PASSING THE TORCH

Advancing **Opportunity** for Quality Science Learning

A Call to Action

From the 2014 **Coalition for Science After School Summit**

Over the last decade, STEM in out-of-school time has experienced outstanding growth. The simple idea that launched our work—that science should be as common in out-of-school time as basketball and snack—has expanded into a movement, with a range of science and out-of-school organizations championing STEM in out-of-school time. As this work continues to expand and deepen, it is appropriate for the Coalition for Science After School to step down as other organizations take on leadership for the critical work that remains to be done. This report summarizes the proceedings from the Coalition for Science After School Summit in March 2014, outlining some critical priorities for the movement and passing the torch to the next generation of leaders.

– Coalition for Science After School Steering Committee

Introduction

For ten years the Coalition for Science After School (CSAS) has championed the need to make science an integral component of out-of-school time programming, bringing together innovative minds and successful implementers of science learning opportunities for young people.

Recently, the CSAS Steering Committee decided to sunset its operations given the tremendous growth of STEM (science, technology, engineering, and mathematics) in out-of-school time over the past ten years. However, much work remains to be done–for example, opportunities for quality STEM experiences remain unevenly distributed. Given the upcoming implementation of the Next Generation Science Standards and the Common Core, candid assessment is needed to determine how local communities can best mobilize available assets to provide opportunities for quality STEM learning to all young people.

CSAS' impending sunset positioned it to serve as an unbiased and honest mediator, to support frank conversation and to encourage strategic thinking that transcends individual organizational agendas. To this end, the Steering Committee organized a Summit of thought leaders for three days of reflection, agenda-setting, and commitments to provide quality STEM learning experiences for all young people.

The Summit, **Passing the Torch: Advancing Opportunity for Quality Science Learning**, took place March 26-28, 2014 at the Exploratorium in San Francisco. A select group of 60 leaders came together from across the STEM education, youth development, and out-of-school time communities to assess the accomplishments, challenges, gaps, and essential resources needed to provide quality STEM learning opportunities for all youth, and to pass the torch for making STEM learning vital and indispensible in a range of learning environments.

CSAS established the following as goals for the Summit, which was sponsored by the S.D. Bechtel, Jr. Foundation and Time Warner Cable, with additional support from the Noyce Foundation:

1. Celebrating a decade of progress in strengthening and expanding STEM learning opportunities in out-of-school time
2. Calling attention to critical issues around the need to ensure that all young people have opportunities for quality STEM experiences in their local communities
3. Stimulating ideas, strategies, and partnerships; and mobilizing collective commitments to increase opportunities for quality STEM experiences across settings

In tackling these outcomes, the Summit agenda was designed to address the following questions:

1. What critical role does the out-of-school time field play to ensure that all young people have opportunities for high quality STEM learning experiences in their day?
2. What are the different models or strategies needed to provide opportunities for quality STEM experiences for young people in communities with varying needs and resources? What capacity-building is needed in the field to enable this? What opportunities, potential barriers, and challenges exist in pursuing this agenda?
3. What is the role of intermediary and science-rich organizations in supporting local communities to provide and sustain opportunities for quality STEM experiences for all young people? What organizations and key supporters will propel the advancement of this work moving forward?

The Summit's timing coincided with two other meetings focused on STEM learning across settings. Both took place before the CSAS meeting–one was organized by the National Research Council and the other was organized by a National Science Foundation-funded project, the Research-to-Practice Collaboratory. Organizers of the CSAS Summit sought to build on the discussions of the prior meetings and to focus on the needs and opportunities facing out-of-school time organizational leaders and practitioners.

The Coalition for Science After School

A Short History

Over the past 25 years, STEM education has evolved to include an array of high-quality resources designed to meet a well-developed set of standards for teaching and learning. In tandem, the out-of-school time space has grown rapidly and has come to be seen as a venue for expanded opportunities for STEM learning. STEM educators in museums and other informal learning environments have come to see out-of-school time settings as a venue for innovation. Also, because girls and students of color are well-represented in out-of-school time programs, these settings have provided opportunities to address the concerns of STEM educators, scientists, and policy makers that these populations were not pursuing science.

As the scale of out-of-school time programs and related funding has grown, so has the emphasis on assuring high quality programming that contributes to academic enrichment and positive youth development. Among the leading developers of quality, standards-based science education resources are the members and founders of CSAS, which include the Lawrence Hall of Science at UC Berkeley, the Exploratorium, TERC, The After-School Corporation (TASC), the National AfterSchool Association, and the Children's Aid Society. These organizations are committed to ongoing design and adaptation ofSTEM education resources for use in out-of-school time settings.

In response to the growing demand for informal science education and the prominence of out-of-school time programs, CSAS sought to build the field of STEM in out-of-school time by uniting STEM education goals with out-of-school time opportunities. CSAS initiated its work by hosting two National Science Foundation-funded meetings in 2004 and 2005 that brought STEM education and out-of-school time leaders together to explore strategies for further merging the two fields. What emerged from those meetings was a strategic alliance among individuals and organizations from STEM education, youth development, and out-of-school time programs. The group committed to working together to make STEM education an integral component of out-of-school time programming, consistent with the goals and values of these settings. In its ten-year strategic plan, CSAS took as its vision the full integration of the STEM education and out-of-school time communities to ensure that quality out-of-school time STEM opportunities become prevalent and available to learners nationwide.

According to its strategic plan, key CSAS activities over the last decade have included:

1. Setting and advancing a collective agenda by working with members to identify gaps in the field, organizing others to create solutions that meet the needs, identifying policy needs in the field and supporting advocates to advance them;
2. Developing and linking committed communities by providing opportunities for focused networking and learning through conferences, webinars, and other outreach activities; and
3. Identifying, collecting, capturing, and sharing information and available research and resources in the field.

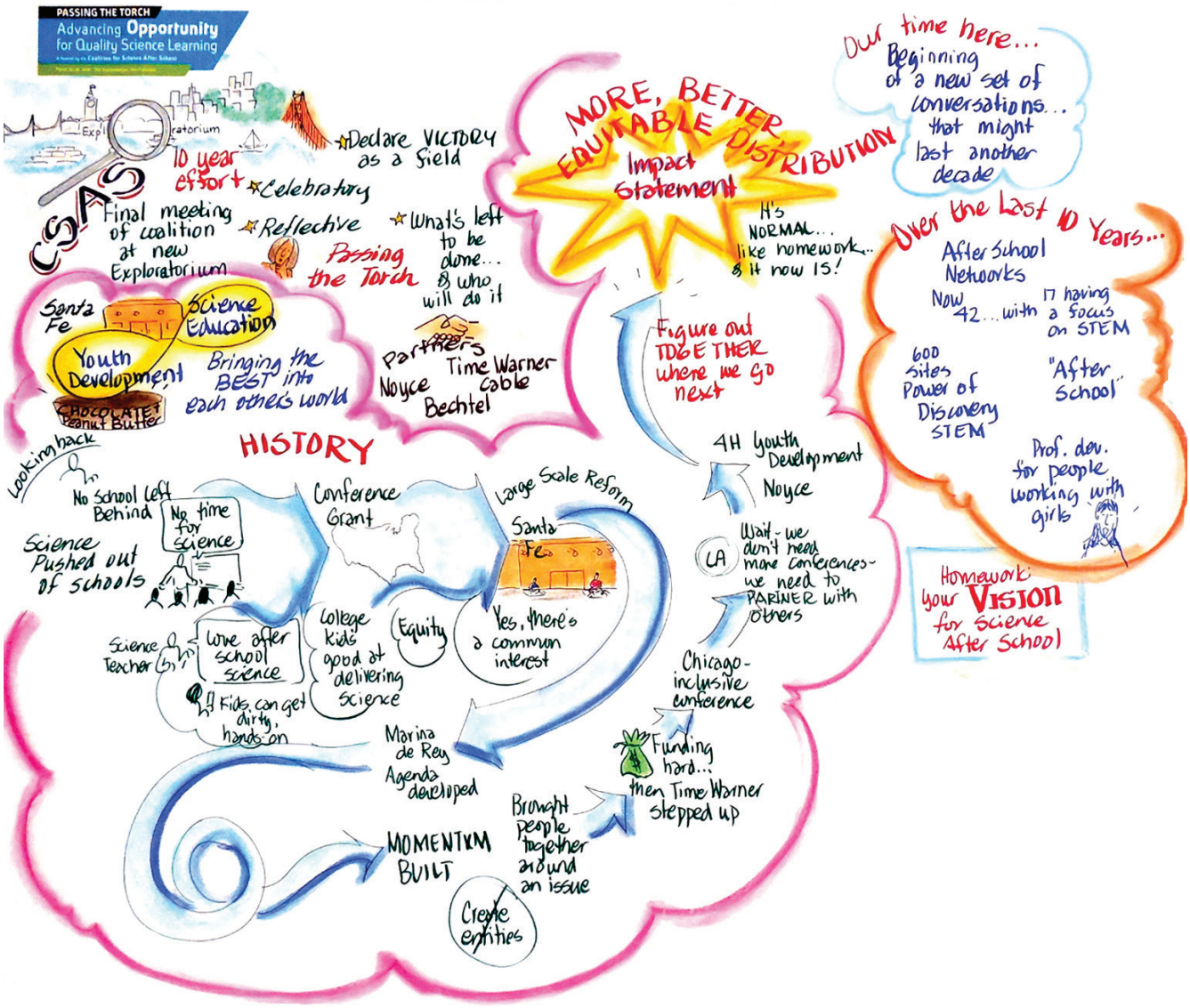
Over the last several years, the STEM in out-of-school time movement has experienced tremendous growth of programming and attention on a national level, both due to the work of advocates such as CSAS, the Afterschool Alliance and other organizations, and other social and political factors. The decision to sunset reflects Steering Committee consensus that CSAS leadership in its current form is no longer needed, given the robust and exciting status of the STEM in out-of-school time field. The Steering Committee believes the field has moved into a new phase, with new challenges and opportunities, and that organizations and leaders have emerged over the past decade that will continue to advance the field.

CSAS Summit Structure and Agenda

The CSAS Summit kicked off on Wednesday, March 26th with an opening plenary and reception. Led by meeting moderator Julie Johnson, the plenary looked to the past and future to identify major trends, events, policies, and contextual factors shaping STEM learning both in-school and in out-of-school time.

Steering Committee members Dennis Bartels of the Exploratorium, Lucy Friedman of TASC, Judy Nee of AlphaBest, and Elizabeth Stage of the Lawrence Hall of Science reflected on the history and impact of CSAS, and addressed the current unique moment in time to increase and improve STEM learning across settings.

Participants explored key issues and the essential roles of out-of-school time learning in ensuring that all young people have access to quality STEM in their local communities.



Kris Gutierrez of the University of Colorado, Boulder spoke about the importance of designing programs with access and equity goals in mind by "organizing STEM learning as the formative anticipation of possible futures" for all youth.

Jane Quinn of the Children's Aid Society observed how a focus on the whole child has increased attention to socio-emotional and cognitive development outcomes, both in-school and out-of-school.

Elizabeth Stage of the Lawrence Hall of Science spoke about the opportunity that in-school and out-of-school time organizations have now to explore the convergence of literacy, math, science, and engineering outcomes as laid out in the Common Core and Next Generation Science Standards. She also presented the idea of "learning ecosystems," articulated in earlier field-convening meetings, as a way to understand how, with youth at the center, various organizations and institutions can work together to support STEM learning across in-school and out-of-school time educational settings.

Meeting activities on Thursday, March 27th kicked off with an opportunity for participants to create and share their own **vision of science in out-of-school time in 2024**—ten years after the CSAS sunset of operations.

This exercise was followed by remarks from Ron Ottinger of the Noyce Foundation, who offered five challenges the field faces to provide quality STEM learning opportunities to all youth in their local communities:

1. Creating state and local STEM capacity-building systems that embody the Mott priorities of policy, partnerships and quality with appropriate roles for intermediaries, state and local governments, private and corporate funders, and science centers;
2. Supporting five of the country's largest youth development organizations (4-H, YMCA, Boys and Girls Clubs, Girls Inc., and Big Brothers Big Sisters) as they scale their national and individual STEM initiatives, and connect these efforts with state and local out-of-school time networks;
3. Taking promising instruments that assess the influence of STEM learning experiences to scale; and continuing to develop new instruments that measure other desired outcomes;
4. Designing cross-sector ecosystems to support STEM education, linked to the Next Generation Science Standards and the Common Core State Standards; and incorporating youth development and social-emotional learning; and
5. Making the case to policymakers that out-of-school time STEM learning should be included in STEM education funding streams, in partnership with school systems.

Participants then divided themselves into five groups: research and evaluation; policy and advocacy; programs; intermediaries; and funders. Each group was tasked with engaging in candid dialogue about their capacity, significant projects, challenges, gaps, and opportunities, with the goal of generating a roadmap for the field moving forward.

Following these small group discussions, two short-talk presentations reflected on a few "elephants in the room"–tricky issues missing from the roadmap that few have tackled. Ann House from SRI International spoke about the capacity challenges out-of-school time programs face that inhibit effective partnerships to support STEM learning. Carol Tang of the S.D. Bechtel, Jr. Foundation discussed sustainability, including the field's need to develop leadership at the local, regional, state and national levels.

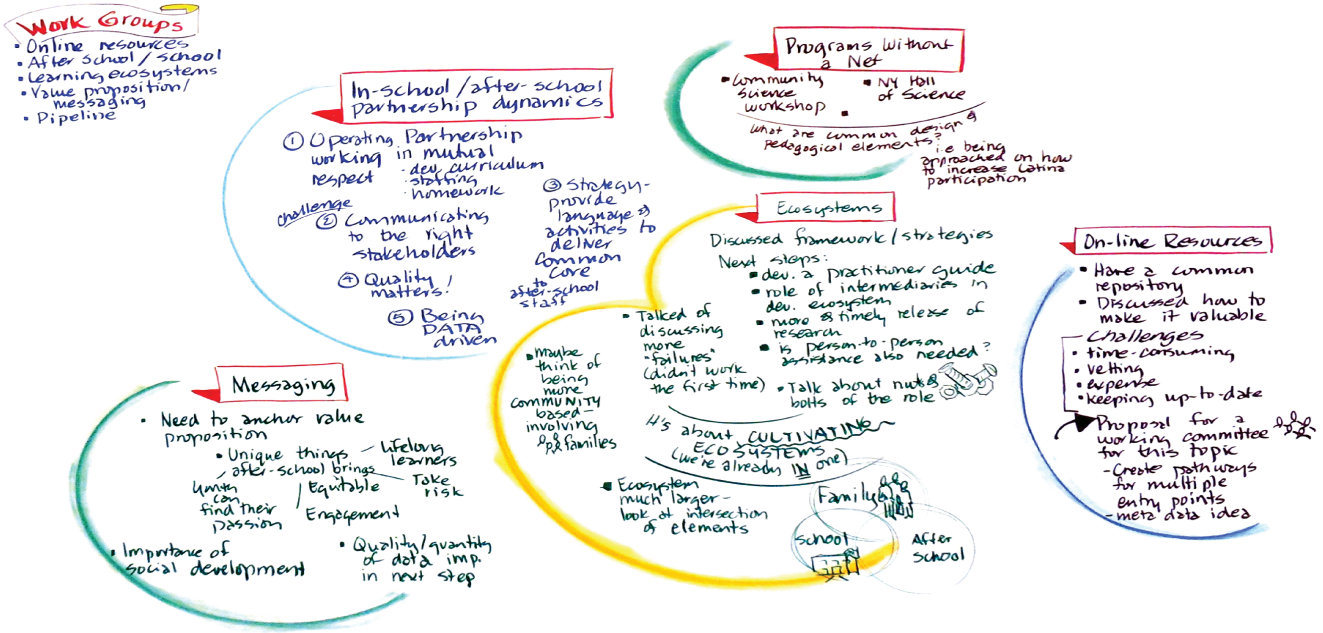
Following these presentations, Julie Johnson led the group in "making the map," compiling the "snapshots" produced in the Forum discussions and the issues discussed in the short-talks to produce a roadmap that delineated the challenges, gaps, and opportunities we face as a field.

Participants then broke into working groups to identify immediate actions for some of these opportunities. Discussions focused on: online resources; in-school and out-of-school time relationships; local ecosystems and toolkits; messaging and our value proposition; and long-term relationships beyond the pipeline model.

The two closing plenary discussions, were focused on synthesizing the days' discussions and identifying action steps by addressing the following questions:

- How do we individually and collectively move forward?
- Who is already doing this work?
- Who will carry the torch into the next decade?

Participants considered the critical steps needed to move forward, and generated commitments to maintain the momentum beyond the meeting.



A Road Map

Mapping the STEM in Out-of-School Time Field: Current Reality, Future Opportunities

Based on Summit discussions, the STEM in out-of-school time field is clearly rich with initiatives–the field has grown exponentially in the last decade, and work is distributed across a variety of players and organizations at the local, regional, state, and national levels. Major initiatives are taking place at all levels and segments of this field including:

1 National initiatives such as the the 21st Century Community Learning Centers (21st CCLC) program that funds academic enrichment opportunities during non-school hours for children; and the voluntary Next Generation Science Standards, a new set of science standards that are focused on the practices, cross-cutting concepts, and disciplinary core ideas of science.

2 National collaborations to feature STEM education in five of the country's largest youth development organizations (4-H, YMCA, Boys and Girls Clubs, Girls Inc., and Big Brothers Big Sisters); as well as the partnership between the Afterschool Alliance and Association of Science-Technology Centers; US2020's efforts to match STEM mentors with students at youth-serving organizations; and the work of other organizations like the National AfterSchool Association, National Summer Learning Association, and the National Girls Collaborative Project to promote STEM.

3 State-level initiatives such as the Noyce and Mott Foundation-funded Statewide Afterschool Networks that promote STEM learning opportunities across the country; the Partnership for Children and Youth's "Summer Matters" campaign focused on creating and expanding access to high quality summer learning opportunities for California students; and the STEM2: The Power of Discovery effort supporting the power of California schools and community-based organizations to expand STEM learning opportunities.

4 Regional and local initiatives like the recent infusion of $145 million dollars to expand high-quality out-of-school time experiences for all middle school students in New York City with the support of TASC; as well as the work of organizations like Boston After School and Beyond, the Community Science Workshop Network, and the California Afterschool Tinkering Network, among others.

5 Corporate efforts like Change the Equation, the coalition of CEOs from Fortune 500 companies committed to promoting K-12 STEM learning; and Time Warner Cable's Connect a Million Minds initiative.

6 Research and messaging initiatives like the Research-to-Practice Collaboratory aimed to address the gap between research and practice in STEM learning; and the FrameWorks Institute's work on messaging around STEM education.

7 Online initiatives like the Click2Science professional development resources; the National After School Science Directory; informalscience.org; the ASTC Communities of Practice; The U.S. Department of Education You for Youth (y4y) Online Professional Development Portal for 21st CCLCs; and the University of Pennsylvania Out of School Time Resource Center.

8 Field-wide movements around "maker" experiences, service learning, expanded learning time, and digital badging, to name a few.

The diverse, broad nature of 2014 work in the STEM in out-of-school time field demonstrates the powerful momentum in the field and the shift from a need for a central coordinating body like CSAS to a distributed model in which a variety of actors are working at multiple levels to advance a collective movement.

Despite this extraordinary progress, the field faces significant opportunities, gaps, and challenges in the coming years as summarized in the following roadmap for future work:

Create shared messages and a vision for the future of our movement

Given the proliferation of local, state, and national organizations and initiatives working on STEM in out-of-school time, we have the opportunity to reposition ourselves as a movement. In doing so, the many diverse people and organizations working in this space can coalesce around a vision for the future and set of values, principles, and shared language while remaining responsive to local needs.

We have an opportunity to highlight the unique affordances of STEM in out-of-school time while framing out-of-school time organizations as essential players in a broader STEM education solution, and to be intentional and realistic about the promises we make and the messages we disseminate about what the STEM in out-of-school time movement can and cannot deliver. As a field, we can consider promoting a view of STEM learning that features less of a focus on content and a greater focus on STEM practices or mindsets. We can also establish systematic ways of collecting and disseminating the individual stories and research that illuminate the power of STEM learning and the long-range outcomes of our work.

We can and should consider the power of media in communicating our value propositions to both local and national audiences simultaneously. We should deploy savvy advocates at the state and national level to champion out-of-school time STEM learning; make the case to policymakers that out-of-school time learning should be included in STEM education funding streams; and move corporate funders from investing only in K-12 STEM education to incorporate out-of-school time learning.

TAKING ACTION

At the Summit, Anita Krishnamurthi of the Afterschool Alliance committed to spearheading and coordinating a hub to bring people together to articulate common compelling messaging and make a case for increased public dollars. Rena Dorph of the Lawrence Hall of Science volunteered to participate in generating a vision for the movement, and Jeff Davis of the California AfterSchool Network, Ellen Lettvin from the U.S. Department of Education, Lisa Regalla of Maker Education Initiative and Belma Johnson from LA's BEST also offered to participate. Belma also volunteered to share a toolkit LA's Best created to improve social media work. Robert Tai volunteered to provide data to support the messaging work and back up the movement's ideas. Additionally, Jane Quinn of the Children's Aid Society committed to write a column in "Youth Today," the national youth work newspaper, on the work of CSAS.

Define and implement quality STEM programming in out-of-school time

Though the availability of STEM learning experiences in out-of-school time has grown greatly, available experiences vary in quality within and across communities. In order to ensure program quality, the movement needs a working definition of what quality looks like. In formulating this definition, we should critically assess the affordances of focusing on particular scientific disciplines versus broader skills and practices, and consider elements like social and emotional learning, attention to identity development, and resilience in such a way that enables consistent notions of quality across the locales while providing enough flexibility to fit local needs.

In order to make quality STEM experiences for all youth a reality, we have a significant opportunity in professionalizing the field–providing professional development to program staff so they are confident, inspired, and prepared to implement STEM programming. This involves continuing to pursue professional development partnerships with STEM-rich organizations, as well as re-thinking compensation and career advancement for program staff, consistent with the attainment of professional standards.

Also involved in the issue of quality is the role of curriculum in out-of-school time learning. Consideration should be given to the tradeoffs of curriculum and other framework-based approaches that may provide consistency in program content and delivery, while keeping in mind the voluntary and often drop-in nature of out-of-school time STEM programs, and uneven participant attendance.

TAKING ACTION

To move forward on the issue of quality, the National Girls Collaborative project volunteered to convene the field to advance the discussion on professional development. The National AfterSchool Association also volunteered to play a leading role in convening the field around this issue. Jo Turner from 4-H committed to work to professionalize the field through credentialing and degree opportunities for youth development workers and out-of-school time. Emilyn Green of Community Science Workshop Network committed to working to professionalize her corner of the field, and Jeff Davis of the California AfterSchool Network committed to sharing their quality framework as a basis for discussion around quality. Jeff Buehler of Project Liftoff committed to sharing lessons learned around the issue of quality and Sonny Kirkley of WisdomTools also committed to work on this topic. Kathleen Traphagen of Grantmakers for Education committed to infuse a focus on STEM into their network's discussions of quality and out-of-school time. Victoria Wegener of Mainspring Consulting committed to work with state 21st CCLC leaders on issues related to quality.

Ensure that STEM learning experiences are equitably distributed to young people across the country

Despite the great strides made over the last decade, we are only reaching a fraction of youth nationally, and our efforts are concentrated in certain geographical areas. In order to accomplish the goal of providing every young person with access to quality STEM learning experiences in their local community, we need clarity on what equity looks like, what it means to design for equity, and the influence of infrastructure and families on access to STEM learning opportunities. We also need to consider the importance of cultivating a belief that there is ingenuity in everyday activity, and of responding to local needs in different communities.

Confront the leadership gap

Emerging leaders at the program level need professionalization, training and support to achieve quality STEM learning for all, and emerging leadership for the overall field should also be nurtured. We are currently challenged by a need to focus on the tactics, strategies and management tools necessary for day-to-day survival. To address this, the field needs intermediary organizations to find methods to hook program leaders into shared field-wide core values, principles, and goals. We should also engage with higher education and the programs that are training new professionals entering the field, in order to recruit and retain great leaders for the years to come.

Meaningfully engage important stakeholders

We have a powerful opportunity to engage STEM content experts like scientists and civil rights leaders as volunteers and mentors for youth and program staff; to capitalize on corporations' employee engagement initiatives; and to engage with professional societies to provide the content expertise we need. We should also think critically about how to meaningfully include youth voice and encourage parent engagement in STEM in out-of-school experiences.

TAKING ACTION

To advance this important need, Elizabeth Stage of the Lawrence Hall of Science committed to promote equity as a civil rights issue. Additionally, Carol Tang of the S.D. Bechtel, Jr. Foundation asserted that sustainability and equity can only be accomplished with low-cost solutions for materials, professional development, and curriculum for improving the quality of STEM in out-of-school time experinces. She committed to provide these support systems in an equitable way through her work at the S.D. Bechtel, Jr. Foundation.

Produce and communicate more research and evaluation to help make the case about the importance of STEM in out-of-school time for both cognitive and non-cognitive outcomes

There are pressing needs for additional research in a variety of areas, including the influence of professional development experiences on educators and youth; non-cognitive influences of STEM learning experiences, such as science identity and persistence; the effectiveness of intermediary and network organizations; and what equitable programs look like. In addition to research at the program level, we have opportunities to conduct research across individual programs and at a systems level, and to engage in sharing data and measurement tools to help take promising instruments to scale. We also need to double down on the rigor of our research, ensure robust research designs, the clear articulation of constructs and their theoretical underpinnings, and the incorporation of rigorous qualitative methodologies.

The field needs to communicate research findings to practitioners and funders more effectively, so we can evolve in tandem. We have an opportunity to:

- Mine the wealth of research and promising practices, compile what we know and surface the best practice methods and strategies that have the highest impacts and reach for youth and families.
- Develop robust mechanisms for disseminating research to practitioners that can be operationalized and aligned with local communities' needs and available assets.
- Break down the walls between practitioners and academics by providing opportunities for collaboration and joint publishing.

TAKING ACTION

To take action on these needs and opportunities, Robert Tai of the University of Virginia, Gil Noam from the Program in Education, Afterschool & Resiliency (PEAR), Leslie Goodyear from Education Development Center (EDC) and Rena Dorph from the Lawrence Hall of Science volunteered to spearhead work related to disseminating research findings, organizing existing research and evaluation, and making it accessible to the community and policymakers. Leslie Goodyear committed to help connect people who know how to get published in peer-reviewed journals to people who want to get published, and to connect people to the journal for which she is the associate editor. Rena Dorph committed to working with others to get research into existing dissemination channels, and to support Leslie Goodyear in motivating new venues for publication. Jeff Davis of the California AfterSchool Network volunteered to contribute to this work, as did Ann House of SRI International—Ann also committed to address those issues in need of research and to clarify the collaborative process needed to get findings out to the field. Similarly, Gil Noam of PEAR volunteered to conduct research into STEM learning's connection to social-emotional learning, toward the full integration of STEM with youth development.

Pursue concerted collaboration with formal education systems

Advances in technology have increasingly blended in-school and out-of-school time. Together with the new Next Generation Science Standards and Common Core State Standards, we have a significant opportunity for intentional collaboration with school systems. Inherent in this opportunity are also challenges:

- How do we foster mutual respect among in-school and out-of-school time personnel?
- How do we leverage the affordances of both in-school and out-of-school settings as complementary actors in students' learning ecosystems without privileging the needs of the schools or treating out-of-school as a way to make up for in-school deficiencies?

In pursuing collaboration with school systems, we should:

- Work to translate new standards into accessible language and activities that out-of-school time program staff can use to implement high quality standards-aligned programs.
- Look for opportunities for collaborative curriculum development and professional development, especially during the summer months.
- Consider the role of data in this work, and the role of out-of-school time in early childhood education.
- Focus on coordinating with schools to figure out who can serve youth in what ways, at what times
- Communicate the value of cross-sector collaborations to stakeholders on both sides of the aisle.

TAKING ACTION

To advance this important opportunity, Jennifer Peck of the Partnership for Children and Youth committed to create a prominent, robust expanded learning presence at the 2014 California STEM summit, supported by Jeff Davis of the California AfterSchool Network. Chris Smith offered Boston as an on-the-ground demonstration site to reconcile the tensions between STEM as content/discipline or STEM as an approach, and between in-school and out-of-school time.

Increase collaboration on online offerings

In recent years we have seen a proliferation of online offerings related to STEM education. We have an important opportunity to ensure that these myriad resources build upon and work in concert with each other, instead of duplicating efforts. We need to think strategically about what different types of resources exist (e.g. professional development and curriculum tools; program information; research and assessment tools; volunteer match-making; policy and advocacy; funding opportunities), the different audiences they serve (e.g. program staff; mentors; trainers; families; youth; intermediaries; policymakers), and the different needs of these audiences (e.g. needs for consumer-facing resources vs. field-facing resources).

We should consider how our online offerings intersect with those of in-school STEM education, and the way they are geographically clustered. We should think creatively about how we can collaborate on online resources, through intentionally "dividing up the airspace pie," creating a shared metadata repository and by creating through-lines between existing databases to maximize the concentration of resources for particular audiences. We should consider the potential of creating multiple portals for different audiences stemming from a shared site, and of social media and mobile technology for facilitating access to online resources. We should invest in research into the effectiveness of online resources, and cross-pollinate promising design practices and strategies for keeping information fresh and up-to-date.

TAKING ACTION

Momentum was built during the Summit for a working group on the issue of online offerings. The following people and organizations committed to participate: The National Girls Collaborative Project, Jeff Davis of the California AfterSchool Network, Ellin Lettvin of the U.S. Department of Education, Nancy Peter of the Out of School Time Resource Center, and Claudia Weisburd of Coterre.

Invest in capacity building and strategies to sustain successful initiatives

Over the last decade, many exciting initiatives, partnerships, and efforts have been initiated and gained traction in the field. As the movement continues to advance, we must find ways to elevate this work such that progress is sustained and successive initiatives build upon each other and avoid duplication.

For example, in the last decade we have seen significant growth in the prevalence and strength of state and local systems focused on building local capacity for out-of-school time STEM. We should continue to invest in this work, and critically consider the appropriate roles for intermediaries, state and local governments, private and corporate funders, and science centers in these systems. We should also champion and support the collaboration between 4-H, YMCA, Boys and Girls Clubs, Girls Inc., and Big Brothers Big Sisters to scale their national and individual STEM initiatives, and connect these efforts with state and local out-of-school time networks. Finally, we should investigate opportunities for job sharing between the staff of science-rich and youth development organizations, to provide full-time employment to professionals working in this space while increasing staff capacity related to STEM content and youth development principles.

TAKING ACTION

In addition to the organizations already working in this space, Dennis Bartels of the Exploratorium committed to work with the 400 science centers in the United States to identify how they can play a greater role in the STEM learning ecosystem. Pam Garza of YMCA of the USA committed to looking at how to connect and engage science-rich organizations in the YMCA's STEM learning initiative. Kimberly Boyd of the Boys and Girls Clubs of America committed to look for science-rich organizations and experts to be part of their place-based work at each of their pilot communities, and to work on connecting individuals and creating a national ecosystem to support local work. Catherine Cushinberry of Girls Inc. committed to activating and leveraging their Clinton Global Initiative commitments. Carly Southworth of Big Brothers Big Sisters committed to design a STEM pilot for their core delivery model, to keep the issues of equity and collaboration at the center of the design, and to reach out to other participants regarding this initiative.

Additionally, Jeff Buehler of Project Liftoff committed to sharing lessons learned around systems-development with networks. Dale McCreedy of the Franklin Institute committed to share STEM-related resources with youth-serving organizations, and volunteered to be on a task group to compile a set of resources to share, especially related to STEM and parent engagement. Victoria Wegener of Mainspring Consulting committed on behalf of the Statewide Afterschool Networks to support the topic of STEM and out-of-school time systems-building in the states and connect the networks more purposefully with youth-serving organizations, so "we lift up the work with one voice."

Develop the STEM ecosystem model

Given the diffuse and distributed nature of the STEM in out-of-school time movement, it is critically important to forge connections across geography, sector, level, and concentration in our STEM learning ecosystems. We must work to identify the different roles of organizations and resources at different levels, including families, schools, out-of-school time programs, STEM-rich organizations, intermediaries, funders, and others, and to connect the different ways of delineating a learning day (school, out-of-school-time, after school, expanded day, etc.).

Our current reality is defined by multiple overlapping independent initiatives funded by distinct entities. We should advocate for the importance of investment in systems-building efforts in addition to direct implementation, and of aligning funding and research agendas. We should also endeavor to move toward collaborative funding that supports the entire ecosystem, and that draws connections between pieces of work supported by different funders or conducted by intermediaries at different levels.

TAKING ACTION

To advance this initiative, Kathleen Traphagen of Grantmakers for Education committed to a second phase of her work on ecosystems, and to bring Summit participants into this work. Elizabeth Stage of the Lawrence Hall of Science committed to informally help cross-pollinate and cross-fertilize between and among communities working in STEM education, as did Claudia Weisburd of Coterre. Mary Ellen Caron from After School Matters and Tony Streit from EDC committed to help build a science coalition in Chicago, and Judy Nee of AlphaBest committed to doing the same in Florida. Ryan Collay from Oregon State University volunteered to participate in the development of an equity lens for the ecosystem model, and Ellen Lettvin of the U.S. Department of Education committed to promote and use the ecosystem framework, with a focus on equity. Dale McCreedy volunteered to talk with the Franklin Institute's partners and in the NSF and IMLS group about the ecosystem framing and how to leverage it to make a difference. Tony Streit from EDC also committed to work with ASTC on work in this field outside of the United States, and Carol Tang of the S.D. Bechtel, Jr. Foundation committed to carry the flag to make sure that the field, not funders, are making strategy.

Keep Talking

As a field, we need sustained communication and connections that allow for the deep cross-pollination of ideas. We also need continued gatherings of leaders on a yearly basis to illuminate differences in perspective and generate ways in which different parts of the field can work together. Multiple voices and participation at multiple levels are essential in the succes of this effort. Additionally, a continued need exists for opportunities to network with other organizations doing similar work, to support and reinforce the STEM in out-of-school time movement's growth and development.

TAKING ACTION

The STEM Funders Network committed to convene leaders in the field, supported by Tessie Topol of Time Warner Cable and Kathleen Traphagen of Grantmakers for Education. The National Girls Collaborative Project volunteered to convene practitioners at the local level, especially those not connected with a larger network. Lucy Friedman of TASC reported that Every Hour Counts will continue the functions of convening and sharing best practices. Jamie Bell of CAISE committed to explore ways that CAISE, and in particular informalscience.org, might provide connectivity, a forum, resources, and a repository for out-of-school time practitioners, researchers, evaluators, funders, policymakers, and other stakeholders. ASTC volunteered the community of practice they have in partnership with the Afterschool Alliance as a platform for continued connection and communication.

Conclusion

A Way Forward

The STEM in out-of-school time movement has a lot to be proud of. However, as a movement there is much more work to be done. We are confident that the voices outlined above, together with the organizations and leaders that have emerged over the last decade to make up today's rich and varied STEM in out-of-school time landscape, are fully capable of addressing the challenges we face and continuing to propel the movement forward.

Summit Participants

Dennis Bartels
Executive Director
Exploratorium

Jamie Bell
Project Director
Center for the Advancement of Informal Science Education

Kimberly Boyd
National Vice President, Academic Success
Boys & Girls Clubs of America
Brenda Britsch
National Girls Collaborative Project

Jeff Buehler
Director
Project LIFTOFF

Mary Ellen Caron
Chief Executive Officer
After School Matters

Bernadette Chi
Interim Director
Coalition for Science After School at the Lawrence Hall of Science

Ryan Collay
Director
Science and Math Investigative Learning Experiences Program

Catherine Cushinberry
Director of Research
Girls Inc.

Jeff Davis
Program Director: STEM in OST
California AfterSchool Network

Bruce Dixon
Chief Executive Officer
The Connecticut Pre-Engineering Program

Rena Dorph
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