Face to Face:
Examining Educational Staff's Impact on Visitors

Playful Attention:
The Role of the Explainer

Crowd Pullers:
Notes on Hiring and Managing the Ideal Explainer

Now Tell Me About It:
Science as a Social Activity

Without a Script:
The Art of Listening for Cues

Focus on the Front Line
The Role of Floor Staff in Science Museums
Dimensions

Bimonthly News Journal of the Association of Science-Technology Centers

IN THIS ISSUE

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Whatever we call them—explainers, guides, interpreters, facilitators, hosts—floor staff are the front line of our institutions, key mediators between the science center's intention and the visitor's experience. A sometimes undervalued resource, they may be full-time or part-time, paid or volunteer, trained in science or in communication. In this issue, we take a closer look at science center floor staff: who they are, what they do, how they are trained, what impact they have on visitors, and how they might affect future audiences.

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Cover: Around the world, science centers and museums depend on frontline staff to provide that "personal touch" that visitors appreciate. Photos courtesy of (clockwise from top left) Carnegie Science Center, Pittsburgh, Pennsylvania; the Exploratorium, San Francisco, California; the Arizona Science Center, Phoenix; and the Scientific Center of Kuwait, Salinia.

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Face to Face . . .

Examining Educational Staff’s Impact on Visitors

By Margie Marino and Judy Koke

The addition of a facilitator and hands-on activities enriches a Denver Museum of Nature & Science exhibition on South American wildlife. Photo courtesy DMNS

As shrinking budgets and rising program costs compel science centers and museums to assess every aspect of operations, one question that comes up is the value of educational floor staff. Visitor research has begun to explore the impact of paid and unpaid facilitators, and is starting to understand how these interactions contribute to visitor satisfaction and learning.

This article draws on studies completed at the Tech Museum of Innovation, San Jose, California (the Tech); the Minnesota Historical Center, Minneapolis (MHC); and the Denver Museum of Nature & Science, Denver, Colorado (DMNS). Each organization has experimented with, and studied the impact of, facilitators in different types of galleries.

Within these studies, common themes and issues emerge:

- Staff on the exhibit floor, both paid and volunteer, can help guests to orient themselves and feel less vulnerable when exploring an unfamiliar task or environment;
- Facilitators who mirror intended audiences can help visitors feel more comfortable and welcome;
- By using a variety of approaches, such as exhibit prototyping, demonstrations, hands-on activities, theater, and storytelling, floor staff can facilitate social learning and help keep museum galleries fresh and new.

Human interaction and visitor satisfaction

In January 2000, Randi Korn & Associates Inc. (R&KA) reported findings from an extensive summative evaluation of visitors’ overall experience at the Tech, which had then been in operation for two years. In that study, entitled Whole Museum Experiences, four issues—staff courtesy, exhibit maintenance, staff availability, and exhibit availability—were found (in that order) to have an especially strong association with visitors’ overall experience ratings.

R&KA found that although staff availability was low (almost one-third of visitors reported no interactions with staff), staff courtesy was rated highly. The evaluator advised management to increase educational staff so they would be even more available to visitors, and to train new facilitators so that overall quality standards would be maintained.

Staff at the Tech also had potential for influencing the exhibit-availability factor. The study showed that some visitors were spending so much time at certain exhibits that others did not have a chance to use them. The evaluator suggested that floor staff might encourage visitors to be courteous to others by limiting their time at these exhibits to three minutes.

Research also demonstrates increased visitor satisfaction with galleries when helpful, well-trained staff are present. In 1998, DMNS observed visitor behavior—with and without floor staff—within the permanent gallery Botswana. In Night on the Kalahari, a dimly lit
section where visitors can explore the nocturnal activities of African wildlife, the average length of stay in the area without floor staff was 56 seconds (range 13 seconds to 2 minutes, 42 seconds). When live programming and hands-on activities were added, visitor time investment increased to 4 minutes 59 seconds (range 1 to 18 minutes). Satisfaction with the gallery also improved significantly, and visitors chose adjectives like “fun,” “interesting,” “exciting,” and “informative” to describe what had previously been an underutilized treasure.

For some visitors, staff interaction is essential. The Tech found that more women than men “like staff to be available to help” in the galleries. The report references two previous studies by RK&A (a 1995 front-end study of MarsQuest and a 1998 audience study at the Hillwood Museum), indicating that females feel less confident and less comfortable with technology than males and suggesting that this could be one reason why females are more appreciative of explainers than males are.

DMNS studies also suggest that live interpretation can support a wider range of visitors and encourage social learning behaviors. In a 1999 evaluation of the Bone Zone, a facilitated discovery center that was part of the Colossal Fossil exhibition, one visitor stated that “most of the museum is geared for older children and adults while this [activity] engages my [youngest] child.” Another visitor commented that “this [activity] encourages families to interact—everyone participates.”

Of course, live facilitators do not work equally well for all visitors. The 2000 Tech report indicates that men are less likely to use on-floor staff or attribute their satisfaction to such interaction. In Denver, a study of one of the first attempts at staffed, constructivist exhibits (Experiment Gallery, 1997) suggested that all-adult groups are generally less likely to interact with facilitators or attribute their enjoyment to such interaction. And a DMNS study of the 1999 traveling exhibit Africa: One Continent, Many Worlds revealed that adult males and teenagers of both genders were significantly less likely to initiate interaction with an explainer than adult females or children.

The presence of floor staff was not shown to be more important than other delivery systems. At MHC, visitor appreciation of interpretive programming, documented in a 1996 study by Jane Marie Litwak and Andrea Cutting and a 2001 summary report by Cutting, was rated the same as looking at objects, reading text, and watching videos. And in some cases, interpretation may actually be detrimental to the visitor experience. At DMNS, a 1994 study of the blockbuster exhibition AZTEC: The

World of Montezuma documented that overeager explainers sometimes interfered with visitors’ desire to engage individually with an exhibit.

**Human interaction and educational effectiveness**

Matching a program to specific individuals may be the best reason of all for increasing the presence of educational staff. In science centers, perhaps more than in other types of museums, facilitators are trained to guide visitors and to promote constructivist, self-directed learning. Good facilitators in any informal learning environment customize their approach to the unique needs of the individual, detecting in a visitor’s attitude, voice, and body language (as well as gender, age, culture, and abilities), the level of interaction that visitor may need.

Some researchers have posited that learning increases when visitors spend more time in an exhibition (see chapter 3 of Beverly Serrell’s Paying Attention: Visitors and Museum Exhibitions, AAM, 1998). It seems likely, therefore, that the quality of a visitor’s experience will improve when trained staff are present, engaging visitors in a variety of ways.

At DMNS, a January 2001 evaluation of the traveling exhibition Treasures of the Nun-chah-nulth Chiefs revealed that having Native Americans serve as hosts increased both the amount of time visitors spent in the exhibition (average 25 minutes, 41 seconds) and the number of stops (average 24.9) made at individual exhibit components. Visitors who had one contact with a host averaged 30 minutes, 58 seconds, with 31.1 stops, and visitors who had two or more contacts increased their participation to 58 minutes, 29 seconds, and 45.3 stops.

Additionally, in a 1999 study of the DMNS planetarium show Incom-
ing: Comets, Asteroids and Meteors, visitors who heard a live speaker were better able to recall key science facts than those who heard identical narration on film. When asked to articulate three or more of the "five steps to tracking a meteor," only 19 percent of visitors in the recorded show, as compared to 52 percent in the live narrated shows, could do so.

One visitor attributed this to the fact that the hosted presentation felt "special," commenting that it was "not just a canned show shown again at this time, but a special performance for me and my family." At MHC, visitors confirmed that a personal presence in museum exhibits greatly enhanced their level of engagement; 63 percent felt they had gained more from their visit because they were able to ask questions and get answers.

**Implications and challenges**

The findings reported here may be useful to museum managers as they contemplate the cost-benefit ratio of live interpretation, and consider whether staff time should be assigned to particular topics and programs.

Further research into the role that women play in deciding how families spend their leisure time might be useful. In the Tech study, RK&KA suggests that female visitors "may assume that a staff member would be able to foster enriching experiences for their children." The use of trained explainers could help women and other less-frequent visitors gain entrance to what may be, to them, unfamiliar territory.

For some audiences and in some situations, live interpreters can provide significant benefits to institutions struggling to stay vital in challenging times. Science center leaders deciding how best to serve their audiences and institutions must consider the balance between these advantages and their significant costs. Even volunteer floor staff don’t come free; they, too, need ongoing professional development.

Is it worth it? In many cases, the investment in interpretive staff would appear to have a strongly positive impact on customer satisfaction. Marjie Marino, formerly manager of evaluation and exhibit development at the Denver Museum of Nature & Science, is now manager of ASTC’s Exhibition Services. Judy Koke is manager of visitor studies and program evaluation at DMNS and serves on the executive board of the Visitor Studies Association.

Research at the Tech Museum of Innovation revealed that more women than men "like staff to be available to help in the galleries." Photo courtesy the Tech

**More Than a Coat**

At Science North, in Sudbury, Ontario, Canada, staff are "Bluecoats," named for the labcoat uniform worn by many paid staff (dark blue) and volunteers (light blue).

The term refers not only to a coat, of course, but also to the special qualities each person possesses as a representative of the science center. In that sense, there is no distinction between paid staff and volunteers. But giving volunteers a different colored coat helps to remind visitors of the museum’s active and vibrant community participation, and remind employees of the difference that volunteers make in the institution.

Volunteers fill many frontline roles at Science North. Adult volunteer Linda Bissett, for example, helps introduce school groups and visitors to our collection of live animals. Her commitment to her charges is passionate: Linda once took an infant beaver home with her to give him the round-the-clock care he needed.

Youth volunteer Stephen Worton assists with flying squirrel demonstrations and helps care for the museum’s hawk. Like other Junior Scientists, aged 13 to 15, he participates in delivering workshops and special events and engages visitors with exhibits and experiences in the science center.

All volunteers are encouraged to bring personality and passion to their work. In developing opportunities for them, Science North seeks to add value for the visitor while integrating community members into the organization.

Applicants are screened and interviewed to ensure the best possible match for each volunteer role. Like all Bluecoats, volunteers receive training and coaching, and have opportunities to practice and improve their skills while contributing in a team environment.—Patricia Bizzi, Volunteer Coordinator, Science North, Sudbury, Ontario, Canada
Playful Attention:
The Role of the Explainer

By Darlene Librero

You sit on the sidelines, watching as visitors move through your space in groups of twos and threes. Trickles of conversation, public but intimate, reach your ears. Exhibits clack, quake, heat up, and twist—the special character of each vying for visitor attention.

One young woman, mesmerized, engages with an exhibit on the other side of the room. You observe for a while before deciding to join in. Smiles come before words, and when words do come, they describe what each of you is feeling or what you think you’ve experienced.

Others, hearing the conversation, offer their observations. For a few minutes, the banter is contagious, and then it’s over. You walk away, each of you with something you didn’t have before.

At the Exploratorium, the Explainers never leave the floor. They stroll, wait near exhibits, wait at exhibits, appear aloof perhaps, or engage in conversation with each other. But all the time, they watch.

They notice out of the corner of their eye the boy at the Bernoulli Blower who never seems to get enough of chasing the floating ball. They see the girl building the Vousoir Arch Bridge with blocks almost as big as she is. In the moment, Explainers must choose whether to be part of a visitor’s experience or not. The decision is theirs to make.

To be keen, alert but at ease, is the disposition of the Explainer. The job requires a balance of discreet observation and creative engagement. As a team or one-on-one, Explainers communicate an atmosphere of play. They suggest exhibit challenges that assist visitors in their inquiry. They reinforce a safe environment in which visitors can experiment, try new things, comment on their observations, or ask questions. They embody what they encourage others to practice—playfulness, curiosity, thoughtfulness, reflection.

New Explainers are offered a cycle of training, then space to grow from their floor experiences, then more training. In each interface with the public, there are questions to be asked: Do I construct ideas and concepts, or do I leave construction to the visitor? How much do I lead this interaction? Every experience evolves toward a different answer.

Off the floor, there are regular Explainer meetings, ongoing training in content and facilitation, and opportunities to participate in developing demonstrations and planning public programs. Explainers get to discuss various aspects of their experiences on the floor and explore how they as a team can add to the museum’s vitality.

Over time, new skills are developed through this pattern of learning and facilitation experiences. Most Explainers become quite good at interacting with visitors. Everyone learns that it’s not about having all the answers; it’s about being thoughtful and discussing ideas, perceptions, and possible conclusions. By modeling learning styles, floor staff help visitors build confidence in their own learning.
A shared vision

The job is demanding, and an individual's commitment to interact can run aground for many reasons:
- The high level of museum floor stimulation can be distracting.
- Processing exhibits with visitors on the floor takes a lot of energy; continually using one's working memory is literally exhausting.
- Inadequate breaks from walking the floor may make Explainers tired.
- Being out of contact with visitors for more than 15 minutes at a time may leave Explainers concentrated on their own internal consciousness, rather than on visitors' activity.
- Attendance is cyclical (by season, time, day); if lower than average, it may lead to a drop in excitement.

These challenges can all be remedied with a careful management style that includes allowing floor staff to relish the exhibits themselves and to develop other floor-related projects.

Support for Explainers needs to come not just from their immediate supervisors but from the museum as a whole. There must be a concerted effort to foster exchange between floor staff and other departments. Mutual trust grows as people get to know each other better.

Having an opportunity to participate in critical operational and program-planning discussions connects floor staff to the museum’s creative process and, in turn, allows for a more dynamic exchange between Explainers and visitors.

Darlene Libreno directs the Explainer Program, part of the Center for Teaching and Learning, at the Exploratorium, San Francisco. For more information, see Ellen Klages’ 1995 book, When the Right Answer Is a Question: Student Explainers at the Exploratorium.

IN THEIR OWN WORDS

Recently, I met with a group of the Exploratorium's Explainers to discuss their experiences and observations. Here are some of their responses.—D.L.

On approaching visitors or being approached

When at an exhibit I try to look available, and not busy. You can do that by having open body language and leaving space for the visitor—with an inviting expression, such as a smile. Another way to invite visitors is, when you're looking around, you make eye contact with them. Then they will start to approach you.

—Janet Lam and Sopheap Meas

The main reason I approach people at the Air Rings exhibit is because there is no graphic on it. Another reason is if they look clearly confused. Most people think it's mercury, but it's just air and water.

—Andrew Mirnoff

Sometimes, from training or classes in school, I'll learn interesting facts or concepts related to an exhibit. The graphics can't cover everything, so I'll often approach a visitor who is looking at something—say, Sophisticated Shadows or Touch the Spring—and offer up an interesting tidbit.

—Joanna Tong

Sometimes I see visitors at an exhibit and they haven't quite figured it out yet, but they are reading the sign.... When this happens, I stand nearby, in case they have a question.

—Zoe Clark

Facilitation vs. telling

I choose to take visitors through a process when I explain because I feel they learn more. They figure out the idea of the exhibit with a little push from me. If I tell them straight up, I feel it won’t stick to their mind. It’s more fun to work through something from me and the visitor.

—Stephen Tong

Playing with exhibits attracts visitors' attention. They are interested to see the exhibits at work and what function they perform. The real shocker is when they find out you're in high school. This... encourages other people to play with and learn more about the exhibits in the Exploratorium.

—James Fisher

On staff support

There are usually people in the shops, and they're really helpful if I have questions about exhibits or maintenance problems. In the mornings, either before the museum opens or shortly thereafter, I see shop staff walking around, and they'll often take the time to stop and talk with me.

—Joanna Tong
Crowd Pullers:  
Notes on Hiring and Managing the Ideal Explainer

By Anthony Richards

Since 1986, an intrepid band of museum floor staff, known collectively as the Launch Pad Explainers, has thrown a daily party for the public in the galleries of London’s Science Museum. Over time, program managers have experimented with the hiring and training process to arrive at the ideal party host—an entertaining and interesting science buff who is easy to manage.

We have come a long way from the days when staff would sit idly on radiators or fall asleep on the gallery floor. Today, we select and interview candidates effectively, train them well, and enjoy dramatically reduced turnover. The following represents a purely subjective distillation of some hard-won wisdom, based on the hundreds of Explainers who have passed through our unit.

Lessons learned

In the early days of the Launch Pad, the search was on for a target group that would fit the bill of “ideal Explainer.” There were several logical places to look:

1. Teachers and teacher trainees. Classroom teachers and prospective teachers, we thought, would have the right background, experience, and patience. They would be ideal. Wrong!

   Teachers generally have jobs and can work only part-time. When they are at the museum, they are apt to be tired, drained, frustrated, and worried about their classrooms. Absenteeism is likely. A rare few are so firmly didactic that visitors decide they might as well be back at school.

   Teacher trainees in the market for jobs tend to have little commitment. Others may be with you because they’ve decided they aren’t cut out for teaching after all—a problem when they’re faced with a gallery full of kids.

2. Actors. Another brain wave was to use professional actors. They would have the communication skills. They would be charming, as well as excellent demonstrators. Wrong again . . .

   Actors, we discovered, are notoriously unreliable. They take time off to go to auditions and, if successful, leave at a moment’s notice. They are unlikely to care about education, let alone science education. They have a tendency to tell stories, not necessarily truthful ones. And without a role and script to shield them, actors may be painfully shy and uninteresting.

3. Enthusiasts. The next obvious candidates were science enthusiasts—the experts, science junkies, train spotters, buffs, or whatever you call them.

   Enthusiasts would have the knowledge we were seeking, and they would be eager to tell others about it. They really would be ideal.

   After a few disasters, we had to admit that enthusiasts were a disappointment. Obsessed with jargon, they were generally poor communicators. They were almost exclusively male. They had no real understanding of
children. And they often annoyed the public: Know-alls are rarely appreciated in sensitive situations on gallery.

4. Recent graduates. The fourth group we tried were students just out of university. Graduates wouldn’t have to be science-based, we thought. They could just be fresh, enthusiastic, intelligent, and keen to learn and impress. In fact, they would be ideal.

There were several factors we hadn’t considered. New to the working world, some graduates found adjusting to their first real job a problem. Museum salaries are low—this was bad for the morale of those who expected more. Some felt the job was not stimulating enough. And with so many student types about, the work culture sometimes resembled a common room.

**Recognizing a superstar**

Despite the failings of these generic types, there is little doubt that good Explainers do come from all of these groups, and more. So what distinguishes the superstar from the run-of-the-mill candidate? What can we check for in backgrounds, and how can we spot potential when it appears?

From years of experience, we’ve developed a list of characteristics common to successful Explainers. Although no one applicant exhibits all of the following, we look for people who are:

* Earnest and hard-working
* Pure professionals, with a busy life outside the museum
* Humble
* Focused and self-motivated
* Infectiously charming
* Boundlessly energetic
* Believers in the value of interactive science
* “Kiddie magnets”—full of tricks, faces, noises, and jokes
* Willing to take a pay cut to work at the museum
* Aware that the job is a stepping stone, but committed to give 100 percent while they’re here
* Returning to school after raising children
* Developing themselves later in life
* Practical and knowledgeable about how things work
* Trained in drama and education, especially with children who have disabilities
* Lovable eccentrics
* Show-offs and crowd pullers
* Kind, generous, and caring
* Well-liked.

**Managing for success**

These days, we recruit our Explainers carefully, and we know the type of skills we want. The interview includes role plays, a presentation from a box of toys, humor, and carefully crafted questions on education. We also try to balance the team in terms of background, age, and race.

Of the 60 Explainers on staff, about one-third work full-time (42 hours a week and one weekend in three); the rest work part-time, in mainly four-hour shifts. We have no volunteers.

Management includes five team leaders and four assistant team leaders.

Over time, improvements in training have revolutionized the unit. All experienced Explainers help with the training process, and we have a full-time manager who trains year-round. Every new hire goes through a one-week induction course that covers orientation, history of hands-on, educational theory, role playing, shows, emergencies, treasure hunts, customer service, first impressions, interacting, and more.

Managers meet once a week with Explainers. Part-timers are offered exactly the same training opportunities as full-timers, and we have learned to manage this vital group well. We schedule three one-day sessions a year just for them, to help them catch up and get trained on specific areas.

Ongoing communications training helps Explainers develop skills appropriate to different ages, subjects, and visitor abilities. Staff who work in early learner spaces, for example, receive training in educational theory, psychology, Montessori puppetry, and storytelling. We use a variety of teaching methods: classroom, internships, video, coaching, and bringing in external experts like actors or puppeteers. For each new Science Show, we hold a three-day training, and all staff learn to work all galleries.

Motivation comes from the culture of the unit itself. When you have 60 dynamic people who generate enthusiasm, love challenges, and are prepared to give and give again, you are well on your way to excellence. Added incentives include appraisals and feedback, public thanks, varied work (no more than one hour in one gallery), opportunities to write shows or do special projects, visits to other museums, career advice, and exit interviews. For those seeking advancement, Launch Pad lives up to its name; since the program started, internal promotion has accounted for 60 staff departures.

In the last eight years, the face of the Science Museum has been changing. There are new galleries for contemporary science and more emphasis on visitors, especially families.

Launch Pad has changed, too. Explainers are staying longer, learning more, and giving more. They now run the museum’s outreach department and have started performing in comedy clubs and running street theater—all as part of their museum work. Explainers even train other organizations in recruitment and management. Taking on new roles has broadened their skills and helped to enrich the job enormously. For a manager, there could be no better reward.

Anthony Richards manages the Front of House Teams at the Science Museum, London.
Without a Script:
The Art of Listening for Cues

By Margaret Zajonc Ostrenko

Science centers, with their on-floor interactions between visitors and museum staff, offer a unique forum for researchers to study dialogue—particularly as it relates to family interactions and how people talk about things they know, or want to know.

Families balance competing social agendas. They make choices, choosing a world to attend to, to investigate. In assessing those choices in a safe environment, they explore facets of themselves. My current work focuses on collaborative communicative patterns and visitors' ways of knowing, as demonstrated in a study of conversations between visiting families and guides staffing the benthic (deep sea) exhibit at Mote Marine Laboratory and Aquarium, Sarasota, Florida.

At Mote Marine, visitors have a chance to compare what it is possible to know in the marine environment, what remains elusive, and what is important. The explainer's interest in promoting dialogue creates a level of vulnerability in his or her authority and raises visitors' expectations for response. To demonstrate the potential for dialogue to sustain inquiry in this situation, I offer an exchange in which Burt, an aquarium guide, approaches a family of adults—man, woman, and daughter—who are examining a group of marine life artifacts.

The display includes a tiny shell of a fully formed lightning whelk preserved inside a one-inch-square acrylic cube. Next to it is a juvenile form floating inside a plastic mold, with a foot-long adult specimen displayed alongside. As the woman stoops to look more closely at a whelk egg casing, Burt takes the opportunity to jump in:

BURT: Have you seen the outside? [He waves a hand toward the touch tank, where visitors can observe lightning whelks and conchs.]

WOMAN: Unh-huh. [She nods.]

BURT: OK, each disk has a miniature whelk inside—[the spots the acrylic cube that holds the juvenile whelk specimen] there you go, I was looking for that earlier—and they literally develop while they are in the water.

WOMAN: I know. I have found this, but I didn't keep it.

BURT: Oh, OK.

WOMAN: I found a whelk.

BURT: But that's what it looks like when it grows up. [He gestures toward adult lightning whelk specimen.]

WOMAN: When it grows up? That big?

BURT: Could be.

WOMAN: That tiny little...? 

BURT: That tiny little miniature size...

DAUGHTER: Do they lay the eggs in this organism there? [She points to the egg sack.]

BURT: Yes, in there. Now, did you know the difference between a whelk and a conch?

DAUGHTER: We should know.

WOMAN: The opening is on one side or another.

BURT: Very good, very good. It's fascinating.

WOMAN: But I did not know the difference when I came in here today.

BURT: No, most people don't. I didn't know.

DAUGHTER: I didn't know.

BURT: Yeah. Conch makes good chowder.

WOMAN: We were in the Bahamas one time, and there was a man sitting along the dock, and he was cutting out the meat of the conch, and I bought his empty shell.

BURT: We had conch chowder there.

WOMAN: I made chowder. The only thing is that conch never really gets soft.

BURT: That's what I like about it. It's chewy like lobster, as opposed to a regular fish. I love the chewiness. That is part of the—

DAUGHTER: We gotta keep going, or—

MAN: We gotta keep moving.

BURT: Well, enjoy, folks.

WOMAN: Thanks.

On initially taping this interaction, I was uneasy because the group traveled a circuitous route and didn't seem to get to any kind of conclusion. But after listening to the episode several times, I realized that Burt and the two women were using conversation as a link in understanding "from the point of view of the other." The woman gleefully attest to her learning; Burt is jovial and offers the visitor an opening to tell her story. A meandering conversation becomes a joint inquiry about gathering resources for consumption. The story lines that arise satisfy several mutual interests, and some diverging ones as well. The participants construct a scaffold that opens out in different directions.

In many of the interactions I record, family activities and intimacies are measured and allotted, based on judgments of what is worthwhile. (Here, you will have noted how the daughter and man bring the interaction to a close.) Few visitors get past the observation or naming games, asking for species to be identified. Yet the woman in this episode asserts herself, assuming that her experience is relevant, and Burt collaborates in the fun.

The resulting improvisations have a lot in common with the playful encounters in which people affiliate with nature. Science centers retrieve such experiences and lay them out for others' use, for creative activity. In doing so, the museums invite others to participate in the oblique mystery of life.

Margaret Zajonc Ostrenko is assistant professor of communications at the University of South Florida, St. Petersburg. For more on the study of communication as interaction in the medium of conversation, see K.N. Cissna and R. Anderson, Moments of Meeting: Buber, Rogers, and the Potential for Public Dialogue (Albany, N.Y.: State University of New York Press, 2002).