INSTITUTE of Museum and Library SERVICES

Talking Points: Museums, Libraries, and Makerspaces

September 2012

By the Numbers

- In 2006, American students ranked 21st out of 30 in science literacy among students from developed countries, and 25th out of 30 in math literacy.
- In 2009, 4th graders showed no signs of progress for the first time in many years, and 8th graders tallied only modest evidence of progress.
- The $3.4 billion for STEM education investments in FY10 is less than 1% of the total annual funding for education in the U.S.

Hands-on activities at the 2011 Maker Faire at New York Hall of Science in Queens. Photo by Andrew Kelly.

What are makerspaces?

Makerspaces are part of a growing movement of hands-on, mentor-led learning environments to make and remake the physical and digital worlds. They foster experimentation, invention, creation, exploration, and STEM learning. The movement aligns with President Obama's Educate to Innovate initiative and his call to "think about new and creative ways to engage young people in science and engineering [and]…encourage young people to create and build and invent—to be makers of things, not just consumers of things." (Obama, 2009)

Museums and Libraries as Makerspaces

There is an explosion of interest among museums and libraries in "making" environments. In response to changing public expectations and the changing civic and educational roles (and potential) of museums and libraries, these institutions are leveraging their resources, collections, and public trust to strengthen community-based learning, particularly for critical thinking, problem solving, collaboration, and engagement in STEM. Makerspaces allow visitors a place to pursue their own interests in building things (physical or virtual) and to collaborate and share with one another. Private funders, including the Cognizant, MacArthur, and J.D. Bechtel, Jr. foundations, have supported museum and library-based maker programs. Examples of museums and libraries embracing the maker initiative include the Exploratorium (CA), the Henry Ford (MI), the Carnegie Library (PA), the Westport Public Library (CT), the Fayetteville Free Library (NY), the Newark Museum (NJ), and the Detroit Public Library (MI).

IMLS Support of Makerspaces

In addition to providing significant support for STEM and creative learning projects, IMLS grant programs have supported Maker-type activities including digital studios, teen-focused technology toolkits, and mobile digital media labs for youth. Two IMLS-MacArthur Learning Labs grants (part of the "Educate to Innovate" initiative)

have supported makerspaces. A third is working to house Maker Corps members in the summer of 2013. Maker activities will be a focus for the agency in FY14, and IMLS looks forward to working with public and private partners to expand opportunities for these projects across the country. Examples of current IMLS-funded maker projects include:

- The **Children's Museum of Pittsburgh,** in partnership with the New York Hall of Science, was awarded 2012 **National Leadership Grant** of $444,296 to conduct a research study of family participation in museum-based maker spaces. The museums will work with academic researchers to design tools that recognize and measure productive patterns of family participation and their associated learning outcomes in these spaces.
- The **New York Hall of Science** received a 2012 **Learning Labs in Libraries and Museums** grant of $100,000 to plan and prototype a youth-centered, community-engaged Digital Making program within the museum's new Cognizant Maker Space. Digital Making is a program that will empower diverse groups of middle- and high-school youth to investigate and communicate STEM topics through digital media including sound, video, and games. The Digital Making program hopes to ensure these students have the clearest possible pathway to futures in the sciences, technology, engineering, and mathematics, and can participate as fully informed citizens.
- The **New York Hall of Science,** also received, in partnership with the **Queens Museum of Art,** received a 2011 **Museums for America** grant of $115,866 to begin Queens Makes, a program to foster invention, experimental problem solving, design, and building for young tinkerers and their families. Queens Makes will create ongoing weekend programming to extend the spirit of World Maker Faire by partnering with the local Latino, Asian, and Caribbean communities and encouraging them to engage with the museum as a place to showcase their talents and passions.
- The **Oregon Museum of Science and Industry,** in partnership with the **Multnomah County Library,** received a 2012 **Learning Labs in Libraries and Museums** grant of $100,000 to begin an in-depth planning and design process for the implementation of a hands-on Community Maker Center. Once completed, the space will be a resource for youth to gain the 21st century skills needed to participate in a productive civic life. The Maker Center will align with Ninth Grade Counts, an effort to connect youth entering grade nine with the support they need to begin high school on the right track.

Useful Resources

Britton, L. (2012). "A Fabulous Laboratory: The Makerspace at Fayetteville Free Library." *Public Libraries,* 51(4), 30-33.

New York Hall of Science. (2012). *Design-Make-Play: Growing the Next Generation of Science Innovators.* New York, NY: New York Hall of Science.

Petrich, M., Wilkinson, K., & Bevan, B. (in press). "It looks like fun, but what are they learning?" In Honey, M. & Kanter, D. (Eds.), *Design, Make, Play: Growing the Next Generation of STEM Innovators.* New York, NY: Routledge Books.

About the Institute of Museum and Library Services

The Institute of Museum and Library Services is the primary source of federal support for the nation's 123,000 libraries and 17,500 museums. Through grant making, policy development, and research, we help communities and individuals thrive through broad public access to knowledge, cultural heritage, and lifelong learning. To learn more about IMLS, please visit www.imls.gov.