

Sample Application

2008 National Leadership Grants for Libraries

Library/Museum Community Collaboration

Oregon Museum of Science and
Technology,
and
Multnomah County Library

*Beyond Fact: Making Science Accessible
Through Dialogue and Deliberation*

Beyond Fact: Making Science Accessible through Dialogue and Deliberation

The Oregon Museum of Science and Industry (OMSI), lead applicant, and the Multnomah County Library (MCL), primary project partner, request support under the National Leadership Grant program for their project *Beyond Fact*. *Beyond Fact* will explore promising models to advance adult science and information literacy by engaging adults in discussion of potentially controversial science and relevant issues. The collaboration will leverage complementary sets of experience and resources. OMSI has over 60 years of experience as a leader in developing innovative informal science education programs and exhibits. MCL serves a population of over 500,000 citizens in the Portland, Oregon, area and has extensive experience developing and delivering successful programs to diverse audiences in this community.

Community Needs and Intended Audiences

As scientific discoveries and resulting technology continue to reshape society, the adult population is presented with new issues that challenge current ethical frameworks and accepted beliefs. Such emerging information requires informed participation of citizens in crafting a response—identifying its impacts, setting new societal standards, and creating relevant public policy. In this context, libraries and science centers are uniquely positioned to assume a new and challenging role: sponsors of public dialogue and deliberation on a range of controversies and questions. With *Beyond Fact*, OMSI and MCL will create a set of programs designed to engage adults in discussion-based learning and advance the science and information literacy skills that form the basis for future decision-making. The project will target adults not currently engaged in formal or informal science learning and not already engaged in other adult programs offered by MCL.

Project Activities and Outcomes

The project will take place over two years from December 1, 2008, through November 30, 2010. OMSI and MCL will collaborate to create three public programs for *Beyond Fact* with an expected total audience of 35,000:

- Science book discussion groups meeting in branch libraries of the MCL system;
- Forum events combining informal presentations and discussion; and
- A community-wide reading program highlighting an accessible, “popular science” book.

In addition, a comprehensive set of evaluation activities will accompany these programs. Front-end and formative evaluation will identify audience characteristics and promising approaches to inform the development of *Beyond Fact* programs. As the project nears completion, summative evaluation will quantify and document project outcomes and successes to inform the field of informal education.

Broad access to the project will be ensured through the creation of programs to meet a variety of needs in diverse locations throughout the community. Programs will offer participants opportunities to engage in informed, open discussion of issues connected to compellingly relevant scientific subject matter. OMSI and MCL will encourage active participation in these conversations by creating innovative formats for *Beyond Fact* programs. Key project impacts include engaging diverse new audiences not previously reached by either OMSI or MCL and empowering the participants’ continued learning beyond the project by advancing skills necessary for information literacy and open dialogue.

Advisors will include professionals with experience creating outreach programming and facilitating discussion and public debate. The project will build off of past, related work by both libraries and museums, including the *Big Read* and similar projects, and adult programs created by the Science Museum of London’s Dana Centre.

Results of project evaluation will be compiled and disseminated widely within the informal education field contributing to growing bodies of knowledge concerning effective program approaches for adult audiences and how to work with potentially controversial subject matter. We expect project findings to inform the practices of other institutions and to fuel further conversation within the field.

Beyond Fact: Making Science Accessible through Dialogue and Deliberation

The Oregon Museum of Science and Industry (OMSI) and the Multnomah County Library (MCL) respectfully request support from the Institute for Museum and Library Services (IMLS) National Leadership Grant program for their project *Beyond Fact*. The project will:

- Involve diverse audiences of adults in informed discussion and dialogue focused on science topics and relevant social, ethical, political, or philosophical issues.
- Attract new adult audiences beyond those typically reached by the current programs of either OMSI or MCL.
- Engage adults in reading and discussion-based learning that promotes science literacy.
- Increase knowledge in the informal education community of effective practices to engage adults with relevant, potentially controversial topics.

Beyond Fact will achieve the first three impacts through the creation of an integrated set of programs that will reach audiences throughout the service area of MCL (most of the Portland, Oregon, community). The fourth impact will be achieved through evaluation and documentation of the project's methods and outcomes. These materials will be widely shared with the informal education community by making them available online, through publication in professional journals, and through presentation at professional conferences and symposia.

Assessment of Need

Needs of the Public Audience

Increasing quantities of information seem to be a defining quality of our time, reflected in names such as “the information age.” This information is becoming readily accessible and increasingly interwoven into the fabric of daily life. Adults are confronted with what often seems to be a bombardment of competing information, much of it unessential. Subjects with important personal relevance and consequences for citizens can easily be lost in this whirlwind.

As the speed of technological and societal change increases, the need for citizens who have the ability to separate out and evaluate important information grows. This skill is particularly relevant in the area of emerging science and associated technologies. Here there is a critical need for citizens to actively engage in discussions that determine how new discoveries and emerging technology will translate into government policy. These issues often involve complex issues, some with new ethical considerations, with recent examples including debates over the causes of climate change, how new genetic technologies should be applied, the teaching of evolution in schools, and how or whether embryonic stem cell research should be conducted. As the integration of science and technology into society has grown, so has the need for “informed citizens who have knowledge of basic science facts, concepts, and vocabulary...participating in public discourse on issues pertaining to science and technology” (NSF, 2006).

Unfortunately, as the need for such discourse has increased, participation in civic life has followed the opposite trend, with declines in participation in informal learning opportunities and community life (NEA, 2004). Observers have noted that a substantial proportion of the population is at risk of being left behind in their understanding of science and its implications, becoming a “scientific underclass” (Gregory and Miller, 1998). Increasing “public understanding of science” has long been a goal of science and scientists (Thomas and Durant, 1987; NSF, 2006). In the current social context, it is becoming increasingly clear that there is a need for broad-based information literacy that includes science and empowers lifelong learning of all types, including through reading for enjoyment. Providing a framework for this type of learning, and engaging people of all ages with new educational opportunities, is today more than ever an essential function of informal education institutions such as museums and libraries (Sheppard, 2000).

Adults who do not seek learning opportunities on their own (and thus are not “explorers” as defined by Falk and Sheppard, 2006) and do not possess advanced education may have little exposure to emerging science and related public debates. A survey by the National Science Foundation found that participants with lower levels of math and science education felt significantly less informed about science-related public policy issues than those who had completed more advanced studies in these areas (NSF, 2006). News media provide coverage of science-related controversies, but most are limited in the depth of information they can offer.

In the absence of discussion of science and its social or ethical contexts, extreme attitudes can fill the vacuum. In one study of attitudes towards stem cell research, investigators found that over the course of the year 2004, when discussion of stem cells in the media was widespread, the proportion of people holding strong opinions in favor of or against this research dropped precipitously (Miller, 2005). The conclusion drawn is that as people learned more about the topic, they came to realize the complexities of the issue and see validity in differing views. Unfortunately, very few topics of importance will ever receive such depth of treatment in the media. It is imperative that other venues facilitate public conversations to engage citizens and further understanding (AAM, 2002).

Beyond Fact will address both disparities in levels of science literacy among adults and the need for open civic debate on topics that can polarize citizens. The project will test the impact of promising models for facilitating discussion of science topics and their associated social, ethical, religious, or political contexts. These approaches embody a shift away from a “deficit” model (that simply adds to the amount of information pressed onto citizens) and towards a “contextual” approach that uses two-way communication and realistically integrates new information with a learner’s prior knowledge, attitudes, and beliefs (Gregory and Miller, 1998).

This type of approach lends itself well to both reaching new audiences and creating new types of learning opportunities, shared goals of both OMSI and MCL. *Beyond Fact* will target an audience of “science inattentive” adults, those without post-secondary education in science, not currently engaged with science learning in a formal or informal setting, and not “explorers” (Falk and Sheppard, 2006). The project’s focus on science topics with relevant social, political, and ethical issues will help attract citizens currently disengaged from science to participate in informed discussion. This compelling personal relevance has been identified as an essential feature to drive adult engagement with science-based issues in other museum programs and is an important attribute of effective adult education in general (Mintz, 1995; Sachatello-Sawyer, 2002).

Beyond Fact will also learn from and build on available information about this target audience. In an investigation into how its *Forums* programs could reach a more diverse audience, the Museum of Science, Boston, found that people perceived a number of barriers to their participation in the events, including topics that lacked relevance, lack of convenient access to the programs (both physically and as a matter of timing), and a view that only people with an educational background in science or holding certain beliefs would be welcome (Chin and Reich, 2007).

The design of *Beyond Fact* will address these barriers by creating events and discussion in locations throughout the community. Substantial resources will be focused on creating engaging programs with topical relevance to a broad cross section of the adult audience. Consideration of diverse views will be incorporated into the structure of the programs to clearly invite and actively engage people from diverse backgrounds.

Needs of the Professional Audience

U.S. science museums generally present “established” science and deliberately steer clear of subjects likely to stir controversy (Ucko, 2004). Many museums have in the past also focused their programs on the audience of children and families. Museum programs for adults are often either lecture formats or immersive experiences targeted at those interested in specific subjects (for example, paleontology). In addition, participants in museum programs tend to be well-educated adults who already possess a background in the subject matter through education or employment (Sachatello-Sawyer, et al., 2002). Many libraries have experience creating the types of inviting, discussion-based programs that have been lacking in museums.

These conditions present both opportunities and challenges for informal education institutions. While the majority of science centers focus primarily on the child or family audience, most also aspire to a mission of placing scientific knowledge and thought into meaningful, accessible contexts for people of all ages (Mintz, 2005). Popularly recognized as sources of science information, science centers are poised to become valuable resources for adult learning by promoting civic dialogue in the communities they serve (Durant, 2004; van Dijck, 2003). Libraries, already recognized as an essential part of the informal learning infrastructure, provide excellent potential partners in this endeavor. Their shared experience sponsoring programs that facilitate “meaningful exchange” of knowledge between “institutional experts and the public” is an excellent complement to museums’ access to objects and subject matter expertise (Sheppard, 2000).

Beyond Fact will create and thoroughly document the effectiveness of innovative programs aimed at engaging adults with personally relevant science topics. The project will test out dialogue-based approaches

to such content, a strategy that has shown great potential but has not yet been widely adopted in the informal education field (McLean, 2007). Project findings will inform further work in the field to attract adult audiences using these approaches, and the project's partnership structure will serve as a model for future work by OMSI, MCL, and others.

National Impact and Intended Results

Observers of the field have noted that over the last 50 years many science museums have progressed from collection-centered organizations focused on serving a relatively small audience to increasingly community-minded models with "greatly broadened stakeholders" (Harvard University, 2001). One comprehensive study of adult programs in museums noted that collaborations with outside organizations add value for museums seeking to reach broad audiences and have potential to "change the community's perception of the museum from impenetrable, exclusive institution to community resource" (Sachatello-Sawyer, et al., 2002). Libraries have a history of providing free and open access to information and quality programs, with a focus on the humanities. *Beyond Fact's* central collaboration between OMSI and MCL will seek to break new ground in these areas, using fresh approaches to broaden potential program topics and audiences for both partners.

Many in the ISE field have noted the potential for both science centers and libraries to leverage their unique community positions to become facilitators of civic dialogue (AAM, 2002; Mayfield, 2004; Mazda, 2004). Observers have also noted the potential for museums and libraries to work together to expand access to their respective programs and increase their collective impacts in the communities they serve (AAM, 2002; Sheppard, 2000). Science centers possess a major asset in their reputation as impartial and authoritative sources of information (Bandelli, 2007). Museums' access to expertise on particular topics, combined with assets of public libraries such as program experience and accessible locations, make these partners uniquely positioned to assume leadership in sponsoring community conversations about relevant issues.

Beyond Fact will advance the informal education field by developing and testing models for reaching new adult audiences while exploring partnerships and program delivery methods that will integrate the project fully into the community. The experiences of MCL and OMSI in implementing the project will be carefully documented, and the results, along with the findings of project evaluations, will be shared widely with the informal education community. The project has the potential to significantly inform the field with regard to methods libraries and museums can use to attract and serve a greater diversity of learners.

Identifying and Managing Risks

The project faces challenges in trying to recruit the target audience to attend events and possible further barriers in prompting active participation in discussions. Success at impacting adults' level of science literacy is also uncertain. *Beyond Fact* deliverables will use discussion and participatory debate as a basis for engaging science-inattentive adults. This approach has the potential to break new ground by reaching fresh audiences and allowing the project to tackle subjects that are complex, controversial, and very relevant. However, these methods are less established in their ability to attract and impact the target audience.

The partnership between OMSI and MCL leverages a substantial set of existing relationships and staff expertise that will help manage these risks. Current MCL programs have enjoyed substantial success reaching large, diverse audiences. By working mainly within existing program models, *Beyond Fact* will begin from the strong position of having a large potential participant base. By focusing on a new content area (science) and adding programs that seek to spark a new type of participatory discussion, MCL and OMSI will have the potential to break new ground while working within a proven framework.

OMSI has experience providing adult education on complex issues through its popular *Science Pub*, which takes science experts into popular community venues to educate and foster dialogue. OMSI also hosts weekly *Sound Science* podcasts to engage the public with content experts. As part of the Nanoscale Informal Science Education Network (NISENet), OMSI has hosted more than a dozen public forums on societal implications of emerging technologies. OMSI was the only member of the NISENet to try these programs outside of the museum, with diverse audiences such as Latinos and Native Americans and rural audiences in library settings (Johnson, 2008). OMSI staff have collected audience data from hundreds of participants in these events, and have been professionally trained in facilitation.

To manage risks, OMSI and MCL will also work closely with project advisors experienced in engaging the public with difficult subject matter and securing participation from diverse groups. These advisors will help to ensure that *Beyond Fact* programs are effective, engaging, and enable active participation. Advisors Maude

Hines and Greg Jacob have experience presenting accessible academic programs aimed at adults, while Sheri Wantland brings expertise soliciting public input for community decision making. *Beyond Fact* will also draw on the experience of Lisa Sardinia, an advisor from Pacific University. Her *Faith Forum on Genetics (FFG)* project has engaged members of diverse faith communities in learning and discussion focused on science, philosophy, and policy related to emerging genetic technologies. Evaluation reveals that the project has been successful in promoting both understanding of the science behind these issues and appreciation for dialogue and multiple perspectives (Lynch and Lembach, 2007).

Project Design and Evaluation Plan

Public Audience Impacts

The goals of the *Beyond Fact* project with regard to its public audience are to:

- Involve diverse audiences of adults in informed discussion and dialogue focused on science topics and relevant social, ethical, political, or philosophical issues.
- Attract new adult audiences beyond those typically reached by the current programs of either OMSI or MCL.
- Engage adults in reading and discussion-based learning that promotes science literacy.

To achieve these impacts, MCL and OMSI will work together to plan, develop, implement, and evaluate three separate programs: science book discussion groups, *Engaging with the Experts* (a panel and forum discussion series), and *Everybody Reads*. Each of these programs will be designed to engage adults in learning and discussion about a science topic and the relevant social, ethical, or political implications.

Beyond Fact programs will use a variety of science subjects as a basis for dialogue and discussion. Emerging science, such as embryonic stem cells in research, will provide a focus. Controversial subjects that engage people in compelling personal ways, such as debates over the evidence for evolution, Big Bang theory, the use of animals in research, and climate change, will also provide potential topics. Front-end research will be used to reveal promising topics and inform the selection of subject matter.

Professional Audience Impact

With *Beyond Fact*, OMSI and MCL will increase knowledge in the informal education community of effective practices that can be used to engage adults with potentially controversial topics. Significant front-end research will be conducted to learn more about needs of the informal education community with regard to engaging adults in dialogue-based programs. Findings will be used to inform development of programming and evaluation tools, as well as the final format of evaluation results.

Data collected according to the evaluation plan will form the basis for a final report that records the project's successes and failures. These findings have the potential to contribute significantly to advancing knowledge in the field. MCL and OMSI will use a number of dissemination methods to effectively share this information with others in the informal education community (described in the ***Dissemination*** section below).

Project Activity Timeline

Beyond Fact will follow a sequential timeline that allows each of the three programs to be developed and evaluated individually. Spacing project activities out in this way will allow OMSI and MCL to incorporate evaluation results from each activity into the development of the next, building on what is learned at each phase. Project activities will also follow a progression beginning with the smaller-scale programs and moving up to the largest in scope (the *Everybody Reads* program). This approach will ensure that the project hones the effectiveness of its deliverables as it attempts to reach progressively wider audiences.

Year 1 – Plan project; front-end evaluation; develop, implement, and evaluate science book discussion groups; develop, implement, and evaluate *Engaging with the Experts* discussions (EE); develop and plan *Everybody Reads* programming.

Year 2 – Implement *Everybody Reads* program and evaluation, conduct follow-up book group and EE programs, complete and disseminate summative evaluation report.

Planning Process

MCL and OMSI will develop a new partnership that builds substantially on the prior work of each to present *Beyond Fact* programs at numerous locations throughout MCL's service area. In the initial planning phase, staff from the two institutions will formalize a management structure for the project and a detailed timeline of project activities. Major milestones for developing, implementing, and evaluating programs will be solidified

and, at the same time, a structure clearly defining staff roles and responsibilities will be put in place. OMSI and MCL will create a joint inventory of available resources, including staff expertise, time commitments, materials, and structures created for past programs. This resource examination across institutions will reduce potential for duplication of past efforts, inform the development of new programming, and ensure that staff members from each institution have a strong basis of both partners' experiences from which to move forward.

The initial planning phase also includes the development of a project framework built around the proposed public and professional audience impacts. This tool will be developed concurrently with the timeline and project staff structure. It will summarize goals, approaches, and measures of success and will be used to inform the development of all aspects of *Beyond Fact*, including evaluation tools.

The partners will develop work plans specific to each major project activity. These will include a phase dedicated to further researching previous library and museum activities targeted at adults and their outcomes. Project staff members will consult literature on discussion-based programs and those focusing on presenting accessible science and will review available evaluation reports from these past projects. Front-end testing of potential discussion formats and other variables will also begin at this stage, allowing program developers to further assess and refine promising approaches early in the project.

Project Activities and Expected Results

MCL currently facilitates reading and discussion groups (commonly referred to as "book clubs") by providing reading lists, books, discussion guides, and meeting space at branch locations. As the initial *Beyond Fact* program, OMSI will partner with MCL to incorporate a science focus into these programs. The partners will compile a reading list of accessible books connected through related science content and develop accompanying discussion guides that promote scientifically informed, structured conversation. MCL will recruit groups to test materials, and OMSI will provide facilitators' materials and gather feedback. Results will inform revision of "book club" materials and the later creation of the *Everybody Reads* program.

With input from MCL, OMSI will host *Engaging with the Experts (EE)* events. These forums will incorporate short informational presentations by subject-area experts into a group discussion format. Events will be designed to create an accessible, informal learning atmosphere where participants can engage in conversation on issues within the framework of scientific "habits of mind" from the American Association for the Advancement of Science (AAAS) publication, *Atlas of Science Literacy*, Volume II, 2007. *EE* will build on innovative discussion models such as those used by the *Bionet* project that have moved "people away from straight question and answers to meaningful exchange of opinions and information" (*Bionet* Final Report, 2003). The *EE* programs will provide an excellent opportunity to evaluate discussion formats and other aspects of program structure. Results of this programming and the ongoing book discussion groups will inform the design of *Everybody Reads (ER)* events.

In its current format, *ER* creates an extensive set of programs revolving around a single book (4,500 copies are purchased and distributed at MCL locations). Participants are encouraged to read the book then return it or pass it on. Local bookstores offer a discount on the featured book and MCL provides audio and large-print versions. During a two-month period, MCL hosts a variety of community programs that facilitate discussion and further learning on subjects related to the *ER* book, with examples including film screenings, panel discussions, community forums, and numerous facilitated discussion groups. Program content encompasses the range of social, artistic, or political perspectives raised by the book.

For *Beyond Fact*, MCL and OMSI will choose an engaging, provocative science book to build an edition of the *ER* program exploring the science and relevant social, ethical, and political context of the subject matter. The book will be chosen for accessibility, relevance of its central scientific content to a broad cross section of the population, and potential connections to a range of related issues and perspectives. Potential programming includes forums, panel discussions featuring experts, discussion groups, and appearances by the author. MCL will involve its suite of in-kind sponsors in creating, advertising, and hosting the programming. OMSI will assist in all aspects of planning events and securing speakers and will develop additional program content and discussion formats that emphasize science literacy and encourage connection to other *Beyond Fact* programs.

MCL will create a comprehensive Web-based guide to the *Beyond Fact Everybody Reads* programs, hosted as part of its website (www.multcolib.org). The site will list program activities by type (e.g., small group

discussions, panels, workshops) and provide a short description of each along with times and locations. A blog feature will allow site viewers to register and leave comments in response to the information presented and the comments of others.

Each of over 500 public computers at MCL branches will feature a direct link to the *ER* page on its desktop, ensuring visibility of the project for those who use these computers, a disproportionate number of whom are low-income citizens who rely on libraries as their sole source of Internet access (NTIA, 2002). In addition, OMSI's Web page (www.omsi.edu) will advertise the *Beyond Fact ER* and prominently feature a link to the online program guide.

ER-related *Engaging with the Experts* programming will take place in the months leading up to, during, and following *Everybody Reads*. Through general operating (non-grant) funds, OMSI will sponsor an "adult night" featuring an *EE* activity related to the *Everybody Reads* topic. OMSI will target diverse groups, including the science-inattentive target audience, through distribution of passes to participants in other *Beyond Fact* programs and through provision and promotion of passes that can be checked out from MCL libraries.

Throughout the project, and especially during the numerous ER events, MCL will assist OMSI with implementing project evaluation. MCL will also provide resources and contacts to help disseminate evaluation findings and professional development deliverables to the informal science education and professional library communities.

Quantitative Results of Project Activity

- OMSI and MCL will develop 3 different strands of books for the science book discussion groups, and implement each of these with at least 3 different groups averaging 15 participants each.
- OMSI will host a total of 12 different *Engaging with the Experts* events that will each be attended by at least 120 participants.
- In its current format, *Everybody Reads* reaches about 24,000 Portland residents through approximately 85 separate events each year (*Everybody Reads* Final Report, 2007). The *Beyond Fact* edition of *ER* is expected to exceed these numbers through the addition of further programs, and will create at least 90 separate events that are expected to reach a total audience of 30,000.

OMSI and MCL expect *Beyond Fact* to reach a total audience of at least 32,000 adults by the end of the project period.

Building on Past Work in the Library, Museum, and Informal Education Fields

Beyond Fact will build on the work of other museums and libraries that have found dialogue and discussion a useful approach to science in a social context. The Dana Centre, Science Museum of London, hosts programs aimed at engaging adults in learning, dialogue, and debate about issues with compelling personal relevance. Evaluations have found that visitors enjoy participating in these informal events, where an appropriate amount of information is balanced with opportunities for dialogue and social interaction, and that "cognitive, affective, social, and personal learning take place" (Simonsson, 2006). Evaluations have also determined that these programs have successfully engaged adults with varied backgrounds, education levels, and interests in science (ibid.).

Libraries across the country have successfully involved citizens in community discussions through the *Big Read* programs, which aim to re-engage citizens in reading and in other aspects of public life that are closely connected (NEA, 2004; NEA 2007; www.arts.gov). As part of *Everybody Reads*, a program similar to the *Big Read*, MCL has conducted popular programs on potentially controversial topics such as the USA Patriot Act, presenting speakers and facilitating discussion of multiple views. MCL has also experienced great success presenting specialized topics such as Jewish cultural identity through its *Let's Talk About It* book discussion groups.

OMSI will also draw on past institutional experience presenting adult programs such as *Science Pubs*, forums on the implications of nanotechnology, and discussions related to controversial exhibits it has hosted (e.g., *BodyWorlds 3*). OMSI participated in the *Issues Laboratory Collaborative* project, which evaluated strategies for presenting science-related issues in museums. The project identified important considerations in programs on controversial or issue-based content, including the need for topical relevance for the audience and the need to supply carefully chosen information that provides a framework from which people can draw their own conclusions (Mintz, 1995).

Evaluation Plan

Front-end, formative, and summative evaluation will inform the development of project deliverables and assess the extent to which goals are reached and impacts achieved. Project outputs and outcomes will be monitored using measures collected through qualitative and quantitative methods appropriate to the phase of evaluation and the project component being assessed. More detailed descriptions of the collection methods for each impact are provided below.

Members of the professional and public audiences will be involved in all stages of evaluation. In particular, museum education and library staff members that manage and provide adult programming will give input as members of the professional audience. Users and program participants of the MCL system, as well as OMSI visitors and program participants, will give input as members of the public audience.

The evaluation of the *Beyond Fact* project will be conducted by OMSI's Evaluation & Visitor Studies Division. Scott Ewing, Evaluator, will lead this effort under the direction of Dr. Marcie Benne, Manager of Evaluation & Visitor Studies.

Impact 1: Involve diverse audiences of adults in informed discussion and dialogue focused on science topics and relevant social, ethical, political, or philosophical issues.

OMSI and MCL will seek to attract diverse audiences to attend *Beyond Fact* programs and actively engage in discussions. Programs will elicit active participation in conversation around socially relevant science topics and related issues. The programs will be considered successful if they meet these outputs and outcomes:

1) participants report that current science topics have implications relevant to them and the broader community; 2) people of multiple viewpoints attend; 3) the format combines presentation of information with opportunities for participant-lead discussion; 4) people of diverse backgrounds, educational levels, and levels of prior engagement with science attend; and 5) participants report that the perspectives incorporated into programs (cultural, ethical, social, religious, political, historical) reflect the interests of their broader communities and see how these angles connect to the scientific debate. Impact 1 will be considered successful if: (1) two-thirds of participants report that the science topics discussed have relevant implications; (2) people attending represent at least two differing views on the subject matter; (3) programs devote at least one-third of the available time to participant discussion; (4) participants represent three levels of educational and science background; and (5) three-quarters of participants report that diverse perspectives were welcomed among attendees and incorporated into the programs.

Front-end and formative activities will be conducted through surveys and short interviews of general users of the MCL system as well as visitors and members of OMSI. The goal will be to learn about their experience with and knowledge of current, socially relevant, and controversial science as well as identify differences in participants based on their current level of engagement with science. This data will offer information on adults with existing relationships with both institutions (50–100 surveys from each). Additional front-end and formative evaluation of programs will occur through peer reviews by museum and library staff as well as professional critiques by advisors with expertise in securing participation from diverse audiences.

Summative evaluation of this impact will assess whether participants of diverse backgrounds and prior engagement with science are attending, and, if so, whether those with lower levels of prior engagement with science participate at similar levels as other participants. This will be a strong indicator of success at equally involving people of diverse perspectives. These measures will be collected through the same type of studies used in the formative phase occurring at the partner sites.

Impact 2: Attract new adult audiences beyond those typically reached by the current programs of either OMSI or MCL.

Programs will be designed to attract participants, including science-inattentive adults, who have not previously taken part in the programs of either OMSI or MCL. Assessment of this output will occur through a short survey conducted at program sites. Results will be used on an ongoing basis throughout the project to assess the effectiveness of outreach activities, advertising, and, in combination with data collected on Impact 1, the relevance of programs to people of diverse backgrounds and interests. Impact 2 will be judged successful if *Beyond Fact* programs draw in a new audience that constitutes at least 25% of overall program participants.

Impact 3: Engage adults in reading and discussion-based learning that promotes science literacy.

The measures of success for the programs are that participants exhibit an increase in broad scientific “habits of mind” traits during or after participation (AAAS, 2007). Characteristics that will be assessed include: 1) open-mindedness towards considering new scientific ideas that is balanced with skepticism towards accepting these ideas without adequate proof; 2) exhibition of curiosity, openness, and skepticism; and 3) active participation in group discussions on scientific topics.

Front-end activities for Impact 3 will be conducted using the same methods as for Impact 1 with surveys and interviews of current MCL and OMSI users to determine their current level of “habits of mind” characteristics. Formative testing, lead by OMSI, will be an iterative process as the programs are developed. Interviews and observations of participants of select programs will be conducted at MCL sites and at OMSI to determine the outcomes of the activities and how to improve them in promoting scientific habits of mind. Peer reviews will again serve to provide input from professionals with expertise in both information and science literacy.

Summative evaluation will also be conducted to assess the extent to which this impact is achieved. Methods used in the summative evaluation will include observation using a behavioral checklist that relates to engagement in specific habits of mind and pre-post activities/surveys that address changes in participants’ behaviors or their awareness of what it means to engage in conversations that reflect scientific habits of mind. During summative evaluation we will consider programs successful if two-thirds of target audience members demonstrate the expected measures of success after participation. We also expect a majority of the participants will have engaged in a discussion that addresses issues related to a scientific topic, the pros and cons of a specific scientific argument, and/or merits of viewpoints that are different from their own.

Impact 4: Increase knowledge in the informal education community of effective practices to engage adults with relevant, potentially controversial topics.

Impact 4 will be achieved through documentation of the results of *Beyond Fact* evaluations and disseminating these results widely to professional audiences. The measure of success for this impact is that evaluation results and project outcomes will be disseminated in a highly useable form to professional audiences in the library, museum, and broader informal education community. This impact will be judged successful if MCL and OMSI staff publish at least three articles and give at least two presentations describing *Beyond Fact* findings in journals and at conferences that reach professional audiences of informal educators.

Front-end research interviews and a survey will be conducted with staff from MCL, OMSI, and other museums and libraries to get an in-depth assessment of their needs and further define any obstacles they encounter in engaging their visitors in discussion programs or programs dealing with potentially sensitive subjects. These assessments are expected to also provide additional insight into needs of library and museum visitors and program users.

Project Resources: Budget, Personnel, and Management

Budget

OMSI and MCL are requesting IMLS support for *Beyond Fact* in the amount of \$249,876. The majority of this funding (over \$220,000) will support purchase of supplies (such as books), services (such as speaker honorariums), and staff directly involved in developing, delivering, and evaluating the project’s programs. Approximately \$27,000 will be used for project leadership, travel to IMLS meetings, and administration. IMLS funds will be matched by a total of \$114,635. This amount includes in-kind contributions of facilities and staff time from Portland State University (\$12,000), in-kind donations of advertising space on buses and trains in Portland’s public transportation system (\$21,000), facility, honorarium, and staff cost contributions from OMSI (\$49,664), and facilities and staff cost contributions from MCL (\$31,971).

Beyond Fact will effectively leverage support from the community and the existing resources of MCL and OMSI to achieve cost efficiency. Funds will be divided among individual project activities in proportion to the extent of the activity. 56% of grants funds (\$140,900) will support the planning and implementation of *Everybody Reads*, by far the broadest program in scope and in expected participants. Another 17% (\$43,000) will support other programs presented directly to the public, including the smaller book group programs used to inform the development of *ER* later. 19% of grant funds (\$48,250) will be used for evaluation activities. Data collected from evaluations will ensure the effectiveness of the project and lasting results that can be used to inform future work in the field. A complete breakdown of all grant-supported costs by project deliverable can be found in the attached Schedule of Completion. Full details of staff FTE and

costs, costs for supplies and services, and matching contributions can be found in the attached budget documents

Project Personnel

Experienced staff from both OMSI and MCL will lead the development, delivery, and evaluation of *Beyond Fact* programs.

Marilyn Johnson, Ph.D., OMSI Director of Research and Development, will serve as Project Director and oversee development of programs and other deliverables. She has 25 years experience in education (8 years as Director of Science Education responsible for interpretive staff and professional development) and has served as the Principle Investigator on previous NSF, NIH, and NASA grants. The direction of several grant-funded projects such as *Beyond Fact* normally constitutes a significant proportion of her work.

Terrilyn Chun, MCL Director of Public Relations, Public Programs and Exhibits, will serve as Co-Director of *Beyond Fact*. She contributes extensive experience in developing MCL programs and coordinating logistics, facilities, and in-kind sponsors. Since coordination of the current *Everybody Reads* program is a significant part of her responsibilities, her involvement in *Beyond Fact* fits directly into her duties and also makes up one part of the partners' matching contributions to the project.

Amanda Thomas, OMSI Coordinator of Adult Learning Programs, will also serve as Co-Director of *Beyond Fact*. For the past three years, she has been responsible for development and implementation of OMSI's adult programs. She brings additional experience with event planning and will help coordinate the delivery of *ER* and *Engaging with the Experts*. Her current involvement in the Nanoscale Informal Science Education Network, an NSF-funded project, is scheduled to end in early 2009. The completion of that project will allow her to devote significant time (.4 of her FTE) to a key role in *Beyond Fact*.

Amy Freyer, MCL Program Development Specialist, brings 5 years of experience as a program developer and manager, and will assist with coordination of the *ER* and book group programs. Her time spent on the project will serve as one of the partners' matching contributions.

Scott Ewing, OMSI Evaluator, brings 8 years of experience evaluating museum programs and exhibits and will lead the evaluation of *Beyond Fact*. Most evaluation is project-based

Shannon Long, MCL Public Relations Assistant, is the staff liaison for book groups meeting in MCL branch libraries and will recruit and coordinate participants for science book discussion groups.

Chris Stockner, OMSI Program Developer, with 6 years of experience as an informal educator and program developer, will create the science book discussion group guides and help coordinate *ER*.

Project Advisors

Maude Hines and **Greg Jacob**, both Associate Professors of English at Portland State University, are leaders of the university's partnership with MCL on the *Everybody Reads* project. Their assistance organizing venues and securing participation from colleagues in a range of science and humanities disciplines will be instrumental to creating engaging community-based programs for *Beyond Fact*.

Diana Gordon, Public Information Officer, Oregon National Primate Research Center, has over 14 years experience as an educator and will share her expertise engaging the public with sensitive science issues.

Sheri Wantland, Public Involvement Coordinator, Clean Water Services, brings to the project over 25 years experience gathering input and fostering public dialogue on complex and divisive issues.

Lisa Sardinia, Pacific University, Forest Grove, Oregon, will bring insight from her work to address the need for discourse on a variety of topics of public concern.

Management

Beyond Fact collaborations were developed through joint discussion of shared goals and related past organizational experiences. The project goals align with organizational interests and missions of both MCL and OMSI and are based on realistic assessments of available resources. The deliverables agreed on for the partnership have been chosen to meet needs of each organization and draw synergistically on expertise from project participants. Experts on organizational collaboration have identified this approach as one that helps ensure each organization maintains a strong, lasting commitment to the project (Bell, 2004).

MCL has extensive experience developing and presenting diverse public programming of exceptional quality. In addition to *Everybody Reads*, which last year included 86 programs that reached over 24,000 citizens, MCL currently hosts 21 regular book discussion groups, a variety of programs aimed at infants, toddlers, and pre-schoolers, and coordinates a large volunteer-driven summer reading program. *Beyond Fact* will further MCL goals to develop programs for adults that address current or compelling issues.

Recognized recently with a National Award for Museum and Library Services, OMSI has significant experience both leading and participating in successful collaborative projects. Successful past partnerships include *Dangerous Decibels*, a \$1.9 million NIH-funded partnership between OMSI, Oregon Health & Science University, the American Tinnitus Association, and the Veteran's Administration. This project was led by Dr. Johnson, one of the project directors of the current proposal. OMSI has recently completed the \$1.9 million NASA-funded *Science, Technology and Rural Students (STARS)* project, a collaboration with the Libraries of Eastern Oregon (LEO). Through this partnership, OMSI and LEO delivered informal science education programs and teacher training to participants in small eastern Oregon communities. Dr. Johnson was PI of the *STARS* project, which won the Roy L. Schafer Leading Edge Award at the October 2007 national conference of the Association of Science-Technology Centers (ASTC). OMSI has also partnered with local groups, such as PSU and the Northwest Herptile Keepers, to present popular community events both in small communities and at its museum in Portland. *Beyond Fact* will help OMSI attain goals that include presenting additional community programs and developing new strategies to engage adult audiences with science.

Management of *Beyond Fact* will build on lessons learned from past collaboration experiences of both partners. Close coordination through biweekly meetings and electronic communication will take place throughout the project and will facilitate synergies among project staff. Access to project documents (timelines, RACIs, progress, and evaluation reports) will be provided for all staff online.

Dissemination

Quantitative and qualitative results of *Beyond Fact* evaluations will be carefully documented and incorporated into a report that summarizes key project experiences and findings. This report will be adapted into presentation, white paper, and article form and disseminated within the informal education community through a number of outlets. OMSI staff will apply to host panel discussions at the annual conferences of the Association of Science-Technology Centers (ASTC) and American Association of Museums (AAM). These sessions will present *Beyond Fact* findings alongside others with experience in adult programs or in collaborations between museums and libraries. MCL staff will work to present *Beyond Fact* at the conferences of the American Library Association and the biannual conference of the Public Library Association, which in 2010 is taking place in Portland. In addition, MCL and OMSI will present *Beyond Fact* at the annual conferences of the Oregon Library Association and Oregon Science Teachers Association.

OMSI and MCL will also submit a white paper and articles based on project findings to professional journals serving science educators, library staff, and informal educators. Potential publications include *ASTC Dimensions*, *American Libraries*, and *Science Teacher*. Written materials will be posted online on the MCL and OMSI websites as well as alongside other evaluation materials at www.informallearning.org. OMSI staff will also propose to host an online ASTC professional development forum on program partnerships between libraries, museums, and other community service organizations.

Sustainability

Beyond Fact programs will establish a model of collaboration and create a fresh mixture of content, program approach, and educational outcomes. It is expected that the partnership structure, programming created, and the results of project evaluations will continue to inform activities of OMSI, MCL, and other informal education institutions well after the grant period has ended. *Beyond Fact* will take place at a time when many other organizations are increasingly attempting to engage adults, often with programs that facilitate discussion or with subject matter that may involve controversy. The outcomes of *Beyond Fact* will supplement the limited existing knowledge in these areas, informing future efforts.

Both OMSI and MCL also view *Beyond Fact* as an opportunity to develop an innovative, lasting partnership between the two organizations that will endure beyond the grant period. Work leading to this proposal has clearly revealed that the two institutions possess closely aligned missions, complementary resources and facilities, and similar goals for the future. These affinities lend themselves to a working relationship that should last well beyond this funding period without any exceptional effort. Through previous work, OMSI has established a close relationship with LEO, an association of libraries in small rural communities. This partnership has carried on through several different grant-funded projects and has evolved to a point where each organization often incorporates the other into its activity planning. The partnership between OMSI and MCL holds similar promise, and the two will invest significant resources in the search for additional funds to sponsor projects closely linked to the work done in *Beyond Fact*.

Schedule of Completion

Beyond Fact: Making Science Accessible through Dialogue and Deliberation

Project Period: December 1, 2008-November 30, 2010

Project Activities	Grant Year 1												Grant Year 2												
	Dec '08	Jan '09	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan '10	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Project planning	\$9,750																								
Front end research and formative evaluation						\$22,250																			
Develop book group program and discussion guides						\$9,200																			
Implement book group programs												\$14,800													
<i>Engaging with the Experts</i> programs												\$19,000													
<i>Everybody Reads</i> book selection and program planning												\$26,400													
<i>Everybody Reads</i>														\$114,500											
Ongoing summative evaluation														\$26,000											
Annual travel to IMLS meetings												\$4,000													Dissemination of results \$4,000

All totals include grant-supported indirect costs at the federally negotiated rate.

PARTNERSHIP STATEMENT

Complete one of these forms for each formal partner.

Legal name of applicant organization (5a from Face Sheet): Oregon Museum of Science and Industry

1. Legal name of partner organization: Multnomah County Library

2. Partner DUNS number: 03-078-4888

3. Mailing address:

Street1: 205 NE Russell Street Street2:

City: Portland State: Oregon Zip+4: 97212-3796

4. Partner Web address: <http://www.multcolib.org>

5. Partner project contact name: Terrilyn Chun

Title: Systemwide Programming Coordinator

Telephone number: 503 988 5469

E-mail: terrilyn@multcolib.org

6. Governing control of partner (choose one):

- | | |
|---|--|
| <input type="checkbox"/> State Government | <input type="checkbox"/> Nonprofit with 501(c)3 IRS Status (Other than Institution of Higher Education) |
| <input checked="" type="checkbox"/> County Government | <input type="checkbox"/> Nonprofit without 501(c)3 IRS Status (Other than Institution of Higher Education) |
| <input type="checkbox"/> City or Township Government | <input type="checkbox"/> Private Institution of Higher Education |
| <input type="checkbox"/> Special District Government | <input type="checkbox"/> Individual |
| <input type="checkbox"/> Regional Organization | <input type="checkbox"/> For-Profit Organization (Other than Small Business) |
| <input type="checkbox"/> U.S. Territory or Possession | <input type="checkbox"/> Small Business |
| <input type="checkbox"/> Independent School District | <input type="checkbox"/> Hispanic-serving Institution |
| <input type="checkbox"/> Public/State Controlled Institution of Higher Learning | <input type="checkbox"/> Historically Black Colleges and Universities (HBCU's) |
| <input type="checkbox"/> Indian/Native American Tribal Government (Federally Recognized) | <input type="checkbox"/> Tribally Controlled Colleges and Universities (TCCUs) |
| <input type="checkbox"/> Indian/Native American Tribal Government (Other than Federally Recognized) | <input type="checkbox"/> Alaska Native and Native Hawaiian Serving Institutions |
| <input type="checkbox"/> Indian/Native American Tribally Designated Organization | <input type="checkbox"/> Nondomestic (non-U.S.) Entity |
| <input type="checkbox"/> Public/Indian Housing Authority | <input type="checkbox"/> Other (specify) |

7. What is the partner organization's mission? [500 characters] Multnomah County Library enriches lives by fostering diverse opportunities for all people to read, learn and connect. Multnomah County Library upholds the principles of intellectual freedom and the public's right to know by providing people of all ages with access and guidance to information and collections that reflect all points of view. We believe in intellectual freedom, respect for those we serve, effectively responding to community needs, and respect for the ability of each employee.

8. Describe the partner organization's service area (audience served, including size, demographic characteristics and geographic area) [500 characters] Multnomah County Library, the largest public library system in Oregon, serves nearly 1/5 of the state's population, 681,000 people in 465 sq. miles. 76% of the population is adults (over the age of 18). 74% is white; 10% is Hispanic, 6% is Black or African American, 6% is Asian, 2% is American Indian or Alaskan Native. Thirty-six percent have a college degree or better; 55% have a high school diploma. The system is in the urban center of the state, adjacent to southwest Washington state.

9. List the partner's key roles and responsibilities in the project: [1000 characters] Multnomah County Library (MCL) will partner with OMSI to develop and implement Beyond Fact programming in locations throughout the Portland, Oregon community. In the first phase of the project, staff from OMSI and MCL will work together to identify reading lists of science-focused books and create accompanying discussion

guides. MCL will help identify groups interested in reading and discussing these books, and staff from both institutions will work together to implement and evaluate this programming.

The results of these evaluations will inform the collaborative development of a science-focused edition of MCL's Everybody Reads (ER) program. OMSI and MCL will work together to choose a featured book and plan an extensive set of complementary programming. MCL, OMSI, and MCL's partner organizations will implement these programs together. MCL staff will help collect evaluation information from these programs, and will assist with dissemination of the project's findings in its final phase.

Please note:

A. Submission of this application by the Authorized Representative of the applicant organization reflects the partner organization's agreement with the following statements:

- We will carry out the activities described above and in the application narrative.
- We will use any federal funds we receive from the applicant organization in accordance with applicable federal laws and regulations as set forth in the program guidelines and the terms and conditions of the grant award.
- We assure that our facilities and programs comply with the applicable federal requirements and laws as set forth in the program guidelines.

B. Prior to submission of the application, the applicant will ensure that the partner organization has provided to the applicant a signed original of this Partnership Statement for the applicant's records. Such original will be made available to IMLS, if requested by IMLS.