

PARTNERING TO ENHANCE EDUCATION AND PUBLIC ENGAGEMENT PROGRAMS. C. Shupla¹, D. Bialeschki², S. Buxner³, L. Felske⁴, S. Foxworth⁵, P. Graff⁵, L. Peticolas⁶, A. Shaner¹, A. Smith Hackler¹, ¹Lunar and Planetary Institute (3600 Bay Area Blvd., Houston, TX 77058, shupla@lpi.usra.edu), ²Planetary Science Institute, ³American Camp Association, ⁴Harris County Department of Education, ⁵Jacobs @ NASA JSC Astromaterials Research and Exploration Science, ⁶Multiverse at Space Sciences Laboratory.

Introduction: Collaborating with partners is a fundamental aspect of the Lunar and Planetary Institute's (LPI) educational and public engagement efforts. Such partnerships enable scientists and educators to include members of the audience in program planning and execution. Ultimately, partnerships strengthen programs by providing diverse resources, expertise, and expanding the potential audience.

Best Practices for Partnerships: Research and experience yield a variety of best practices [1].

Partnerships take time to build. Each partner needs to learn about the other institution's experiences, resources, and needs. Trust and respect need to be earned and demonstrated [2]. This requires an investment of time by members of each organization to build a solid working relationship. For instance, LPI educators and the science engagement staff at NASA Johnson Space Center Astromaterials Research and Exploration Science (ARES) Division have dedicated significant time to work together over many years.

Partnerships require ongoing respectful communication. This is not only true for collaborations with organizations providing resources and expertise, but also when partnerships are formed to engage new communities (e.g. with an organization reaching underserved audiences). These partners have insights into their community's needs, interests, and experiences.

These partnerships, like all true collaborations, require two-way communications; both partners can provide valuable input as programs are planned [3,4]. For example, the American Camp Association is instrumental in sharing the needs and experiences of camp professionals for engaging this community.



Image 1. Partnerships with libraries enable LPI to engage a more diverse audience.

Partnerships require recognition of strengths, resources, and mission. A successful partnership leverages each organization's strengths and resources. While the missions of each organization may vary, they need to be compatible for the partnership to function. For instance, a partnership may flourish between an organization focused on serving a particular community (such as libraries), and another primarily providing a particular service (such as space science education) as long as the proposed collaboration meets both organization's missions.

Partnering for Workshops: LPI conducts a variety of trainings to provide NASA content and resources to informal and K-12 educators. LPI has partnered with the ARES Science Engagement Staff, multiple state library associations, the Harris County Department of Education, the American Camp Association, and Johns Hopkins University's Applied Physics Laboratory, among others, to deliver workshops. Partners have helped connect LPI to new audiences, such as librarians and camp professionals around the United States and teachers throughout the Houston area. Working with other NASA programs and missions has allowed workshop participants to access subject matter experts, laboratories, and resources beyond what LPI alone can provide.



Image 2. ARES has arranged for tours of the Lunar Lab or Visiting Viewing Area for some teacher workshops.

Partnering for Engagement Events: Bringing in outside organizations to public events provides a deeper, more diverse experience for the audience. To serve the public, LPI holds several public events per year called Sky Fest, featuring activities for children, tele-

scopes for night sky viewing, and a short scientist lecture. LPI partners with the NASA Johnson Space Center Astronomical Society (which provides telescopes and interacts with members of the public as they are viewing celestial objects) and ARES Science Engagement Staff, who conduct activities and share valuable resources such as lunar samples. LPI also conducts outreach at local libraries and with other partners; these partnerships serve to expand our audience to communities that do not have access to LPI facilities.



Image 3. Volunteers with the Pasadena Fire Department have helped with LPI family events conducting the Egg Drop experiment.

Partnering to Improve our Performance: Partners can provide valuable insight into how we conduct our programs and ways to improve or make changes for different audiences and changing objectives. LPI has received valuable input from the different communities we serve, as well as from colleagues who also conduct NASA science education and public engagement programs. This input has been through collaborating together on workshops and events, through our own professional development sessions, and through evaluation of our efforts. LPI has benefitted from evaluation of our programs by colleagues at the Planetary Science Institute, at Harris County Department of Education, and at McREL, among others.

Conclusion: While partnerships take time and resources, they are a key element to successfully engaging audiences, to improving programs, and to leveraging the variety of resources and expertise that the science education communities offer.

References: [1] Mattessich P., Murray-Close M., and Monsey B. (2001) *Collaboration: What Makes It Work, 2nd Edition*. Saint Paul, MN:Amherst H. Wilder Foundation. [2] O’Neill B. (2016) *Brian O’Neill’s 21 Partnership Success Factors*, National Park Service, www.nps.gov/partnerships/oneill.htm. [3] Shupla C. et al. (2013) “Engaging and Supporting Culturally Diverse Audiences,” *Communicating Science: A National Conference on Science Education and Public Outreach*, 61. [4] Ceballos, M. (2007) “Outreach to Native Communities: Considerations & Styles of Interaction,” *Engaging Multicultural Audiences in Planetary Science*, Education Workshop at LPSC 2007 www.lpi.usra.edu/education/lpsc_wksp_2007.