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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.

For further information contact: Mary Stewart Miller, Cumberland Science Museum, 800 Ridley Blvd, Nashville, TN 37203. □

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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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safe?" as the focus of inquiry. To develop a plan of action, staff reviewed the Museums' existing procedures and records. They also contacted other museums, researched relevant information, talked with lawyers, and met with the Museum's liability insurance provider to discuss factors involved in providing safe exhibits.

After determining what was presently happening in regard to safety and how it was problematic, staff developed and implemented a five part plan for effecting change. The five parts were:

1. to develop a comprehensive injury reporting procedure;
2. to integrate safety reviews into the exhibit development process;
3. to develop and maintain on-going records of injuries;
4. to educate and inform staff in relevant areas;
5. to commit to regular reviews of the facility, exhibits, and maintenance.

A year following implementation of the plan, staff have observed overall positive effects. Although the number of reported injuries has not decreased and remains at about 14 per year for 166,000 visitors, injury figures for the last three years are not available as baseline information. These figures are important in order to make a variety of comparisons and also to make informed decisions about staff presence on the exhibit floor, the need for new exhibits for specific age groups, and the need to retire old exhibits or components. Awareness and knowledge of safety are a shared, affirmative Museum commitment.

Before new exhibits receive final approval for construction, plans are reviewed for safety. This review is done by both staff and outside parties. The review draws on existing safety checklists from the U. S. Consumer Product Safety Commission and the Exploratorium. It also considers developmental characteristics of the users, site features, materials, construction techniques, and information from the Museum's injury records. Design changes are agreed upon and made accordingly.

Reflections on the changes suggest the value of structured inquiry into how the Museum provides safe, interactive exhibits. Confidence in exhibit safety is high and well-justified. One feature, in particular, stands out in the five-part plan. When staff must assume the burden of proof that an exhibit has or has not caused the injury, they are most mindful of and challenged

by the demands of safety. Competing criteria for exhibit design must be balanced: safety with challenge for different age groups, with a hands-on philosophy, with appearance, and with mechanical or electrical function. Staff also recognize new opportunities for strengthening safety reviews, using formative evaluations and focus groups. Many new questions have emerged which could lead to another round of Action Research. For instance, since the injury rate has remained fairly constant during three years, is the safety record already very good? Can injuries be reduced? How does it compare to other children's museums? What other factors affect injuries?

Conclusion

Use of Action Research has been successful at the Children's Museum. It has the capacity to improve the practice of providing safe exhibits. It has challenged staff to think about and examine in new ways the many factors that interact to affect safety. It generates useful, objective data and can be respectfully integrated into existing staff work. Action Research also appears to be an appropriate vehicle for furthering other Museum goals. It reinforces the Museum's commitment to on-going staff development and to collaborative work among Museum staff. Finally, it provides a research model appropriate for examining and articulating a variety of aspects of the Museum's exhibit development process.

For further information contact: Jeanne Vergeront, Director of Exhibits & Education, The Children's Museum, 1217 Bandana Blvd N., St. Paul, MN 55108.

References on Action Research:

- Hopkins, D. (1982). *Doing Research in Your Own Classroom*. Phi Delta Kappa, Dec., 274-275.
 Schon, D. (1983). *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books. □

Attending the AAM Conference in New Orleans?

The AAM Evaluation and Research Committee will have a business meeting at 7:30 am on Wednesday, June 21 in the Shadows Room of the Doubletree Hotel.

Y'all come!