/Camden Informal Science Education Collaborative (PISEC) published its study of family learning in four Philadelphia area museums: The Franklin Institute, The Academy of Natural Sciences, the Academy of Aquatic Sciences, and the Philadelphia Zoo (Borun et al, 1998). PISEC created a list of

seven characteristics of family-friendly exhibits:

- Multi-sided—the family can cluster around the exhibit
- Multi-user—interaction allows for several sets of hands and bodies
- Accessible—the exhibit can be comfortably used by children and adults
- Multi-outcome—observation and interaction are sufficiently complex to foster group discussion
- Multi-modal—the activity appeals to different learning styles and levels of knowledge
- Readable—text is arranged in easily-understood segments
- Relevant—the exhibit provides cognitive links to visitors’ existing knowledge and experience (p. 23).

When exhibit components that embodied these characteristics were added to existing exhibitions in the four PISEC museums, family learning was measurably increased.

The “seven characteristics” are necessary but not sufficient qualities for effective family exhibitions. They address the question of how to develop exhibits for learning groups.

Many museums are now designing for groups. Children’s museums have led the way in pulling exhibit components away from the wall. Unfortunately,

Designing for families and other small groups means changing the way we develop exhibitions and programs.



The line at Aging Machine. Courtesy of The Franklin Institute.



A family in **KidScience**. Courtesy of The Franklin Institute.

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References:

American Association of Museums. (2006). *Museum financial information*. Washington, DC: AAM.

Association of Science-Technology Centers. (2004). *Sourcebook of science center statistics*. Washington DC: Association of Science Technology Centers.

Borun, M., Cleghorn, A. & Garfield, C. (1995). Family Learning in Museums: A Bibliographic Review. *Curator* 38(4), 262-270.

Borun, M., Dritsas, J., Johnson, J.I., Peter, N.E., Wagner, K.F., Fadigan, K., Jangaard, A., Stroup, E., & Wenger, A. (1998). *Family learning: the PISEC perspective*. Washington DC: Association of Science-Technology Centers.

Crowley, K., Callanan, M.A., Jipson, J., Galco, J., Topping, K., & Shrager, J. (2001). Shared scientific thinking in everyday parent-child activity. *Science Education*, 85(6), 712-732.

Dierking, L. D. (1989). The family museum experience: Implications from research. *Journal of Museum Education*, 14(2), 9 - 11.

Doering, Z. (2004). *Results of the 2004 Smithsonian-wide Survey of Museum Visitors*. Washington, DC: Smithsonian Institution, Office of Policy and Analysis, (pp.4-5).

children's museums tend to design only for their younger visitors. Tiny tot lands with small furniture and miniature manipulatives signal parents to sit on benches as passive observers rather than participants.

Several children's museums including the Indianapolis Children's Museum and the Please Touch Museum in Philadelphia have revised their missions from serving children to serving families. History and art museums with text and paintings, which tend to be wall-bound, are beginning to explore how to move interpretive experiences into the middle of the room to accommodate a group of users.

Often science museums will use the lab bench as a model or build individual study carrels with eighteen inches of frontage. The result is the formation of a line of interesting experiences.

Recently, science and children's museums and even some history museums have adopted the family perspective to create exhibitions and programs that appeal to visiting groups. These efforts represent a shift in focus away from the curatorial view of the collection and towards an increased effort to communicate with the museum audience

A number of museums have applied the PISEC characteristics to the development of exhibitions for families. *Kid Science* at The Franklin

Institute in Philadelphia used the seven characteristics to design an exhibition for families with children ages 5 to 8. The space is divided into four main zones: earth, air, water, and light. Each zone has a large central icon: a cave, sailing ship, fountain, and light house respectively. Each focuses on a theme from the National Science Education Standards for grades 1-4:

Earth—solid objects have weight and take up space

Air—moving air can move things

Water—falling water does work

Light—light travels in a straight line.

Shadows are the absence of light.

Prototypes of the interactives in the exhibition were extensively tested with target families to be certain that they appealed to this age group and communicated their messages.

Splash Zone at the Monterey Bay Aquarium was also based on the PISEC principles and was designed to appeal to families with young children.



A family in **Splash Zone**. Courtesy of Monterey Bay Aquarium.



A family in the **Lookout Cove**. Courtesy of Bay Area Discovery Museum.

The Bay Area Discovery Museum in Sausalito recently reinstalled most of its exhibition area. Both indoor and outdoor play areas, themed to *Our Place by the Bay*, deal with the San Francisco Bay and the animals and plants that live there. Four areas: **Tot Lot**, **Tot Spot**, **Lookout Cove**, and **Wave Workshop** were developed using the PISEC principles. Summative evaluation shows a high level of family involvement and engagement.

The USS Constitution Museum has used PISEC's seven characteristics and additional factors from the work of Lynn Dierking (1989) and Cathy Donnelly at the Indianapolis Children's Museum to create an interactive exhibition for families called **A Sailor's Life for Me?** A comparison of this exhibition and an older, more traditional history exhibition in the same Museum shows that dwell time, family interaction, and visitor satisfaction are substantially higher for the new exhibition. *Editor's note: see the article on this exhibition by John Kiihne in this issue.*

In the last few years, the family-friendly model has been extended to program development, using essentially the same seven characteristics except that "readable" is replaced by "understandable". The Bay Area Discovery Museum's **Bridges**, **Miss Kitty**, and **Gingerbread**

Architecture programs were all evaluated using the "seven characteristics..." checklist. Problems revealed could then be addressed and remedied.

The preferred medium of instruction in the museum is a conversation rather than a lecture. The content for family learning in museums comes only in part from museum exhibitions and programs. The rest of the discourse derives from the background and experience of the family members themselves who exchange information at the exhibition site. Thus, museum offerings serve as catalysts for discourse among family members. It is important for the museum to be a facilitator and not an obstacle to family exchange.

Accommodating small groups in the museum requires a new approach to design. There needs to be *repetition* (multiple stations offering the same experience) and *collaboration* (one station requiring multiple users to create the experience). It is not surprising that change is slow. People generally prefer to stay on familiar ground. But, in these days of declining museum attendance and competition from at-home electronic amusements, a primary attraction of the museum is its role as a social gathering place. We need to play to this strength. ✨

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References Continued:

Ellenbogen, K. M. (2002). Museums in family life: An ethnographic case study. In G. Leinhardt, K. Crowley, & K. Knutson (Eds.), *Learning conversations in museums*. (pp.81 – 101). Mahwah, NJ: Lawrence Erlbaum Associates.

Falk, J. H., & Dierking, L. D. (1992), *The museum experience*. Washington, DC: Whalesback Books, (p.5).

Fender, J. G. & Crowley, K. (in press) How parent explanation changes what children learn from everyday scientific thinking. *Journal of Applied Developmental Psychology*.

Gaskins, S. (2000). Helping children learn in museums. *Click* 3(7), 6-7.

Korn, R. (2007). *Teaching literacy through art: program evaluation*. Unpublished manuscript. New York: Solomon R. Guggenheim Museum.

Leinhardt, G, Crowley, K, & Knutson, K (Eds.), (2002) *Learning conversations in museums*. Mahwah, NJ: Lawrence Erlbaum Associates.