What Children's Museums Really Want

One day the thought came to mind, "Wouldn’t it be interesting if there could be some method by which I could instantaneously get a rich understanding of the variety of people on the bus, their backgrounds, cultural beliefs and the range of things they’re thinking about right now?" My motive was to imagine how I might apply what I was learning in school to peer into the “faceless crowd” and thus appreciate the tremendous human diversity around me each and every day. And perhaps I might also discern patterns that could be of interest to others. My method was the not uncommon one of “pure fantasizing.”

Fast forward a few years to when I had become a museum staff member. By that time I had had opportunities to be involved with research in the physical sciences, social sciences and formal education. My background and inclinations prepared me to get involved with museum research projects. These included exhibit, program, marketing and planning studies with some of the finest researchers out there. I was also a member of the Visitor Studies Association and attended its conferences. Later, as a museum CEO, I would come home after a long, action-packed day, turn on the TV, see an ad we had just launched for the CEO, I would come home after a long, action-packed day, turn on the TV, see an ad we had just launched for the

The Real World of Children's Museums

The human capacity to draw pattern from confusion underlies both empirical investigation and imaginative creation....Patterns that once seemed clear may be blurred or reversed or overlaid with complexity; yet it is still necessary to make decisions and act upon them despite uncertainty and ambiguity (Bateson 2004, 340). The knowledge we rely on to move forward necessarily comes in many forms including on-the-job experience, anecdotal evidence, intuition and research—both qualitative and quantitative. Moreover, the knowledge we need must somehow give us informed access to the whole system in which we function—our society, our profession, our particular organization and our organization’s components. To be truly effective—for the whole system to work—our interests and knowledge must extend well beyond our desire to answer questions about whether our exhibits are doing what was intended and what visitors are learning.

For me and so many others in our field, the publication of The Museum Experience by John Falk and Lynn Dierking in 1992, began to open our eyes to the richness, fullness and, of course, messiness of the system (the number and variety of variables) we must come to understand. And it is not a static system. Along with our society, our organizations and our profession change—sometimes in step, sometimes not, in some instances as part of a larger system or organization. We must continuously reassess the knowledge we need, the research we need to conduct, the creative ideas that catalyze us and the wisdom that pulls it all together.

Driving the Research Agenda

The children’s museum field as a whole has grown considerably over the past decades. Not only has the number of institutions increased dramatically, but also the level of professionalism. The collective experience of the field—individual museums and in ACM—has become broader.


Anyone who has been in the business for more than an hour knows that the real world of children’s museums is a messy one in every sense of that term. Empirical investigations can help professionals actually think through, penetrating questions and identify insightful patterns that aid in decision making. But, as Bateson indicates, to sort through the confusion, we also need imaginative creations.

Playing the Field

Research comes in all varieties, and each kind brings along with it a particular set of assumptions—theoretical, conceptual and methodological. In the same discipline there may be competing approaches, even rāgging battles, on how the world is studied. Professionalization of the children’s museum field demands that we all become more knowledgeable about the dynamics of the disciplines whose expertise we may be calling upon for assistance. How to sort through the research is always obvious; but the fact remains that a relationship is established, all of which “baggage” comes with it.

A Healthy Relationship

When a museum, a foundation or an organization such as the ACM decides that research should be conducted, what would be a collaborative relationship between the researchers (whether on staff or a company under contract) and others? Some years ago, Schoenberg and Letkovitz (1987) described an “agenda for museum research” that involved the collaboration between psychiatrists and sociologists who were jointly teaching classes on patient care to nursing students. Schoenberg and Letkovitz identified six stages of the collaboration between these two disciplines: Role Separation, Overestimation and Disappointment, Realistic Appraisal, Accommodation, Interchangeability of Roles and Theoretical Fusion. It is not necessary for my purposes to describe the details of these stages. You can see from their names that the pattern progressed from a purificative positioning and a utopianistic sense of what the other profession could contribute, to a gradual, reciprocal understanding. I should point out that everyone did not make it through these stages, and, for those who did, the process took time and effort. The point is that for research to be done well and be useful to the organization there should be systematic and systemic.

The allure is easy to imagine. A well-conceived research design and a new Web site, www.informalscience.org, managed by the Children’s Museum of Science & History have helped to stir the pot, certainly among exhibit designers at least. The flip side of loveblindness and its unwarranted conclusions is possible” (351).

Unrequited Love

The flip side of loveblindness and its unwarranted conclusions is possible. There are not only the research but also the disciplines behind it not others, or being rejected as credible and relevant by important stakeholders. This last instance is particularly pernicious and often rooted in deep convictions. Fights to the death, generated by participants was eliminated. Hosted by The Exploratorium, the April 2003 conference, “Best Practices in Science Exhibit Development,” and the post-conference book, Art We’re Doing?, has helped to sort through the potential, certainly among exhibit designers at least. The new Web site, www.informalscience.org, managed by the Association for Science Education (see the flip side, continued on page 7), provides a start on a much-needed database on research and resources in informal science education. Reflecting on the outcomes of these three examples alone, one could easily be both impressed and overwhelmed with the prospect of what research could be conducted. In fact, the possibilities are literally endless, in content and in methodology. Knowing that we cannot “study every child,” how can the children’s museum field design a research agenda that is useful and manageable? My response is that the world is messy, so perhaps a reasonable objective should be to clean it up a bit over time, learn along the way what makes sense to concentrate on, and adapt as we move forward. The process, however, should be incremental.

The children’s museum field needs additional structured opportunities like the ones described above, occasions sustained over time where the needs and perspectives of professionals in children’s museums are the focus. Furthermore, we should attempt to support research, or draw upon research already conducted by others, that addresses a selected set of key issues at all levels of the system, not just on certain parts of the system. Attending to the effectiveness of exhibits alone is not only too narrow a focus, it makes assumptions about the operation of the rest of the system within which exhibits function that may or may not be defensible. As I have indicated, that system includes our society, our profession, our organizations and the components of our organizations, such as exhibit experiences.

No Child Left Unstudied

Over the past few years a number of important conferences have been held and projects initiated that have helped to move the conversation about research in museums. The November 2004 “In Principle, In Practice” conference hosted by the Institute for Learning Innovation in Annapolis created quite a buzz of buzz in the field about future needs and directions for research. The “wish list” generated by participants was enormous. Hosted by The Exploratorium, the April 2003 conference, “Best Practices in Science Exhibit Development,” and the post-conference book, Art We’re Doing?, has helped to sort through the potential, certainly among exhibit designers at least. The new Web site, www.informalscience.org, managed by the Association for Science Education (see the flip side, continued on page 7), provides a start on a much-needed database on research and resources in informal science education. Reflecting on the outcomes of these three examples alone, one could easily be both impressed and overwhelmed with the prospect of what research could be conducted. In fact, the possibilities are literally endless, in content and in methodology. Knowing that we cannot “study every child,” how can the children’s museum field design a research agenda that is useful and manageable? My response is that the world is messy, so perhaps a reasonable objective should be to clean it up a bit over time, learn along the way what makes sense to concentrate on, and adapt as we move forward. The process, however, should be incremental.

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Thus, one of our project teams launched a small but intensive research project to test the title of one of our expansion exhibitions. Focusing on Brooklyn as an immediate doorway to world culture and cultural inquiry skills, the exhibition had as its working title “Things Brooklyn.” We were all pretty certain that that title wouldn’t set visitors’ imaginations on fire or adequately connote the soul of the exhibition experience, so, after much internal brainstorming and preliminary pairing, we tested the existing title and several potential new titles with real, live visitors.

Title testing generally involves two parallel approaches. In one approach, we describe the conceived exhibition activities and ask visitors what they would suggest as a title. In the other approach, we say or display a potential title and ask what they might expect to do and see in an exhibition with that title. The first approach usually doesn’t result in a title per se, but it can often lead to a list of words or phrases that visitors understand and are drawn to and suggest to the members in communications, development and other departments. Project teams can often arrive at a short-list of possible titles based on earlier informal testing, thus bypassing a formal exploratory approach.

One title candidate had become something of a diary title stuff. Planet Brooklyn. It was lyrical, suggestive, hip, cool, funny and very Brooklyn. Well, guess what? It flopped. Though adults liked the sound of it and liked the suggestive link to Planet Hollywood, they couldn’t glean from it anything akin to the essence or core message of the exhibition. (Their impressions actually seemed more aligned with our natural science inquiry projects, which, by the way, has a working title of LifeTrek and is about to undergo its own battery of title testing.) With kids, Planet Brooklyn fared even worse. In their case, it failed because it had for adults—to convey the exhibition’s intent and, moreover, it failed to create any suggestive or evocative impressions.

The final title that emerged from this research exercise is World Brooklyn. It took some of us a while to warm up to but which we trust and support nonetheless. It wasn’t and isn’t the title we initially thought it might or should. Truly listening to and responding to research can be quite humbling, but, in that very process, we demonstrate the open-minded inquiry-based learning we strive to support for our visitors. Practicing—and it does take practice—this open approach helps us to remember that the exhibition is never about us and is never an extension of us; it’s always about the visitor. The “me” at the center of the experience is the visitor.

Research: the Compass along the T rail

Sharon Klort, Brooklyn Children’s Museum

This prototype design for an activity called “Build-a-House” was lyrical, suggestive, hip, cool, funny and very Brooklyn. Well, guess what? It flopped. Though adults liked the sound of it and liked the suggestive link to Planet Hollywood, they couldn’t glean from it anything akin to the essence or core message of the exhibition. (Their impressions actually seemed more aligned with our natural science inquiry projects, which, by the way, has a working title of LifeTrek and is about to undergo its own battery of title testing.) With kids, Planet Brooklyn fared even worse. In their case, it failed because it had for adults—to convey the exhibition’s intent and, moreover, it failed to create any suggestive or evocative impressions.

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As part of our allegiance to research, we try to remain open to whatever visitors are doing and saying. We try not to make excuses for why something didn’t connect or communicate as we thought it might or should. Truly listening to and responding to research can be quite humbling, but, in that very process, we demonstrate the open-minded inquiry-based learning we strive to support for our visitors. Practicing—and it does take practice—this open approach helps us to remember that the exhibition is never about us and is never an extension of us; it’s always about the visitor. The “me” at the center of the experience is the visitor.

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Museums have long been consumers of educational and cultural institutions, but they also exist to teach. Museums do not solely exist to teach. Museums are cultural organizations that house research collections, represent cultural beliefs, and offer visitors a rich, social, leisure time experience. Where learning of museum-sponsored content may or may not occur. Therefore, we need a theory of learning that is able to account for the ways in which exhibit-based learning is taken up by visitors within the context of their own personal agendas and within the context of their own prior experiences. To fully appreciate the impact of an exhibition seriously misses the point and undervalues the more affective, cultural and social outcomes that come from visitors' experiences. The second assumption of school-based theories is that learning theories, knowledge is defined as the kind of cultural activity that is embedded in the brain as a result of experience, who is interacting with other people and who is living in a particular cultural and historical context. Somewhere between the poles of neurons and cultural history lie most of the field of cognition and education, and their questions about the ways that people learn, perform and solve problems in disciplines such as art, math, science, literacy, history, etc. There is no single unified theory of cognition that works for all levels of this hierarchy (Buer 1997). Instead, researchers and practitioners choose particular problems to address and "open" build and use theories and methods that are tuned to their problems (Rogoff 2003).

Museums are not schools. There are two basic assumptions that underlie the logic of visitor assessment. The first is that learning is not a measurement gap.
What Museums Have to Offer as Learning Laboratories

In fact, educational researchers are becoming increasingly interested in museums as research sites for this very reason. Museums are being noticed by researchers from a variety of disciplines as attractive and complex sites to conduct research.

First, museums are filled with people; people who are potential research subjects. This may sound like a superficial observation but in fact, the access to research subjects is a major draw for researchers. Psychologists and educational researchers working in a university laboratory setting must submit their studies to the same review board that reviews medical studies. Thus, families must be recruited and scheduled one by one to come to a lab for the experiment. In a museum setting, we can run a study of family learning in two weeks that would take six weeks or more, under similar setting. We can ask families to take 30 minutes out of their museum visit to work with us, and they don't have to make a special trip into the university setting.

Second, museums are learning environments with complex tasks. The museum provides a naturalistic setting in which to watch parents and children working together and exploring exhibits of mutual interest. Researchers are increasingly interested in moving beyond an experimental model to more naturalistic studies of learning and development. Whereas for years the standard developmental psychology study involved individual children performing isolated tasks in controlled laboratory settings, most current research focusing on children's learning recognizes the importance of context. Factors that used to be considered nuisance variables are now thought to be the most important influences on how children learn. For example, if cognitive development is a hallmark of the work has taught us to describe children's processes in relation to family activity, parent talk, and cultural context (Rogoff, et al 2003).

Third, museums are filled with families who develop new learning environments and can work in partnership with researchers to think through complex issues about learning and knowledge. On many levels researchers find museum work enjoyable and challenging because real learning environments where abstract theories about learning are enacted. We believe that the opportunity to talk through these issues with museum practitioners, to engage in self-reflective conversations about how daily practice and daily research intersect with higher order theories and ideas is a mutually beneficial practice that advances the mission and work of both parties.

Museums might begin to think through the ways in which they could become learning laboratories, from providing access to developing a long term partnership where researchers become part of the design process.

The Story of a Partnership

In our work with the Children's Museum of Pittsburgh, we have tapped into each of the three kinds of environments where researchers become part of the design process.

For the first few years, the partnership was small. Crowley and a few students would run a research study of their own, tapping into the availability of families to study. Occasionally they would help out with a small evaluation for the museum. When Crowley got a grant from the National Science Foundation (NSF) to study family science learning, he asked the museum to be one of the sites. Meanwhile, Werner had become director of the museum and was now leading a plan to take her new educational vision and place it at the heart of a major capital campaign and expansion. As the expansion and expansion both moved forward, it became more and more common for the two groups to recognize new opportunities. Werner's team set out to design a family-friendly museum while Crowley's research moved increasingly towards conceptualizing the role of family conversation in children's museum learning—using exhibit areas as a focus for studying museum learning. Collaborations became more frequent, more sustained and more productive.

In 2002, we saw that a new model for working was emerging and we decided to formalize the arrangement by building a department of research and evaluation at the museum. Crowley was made the director, and his students became the evaluation staff for the museum.

Eventually, the research agenda grew beyond the study of what visitors do, to include a bigger picture of what博物馆 staff were involved in—a major expansion and revision of the museum's mission and vision. In 2003, Karen Knutson began an ethnographic study to examine the changing organizational culture and institutional learning at the museum. Werner authorized and insisted that it be an open and honest research process. She followed the museum's working processes at all levels. Knutson documented board meetings and board retreats, all staff meetings, staff retreats, architects' visits, departmental meetings and most importantly, the weekly collaborative meetings. Not a part of the partnership, the study will include substantial evaluation of exhibit areas and the museum experience for visitors. Crowley and his team had now become UPCLOSE, and they worked with museum staff side by side in development meetings, discussing and then later studying mediation strategies. The documentation will be put together as a book and multimedia artifacts, with the hope that other museums may benefit from the process.

When the newly expanded museum opened in November, 2004. UPCLOSE had a satellite office and research space just off the museum floor. We now have three work-stations and open seating space that we can reconfigure to bring in exhibits and support field studies. Crowley, Knutson and UPCLOSE researchers sit in on exhibits and programming development meetings. Knutson has become director of research and evaluation, and Crowley, director of UPCLOSE, continuing the role as both a partner in museum work, most recently collaborating in the ongoing development of the NSF-funded traveling exhibition, How People Make Things.

Conclusion

In this, the first part of a two-part article, we have begun an argument that the time has come for museums to consider themselves seriously as learning laboratories. We have described the structure of a partnership between a university and a children's museum. As time has progressed we have found new ways to work together and new projects to explore. Our partnership is not about researchers looking into the museum process for about museum staff asking the research world for lessons learned. Rather, we have found ways to share expertise, explore mutually interested research and expose museum staff to the field and the museum. While we have common ground in the issues we discuss, we come from different perspectives. Researchers ask questions that museum staff may take for granted, while museum staff force the researchers to ground their abstract theorizing in the real world of practical implications. In the second article, we will describe examples of how we have worked together highlighting innovations in design and evaluation and contributions that inform the broader questions of how children's museums uniquely play an important part of the broader educational and cultural landscape of family life.

Karen Knutson, Ph.D. is Associate Director, Arts & Humanities UPCLOSE, and Director of Research and Evaluation at the Children's Museum of Pittsburgh. Her research is focused on visitor learning and organizational practices in museums. Her work examines how disciplinary beliefs and values impact and change the design of exhibitions, and how visitor use museums to support their learning. knutson@pitt.edu

Kevin Crowley Ph.D. is Director of UPCLOSE, and Associate Professor of Cognitive Science at the University of Pittsburgh. His research focuses on family learning in out of school environments, and he is particularly interested in the development of early scientific literacy, and the emergence of naïve theories of understanding the discipline of science. crowley@pitt.edu

References


The Association of Children's Museums proposes to explore a timely question at its upcoming conference, InterActivity 2005: The Power of Family Learning. The question posed in the conference program, “What is the nature of family learning and how can we promote it in our exhibits, programs, and community outreach?” flows naturally from a growing recognition that the dynamics of the whole family determine much of what children learn in informal environments.

In addition to headlining InterActivity 2005, the topic of family learning emerged as a key theme in the “Standards of Excellence” and describes how they inform the design of this exhibition and the search for strategies to address it poses a promising area of research. The redesign of a popular exhibit at Chicago Children's Museum will provide an opportunity to develop approaches for increasing collaboration between caregivers and children. Under Construction engages families in building cubicles, forts and other large-scale structures using an open-ended construction system. The basic system consists of pre-drilled wooden struts and plastic pegboard panels that can be fastened together with nuts and bolts, and has been in use for ten years at the museum. CCM plans to revise this construction system as part of a new exhibition entitled Skyline, opening in 2006.

The new exhibit overlooks the Chicago skyline and will help visitors to make connections between their building activity and the engineering that goes into creating a major skyscraper. This article outlines a few of the themes emerging from the “Standards of Excellence” and describes how they inform the design of this exhibition and the search for strategies that address family learning.

Family Learning

Influenced by the work of Soviet psychologist Lev Vygotsky (1962, 1978), developmental psychologists and educators have shifted their focus from the individual to the whole family. Vygotsky asserted that young children learn more when their museum encounters are mediated by a caregiver. Yet given this new emphasis, very little is known about how to increase the amount of collaborative caregiver-child interaction in informal learning settings such as museums. This gap between the importance of family learning in museums and the need for strategies to address it poses a promising area of research.

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tion can continue after opening day, as staff manipulate variables such as designated building spots that segregate families vs. open space where groups intermingle. As one example of designing for change, the exhibit furniture that holds building supplies will double as a series of movable walls that delineate spaces. The units will be designed to be moveable by one staff person with a pallet jack.

Design can accommodate and encourage intergenerational involvement—keeping families together and keeping both children and adults comfortable and engaged within the museum environment. Other variables to explore include the style and placement of seating: • If we integrate seating for parents, will that encourage little ones to stay close by? • Will seating that can be moved by visitors encourage adults to pull up a seat and help their child build instead of finding a seat and observing from afar?

Other types of intervention might include activities that elicit coaching—for example, a fixed station with wrenches that adults can use to show children proper tool use. Effective activities can result from identifying positive behaviors in a subset of families and then using design to make those behaviors more universal.

Signage is another variable, but one that the team will not rely on too heavily. Many attempts at writing labels for parents have come and gone; a more promising trend is the use of labels that are written to be read aloud, as in that exhibit designed by Brooklyn Children’s Museum. Designing flexibility into signage might mean using free-standing posts that can be moved around to determine the best locations for prompting conversation.

Institutional Capacity

A commitment to innovation in early learning requires the adaptable infrastructure to support it. Architecture and exhibit design need to accommodate change, and that same flexibility must be integrated into the staff organization. Skyline will enable staff to take ownership of the visitor experience, whether by enabling quick changes to the layout or by providing access to a computer to try new documentation strategies.

In addition to designing for change, institution-wide training is another strategy to consider. In an interview with Lynn Deering, associate director of the Institute for Learning Innovation, she expressed the importance of encouraging staff to talk directly to the parents, recognizing that staff may be more comfortable talking to the children. Interviews from “Standards of Excellence” stressed the importance of grounding CCM with the best early childhood research available. This in turn requires building and maintaining a network of relationships between the museum and the research community and developing the skills to convert that research into practice. Pending further funding, Skyline may serve as a model for a partnership that allows universities to use the museum as a forum for early childhood research, taking lessons learned and creating a larger impact than the optimization of a single exhibit.

Conclusion

Collaborative learning is at its best when each family member contributes to the joint effort of exploring a new concept or mastering a new skill. Recognizing the importance of this process for our visitors is not a great leap from acknowledging the collaborative learning that children’s museum professionals engage in routinely. The “Standards of Excellence” study just one example of the ways in which colleagues have joined forces to advance the field of early childhood learning. For Chicago Children’s Museum, the synthesis has resulted in a touchstone of sorts, a lens to look through as we embark on new endeavors, whether they are exhibits, programs, or the redesign of an entire facility.

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References


Any opinions, findings, conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.
The Children's Museum of Pittsburgh (CM) and the University of Pittsburgh Center for Learning in Out of School Environments (UPCLOSE) have created a unique and innovative partnership that may serve as a model for the field. Working with UPCLOSE and its director, Kevin Crowley, the museum tests programs, prototypes exhibits and documents its processes. The findings are used to inform developmentally appropriate exhibits, programs and opportunities for play both inside and outside the museum. In addition to the work that directly affects the visitor experience, Crowley and his team of graduate students conduct a majority of UPCLOSE's current museum learning research using the museum as its laboratory.

The Children's Museum opened a new $28 million museum on November 6, 2004. The 80,000-square-foot facility delights and inspires children. It is a place where they can touch, feel, taste, see, smell, hear, play in the mud, ink a silkscreen or catch words that fall from the sky. The guiding philosophy at the new CM is "Play with Real Stuff." With this philosophy in place, the museum has become a place where children learn, play and create.

The new museum also provides a place where those who work with and for children can study and learn from them. The museum involved five child-related partners in this ongoing learning process. Housed in the new space, these partners extend the museum's mission and scope of service to children and the families they serve. The five partners share resources and space from the museum, following a town square or incubator model approach. Partners include Reading is FUNDamental, Pittsburgh Harkness (a child advocacy group); Sandwich Light Brigade (a family public radio program) and an on-site Headstart/Preschool program created by the Pittsburgh Public Schools. The fifth partner is the University of Pittsburgh Center for Learning in Out of School Environments (UPCLOSE). The museum's partnership with UPCLOSE, the fifth partner, is unique since they have become integral in the museum's development of the new exhibits and programs.

The partnership strengthens both the museum and UPCLOSE by allowing each to share resources, to operate more efficiently and to create a collaborative relationship that builds upon the strengths of both institutions. UPCLOSE offers on-site skilled evaluators and researchers (whose work improves the museum's practices and outcomes) and the museum provides a site into which UPCLOSE researchers may come to further study family learning.

Over the last eight years, the museum has worked on several project-based collaborations with Kevin Crowley, but the museum's recent expansion project provided an excellent model of collaboration that could be sustained and cumulatively innovative. Much of the space from the museum, following a town square or incubator model approach. Partners include Reading is FUNDamental, Pittsburgh Harkness (a child advocacy group); Sandwich Light Brigade (a family public radio program) and an on-site Headstart/Preschool program created by the Pittsburgh Public Schools. The fifth partner is the University of Pittsburgh Center for Learning in Out of School Environments (UPCLOSE). The museum's partnership with UPCLOSE, the fifth partner, is unique since they have become integral in the museum's development of the new exhibits and programs.

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Over the last eight years, the museum has worked on several project-based collaborations with Kevin Crowley, but the museum's recent expansion project provided an excellent opportunity to institutionalize the partnership and develop a model of collaboration that could be sustained and cumulatively innovative. This was accomplished by creating an environment of research and evaluation at the museum, headed by Crowley and Karen Knutson. UPCLOSE has a permanent 1,000-square-foot space which serves as an office as well as an on-site laboratory. The back page is supported by a grant from MetLife Foundation. The team members' best guesses and generalizations about how visitors will react, UPCLOSE researchers find out the information directly and bring it back to the team. This allows for a more refined understanding of how visitors experience exhibits. Researchers ask the visitor experience to the table by conducting daily, front-end, formative and summative evaluations of exhibit areas, signs, components and programs. The research has focused particularly around issues of how families use the museum and how the museum's exhibits can support meaningful roles for parent participation in their children's learning.

Parent participation is central to the museum's approach. CM is constantly considering the role of parents and adults in learning and how exhibit experiences can be designed to meaningfully engage parents with things to do, think and talk about with their children during and after the museum visit. The museum does not advocate a one-size-fits-all approach and is explicitly working with UPCLOSE to avoid mediation that could unintentionally put parent and child learning goals into conflict.

A second component of UPCLOSE's work has been quick formative evaluations of Real Stuff/exhibition elements. These “blitz” studies are most often videotaped observations of families using prototype exhibits on the CM floor. Videotapes from several days of visitor usage are analyzed at the University of Pittsburgh by teams of students. UPCLOSE researchers present one-page summaries of the findings within two weeks to the CM's exhibit developers, who can then modify prototypes to optimize the kinds of visitor exploration the CM aims to support.

In working with UPCLOSE, CM has articulated an approach to signage, and more broadly, the use of multimedia (text, audio, images and people) in the museum. When developing ideas for mediation, the museum frames them as communication opportunities to enrich the museum experience. These communication opportunities fall into four types: advanced organizers (wayfinding, overviews, visual enunciators); information (object labels, usage instructions, safety prompts, etc.); interaction (facilitating conversations, responding to questions, etc.); and interaction scaffolds for parents (seedling conversations, suggesting novel manipulations, etc.). Each type of communication is assessed, tested and refined by UPCLOSE and the museum to determine the most effective form. The result is a comprehensive communication package that can grow and change in context with exhibits and environments. In the ongoing summative work with the current CM exhibits, UPCLOSE is beginning formative evaluation of exhibit ideas and prototype components for the museum's traveling exhibit, Ready, Set, Launch! This $2 million exhibit, funded by the National Science Foundation and the Grable Foundation, will use the factory videos from Mister Rogers' Neighborhood as a starting point and demonstrate, through hands-on exhibits and programs, the manufacturing process.

UPCLOSE is also starting to find answers to questions about visitor experiences in the new museum and related to exhibits. Questions like “how are people flowing through the building?”, “what do people think of the cafe menu?” and “how do members want to be involved in the life of the museum?” are being answered by talking to and watching visitors throughout the museum. Evaluation of the museum's new Web site will begin in 2005.

With the addition of the Headstart/Preschool program in September, UPCLOSE will be able to study the effects of daily exposure to the CM's exhibits and programs—an informal learning environment—on young children. It is hoped that this study will be useful in conversations about developmentally appropriate practices in early childhood education.

Unlike traditional outside evaluations that look at a finished product, UPCLOSE works on emergent questions and is involved in the exhibit development process. That process has led to the development of new strategies for the museum and new avenues of research beyond initial expectations. CM's partnership with UPCLOSE supports the development of quality museum experiences and offers research into that field as a whole about how people function in children's museums. To that end, staff from the museum and UPCLOSE present current research findings at professional museum conferences and on the Museum Geek section of the CM Web site. Additionally, a book documenting the CM/UPCLOSE findings will be published in 2006.

Collaborations are built on the trust and mutual benefit to the participants. In this collaboration the museum is an active participant in learning about learning. With the help of UPCLOSE, staff spend a lot of time reflecting on decisions and processes and how they connect to the visitor experience and the museum's mission. For UPCLOSE, having an onsite learning laboratory fosters new theoretical developments in the understanding of the children's learning and development.

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