

# Public Libraries and STEM

## An Interview with Paul Dusenbery and Keliann LaConte

In August 2015 the first-ever Public Libraries and STEM conference took place in Denver. This National Science Foundation (NSF)-funded event brought together library staff, science center staff, and academics to talk about serving all age groups through libraries and STEM learning. The following is an interview with the two primary organizers of the event, Paul Dusenbery and Keliann LaConte.

**YALS:** Before you describe the Public Libraries and Stem Conference, tell readers a bit about the work you do.

**Paul Dusenbery:** I founded the Space Science Institute (SSI; headquartered in Boulder, Colorado) and currently serve as the director of SSI's National Center for Interactive Learning (NCIL). SSI has about 60 staff including 30 amazing scientists who are studying how our Sun affects Earth, exploring the harsh but awe inspiring landscapes of Mars, and learning about planetary systems far beyond our own solar system. I have been interested in communicating science, and more recently STEM, to all sorts of audiences—K–12 students, undergraduates, and families—who visit museum exhibits that I developed

(along with some great partners). NCIL is leading a new direction for STEM education in partnership with ALA, the Lunar and Planetary Institute, and the Afterschool Alliance (along with many other strategic partners) to provide interactive STEM exhibits, programming, and training to public libraries nationwide. This groundbreaking, NSF-funded library program, called the “Star Library Education Network” (STAR\_Net), is reaching and positively impacting underserved and underrepresented communities. STAR stands for Science Technology Activities and Resources. I am the primary investigator and project director. Nearly 1 million patrons have visited STAR\_Net's *Discover* exhibits, over 50,000 have participated in hundreds of programs conducted by host libraries, and over 1,000 librarians and STEM professionals are part of the STAR\_Net online community. Other funders and sponsors of STAR\_Net programs, including the Public Libraries and STEM Conference, are the National Institutes of Health, FIRST and the LEGO Foundation, NASA, and KEVA Education. See [www.STARnetlibraries.org](http://www.STARnetlibraries.org) for more information.

**Keliann LaConte:** I lead the informal education efforts at the Lunar and Planetary Institute (LPI), which is a research institute in Houston, Texas. Our education and outreach efforts promote science literacy and engage the public, build capacity of educators to reach their audiences, and engage scientists in education and public outreach. The LPI is operated by the Universities Space Research Association (USRA) under a cooperative agreement with NASA's Science Mission Directorate.

**YALS:** How did you end up working with libraries within the STEM world?

**PD:** My involvement with public libraries began around 2007–2008, when I developed a pilot STEM library exhibit called *Discover Space*. This exhibit toured Colorado libraries from 2007 to 2010. ALA and SSI partnered on a STEM in Libraries survey that focused on exhibitions. Because of this early success, NCIL was able to receive funding from NSF for the first phase of STAR\_Net. Partners included ALA, LPI, the National Girls Collaborative Project, and others. The focus of that project was on developing two museum-quality traveling exhibitions: *Discover Earth* and *Discover Tech*. The project also included developing STEM activities, conducting various types of trainings (in-person workshops and webinars), and establishing a national community of practice of those working in libraries and STEM professionals. Since then STAR\_Net projects have grown to include other funders such as NASA, NIH, IMLS, and Lego.

**KL:** LPI has designed space science programming resources with and for libraries for over 15 years through the *Explore* program, and more recently, in partnership with the STAR\_Net team. LPI has expertise in developing planning tools for children's and youth library staff to use in facilitating hands-on science and

engineering learning experiences. The *Explore* model incorporates input from scientists and engineers, science educators, and library staff to design engaging, relevant experiences for the diverse youth of our nation, while taking into consideration the unique strengths and opportunities of the library learning environment. Training opportunities are designed to complement the existing skill set of library staff, while helping them develop the confidence and background knowledge needed to facilitate STEM learning experiences. Thanks to generous funding from NASA and NSF, over 1,000 library staff have been trained to use the materials, and these partners are using them to attract new audiences and further their missions to instill habits of lifelong learning and literacy in their patrons. Visit [www.lpi.usra.edu/explore](http://www.lpi.usra.edu/explore) for more information.

**YALS:** How did the Public Libraries and STEM conference come about?

**PD:** When I approached Keliann several years ago about the conference idea, we had to decide whether bringing the public library and STEM communities together was a good idea or not. We had lots of anecdotal evidence that suggested that the timing was good for such a conference. In our proposal to the NSF we laid out a pretty good case for why now and who should be invited and what the possible impact of the conference could be in the months and years ahead. Because we knew both communities well, we hoped that something good and lasting could come out of the event. The conference's overarching goal was to facilitate strategic partnerships between the public libraries and STEM education communities. Toward that end, the conference brought together researchers, library staff, funders, and STEM and library leaders.

**KL:** After providing professional development and resources to library staff

over the years, it became clear that there is a tremendous amount of innovation and grassroots work being done to provide STEM learning experiences for patrons. Yet, there isn't a clear mechanism for sharing successes and challenges with others in the profession—and libraries don't routinely compare notes with more traditional venues for STEM learning, such as museums! We needed leaders from local, state, and national libraries; professionals from related associations; STEM leaders from informal science education institutions, universities, and research institutions; and individuals engaged in evaluation, funding, and policy to come together. Thanks to the support of our national organizing committee and generous sponsors, we were able to bring many key leaders together.

**YALS:** Why did you think it was important to organize this type of gathering?

**PD:** The public library of today is very different from that of 10 years ago. Librarians used to help patrons access card catalogs, indexes, and reference books; now they help patrons choose the right search engine, use websites on specific subjects, learn how to navigate through a myriad of online tools, and are asked more frequently to conduct various types of STEM programs for their patrons. As places that offer their services for free, public libraries have become the "public square" by providing a place where members of a community can gather for information, education programming, and policy discussions. Just as 21st-century skills include innovation, creativity, and critical thinking, libraries are developing new ways to engage their patrons (especially kids and teens) in STEM learning. Across the country libraries are hosting science Saturdays, robot races, LEGO clubs, maker spaces, hands-on workshops, and museum-quality STEM exhibitions. Building the

capacity of public libraries and library staff to deliver engaging, inspirational, and educational STEM programs has the potential to transform the STEM education landscape nationwide.

**KL:** Together, these various groups could explore where there are challenges and what existing resources and expertise can be used to address those challenges. It was also an opportunity to celebrate successes and draw attention to the tremendous work that is being done. Both the STAR\_Net and Explore! programs were supporting the national trend of STEM learning in libraries, but we needed to come together with others to take things to the next level. The conference has succeeded in drawing attention to the past successes and future opportunities for library-STEM collaborations.

**YALS:** What were your favorite takeaways from the conference?

**PD:** I loved that we were able to hear from knowledgeable and inspirational speakers. Concepts such as free choice learning, collective impact, and the power of facilitation permeated the conference. We learned about ideas to reach underserved populations and underrepresented groups. We thought long and hard about what the keys were for a successful STEM learning program in a library. We were able to look critically at our communities and undertook a SWOT analysis. The two poster sessions were another opportunity to discuss programs and ideas with one another in one-on-one or small group interactions. The sessions were very successful. I thought that the posters were of such high quality that we have asked for PDF versions and will create a resource that anyone can access (on the STAR\_Net online community site).

**KL:** Libraries bring unique contributions to the field of STEM teaching and learning. They aren't schools

or museums—they bring their own professional skill sets and resources to their communities.

- Library staff continue to need training—at the professional and graduate levels—on facilitation skills and STEM content knowledge.
- To paraphrase Marsha Semmel, one of the conference presenters, we need to consider and honor new forms of learning as our culture shifts from one of consumption to one of production. Maker spaces are great venues to help patrons learn as they create; citizen science is unfolding as a way for patrons to not only build *things* but *knowledge* for the whole of society.
- For all of us working to provide STEM learning experiences, it isn't just about STEM but people and connections. Whether it's STEM or STEAM or some other combination of skills and knowledge, our communities will benefit from having access to the richness of our world through our collective efforts.
- We need to join forces because we can accomplish more together than alone.

**YALS:** What were you surprised by during the conference?

**PD:** I was pleasantly surprised by how well both library staff and STEM professionals were able to connect and talk like they had been friends for years. I think that having an event at the Denver Public Library that included a tour of their maker space and a reception along with a reception/banquet at the Denver Museum of Nature and Science that included a fabulous presentation by senior vice president, Scott Sampson, made for rich and informal networking opportunities.

**KL:** How much energy could come from a convening like this! The ideas

were free flowing and people were making connections with each other!

**YALS:** What would you like to see as a follow-up to the conference?

**PD:** There are two important activities planned:

1. STAR\_Net will be leading a public engagement campaign called STEM @ My Library that is modeled after Lights on Afterschool led by the Afterschool Alliance. Interested? Contact Anne Holland at [aholland@spacescience.org](mailto:aholland@spacescience.org).
2. A Leadership Forum. The Forum's purpose will be to support the creation of STEM learning opportunities in public libraries nationwide, which means understanding that libraries have different resources and strengths and serve unique communities. It will include library directors, key library staff, library science educators, and policy makers, as well as STEM professionals and educators. It will also include professional association leaders. The Forum's primary goal will be to foster some of the leadership needed to help nurture the STEM-in-libraries movement by exploring and writing about the infrastructures and approaches needed to support and sustain long-term STEM learning in public libraries. This exploration will also include questions of how to incorporate the STEM-in-libraries movement into the larger movement to transform libraries into community learning centers addressing a host of literacies and 21st-century skills.

Initially, the Leadership Forum will be developed using the STAR\_Net project infrastructure that includes a WebEx communication system. During implementation, a Leadership Forum

website, accessible from the STAR\_Net project website, will launch. Everyone will be invited to join the Forum, which may require registration. The Forum site will be a place where members can upload and access key resources and participate in discussions. Existing members will then be encouraged to invite colleagues to join. Ideally, the Forum should produce a quarterly newsletter consisting of articles produced by members, as well as by invited authors. A sign-up process will be announced in an upcoming STAR\_Net Newsletter (see info below).

**KL:** I'd like to see more dialogue like this, which takes us outside of our daily grind and connects our work to the bigger picture. Collaboration requires time, persistence, and the ability to really *listen* to what your colleague needs and how she or he contributes to a joint effort. Yet, we can do so much more if we talk to each other and freely share what we have learned from our mistakes as well as our successes.

**YALS:** What advice do you have for library staff who want to connect with science organizations and support STEM learning in their community?

**PD:** The easiest thing to do is ask! Most public benefit institutions (like museums, zoos, and parks) have a mandate to do local community outreach. Libraries provide a venue that (as schools are tightening down on programming) these institutions are normally thrilled to visit. You can also talk with local community college and university staff to set up talks based on their current research. We've seen libraries get a whole summer lecture series off of a single phone call.

Another great tip is make it fun! Scientists get a lot of requests to do lectures, not so many to do a "Science Fact or Fiction" night, where your patrons can watch a movie like *Armageddon* and

be treated to a “Mystery Science Theater 3000”-esque commentary from a real scientist in the field!

The easier you can make it for the STEM professional, the better. Have a specific idea in mind when you approach them, and be flexible when they have other suggestions. Remember, the worst that can happen is they say “no,” and the best is a long-term partnership with that individual or institution!

**KL:** There are amazing people out there, working to make our world a better place. Reach out and don’t give up if you aren’t able to find a match on your first try. There is help out there in the form of new partnerships.

**YALS:** What else would you like YALS readers to know about the work you do?

**PD:** What each of you does is so important because you focus not only on young adults but their families as well. Let’s not forget that your library has the power to engage your whole community in a variety of timely and relevant STEM topics. Andrew Carnegie once said that “A library outranks any other one thing a community can do to benefit its people.” Have you seen this quote? You and your library can be a national STEM resource for the 21st century. Let’s work together to achieve this ambitious goal!

Be sure to sign up for the STAR\_Net Newsletter, contribute to the community blogs, and participate in STAR\_Net webinars: [www.community.starnetlibraries.org](http://www.community.starnetlibraries.org).

**KL:** There are so many library staff making connections to STEM or informal education professionals in their

communities—I’d love to honor each and every one! I recommend reading through the abstracts from the conference program at [www.stemlibraryconference.org](http://www.stemlibraryconference.org). There are some great ideas there! I think Sally Chilson (Spokane Public Library) offered an excellent insight for us all from the beginning of her relationship with a local STEM-related nonprofit—saying “yes” leads to things.

We are working to engage both library staff doing great work directly with their communities, as well as state libraries and associations and STEM organizations. We’d like to work in collaboration with others to provide ongoing opportunities and STEM learning resources to public library staff. We invite you to be a leader in this—reach out to your state library and your professional associations so that they can help highlight this important work. **YALS**

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## from the President *(continued from page 3)*

It’s a bit of a different tack for YALSA. However, the Board and Executive Committee believe it will give YALSA the planning framework it needs. The strategic planning process used is outlined

in the YALSA Highlights section of this issue.

Also, be sure to save November 4–6, 2016, when we’ll hold our next YA Services Symposium in Pittsburgh,

Pennsylvania! Visit [www.ala.org/yalsa/yasymposium](http://www.ala.org/yalsa/yasymposium) for more information or to apply for a travel grant to attend. I hope to see you in November in the Keystone State! **YALS**

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