

Schools and Museums, Community Partners

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I'm here to talk about the school as an important sector of the community that urban museums need to think about. I will argue that working with teachers provides a significant leverage point for reaching a large number of community members, and directly affecting how the subject matter and collections of a museum are understood and experienced by its community.

Obviously, many, many museums think about and work with schools. But what I want to do is to propose that maybe we don't do this as well as we should, and that part of the reason is that we think of schools as "the other." When we do that, we tend to think about working with them in ways that don't make the best use of who we are, because we start to think in terms that are relevant within the school world, but not maybe within the museum world.

SLIDE 1

I will talk about science learning and the community since that's mostly what my work focuses on. Despite the divide illustrated in this slide, we all know that the learner (that person who is experiencing the world, including the discipline of science), interacts with and learns about science within a broader context that starts within themselves, connects to their family and community, is influenced by school, media, other formalized interventions (such as museum visits, lectures, internet encounters), and through observations about the world and conversations with people in a variety of settings about the world or science.

There are actually relatively few formalized experiences with science in a person's life. School gives you—if you are lucky—maybe 10 years of 90 minutes a week, which comes to about 500 hours of instruction by my calculations. As you may know, most kids at the elementary level don't even get 45 minutes a week. Even if you double that, it's still only 1000 hours of formalized instruction, except for those who continue to study science at post-secondary levels. And yet, these experiences can—as we all know—turn people on or off of an entire body of thinking and knowledge. All you need is a couple of bad years of math or science, and you need a miracle to shift your thinking. Stilted or

bad art instruction can do the same thing. I'm bad at science. I'm bad at art. These self assessments come from school.

SLIDE 2

Barbara Rogoff, who is a developmental psychologist at UC Santa Cruz, and a faculty member of the Center for Informal Learning and Schools points out that schools, like museums and libraries, are cultural institutions within a given society. This comes from an anthropological definition of formal and informal cultural organization. For me, it was very instructive to think about schools as partner cultural organizations with a common goal of providing the community with experiences with material and ideas that they might not encounter if these institutions didn't exist. I spent 5 years researching two different large scale projects in New York that were about partnering schools and cultural organizations, by which they meant museums, ballet companies, theater companies, etc. We never successfully shifted the conversation to consider all of the institutions as cultural organizations, and to then think about their different cultural practices and how they might, by definition rather than by blind stupidity or stubbornness, differ and either complement or counteract one another. To my mind this was a major flaw in the design of the programs and the research.

So let's talk a bit about some of the differences between these two cultural organizations. Well the big one is that school is obligatory, and we haven't succeeded in making museums obligatory yet. Also school is supposed to be a carefully structured and sequenced experience whereby knowledge is built carefully upon previously acquired knowledge. In fact, school doesn't function like this all of the time, and in the worst cases, not even much of the time. And of course, as we know, we do this at our museums as well. We group our collections by ideas and we create adjacencies to reinforce meaning. Time is a big difference: kids spend about 1,000 hours a year within school walls, whereas most probably visit museums four hours a year if they are lucky.

Schools also deal specifically with people at younger ages. And schools are highly politicized environments, where the politics can reach out and strangle the individual learners within the cultural organization. Politics in the museum world generally speaking only strangle the staff, although of course we have the Enola Gays, and the Fred Wilson Baltimore project to point out how politics also affects the experience. But maybe politics in a museum is a boa constrictor and in schools it's a cast iron skillet.

Now I will tell you that I believe that schools need museums. To put somebody in a building for six hours a day and proceed to tell them how the world works only goes so far. Schools absolutely need to connect what they are talking about with real images and objects and experiences, and they do this through film, books, museum visits, nature walks, field trips to the capitol, and scientific or artistic investigations, etc.

Let's look at the world of schools, this part of the community which is charged with a great deal. In urban areas, schools are not well-off. Typically upwards of 70% of students are on assisted lunch programs. The least experienced teachers are placed in the worst performing urban schools. Teacher turnover rates can exceed 60% in a year. At elementary levels, it is probable that the teachers have no experience with science or art, and perhaps not much with math. At upper levels, teachers are frequently placed out-of-field. That is about 30% of teachers teaching science have no background at all in science. Perhaps they studied French in college or they were the gym teacher.

Just as the teachers often have no experience with the domain of knowledge, so too many of the kids are not outside the school exposed to the domain or discipline. They many not know a scientist or a mathematician or an artist. Or even if they do, they may not be given insight into the discipline, whatever economic background they come from.

The teachers are given few resources to teach with. Sometimes they cannot get books. Some of the books they are given are impoverished. There is something that a researcher called Huberman calls the pedagogy of poverty, and it has to do with the attitudes that seep into impoverished school communities that start to strip away the surround of a learning experience until it is nothing more than barking orders and memorization. That is my particularly vivid depiction of it, not Huberman's, but the point is that urban schools—not all of them, but as a genre, face many challenges and have few resources to create compelling experiences for their kids.

Lots of educational research done over the past 5-8 years has looked at the central role that teachers play in the induction of kids into learning and understanding a discipline. A recent publication by the National Commission on Teaching and America's Future claims that there is common agreement now that teachers are the most critical ingredient of successful school learning.

SLIDE 3

Teachers need nourishment. They need respect, they need energizing, they need community. They need all of the things that you and I need, but they need more, because whatever they get they pour out the next minute to their kids—so they need constant replenishment. They also need to be kept current with thinking, ideas, findings, etc, so that they can inform their instruction and their students, and so that they can think about the stuff that they are teaching not as a fixed and stale body of knowledge that needs to be handed over to the kids, but as a constantly evolving and engaging domain of knowledge and learning that needs to be paid attention to because it's interesting and it's in flux.

So I maintain that museums, which have very specific ways of thinking about subject matter that is different from how schools, with their Carnegie units and 12 different grade levels, think about material, can help to develop a more holistic and humanistic, contextualized rapport with subject matter than can permeate a teacher's understanding and belief and pedagogy.

A museum program that works deeply with just 30 teachers a year—offers sustained professional development programs that can induct teachers into new ways of thinking about subject matter—can influence thousands of kids. These kids are taught in school that science is an intriguing, engaging, joyful experience. These kids can come to learn processes of scientific inquiry, and can become ultimately more literate consumers of science knowledge or conundrums as communicated through the media. But how does one work with teachers in ways that can shift thinking about the discipline? Definitely NOT by adopting traditional school approaches to the content. That can be done better by traditional schools like universities and district offices.

At the Exploratorium, our exhibit collections provide visitors with personal interactions with phenomena, where they can manipulate the phenomena, observe the phenomena, and become intrigued by the phenomena. The idea behind the Exploratorium is that experiences with scientific phenomena, such as these, break down some of the barriers people have when they think about the relationship of themselves to the domain of science or to the mysterious universe. Ideally the visitor leaves having engaged in science, having learned some new things, experienced some new things, and more ready to engage in and with science than they were before. And they will encounter science in the parking lot and in their yard and in their kitchen and on TV. They encounter it differently now.

Our work with teachers, then, is to provide professional development programs that give them personal experiences with science, that intrigue and excite them, that lead them to

engage both with the ideas and phenomena, and then with thinking about their classroom practice and how to support the same kinds of the engagement for kids. As we do this, we shore up science subject matter knowledge, which all practitioners need to do constantly.

So, I would argue that what we are doing is bringing together the cultures of two cultural organizations, and saying this is what WE do in the museum—we think about the science, we think about engaging people in thinking about science, we do it in ways that are playful, because that is who we are. And we say this kind of approach can help inform the very different practices of what our fellow K-12 educators do in their classrooms. And that a broader approach provides teachers with tools and resources that can make their teaching more rewarding for them and their students.

What we are NOT doing is saying: Since teachers use tests and quizzes and worksheets in schools, and since we want to work with and support teachers, what kind of worksheet can we develop to make this teacher use our collections. We are NOT looking at the school community as an alien species that has strange and uncomfortable practices that we must master in order to work together. We are trying to look within the cultural practices of a museum and learning in a museum and thinking about what do we do or know that supports what teachers do and know. And of course, teachers bring their students to us as museum visitors, and at that level we usually do what we always do with visitors. And sometimes we might provide school-like tools for field trips to use, but I will argue that those tools are often almost meaningless in terms of what they do for the learner. They are out of context in a museum, they are busy work, and when you think back on your museum experiences as a kid, you probably won't remember the worksheet. You will probably remember the huge domed ceiling that soared above the statue of somebody, or descending to the Gates of Hell in the basement of the Met, or the cool jungle of the room with the African elephants. It's the place and the stuff and something somebody said to you.

My project, the Center for Informal Learning and Schools, which is a partnership between the Exploratorium, UC Santa Cruz and King's College London, is a research and graduate school program that is seeking to identify the key attributes of learning in informal settings, including museums, and what makes those powerful, and when. We actually don't know a lot about this, which is why this project got funded by the National Science Foundation as part of a \$100 million investment in the national infrastructure of science learning. At least there is not a lot of published research out there. I think there is a lot of practical knowledge and experience. There is also a CILS practitioner program

where we will attempt to use the knowledge being generated by the research to help the museum educator field think about how to design programs that build on the strength and power of informal settings to support the needs of schools. And we want to use the practitioner program to inform the research questions that are asked. We're just 18 months into it.

So how does this connect with Urban Network? When we were first contacted by the group, they were interested in our traditional outreach programs, which are excellent, exciting programs that engage youth of diverse economic and social backgrounds in innovative science teaching and learning. The Explainer program has served as a model for many similar programs that have started up in different places, and developed along their own paths.

But, institutionally, we have always been committed to the teacher as a community agent, as an agent of change, and as a person who is every day working to introduce new ideas and concepts to young people who grow up and live in this community. We have always seen the teacher as perhaps *the* critical community member to support and nurture. And many of us continue to believe that we can have the biggest impact by supporting our fellow educators, whether K-12 or museum colleagues, in our shared endeavor of understanding and enjoying science and science in society. So I am here to proselytize for working with schools as being a cornerstone to community engagement. And others in the Network, including the Field Museum and the Houston Museum also talk about their work with schools and teachers as a cornerstone to community engagement. We need to remember that the community is more than a set of people, but also a set of beliefs and attitudes, and that museums have real understanding that can help shape these attitudes at a very deep level, if we think outside the box of our walls and structures, this informal/formal divide, and think more holistically about our epistemological beliefs and positions vis a vis our subject matter.