

**Testimony of Dr. Eric J. Jolly
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**On
"Examining the Role of Museums and Libraries in
Strengthening Communities"**

**before the
House Committee of Education and Labor
at the
Subcommittee on Healthy Families and Communities**

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Chairwoman McCarthy, Ranking Member Platts, and members of the subcommittee, thank you for inviting me here today. My name is Eric Jolly, and I am the president of the Science Museum of Minnesota. I'm grateful for the opportunity to discuss the role that museums and libraries can play in strengthening our communities. At the Science Museum of Minnesota, we reach well over a million people each year through visits, training, classes and outreach, but we strive to always increase the quantity and quality of our relationships. Our challenge and opportunity is to use our deep capacity, even more fully, in response to the nation's quiet crisis in science and math education: We continue to believe deeply that science is an essential literacy for civic and economic participation.

Science and technology based industries represent the fastest growing segment of our economy and the highest paid jobs in our future. In the next decade, three out of five leading employment growth opportunities will require a capacity in science and mathematics. We must equip the next generation for their future, not our past; it is a future highly reliant on science and mathematics literacy. Citizens must be able to ask the important questions and engage in sound and equitable public policy. Science is an essential literacy and we must address the fact that this literacy is neither widely nor equitably distributed and this deficit threatens the quality of life for our nation.

Nine Percent

Science museums—like libraries and other places of informal learning—play a critical role in education. Consider that, by the age of eighteen, a child will have spent, at most, nine percent of his or her lifetime in school. If a child spends about six hours a day in school, for each of the one hundred and eighty days of the school year, he or she will spend little over one thousand hours in school in a year. And that doesn't include homework. And it assumes perfect attendance.

Nine percent of a childhood is a great deal of time for one single activity such as schooling. But from the perspective of examining all opportunities for learning, it's a small number. I consider it commendable that schools have such an impact after only taking nine percent of childhood. But even allowing for sleep, play, and social development, that still leaves a large portion of a child's life that can be filled with joyful learning. The kind of learning that happens with their families, in the community, in libraries, in museums.

Trust

Museums have earned a place of trust in the community. A seminal study in 1999 by Lake Snell Perry & Associates found Americans trust museums above all other sources of objective information—above books and television, and far above newspapers, the Internet, radio, and magazines. Why this high level of trust? Because museums care for our most precious collections, interpret our history, are research-oriented, and they deal in facts. And families follow through with action— one-third of Americans say they have visited an art museum, a history museum, an aquarium, zoo, botanical garden, or science and technology center within the past six months.

I think I can speak for my colleagues across the country when I say that we take that trust very seriously. And we're working to leverage it, and find new ways to increase the quantity and quality of science learning and nurture healthy communities. Not surprisingly, most people's impression of museums is of our exhibit galleries, and we continue to develop exhibits that engage and excite. But some of the most innovative work is being done outside our institutions, in our communities, and beyond.

Relevancy

Relevancy is at the core of what we do. How do we achieve relevancy, and to whom? Museums are always striving to increase the value and reach of our programming to support individual engagement in the sciences—especially through families. Being relevant and interesting to an adult audience, we're expanding the range of those we serve through our exhibits and public programs. At the same time we are working to broaden the diversity of the community we reach both inside our facilities and beyond.

In addition to individuals and families, we've created partnerships that provide relevancy to formal education, at its core a focus on educators, administrators, and the programming that supports student outcomes.

And we're making new strides in our relevancy to policy makers—governing officials, business leaders, foundations, and individual thought leaders in our community who can use our expertise to make informed decisions with respect to public policy.

I'd like to share some examples of partnerships and programs that have been especially innovative, successful, and worthy of replication.

ACHIEVING RELEVANCY TO INDIVIDUALS:

Talking Circles

One of my proudest moments in our museum's galleries was when we opened the world premiere of the RACE exhibit last year. This touring exhibit—created in partnership with the American Anthropological Association will open later this month in Cleveland. It explores three themes: the everyday experience of race, the contemporary science that is challenging common ideas about race, and the history of this idea in the United States. As part of the planning for this exhibition, we created a program of Talking Circles.

Talking Circles, as they were used in the RACE exhibit, are facilitated discussions for groups of 20 or less based on Native American traditions in which all participants are invited to reflect on their experiences in learning about and experiencing race as a factor in their lives and communities. The Department of Corrections in Minnesota has used this format successfully, and we saw it as a way to extend the learning in the exhibit to a group setting. Designed for business, community and government groups, and schools, the RACE Talking Circles are a valuable, non-confrontational way to explore difficult issues in a safe environment, as well as to learn a valuable communication technique.

The museum offered two private rooms next to the exhibit for groups visiting the RACE exhibit to continue the learning opportunity afforded by the exhibit experience. Because

the museum trained Circle Keepers from local United Way agencies to facilitate the discussions those skills are now used in dozens of non-profit agencies across the community, creating an enduring legacy of capacity-building. The results were deeply gratifying—more than 4,000 visitors participated in Talking Circles, and nine out of ten participants would recommend a Talking Circle to others coming to see the exhibit. The Talking Circles were funded in part by an IMLS grant, and we appreciated the opportunity to bring a new form of learning to the museum experience, and one that has gone on to other communities across the country.

I learned how I want to be treated and how others want to be treated. We are not all the same but shouldn't be treated differently. (Age 12, African American/White female)

Great Partners and Great Tix

Museums are always striving to serve as many visitors as possible, and we don't want income to be a barrier. Since 1996, the Science Museum of Minnesota has offered reduced-rate admission to families with limited-incomes. The museum is theirs for a dollar. The *Great Tix* program encourages them to visit the museum on any day and any time of their choosing.

In 2002, the museum began collaborating with community organizations across the Twin Cities and the state in a program called *Great Partners*. In exchange for recruiting at least 10 families to sign up for the *Great Tix* programs, these *Great Partner* agencies receive a batch of free vouchers to be used as they wish for their clients, their staffs, or their supporters. Some organizations use the vouchers to bring clients as a group, some distribute them to individuals—we don't care how they're used. We see ourselves as a resource to our community—ALL of our community. The majority of low-income visitors who come the first time through one of our Great Partners then sign up to be a part of the *Great Tix* program. A second program for families with limited incomes—Great Membership—offers the same benefits as our regular membership, but at half price.

Thanks to the active engagement of the *Great Partners* the museum is signing up 240 families or individuals a month for the discount cards, and 50 families a month for memberships. And those card holders are using the museum—21,000 parents and children each year, people who would otherwise not visit this museum.

*PRISM is also delighted to request a Great Partner status with the Science Museum of Minnesota. The families we work with are very deserving and are struggling to maintain a sense of dignity about their situations. I find it truly gratifying that you have designed this Great Tix program to encourage use of your center by a wider and perhaps more economically diverse audience. Not identifying our families as "different" from any other family visiting your museum will add to their enjoyment and ultimate success of your program.
PRISM (People Responding in Social Ministry), Minneapolis*

Mentor Buzz

There is tremendous resource in the community in the form of dynamic, experienced adults with a wealth of knowledge to share. Mentor Buzz, a collaboration among the Science Museum of Minnesota and the Mentoring Partnership of Minnesota and GE Foundation, is a unique, web-based program to bring those adults together with youth in search of knowledge and guidance. Mentor Buzz creates on-line features and resources for mentors and youth, designed to increase exploration and interest in science, technology, engineering, and mathematics (STEM). The mentors and youth engage using Science Buzz, an award-winning website devoted to developing, growing, and sustaining an informal on-line learning community centered on current science topics.

Mentor Buzz builds upon the ongoing efforts of the GE Capital Solutions employee volunteer mentoring program with Minneapolis Roosevelt High School. With funding support from GE, mentors will continue to play a critical role in piloting and evaluating the use and impact of Mentor Buzz. Other GE sites across the country will be invited to participate in a national rollout of Mentor Buzz in 2009 & 2010.

Learning Places

It can be challenging to reach deep into communities to provide support. Learning Places brings learning home—literally. Funded by the National Science Foundation this program hires teenagers from local community organizations serving underserved populations to work in teams to design science learning environments for children. Through this work teen participants bridge the museum and community organization cultures to make science learning accessible to their communities. SMM has recruited and hired teens from community centers in St. Paul, MN that largely serve low-income, African American, Hmong, Somali and Hispanic populations. Once hired, teens receive extensive training and support as they work collaboratively with museum and community partners to design, develop, evaluate and create hands-on activities and environments rich in STEM content for nine after-school centers. The Joe Eriggo award was given to the Learning Places team by Common Bond in fall 2007 in recognition of contributing to community well-being.

CommonBond Communities in St. Paul, a nonprofit that develops and manages affordable housing and supports education and health—was our partner in using their staff of 150 to guide the team of 9 teens who over a year's time engaged more than 150 youth in hands on activities. For instance, one activity used an air tube in which a fan blows air through a vertical plexiglass tube. Children made simple air foils of different shapes to see what would happen when they were dropped into the tube. They made predictions, experimented to see what would happen, and then changed the shape of the object to experiment again.

In this, the final year of the project, the youth team's work will end and the focus will move to supporting 5 small science centers nationally who will draw from lessons learned in the first 3 years and develop their own unique projects. We look forward to helping launch Learning Places at museums including Explora! In Albuquerque, New

Mexico, Headwaters Science Center in Bemidji, Minnesota, Sci-Port Discovery Center, Shreveport, Louisiana, Lower Hudson Valley Challenger Learning Center, Airmont, New York, and the Pacific Science Center in Seattle, Washington.

Collector's Corner

One of the most popular exhibit areas of the Science Museum of Minnesota is a unique participatory program called the Collector's Corner. It is a natural history trading post for kids of all ages where participants can explore natural science by bringing in things they find in nature: rocks, shells, snake skins, skulls and bones, insects, or plant pieces.

Traders tell the museum staff what they know about the objects they bring in and earn points for their objects and their knowledge about them. The more they know, the more points they earn. Traders can then use those points to trade for other natural objects displayed in the Collector's Corner, or they can save their points for a future visit. There are more than 11,000 active traders, with 45% being girls, 55% being boys and most between the ages of 4-14. The Collectors Corner reinforces both children's and adult's natural curiosity about the world, and teaches important lessons about the ethics of collecting, conservation, and environmental stewardship.

As a tribute to its success, the museum is initiating a pilot project to establish several satellite Collector's Corners to be run collaboratively through urban and rural Minnesota libraries. Libraries are the perfect partners for the museum: they are highly popular and accessible destinations for families (including large numbers of under-served families), they are reference repositories, and they boast knowledgeable staff that can help children find more resources. Library administrators are strongly interested in offering more programming related to science, technology, engineering and math, and the Collectors Corner offers a unique opportunity for serving that important public education agenda.

ACHIEVING RELEVANCY TO EDUCATORS:

Science House: A resource for teachers

Our relationship with teachers goes back decades. But we recently started an exciting new chapter in our partnership with formal educators. Science House was created to provide a vibrant, professional home for teachers at the Science Museum of Minnesota. The resource center provides curricular materials loans, formal and informal consultation, professional development program support, and community-building.

In its inaugural year, it has been very well received by participating school districts, and we are confident this program will create fruitful partnerships between the museum and teachers, and among teachers themselves.

Curricular Materials Loans: The museum provides loans of materials that can be used in the classroom, but may not be available to district instructors—materials like 15 medical-school grade Leica compound microscopes, 40 student field microscopes, three 6-inch reflector Orion telescopes, skulls of 120 different animal species, and 184 Vernier probes. Current materials focus on science standards and amplify resources through the Museum that would either not be available (such as de-accessioned artifacts from SMM collections) or be cost-prohibitive from a school or district standpoint.

Informal & Formal Consultation: Teachers can drop-in for support on lesson design, identification of resources, and potential partners or programs. After-school and in-service workshops and seminars on specific topics or grade levels are available for more formal support.

Program Support & Integration: Science House is integrated with professional development programs from our museum and our partner institutions to provide seamless continuity of service. Follow up workshops are vital to incorporating the skills and relationships that begin at Science House.

Social Networking & Community-Building: Science House is a place in which educators can network across grade-levels, schools, districts, and institutions. We strive to support new teachers and promote teacher retention

Initial support from 3M launched the program, and a special state appropriation for teacher professional development has allowed to allow the Museum to expand our discipline focus so math and engineering instructors, as well as science teachers, can be part of our programming.

TRIBES

TRIBES (Teaching Relevant Inquiry-Based Environmental Science) works to increase the number of Native American middle-school students taking science courses and going on to pursue post-secondary science degrees, ultimately to have careers in the science disciplines. In 2004, the museum began working with public schools, tribal colleges, and universities in northern Minnesota on an innovative program to better serve Native American science learners. TRIBES was designed to enhance science teachers' ability to teach inquiry-based science and increase cultural awareness by integrating indigenous ecological knowledge of the Anishinaabe into science curricula, with the environment of the Headwaters region—the source of the Mississippi River—as the unifying context.

The 24-member cohort of TRIBES teachers met each summer in July for two weeks and on three Saturdays during the school year, usually on the Bemidji State University campus in northern Minnesota. During the summer institutes, faculty from BSU led participants in a variety of field and laboratory investigations, including sessions on cultural knowledge and on classroom practice. School year sessions mostly focused on cultural topics or activities, featuring stories, a day harvesting wild rice, and another day maple sugaring.

The partnership has recently been expanded to include a much broader geographic reach and to include teachers of younger students. The new cohort includes 30 teachers; twenty of the participants are new to the program, 10 are returning. The summer program is now split between Bemidji and Saint Paul, continuing to use the Mississippi River as the central context, now using different points on the river to explore spatial and temporal differences.

ACHIEVING RELEVANCY TO POLICY MAKERS

Brighter Futures

We all know there is a period of tremendous opportunity in the first years of a child's life. A new program promises to draw together early childhood efforts in exhibits, research, and public policy in exciting new ways. The Science Museum of Minnesota, partnering with the Center for Early Education and Development at the University of Minnesota is launching Brighter Futures: Public Deliberation about the Science of Early Childhood Development. This ambitious project will use small group conversations, citizen conferences, and public forums, along with a highly interactive 1,600 square-foot, exhibition, and two research studies. We aim to engage policymakers, the general public, and caregivers in conversations around the latest early childhood development research. And as each component is completed, audiences will better understand how environment and experience impact a child's development and what we as a society can do to support our youngest citizens.

Brighter Futures specifically addresses the needs of caregivers in the region who are supporting the young children of a rapidly growing Hmong, Somali, and Liberian immigrant communities. Partnerships are critical to reaching the community, so we are collaborating with Minnesota Head Start and the Minnesota Brain Conference led by the White Earth Band of Ojibwe, to extend our impact. I'm excited about how it can be useful to our visitors and our community, but beyond its impact in Minnesota, the study will shed light on how museums can engage the public in dialogue on science-related issues, and how legislators apply the exhibit and programming experiences to policy. Brighter Futures is driven by an underlying commitment to expanding the civic engagement role around this urgent social issue of early childhood development.

Plotting a course for the future

So taken together, what do all these projects mean? Museums are working to take science learning beyond our walls and into communities around the nation, and we're doing it with a guiding philosophy of integrated community involvement.

In 2006, I co-authored a study on education and careers in science, technology, engineering and mathematics (STEM). The report, titled *Engagement, Capacity and Continuity: A Trilogy For Student Success*, analyzed why successful individual reform efforts have not led to broader increases in students achieving at high levels nor entering science and math oriented careers and identifies three components necessary to increase success in quantitative sciences:

Engagement—an awareness, interest, or motivation (the *spark*)

Capacity—the knowledge and skills to advance in increasingly rigorous subject matter (the *skills*)

Continuity—opportunities, resources, and guidance to support advancement (the *pathways*)

The report maintained that when any one of the ECC components is missing, student achievement falls off. Essentially, while many programs have supported individual

components of engagement, capacity, and continuity, there has never been an effort to integrate all three.

My co-authors and I gave recommendations based on the ECC Trilogy for what educational policy makers, sponsors, curriculum/program directors, evaluators, district/school administrators, teachers, museums and other informal science institutions can do to bring about student success in the sciences and quantitative disciplines in their realm of influence.

That study has helped direct my leadership of the Science Museum of Minnesota, as I've sought the kind of partnerships that can guide students from the earliest awareness of science to gaining the necessary skills and then the fulfillment of the potential as they navigate challenges in academics and careers.

Building Healthy Communities

At every turn, libraries and museums offer the resources to spark imagination, access greater knowledge, and learn where to go next for mastery of skills. The ECC trilogy of success outlines the strategies at the core of how museums and libraries can strengthen their leadership in partnership, and nurture a healthier community.

Museums can and must grow and change, providing real value as part of a larger effort in order to remain relevant. We will never stop being a destination, but must also be a part of the fabric of learning throughout the community—partnerships with libraries, formal learning, community groups. We are committed to being at the forefront of making our communities more scientifically literate, more engaged, and prepared for the challenges of the 21st Century.