



KANSAS/MISSOURI **SySTEM**

Strategic Planning Session

**Partners Coming Together to
Elevate STEM Learning for
Future Workforce Needs**

Proceedings Report
April 9, 2014

Kansas City, MO

KANSAS/MISSOURI SySTEM

The Kansas Enrichment Network (KEN) and the Missouri AfterSchool Network (MASN) jointly convened the 2014 SySTEM Strategic Planning Session with generous support from the Noyce Foundation and the Charles Stewart Mott Foundation.



One of the hottest topics in youth development is Science, Technology, Engineering and Math (STEM). Research has consistently demonstrated both the critical need for STEM in the future workforce and the positive effects of STEM learning on youth outcomes. Youth who have opportunities for afterschool improve work habits, academic performance and attendance in schools.¹ Add STEM learning and the result is: improved attitudes toward STEM fields and careers; increased STEM capacities and skills; and higher likelihood of graduation and pursuing a STEM career.² Schools offer *STEM learning but often cannot fit the range of experiential, hands-on programming into a jam-packed school day*. Out-of-school (OST) time programs are key partners in increasing youth access to and engagement in STEM learning.

With support from the Noyce Foundation, the Kansas Enrichment Network (KEN) and Missouri AfterSchool Network (MASN) have emerging STEM initiatives, providing support, training and technical assistance to out-of-school time programs focused on staff development and youth programming. Initial efforts have been successful, building a great deal of momentum, a strong foundation, and a sense of urgency for STEM integration.

Building on existing efforts, KEN and MASN jointly convened a community conversation to inform next steps in STEM integration. Over 65 local, state-level, and national partners participated in the KS/MO SySTEM Strategic Planning Session: Partners Coming Together to Elevate STEM Learning for Future Workforce Needs, held on April 9, 2014 at the United Way of Greater Kansas City.

Strategic Planning Session

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The Planning Session utilized an Appreciative Inquiry approach, a strengths-based, solution-focused methodology that is designed to fully engage stakeholders by using a “4-D” Cycle (Cooperrider & Whitney, A Positive Revolution in Change: Appreciative Inquiry):

| Appreciative Inquiry “4-D” | STEM Session Guiding Question |
|----------------------------|-------------------------------|
| Discovery | What has worked well? |
| Dream | What else might we do? |
| Design | How will we do it? |
| Destiny | Who can do it? |

In five (5) small groups of six to eight, participants were given 15 minutes to discuss each question. A note-taker recorded the discussion and notes from each group were transcribed and analyzed using a constant comparative approach. Findings are presented by question, noting key themes and *what*.

RESULTS

What has worked well?

Collaboration was an overarching theme identified in every small group. Participants talked specifically about several different collaborative efforts.

There is a need for partnerships/alignment between school day and out-of-school time programs “Bringing informal and formal educators together.”

A strong emphasis was placed on the importance of the Networks' “Shared vision in and out of classroom.”

Local level collaborations are critical. We need, “Orgs working together toward common goal.”

Professional development was an emergent theme identified by all groups. Comments were fairly diverse, presenting different ways of tackling the issue in practice:

One group talked about engaging professional skilled volunteers, brought in to share their STEM-related content knowledge, while another group identified the importance of making materials accessible to leaders with no formal science background.

Consistently, there was a fundamental view that “teaching adults to be core explorers [with] freedom to make mistakes” was important to successful professional development in STEM.

Finally, mentorship and relationship building were identified as key to the ability of program staff to successfully engage youth in STEM programming.

Advocacy was discussed in fewer groups, but resonated as a critical issue. Specifically, the importance of “speaking with one voice” and using youth and data to tell the story emerged as ideas worth further exploration.

Additionally, groups discussed the need to change community norms about out-of-school time through “front-line ownership,” by shifting the view of out-of-school time as “babysitting” to out-of-school time as valuable and important programming.

Participants also discussed the need to build on the *passion for out-of-school time programs* of funders, staff and volunteers.



What else might we do?

Advocacy was the prevalent theme. Potential strategies included:

- Creating a common language
 - All stakeholders – programs, parents, funders, legislators, business partners – should use a shared vocabulary about out-of-school time.
- Making sure that vision/message is clear
 - “What is our ASK?”
- Using testimonials from youth
- Targeting messaging to donor needs/interests
- Engaging in collaborative advocacy
 - Out-of-school time programs should work together to advocate for a large pie, not spending time competing for limited resources.
- Becoming better advocates by:
 - Making it a part of the job
 - Working with youth, parents and staff to tell the story
 - Reaching out to elected officials outside of legislative sessions

Consider “going viral” to be effective advocates, noting “#afterschool” as a way to build awareness and urgency for the issue.



Teach adults to be core explorers with the freedom to make mistakes. Build on the passion for out-of-school time programs. Partnership is the only pathway to sustainability.



Representative Melissa Rooker, Fort Hays State University Professor Paul Adams and Matt Krehbiel from Kansas State Department of Education believe advocacy, collaboration and high quality programs are essential.

Collaboration surfaced in all 5 groups as an area of opportunity. One table noted that “partnership is the only way for sustainability,” capturing what was a common theme throughout the event. When talking about what else could be done around collaboration, ideas included having a cross-disciplinary focus (specifically partnerships with businesses) and focusing on joint advocacy.

High Quality Programming and Evaluation were specifically identified by 4 of the 5 small groups as key areas for growth. Participants discussed several key components of using evaluation effectively for growth and sustainability, including:

- Conducting a gap analysis that informs a targeted approach based on the data
- Establishing and articulating program outcomes
- Collecting and analyzing data longitudinally, following youth from programs into careers
- Reporting comprehensively on the outcomes of programs

Other ideas that emerged from the ‘what else can we do’ discussion included:

- Focusing on a STEM campaign, not an out-of-school time campaign
- Professional development for staff and volunteers
- Addressing the lack of consistency with funding, program availability, and staffing

How will we do it?

Primary themes - **advocacy, collaboration and professional development to promote high quality programs** - emerged as key target areas. Participants suggested a strengths-based approach in all areas, focusing on recognizing and building on the successful work that has already been done and/or the infrastructures that are already in place. Specific ideas within each of the themes are presented below.

Advocacy

- Create a model focused on informing/educating/involving varied media including press releases and peer-to-peer sharing
- Establish a clear message that is used by all stakeholders, shifting advocacy from program level
- Develop a story bank that draws on experiences of youth, parents and staff
- Create a map of needs, looking at supply of and demand for out-of-school time services to make the case for funding

Collaboration

- Focus on building relationships first, then working together
- Use existing alliances, partnership, and organizations to involve stakeholders
- Be clear about the benefits of collaboration
- Address the challenge of personal versus institutional relationships so that partnerships are not lost when a person leaves an organization
- Break down barriers between organizations
- Identify common goals
- Use a similar SySTEM Strategic Planning process at the regional levels in Kansas and Missouri to build local partnerships

High quality programs through professional development and evaluation

- Organize professional development around established common goals
- “Do what works” – “intensive courses (week long training)”
- Expand and recruit education partners to help in out-of-school time programs
- Work toward opportunities to professionalize out-of-school time positions, including “worthy wage” campaigns; degree programs in higher education; and, convincing and engaging parents around the importance of qualified, trained staff

Strong curricula exist. Focus should be on improving program quality, not developing new curricula. Coupled with an overall urgency for progress was the caution that this work will never be done. A long-term commitment is essential.

Who can do it?

Participants were asked to identify who – individuals or groups – could help to move this work forward. The group generated a robust list of new and existing key partners:

- Chambers of Commerce
- Legislators
- Community-based programs
- Hospitals
- Business leaders
- Parents (including PTA)
- Youth
- State networks (KEN and MASN)
- Specific programs (Kansas Starbase; Missouri Math and Science Coalition)
- Schools, including Boards of Education, superintendents, and principals
- Foundations/funders
- Higher education
- Program staff

Through the discussion, more detail emerged related to evaluation. Specific tools were identified that could support cross-program data collection, including:

| Tool | Organization |
|-------------------------------|--------------------------------------|
| Common student evaluation | KEN |
| Program evaluation tool | KEN |
| DoS | KEN |
| Database to collect “stories” | Science Pioneers KS STEM Alliance |

NEXT STEPS

Planning Session facilitators led a full group debrief focused on identifying next steps and actionable items. Participants were asked to indicate what emerged for them from the discussion. Responses echoed the key themes of the night: Advocacy, Collaboration and High Quality Programming. Specific points included:

Advocacy

- Broaden the message to incorporate our impact on workforce development and community outcomes
- Involve unlikely partners in telling our story – civic leaders, corporate partners, parents
- Coordinate our efforts by:
 - Increasing our use of common messages
 - Working across state lines
 - Using the community conversation format at a local level to keep the dialogue going for funding

Collaboration

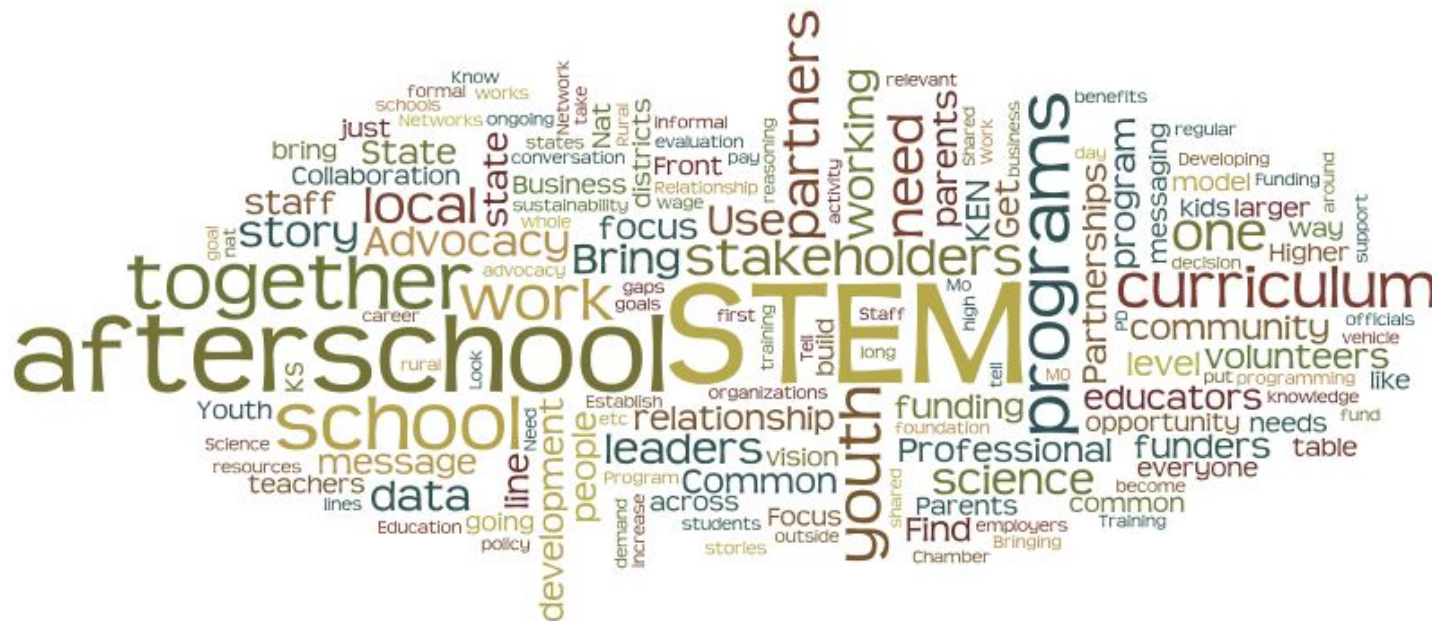
- Don't reinvent the wheel
- Create partnerships at all levels – with large and small organizations
- Get key players involved and leverage resources – find out who does what well

High Quality Programming

- Create equity and consistency across programs and services through shared learning and outcomes/evaluation
- Provide ongoing learning opportunities not just for front line staff, but for managers and directors as well

Specific partners identified included:

- Finally, participants were asked to identify opportunities to create a sustainable impact for STEM in out-of-school time programs. In addition to the re-occurring themes of advocacy and collaboration, one table offered the comment that **“this [work] is a marathon – what we need are persistent, deliberate steps. We need to cautiously, carefully, deliberately move forward together.”**



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CONCLUSION

There is tremendous support and commitment in both Kansas and Missouri to STEM learning, to out-of-school time programs, and to the integration of the two. Three inter-related themes emerged as key components of systems development:

Advocacy

Participants recognized the importance of advocacy using a clear, coordinated message that identifies specific outcomes. Leveraging the benefits of both STEM learning and high quality out-of-school time programs to grow the system was a consistent point. “STEM is our vehicle to promote afterschool and afterschool is a vehicle to promote STEM.” Both formal and informal advocacy can lead to positive progress.

Collaboration

Overwhelmingly, participants identified cross-sector and cross-program partnerships as the basis for future work in STEM and out-of-school time integration. The importance of establishing a common agenda and shared language is clear. These collaborative efforts will be critical to the success of advocacy efforts, providing the field with “a REALLY BIG VOICE.”

High quality programs

Discussion centering on professional development and evaluation was really, at its core, about the high quality of programs that are available to youth. Addressing professional development will lead to staff and volunteers that are better prepared to deliver STEM content, increased youth engagement, and other pertinent outcomes. Evaluation that is used to guide a continuous quality improvement process builds an ongoing system of accountability, which is a key selling point for collaboration and advocacy.

Session participants reported on current projects, highlighting successful STEM integration in both Kansas and Missouri, including:



Fort Hays State University, Hays KS / [Dr. Paul Adams](#)

The Fort Hays State University Science and Mathematics Education Institute has been working with the FHSU Forsyth Library to develop a community-wide MakerSpace to serve Hays and the greater Ellis County. The MakerSpace, which opened in November of 2013, is already seeing active use by university students, K-12 students, and community members - for 3D-printing and imaging, working with Arduinos and Raspberry Pis, to making sculpting clay. A highlight was a middle/high school workshop on high altitude ballooning that made use of the MakerSpace and individual consulting with school groups. Upcoming events include S3 - Super STEM Sunday for K-12 students, and summer out-of-school programs running from the mathematics of roller coasters, e-Textiles, and robot missions.



Click2Science, Univ. of Nebraska, Lincoln NE / [Holly Carr](#)

Click2Science is an online, blended professional development site for trainers/coaches of frontline staff in out-of-school time programs serving children and youth, to enable them to be confident and comfortable teaching STEM. Developed by the University of Nebraska-Lincoln and partnered with the Noyce Foundation, Click2Science focuses on skills, not content, to improve the quality of STEM education by providing multi-learning professional development through 20 essential skills in the core areas of planning STEM learning experiences, interacting with youth, and building STEM skills. *Create Moments that Click* at [Click2SciencePD.org](#)



Noyce Foundation / [Ron Ottinger](#)

The STEM in OST initiative, a collaboration between the Mott and Noyce foundations, is leveraging the Mott Foundation's national network of 40 state-level afterschool intermediaries by introducing science programming and technical assistance into statewide networks, with a goal of reaching 19 states over 3 years. The Noyce Foundation began support of major work in seven statewide afterschool networks, including Kansas and Missouri. Implementation is now underway in 15 states.



Kansas State University, Olathe, KS / [Joan Leavens](#)

K-State engages and excites youth and youth leaders, whether teachers, program leaders, or the students themselves, to explore STEM careers through university, industry, and government (local, state, federal) workplace experiences. The Kansas State University Urban Water Institute works with these partners to develop classroom, laboratory, and field instruction integrated into existing programs. The Institute collaborates with other workforce development and STEM education initiatives locally and regionally through K-State Research & Extension, participation on Chamber of Commerce workforce development committees, and local and regional networks of formal and informal science educators.



Kansas Enrichment Network, Lawrence KS / [Michelle Wilson](#)

KEN connects with a variety of afterschool programs throughout the State of Kansas that increased exposure to STEM activities as a regular part of their curriculum. KEN utilizes pre/post youth surveys and the Dimensions of Success (DoS) Observation Tool³ to assess the quality of STEM activities in out-of-school time programs. Partnerships with a variety of organizations such as 4-H, the Boys & Girls Clubs, YMCA of Greater Kansas City, Johnson County Park and Recreation District, and the YWCA of Topeka provided opportunities to utilize DoS to analyze STEM content delivery and follow up with coaching and professional development to increase staff skills.



National Girls Collaborative Project / [Timothy Fowler](#)

The Missouri Girls Collaborative brings together organizations committed to improving STEM opportunities for girls in order to work together for that end. The National Girls Collaborative Project (NGCP) hosts a Program Directory that allows organizations and individuals to share their resources and needs, as well as location, so willing partners can find each other quickly and focus on collaborating. More information can be found at <http://www.ngcproject.org/>



Kansas State University, Olathe KS / [Dr. Micheal Strohschein](#)

Kansas State University Olathe K-12 programs launched in 2009 to build a continuous pipeline of students in non-traditional STEM areas of Animal Health and Food Safety & Security. In total more than 12,000 K-12 students, educators, and community members have participated in a variety of programs. These programs included Career and Cases in Veterinary Medicine, Physics, and Life Science Lecture Series; Graduate Summer Teacher Workshops, Food Safety Pizza, Sensory Science, Water Quality labs, One Health KS (Introduction to public health and zoonotic diseases, Trick or Engineering (Lights On Event), Willie and the Beanstalk (plant growing competition); and Workforce Development Training opportunities. The success of the K-12 programs at K-State Olathe is its creative model in involving community and industry partners to support pre-K-Adult learning opportunities. Where there is a way... there is a Wildcat! Learn more at: <http://olathe.k-state.edu/academic-initiatives/k-12.html> or contact Dr. Micheal Strohschein at mistroh@ksu.edu



Exploration Place, Wichita KS / [Laurel Zhang](#)

Exploration Place, The Sedgwick County Science and Discovery Center is working directly in schools and afterschool programs in addition to our museum-based programs. As part of research projects, we provide weekly science classes for all the third and fourth grades in two school districts in Sumner County, weekly kindergarten science lessons for one elementary school, and weekly preschool lessons for Wichita State University's Child Development Center. We also conduct weekly afterschool science clubs for a private school in Wichita and work with direct afterschool service providers with outreach to their sites, field trips to our science center, and staff training opportunities. Exploration Place keeps an informal list of anecdotes and quotes from all stakeholders involved with our projects. My favorite came from a parent who said, "If we had programs like this when I was in school, I might not have dropped out."

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|--|--|
| Paul Adams, Fort Hays State University | Joan Leavens, Kansas State University_Olathe |
| Nina Agrawal, Every Hour Counts | Michael Lemon, Campfire |
| Mark Allen, Johnson County Park & Recreation District | Laura Loyacono, KC STEM Alliance |
| Jeff Buehler, Missouri AfterSchool Network | Tara Markley, Johnson County Parks & Recreation District |
| Holly Carr, University of Nebraska | Cheryl Martin, Missouri Afterschool Network |
| Steve Case, Univ of Kansas, Center for Science Education | Martha McCabe, KC STEM Alliance |
| Sarah Chappelow, Missouri AfterSchool Network | Gil Noam, Harvard University |
| Jeni Christian-Swofford, Teach and Learn Experientially | Ron Ottinger, Noyce Foundation |
| Sherry Comer, Camdenton R-III School District | Bridget Patti, CPPR, University of Kansas |
| David Cook, Kirksville R-III School District | Kaitlyn Peine, Kansas State University |
| Brian Crouse, Missouri Chamber of Commerce | Karen Peterson, EdLab Group |
| Terrell Davis, Wichita Public Schools | Melissa Rooker, Kansas House of Representatives |
| Ron Duncan, Nixa Public Schools | Ashima Mathur Shah, Harvard University |
| Marcia Dvorak, Kansas Enrichment Network | Sarah Pittman, Kansas City Zoo |
| Ben Dworken, FHI360 | John Ross, Fort Hays State University |
| Sarah Elovich, Techbridge | Sunny Shreeve, Humboldt School District |
| Nick Fleeman, YMCA of Greater Kansas City | Leann Smith, Science Pioneers |
| Terri Foulkes, Missouri AfterSchool Network | Maryann Stimmer, FHI360 |
| Tim Fowler, Missouri AfterSchool Network | Micheal Strohschein, Kansas State University_Olathe |
| Saundra Frerichs, University of Nebraska | Mary Sutton, Michigan After-School Partnership |
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| Leslie Goodyear, Education Development Center | Danielle Turley, Missouri AfterSchool Network |
| Marcel Harmon, M.E. Group | Pamela Watkins, YMCA of Greater Kansas City |
| Cindy Heislen, Missouri Department of Education | Victoria Wegener, Mainspring Consulting |
| Katelyn Hood, Girl Scouts of NE Kansas & NW Missouri | Tiffany Wheeler, Kansas City Power & Light |
| Chris Jehle, United Way of Greater Kansas City | Sarah Whitman, Kansas City Power & Light |
| Laura Kaiser, Kansas PTA | Rachel Willis, Kansas Enrichment Network |
| Laura Kingston, Achievement & Assessment Institute | Michelle Wilson, Kansas Enrichment Network |
| Matt Krehbeil, Kansas State Department of Education | Laural Zhang, Exploration Place |
| Anita Krishnamurthi, STEM, Afterschool Alliance | |

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¹ Auger, A., Pierce, K. M. and Vandell, D. L. (April 2013). *Participation in Out-of-School Settings and Student Academic and Behavioral Outcomes*. Unpublished paper presented at the annual meeting of the American Educational Research Association, San Francisco. CA.

² Afterschool Alliance. (September 2011). *STEM Learning in Afterschool: An Analysis of Impact and Outcomes*. Retrieved from www.afterschoolalliance.org/STEM-Afterschool-Outcomes.pdf.

³ Noam G.G. & Papazian, A. (2010). Assessment of STEM Quality Program in Out-of-School Time: Introduction to the Harvard Dimensions of Success (DOS) Observation Tool. Session at the *Second National Conference in Science & Technology in Out-of-School Time*, Los Angeles, CA.