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PUR Meeting Held in St. Paul

In September, the Science Museum of Minnesota hosted an international working conference, *Museums Media and the Public Understanding of Research* (PUR). With support from the National Science Foundation (NSF), the four-day conference brought together science museum professionals, television and radio producers, science journalists, web developers, and research scientists from the U.S. and Europe to discuss critical issues, current practices, and future directions for furthering public understanding of research in science and technology. This conference was a follow up to last year's workshop at Boston's Museum of Science and to "Here and Now: Contemporary Science in Museums and Science Centres," held in London in 1996.

The Minnesota planning team, headed by Vice President for Education Dave Chittenden, organized the meeting to help advance the PUR field by identifying practical new strategies and approaches for increasing the effectiveness of projects. To reach this goal, the 67 participants were urged to "banish banality" from their thinking by conference emcee Graham Farmelo, Head of Science Communication, Science Museum of London. For the most part, they succeeded.

What is PUR?

According to Hyman Field, Senior Advisor for Public Understanding of Research at NSF, PUR programs examine the questions that scientists are exploring today. Examples of such topics include genetically modified crops, nanotechnology, human genomics, global warming, West Nile virus, and bioterrorism. PUR programs engage learners in the ongoing research as it develops, including set-backs, detours and disagreements inherent in scientific exploration, in distinction to the one-time learning experiences that strive for better public understanding of science (Field and Powell, 2001). They engage the public in dialogue about the ethical, social, and policy issues related to new research and encourage public feedback about these issues. They introduce the public to research scientists to show them as human beings. As opposed to many science center exhibitions and programs that convey information about basic science concepts and achievements, PUR programs focus on current and on-going research efforts in which the final answers are not yet known, but whose implications on human health, our economy, and lifestyles are significant. To capture these aspects of contemporary

scientific investigation, PUR projects take advantage of multiple channels and diverse media that may include exhibitions, radio and television broadcasts, print media, and the Internet.

Why is PUR important?

Alan Leshner, Chief Executive Officer for the American Association for the Advancement of Science (AAAS), used the recently published article about the effects of the drug Ecstasy on the human brain (*Science* 2002 September 27; 297: 2260-2263) to underscore the value of PUR in helping people recognize the difference between scientific and anecdotal evidence. He noted that one of the key attributes of a research-literate public is an understanding of uncertainties and the role of peer review.

While few participants disagreed with Field or Leshner, many continued to struggle with the distinction between public understanding of research and public appreciation for current research projects. Throughout the conference key questions surfaced again and again: Do science centers visitors really want to understand the scientific endeavor or are they more interested in the results? Will engaging the general public in the process of scientific debate increase the audience for science programming, whether via science center, radio, television or the Internet? Who benefits most from PUR programs? The public? Students? Scientists?

What is a PUR program?

Conference organizers selected a number of programs to serve as case studies to serve as starting points for discussion. For example, recently opened exhibitions at the Museum of Science, Boston (http://www.mos.org/cst/) and the Science Museum of London (http://www.sciencemuseum.org.uk/wellcome-wing/antenna/index.asp) showcase cutting-edge research. Both rely on partnerships with science journals that provide embargoed articles to the museums prior to publication. This relationship allows them to develop rapid response exhibits and programs that coincide with public announcement of research results, sometimes even scooping the press.

The Exploratorium has added a web production studio (http://www.exploratorium.org/webcasts/index.html) to its exhibit floor. Live @ Exploratorium creates virtual field trips to distant locations where scientists discuss their research with a live museum audience. La

Cité des Science et de l'Industrie in Paris (http://www.cite-sciences.fr/english/indexFLASH.htm) has developed a series of web-based programs that engage the public in debating issues

surrounding current research, such as Mad Cow Disease and genetically engineered foods.

Other case studies included the radio program Earth and Sky, which features interviews with scientists on their research in two-minute programs that air on Public Radio stations nationwide; a new NOVA series, currently awaiting funding, that will highlight the research process in a fun and hip way, sort of an "MTV does science"; and ScienCentral, a New York-based media group that produces and distributes science features to commercial stations using the Trojan Horse approach, embedding the research message in "NOVA News Minutes" and other short formats.

Additional projects presented in poster sessions highlighted further PUR attributes. They included so called "citizen science," such as the Cornell Lab of Ornithology's Project PigeonWatch and Citizen Science in the Schoolyard, which engage the public in collecting and analyzing real data. Others included museum labs where visitors can watch as scientists go about their work; laboratories where visitors can use scientific tools to carry out specific procedures; university open-houses where the public is invited to meet scientists in their labs; explainer programs that rely on science graduate students; mentorships that pair working scientists with students; and theatrical presentations that focus on research activities. These and others will be available on the conference web site (http://pie.smm.org/pur/).

Concrete suggestions emerged from the conference.

Rather than ending the conference with simply the all-too-familiar call for more NSF funding and another conference, participants took seriously their charge to come up with meaningful suggestions. Among these were:

1. *Research and Evaluation*. Who are we doing this for and why? What programs work best for which audiences? Does the public want questions or answers? There needs to be better understanding in general of the audiences, stakeholders, and outcomes for PUR projects.

2. *Pretty Good Practices*. There are many PUR-style programs that have been tried or are being tried right now. We need to collect data on these programs to develop best practices, or at least a list of "pretty good ones."

3. *Shared Resources*. We need to establish a web-based clearinghouse for sharing information that may include news sources, content resources, images, and projects underway or being planned. Perhaps this

effort could begin with the federal agencies involved in science and technology or with a "Napster"-like system. Intellectual property issues are a stumbling block here that must somehow be overcome.

4. *More PUR Projects*. Medium and small museums and science centers should be encouraged to try PUR-oriented projects. Funding may need to be reallocated specifically for PUR initiatives, especially those that are experimental or high risk. Given the time sensitivity of some of these projects, the review process may need to be modified.

5. *Greater Collaboration*. There is need for stronger partnerships among universities, museums, and media. Museums could host regular local forums with researchers and media. They could work more closely with university Public Information Officers.

6. *Production Issues*. Modular templates that can be updated with changing content could reduce time and expense. Will visitors be disappointed by lower production values for exhibits produced in rapid response to breaking news?

We are defined by our differences.

Perhaps one of the greatest outcomes of the conference was a better appreciation of how museums, media providers, journalists, and scientists differ with respect to goals, objectives, and reward systems. This understanding may pave the way for more realistic discussions about partnerships and collaborations.

<u>The goals and timeframes of journalists and museums are not the same.</u> There are significant barriers for developing collaborations between journalists and museum professionals. As Cornelia Dean, Science Editor for *The New York Times*, put it "Newspapers are in the business to give the news; museums are in the business to educate."

Others involved in media production concurred that different objectives among communication providers impose barriers for working together. Time frames are completely different: Journalists must get a story out in hours or days, media producers work on a piece for a few months, and museums take years to develop a major exhibit. However, many agreed that journalists, media producers and science centers can pool their strengths to provide the public with a continuum of information and experiences. Museums can provide the background and perspective on topical subjects, while TV can convey dramatic moments or timely events to increase public awareness. It isn't required, or even necessarily desirable, for museums to become news bureaus in order to carry out effective PUR programs.

Scientists are generally not rewarded for public outreach.
Although scientists with grants from NSF may be required to provide some public outlet for their research, scientists for the most part are not rewarded for their outreach efforts. It may be too much to ask young scientists struggling to establish research programs to make significant contributions of time to PUR projects. On the other hand, "mature" scientists spending less time in the lab may be more available and interested. In any case, scientists need to be trained in speaking with the media and the public about their research.

There are significant differences between U.S. and European audiences.
Historically, European audiences seem to be more aware and more willing to question the value of scientific discoveries. As a consequence, they seem much more likely to want to engage in on-line debates such as offered by la Cité. Acknowledging and understanding these differences means that successful European models may not be so easily replicated in the U.S. and vice versa.

A new role for science centers?

At the heart of many of the discussions was a model of science-center-in-the-middle. By their very nature, science centers play a valuable role in their communities as public communicators. In terms of PUR, science centers can fill the critical niche of connecting the research community with the general public.

These and other outcomes are being compiled from the mass of notes, flip charts, and transcripts resulting from the five sets of work team discussions that took place between plenary sessions over the four-day period. From them, the proceedings of the Minnesota conference will be published and serve as a key document in the small, but ever growing body of knowledge that focuses on public understanding of research. (And, yes, there will probably be another conference.) In the meantime, like the current research that museums struggle to present to their audiences, the results are still inconclusive and work continues. Stay tuned…

References

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