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certain parts of an exhibit are habitually missed.

This open-ended look at visitor behavior is followed by other strategies developed during the "Mysteries in History" evaluation project. These include in-depth interviews to determine whether visitors perceive the overall gallery concepts, observations and interviews focused on the behavioral objectives for each exhibit activity, documentation of adult-child and child-child interactions, label reading behavior, and finally, more open-ended tracking to confirm the validity of the initial tracking data.

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USING CHILDREN IN EXHIBIT EVALUATION

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Although our institute grew out of the Nashville Children's Museum, the Cumberland Science Museum is technically not a children's museum; it is a family science museum, with something for every age. However, the majority of visitors are families with young children, so when the Museum decided to embark upon an evaluation of its "Brain" exhibit, staff chose to interview children as well as adults.

METHOD

For purposes of evaluation, staff selected children ages eight to thirteen because children of this age group were assumed to be old enough to investigate the exhibits on their own. The purpose of the evaluation was to determine whether or not the "Brain" exhibit was communicating its objectives; that is, were visitors understanding what the exhibit was trying to explain? Briefly, the process was this: the exhibit was made up of sixteen components and as each of the components was studied, staff wrote a measureable objective for it. (Ideally, this is done before any design work is started, but staff did not have that advantage in this case). Staff then wrote one or two questions that might elicit the objective as answer, if a visitor used the

whole exhibit (i.e., read the labels and engaged in the activity correctly). Staff asked visitors the questions before they looked at the exhibit, to get an idea of how much information about the subject visitors already had and asked them again, after looking at the exhibit, to see if viewing the exhibit changed the original answer.

After determining how many visitors improved their answers following contact with the exhibit, the evaluation team (which consisted of the exhibit curator, graphic artist, health educator, and evaluator) analyzed weaknesses suggested by the brief study and thought of ways to strengthen the exhibit's power of communication. Changes to copy and graphics were made and the exhibit was re-tested. Thirty visitors were interviewed per test (15 adults and 15 children) with an objective of 70% of visitors reporting each of the components of the exhibit to be clear.

For the most part, staff did not make any special concessions to the children interviewed. Often, they were asked the same questions as adults. The evaluator would, however, embellish a question by explaining more, going more slowly or repeat herself before a child would answer. The use of open-ended questions in interview was found to not be very effective because many children were shy when asked to participate. For this reason, staff moved to multiple choice questions for children. While these choices relegated visitors to certain specific answers, they could still be an effective measure of what a child knows. Staff have also considered multiple choice questions in the form of pictures for use with children under age eight.

After the initial interview, staff observed whether or not visitors were using the exhibit correctly. School groups were good for observing children's reactions to and use of exhibits, but staff found it difficult to conduct even brief interviews with children on field trips. They were excited to have a day away from school and were generally less cooperative than children on the weekends who were visiting with their parents. Other tips for interviewing children fell into the realm of common sense: putting oneself physically on the child's level, acting friendly and non-threatening, thanking them genuinely for their assistance. Staff usually got the children to participate by asking them if they wanted to help for a minute by testing an exhibit. Staff did not give any gifts to the children who helped because the interviews were short (no longer than five

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minutes) and very informal.

What staff discovered from their study of the "Brain" exhibit with regard to differences between children and adults was not surprising. It was much easier to improve the exhibit's communicating power to adults than it was to children. One idea staff tried was to include labels specifically for children. They re-wrote the copy on a child's level of understanding, printed the copy on yellow paper, enlarged the type, and most importantly, placed the label at a child's eye level. Staff also greatly improved the usage of one exhibit simply by providing a set of instructions where children could see them.

The number of children who improved their answers increased, though not to the 70% criterion level. Staff suspected, however, that no matter how attractive they make the labels, few children would read them. What was encouraging, however, was the number of adults and children who experienced an exhibit together. Often a child would attract an adult to a particular exhibit and the adult would help the child by reading the instructions and explaining what to do. If this scenario happens more frequently than one in which children interact with the exhibit alone, then staff can be hopeful of the exhibit's success, since they know it's clear to adults.

While the youngest child staff talked to regarding exhibits was eight, they do believe that with the right question in the right form, it will be possible to get good information about exhibits from children. When children comprise your audience, their input is essential to an exhibit's success.

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HANDS-ON SAFETY

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After seven successful years, The Children Museum's safety record was good, but unexamined. This suggested the Museum was doing at least an adequate job in providing safe exhibits, but not in a way that indicated why exhibits were safe or how to continue making them that way. In Fall, 1987, the Museum's work on a 5-Year Long Range Plan provided the necessary impetus to systematically examine exhibit safety. The nature of both children's museums and safety challenged staff to demonstrate concretely how the goal of "safe" exhibits could be met. *Using an Action Research model adapted from education (e.g., Schon, 1983), the Museum examined issues related to exhibit safety and implemented a 5-part procedure to improve the safety of interactive exhibits for its visitors.*

BACKGROUND

Action Research is a method of systematic inquiry into practice. Originally developed for and used in the classroom, Action Research lends itself to the real life qualities of museum exhibit work. It is a systematic process of learning by doing that continuously informs and improves practice, understanding, and the larger context in which practice occurs. Four steps in Action Research are: develop a plan, act to implement the plan, observe the effects of the action, and reflect on these effects as a basis for further planning.

There are several reasons Action Research was selected for examining the Museum's safety practices. First, the Museum was already involved in the practice of providing safe exhibits but wanted to understand better how they were considered safe and how to improve them. The Long Range Plan had identified the goal of explicating the exhibit development process, to make it deliberate and articulate it. Action Research could support these goals. Second, Action Research could be incorporated smoothly into on-going work. Finally, the Director of Exhibits and Education had experience with Action Research in other settings.

The Children's Museum staff selected the question: "How do we know our exhibits are

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