Roads Taken Legacy of YouthALIVE!

Conference Report

Roads Taken – Long-term Impacts of STEM Youth Programs

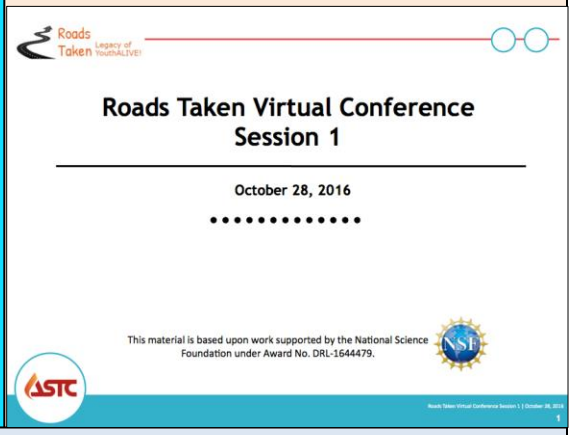
February 2017

Christine Klein
Insight for Learning Practices

Carey Tisdal
Tisdal Consulting

Wendy Hancock
Association of Science-Technology Centers

ASTC ASSOCIATION OF SCIENCE-TECHNOLOGY CENTERS



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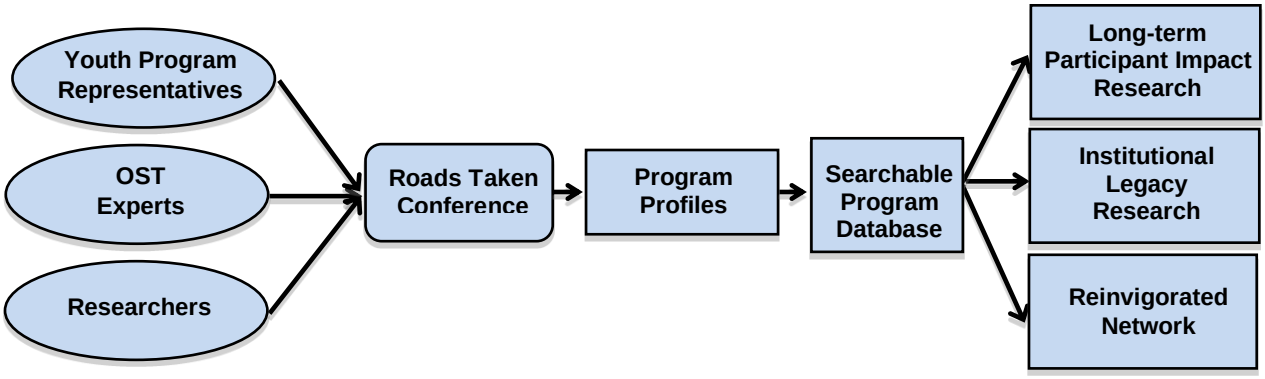
Executive Summary

Representatives from ten long-standing youth programs, experts in out-of-school time (OST) youth programming, and researchers participated in the Roads Taken virtual conference in October and November 2016, funded by the National Science Foundation (DRL-1644479). Participants collaboratively developed a Program Profile template with dual purposes: a tool for practitioners and a tool for researchers. As the first phase the three-part plan, Program Profiles will eventually lead to a reinvigorated youth programming network of practitioners, a searchable database of program profiles, and research on long-term impact of youth programming.



Participating Institutions and Organizations

Youth Programs
California Academy of Sciences, CA
California Science Center, CA
Center for Aquatic Sciences, NJ
Chicago Botanic Garden, IL
Museum of Science, Boston, MA
Museum of Science and Industry, Tampa, FL
Natural History Museum of Utah, UT
New York Hall of Science, NY
Orlando Science Center, FL
Science Museum of Minnesota, MN

Advisors & Leadership Team
Afterschool Alliance, DC
Allen & Associates, ME
Association for Science-Technology Centers, DC
Center for Aquatic Sciences, NJ
Insight for Learning Practices, MO
MEM & Associates, VT
National Institute on Out-of-School Time (NOIST), DC
Orlando Science Center, FL
Portland State University, OR
Tisdal Consulting, MO

Youth programs represented in the conference were selected from programs that grew out of the YouthALIVE! (**Youth A**chievement through **L**earning, **I**nvolvement, **V**olunteering, and **E**mployment) Initiative through the Association of Science-Technology Centers (ASTC) in the early 1990s.

Lessons Learned

Lessons learned from the conference are detailed in the full conference report and summarized here.

Lessons from the Process

The virtual conference format allowed for a diversity of participants, when travel cost and time for a face-to-face conference would have been prohibitive. The smaller breakout sessions allowed for the greatest input by participants. The format of two separate conference sessions with the task of completing a Program Profile between the two worked well for achieving our process goal. All organizations were able to complete their profile by the deadline with minimal input from project leaders. Input from the participants provided valuable insight for revising the template to ensure that multiple perspectives will inform future research.

Lessons from Prototyping the Program Profile

In Session Two break-out discussions, adviser critiques, in email, and from the participant survey, we learned that several additional fields should be considered for the Program Profiles. In addition, institutional representatives wanted to share some sensitive information, but only in aggregate. This information could be better collected via a related survey. There were 11 areas for change to the Program Profiles indicated in this discussion, and we developed strategies and items to collect this information. Additional thought will be given to the length of time each item would add to the development of the Program Profile, types of information best presented only in aggregate for confidentiality, and areas where common language may be lacking to obtain consistent information.

- *Spectrum of Expertise in the Program*: Participants wanted Program Profiles to indicate a range of expertise in the program related to strategies as well as the stage of development.
- *Associated Programs*: Some institutions had more than one program with prolonged engagement for underserved youth, often involving separate programs for middle school age and high school age participants. Others had associated programs in which their youth taught and for which they kept records of contact hours.
- *Relationships beyond the Program*: Participants reported that it would be useful for programs to share both internal and external opportunities for authentic work provided outside the program itself.
- *Recruitment Methods*: Revised Program Profiles need to include a description of recruitment and selection processes; that is, how youth find out about the program, apply to the program, and are selected to participate. Participants also wanted profiles to include average number of applications in relationship to the number of spots in the program, that is demand versus selection.
- *Funding and Financial Information*: Participants reported that financial information can be sensitive with institutions preferring for some things to be shared only in aggregate. The group agreed that percentage of the program budget funded from internal and external budget sources was information that most institutions would be comfortable sharing publically. Information that many institutions would not be willing to share publically include names of specific external funders, cost per participant, and percentage of budget for participant payroll.
- S*taffing*: Participants asked for more information on (1) patterns of seasonal staffing changes, (2) youth participants per adult, and (3) youth per mentor. However, given the difficulty explaining consistent ways of calculating a comparative measures and the range of definitions of mentors, these two measures did not make the cut for additions to the Program Profiles.

- *Information Management*, *Evaluation, and Research*: Conference participants suggested additional items focused on: program management and tracking alums; evaluation methods and studies; and research or long-term studies of participants after leaving the program.
- *Alumni/Alumnae Relations and Engagement*: We learned that alums provide role models for current participants, create a network in colleges and universities for current youth participants to connect into, and may provide the job resources for current participants. In addition, several programs appear interested in conducting long-term studies of participants after leaving the program.

Lessons from the Evaluation

Evaluation of the project was provided by Sue Allen of Allen and Associates. Eighteen of the 21 participating youth program representatives completed an online survey (a response rate of 86%). The full report by Allen can be found in Appendix C of the full conference report. Direct quotes below are taken from the evaluation report.

Program Profiles

- Youth program representatives "were able to fill out the Program Profiles for their organizations in approximately 3-6 hours."
- "Aside from information collected in the Program Profiles, conference participants … were interested in finding out more about youth trajectories beyond the program: HS graduation, college, and STEM careers of alumni."
- Participants were "interested in hearing about funding options and detailed breakdowns of program costs."

Long-term Impact Research

- Youth program representatives "felt the alumni would be difficult to contact, and especially so for outsiders;" i.e. people not directly involved with the program.
- To suggest hypotheses, "participants believed the most likely factor responsible for program success was the relationships between youth and others in the organization (peers, mentors, and staff more generally). Several participants also mentioned authentic work and learning opportunities, and the continuity of year-round consistent programming over time."
- "Participants believed the greatest influences on youth beyond the program would be their relationships with close family members."

Professional Networking

- A large majority of youth program representatives "expressed interest in being part of an ongoing network of youth program providers, and believed they could make time for this. However, they did not see this as a natural follow-on opportunity arising from the Roads Taken webinars, and most did not feel a strong personal connection with others in the conference (perhaps because most of the collaborative work to reflect on the youth programs was done within, rather than across, organizations)."

Background and Purpose of Conference

When the YouthALIVE! (**Youth A**chievement through **L**earning, **I**nvolvement, **V**olunteering, and **E**mployment) Initiative began in 1991, no one anticipated just how many youth and institutions would be affected over time. Under the leadership of DeAnna Banks Beane at the Association of Science-Technology Centers (ASTC) and with funding from the DeWitt Wallace-Reader's Digest Fund (now the Wallace Foundation), YouthALIVE! programming took place in 72 science centers, natural history museums, technology centers, children's museums, aquariums, botanical gardens, and zoos from 1991-1999. Programs targeted youth ages 14 to 17 from traditionally underrepresented populations in STEM fields and led to "deeper understanding of scientific concepts, career awareness, a greater interest in their own learning, as well as numerous interpersonal skills" (ASTC, 2000, p. 9). Funds supported a large network of youth programming staff that came together for inspiration, training, and support.

While most such initiatives end once the funding is gone, many youth programs that began through YouthALIVE! persist today. In their YouthALIVE! legacy study, Sneider and Burke (2011) found that 47 (65%) of the original institutions still had youth programs, and 163 (41%) of ASTC institutions in the U.S. had youth programs. When talking with youth programming staff at many of these institutions, you may hear of connections to YouthALIVE! whether they were youth or staff in the 1990s or have learned from participants' stories. From our experience with YouthALIVE! programs, we knew several programs that not only continued past 1999 but also grew. We were curious about the impact of YouthALIVE! on the participants now that they are in their 20s, 30s, and even 40s, and we were curious about the impact on the institutions. This curiosity led to the Roads Taken three-phase project.

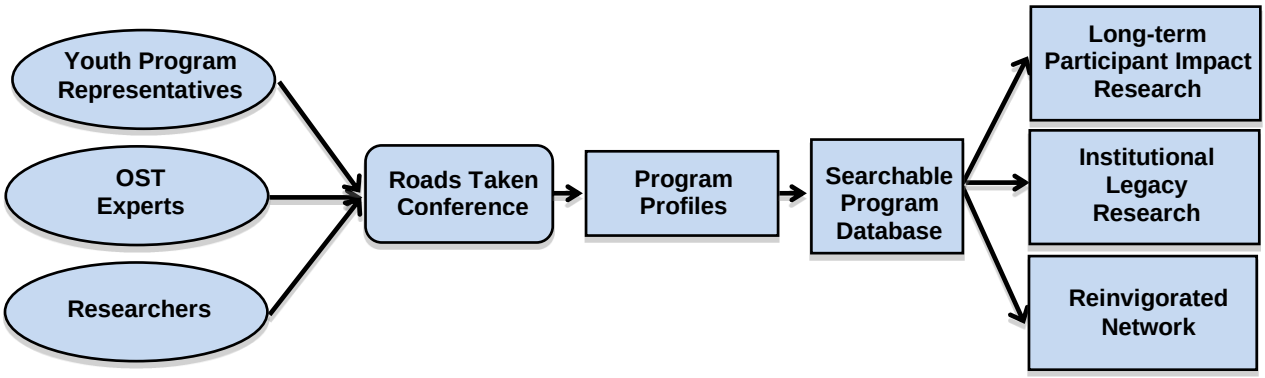
With YouthALIVE! as an exemplar, the goals of the Roads Taken project are to: 1) reinvigorate a network of youth programming professionals; 2) gain understanding of the impact of the YouthALIVE! Initiative on institutions; and 3) add to the understanding of long-term impact (10 to 25 years after participation). We strive to provide knowledge that can be used by both youth program practitioners and researchers in a variety of institutional settings. For this reason, participation by practitioners, researchers, and other stakeholders is critical.

Roads Taken Three-Phase Project

PARTICIPANTS	KEY ELEMENTS	OUTCOMES
Phase 1: Confer		
• Youth program institutional representatives • Researchers • National organization representatives	• Pre-conference = gather information (curriculum, records available, etc.) • Conference = Prototype Program Profiles • Post-conference = Finalize template, identify partners for Phases 2 & 3, and identify variables for Phase 3	• Prototype Program Profiles template • Independent variables for Phase 3 • Online profiles of 10 youth programs
Phase 2: Map		
• Phase 1 participants as advisors • Youth program leaders	• Telephone interviews of institutional representatives • Online Program Profile creation	• Online profiles of programs (searchable) • New knowledge of impact on institutions
Phase 3: Explore		
• YouthALIVE! alums • Comparison group of young adults	• Survey of alums and comparisons • Collect resumes of alums • Collect photo journals and journey maps of selected alum sample • Interviews with those submitting above	• New knowledge regarding long-term impact on participants' education, career paths, attitudes toward STEM, informal learning, and other life choices

Using YouthALIVE! programs that continue today as exemplars of programs with long track records, the creation of Program Profiles sets the stage for the three-phase Roads Taken project (Confer, Map, and Explore) to gain understanding of the long-term (10-25 year) impact of STEM youth programming.

Representatives from ten long-standing youth programs, experts in out-of-school time (OST) youth programming, and researchers participated in the Roads Taken virtual conference in October and November 2016, funded by the National Science Foundation (DRL-1644479). Participants collaboratively developed a Program Profile template with dual purposes: a tool for practitioners and a tool for researchers. As the first phase the three-part plan, Program Profiles will eventually lead to a reinvigorated youth programming network of practitioners, a searchable database of program profiles, and research on long-term impact of youth programming.



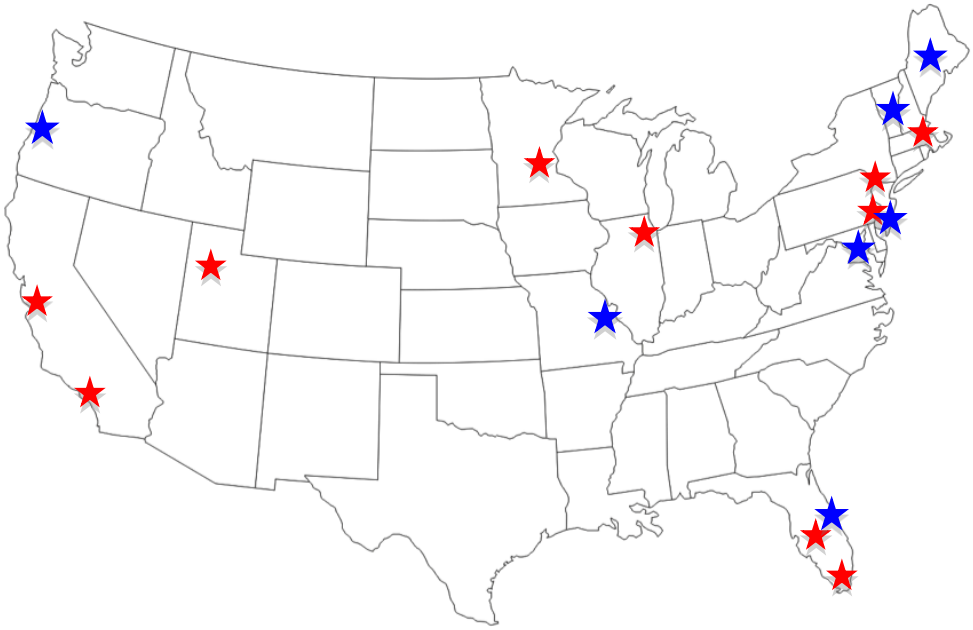
Conference Goals

The goals of the conference supported a focus on participant research exploring long-term program impacts.

- Design a Program Profile prototype based on previous research, evaluation, and program design
- Test and revise a Program Profile tool for reflective practice within programs at a single institution and sharing information among programs, as well as for use in Roads Taken: Map (Phase 2) for mapping the institutional landscape
- Disseminate the Program Profile tool to youth program practitioners as a program planning and reflective practice tool through ASTC Communities of Practice (CoPs), newsletter articles, and social media (Twitter and Facebook)
- Increase understanding among advisers, youth program representatives, and representatives from national out-of-school time (OST) programs about the history, research, and youth program landscape that influenced the initial research strategy and design
- Raise awareness about the Roads Taken research project among youth program practitioners to invite participation and collaboration
- Develop social connections and camaraderie among participants
- Engage youth program practitioners and researchers in a collaborative process to ensure multiple perspectives inform the research design as well as making sure research results are valid, credible, and usable for multiple stakeholding groups

Participants

Participants from across the United States included representatives from youth programs (red stars) along with the advisors and leadership team (blue stars). Youth programs included programs involved in YouthALIVE! since it began (Phases 1 and 2) and those that joined in 1995 (Phase 2).



Institutions and Organizations Represented

Youth Programs
California Academy of Sciences, CA *
California Science Center, CA *
Center for Aquatic Sciences, NJ **
Chicago Botanic Garden, IL *
Museum of Science, Boston, MA *
Museum of Science and Industry, Tampa, FL *
Natural History Museum of Utah, UT **
New York Hall of Science, NY *
Orlando Science Center, FL *
Science Museum of Minnesota, MN *

Advisors & Leadership Team
Afterschool Alliance, DC
Allen & Associates, ME
Association for Science-Technology Centers, DC
Center for Aquatic Sciences, NJ
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National Institute on Out-of-School Time (NOIST), DC
Orlando Science Center, FL
Portland State University, OR
Tisdal Consulting, MO

* YouthALIVE! Phase 1 & 2
** YouthALIVE! Phase 2

Program Representatives

YouthALIVE! institutional representatives were invited based on information from a survey of members of the ASTC STEM Afterschool Community of Practice (CoP) and recommendations from advisors. Only CoP members who responded to the survey and met the following criteria were invited to attend.

- Maintained an active YouthALIVE! Legacy program through 2010 (preference to those still active as an indication of institutional support and committed staff)
- Institutional commitment to this project
- Youth program focuses on youth development, work-based skills, and STEM learning
- Records of youth are still available
- Large enough number of program alumni/alumnae[1] to ensure large sample size
- Selected partners must reflect regional diversity

Two participants from each of the selected institutions were invited to participate, one current program leader and another staff member (or former staff member) with the longest institution memory of the youth program.

Youth Program Participants by Institution:

California Academy of Sciences
Neal Ramus, Senior manager of Youth Programs
Meg Burke, Director of Science Integration and Operations

California Science Center
Kristen Denton, Senior Coordinator of Community Programs
Katy Mendivil, Director of Community and Exhibit Programs

Center for Aquatic Sciences
Cheronda Frazier, Director of Community Engagement
Astrid Rodriguez, Assistant Manager of Community Engagement

Chicago Botanic Garden
Amaris Alanis Ribeiro, Manager, Secondary Education
Kathy Johnson, Director, Youth Education

Museum of Science and Industry (MOSI)
Laura Winnie, Youth Programs Manager
José Cotayo, Technology Coordinator

Museum of Science, Boston
Diana DeLuca, Program Manager of School and Youth
Sharon Horrigan, Director of Education and Outreach

Natural History Museum of Utah
Linda Aaron, Youth Development Programs Coordinator
Kathy France, former Youth Teaching Youth Program Coordinator

[1] Throughout this report we use the inclusive Alumni/Alumnae to refer to male and female participants or the neutral alums.

New York Hall of Science
Marcia Bueno, Manager of Explainers
Priya Mohabir, Vice President of Youth Development

Orlando Science Center
Zach Lynn, Director of Volunteers and Engagement
Emily Duguid, Director of Education

Science Museum of Minnesota
Joseph Adamji, Director of the KAYSC
Shona Ramchanani, High School Program Manager, KAYSC

Advisors:

Cheronda Frazier, Director of Community Engagement, Center for Aquatic Sciences at Adventure Aquarium

Ellen S. Gannett, Director, National Institute on Out-of-School Time (NIOST) at the Wellesley Centers for Women at Wellesley College

Anita Krishnamurthi, Vice President, STEM Policy, Afterschool Alliance

Mary Ellen Munley, Principal, MEM & Associates

Heather Norton, Vice President of Education, Orlando Science Center

Cary Sneider, Associate Research Professor, Portland State University

Project Leaders:

Wendy Hancock, Senior Program Manager, Professional Development, Association of Science-Technology Centers (ASTC)

Christine (Kit) Klein, Director, Insight for Learning Practices LLC

Carey Tisdal, Director, Tisdal Consulting

Evaluator:

Sue Allen, Director, Allen & Associates

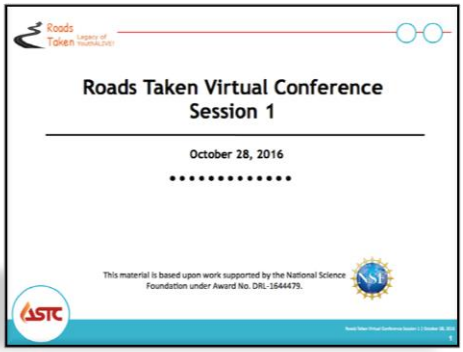
(See Appendix A for biographies of the project leaders, advisors, and evaluator)

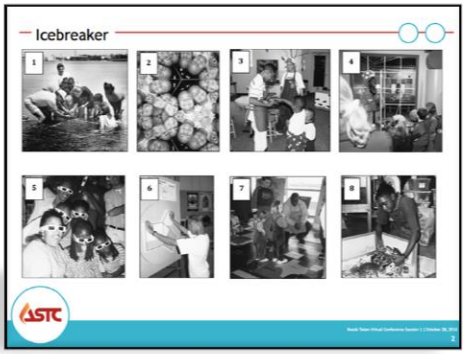
Conference Agenda & Activities

Virtual Conference Session One – October 28, 2016

AGENDA – Session 1

- Icebreaker Activity
- Intro and Background
  - Welcome from ASTC
  - Project Overview
  - History of YouthALIVE!
  - Roads Taken Background
- Updates from the Field
  - Presenter Introductions
  - Overview of the YouthALIVE! Legacy research (Sneider)
  - National Perspectives on Range of Settings STEM programs take place in OST (Krishnamurthi)
  - Participatory Research—locating program alums (Munley)
- Presentation of the Prototype Program Profile and Next Steps
- Synthesis of the webinar (Norton and Frazier)





Virtual Conference Session One kicked off with a quick introduction and icebreaker using the slide above of eight photos from the YouthALIVE! Program Directory (ASTC, 2000). Wendy Hancock then welcomed everyone on behalf of ASTC, Carey Tisdal gave an overview of the project, Kit Klein provided a history of YouthALIVE!, and Carey Tisdal gave the background on Roads Taken (as described above). With everyone brought up to speed on the project, we turned to advisors to present updates from the field.

Updates from the Field

Cary Sneider provided an overview of the YouthALIVE! Legacy study Meg Burke and he conducted (Sneider & Burke, 2011). Cary's experience with YouthALIVE! began with connections to YouthALIVE! staff at the Lawrence Hall of Science and the Museum of Science, Boston. In 2010, Sneider conducted a landscape study for the California Academy of Science under the direction of Meg Burke. Through the study, he found the amazing legacy of YouthALIVE!

In interviewing a dozen youth program leaders, Cary found that the program leaders might know a few other program leaders through attendance at the annual ASTC meeting, but didn't know just how many others existed. To find out more about the youth programming landscape and the extent of the programs, he examined the website of all ASTC member institutions and found that 163 (41%) of the institutions in the U.S. had an active youth program that incorporated at least some of the YouthALIVE! principles (learning, teaching, life skills, mentoring, research, and career ladder). As a result of the study, Cary and Meg recommended an increase in the number of science centers that offer youth programs,

reestablishing the national network of youth program staff, and research to compare the effectiveness of different program elements. The Roads Taken project is designed to meet these recommendations.

Anita Krishnamurthi provided a national perspective on STEM learning in afterschool settings from her perspective at the Afterschool Alliance. The Afterschool Alliance has three primary foci: 1) policy and advocacy (e.g., Lights on Afterschool); 2) research (e.g., America After 3PM); and 3) field-building (e.g., 50 state networks). Anita reviewed some of their findings on STEM learning in afterschool, which included in and out of school settings. For example, 70% of the parents in the survey said STEM should be offered in afterschool programs, and 80% of parents with children in afterschool STEM programs were satisfied with the STEM learning opportunities.

Researchers through the Afterschool Alliance have been looking at impact of STEM youth programs, and have found dramatic impact on youth who participate in high quality programs. In working with consultants from the Frameworks Institute, the Alliance has developed a framework for telling the afterschool STEM story. Anita shared the narrative arch of that story. She closed her presentation with an appeal for science centers to work with community organizations to expand the reach of STEM afterschool programming and to help build capacity for STEM learning in afterschool programs at those organizations.

Mary Ellen Munley reviewed the participatory research project, *Room to Rise* (Linzer & Munley, 2015; Stein & Linzer, 2013). She began by mentioning a prior study at the United States Holocaust Memorial Museum in 2006-2008 which studied impact 20 years after participation, then described the Room to Rise project focused on youth programs in four art museums: Youth Insights at the Whitney Museum of American Art, Teen Arts Council at the Walker Art Center, Teen Council at the Contemporary Arts Museum Houston, and MOCA Teen Program at the Museum of Contemporary Art Los Angeles. Mary Ellen pointed out the similarities of these two studies with the goals of the Roads Taken research: studying intensive teen programs that have been around a long time with documented short-term outcomes but unknown long-term impact. She also described the need for study because many such programs have pressure from their institutions to do something new and different, and their impact on the youth is questioned.

Mary Ellen described the nature of participatory research in general (action which is being researched by the participants) and in the Room to Rise study in particular (with program staff intimately involved in the design of the study and program alumni/alumnae providing deep data). In the study, after an extensive literature review on youth development, they developed a conceptual framework that moved beyond but took into account the differences of the four programs. The researchers provided tutorials and institutes for the program staff who were gathering and analyzing some of the data. The study used multiple sources of data, including data from the alum's lives, which were analyzed from multiple perspectives to provide deep understanding.

To help Roads Taken participants see the potential for future research on long-term impact in STEM youth programming, Mary Ellen summarized their work in locating the alums. In Room to Rise, the museums were able to get current contact information on 70-80% of youth who participated from 1991-2011. To achieve this they assigned a contact manager at each museum, set clear goals, used multiple methods (letters, cold calls, social media, and personal networks), and reviewed progress relentlessly. There was a little healthy competition among the museums to find the alums. They let the alums know what they were studying and why, and alums helped find others. Mary Ellen provided an overview of the key findings (which can be found at http://whitney.org/Education/Teens/RoomToRise).

Program Profile Prototype

Carey Tisdal reviewed the Program Profile rationale and process of prototyping the profile template. The goal of the Program Profile is to support professional networking and research involving youth STEM programs with extended engagement, so input from practitioners and researchers is essential. The template developed prior to the first conference session was influenced by the YouthALIVE! Program Directory (ASTC, 2000), the YouthALIVE! legacy study by Sneider and Burke (2011), Room to Rise (Linzer & Munley, 2015), informalscience.org, and ExhibitFiles.org. After the overview, Carey reviewed the tasks of participants between the two sessions, and showed the template on SurveyMonkey. Appendix B includes the Program Profile Template.

Synthesis of Conference Session One

Heather Norton gave her perspective of the conference session as a vice president and senior leader overseeing youth programs at the Orlando Science Center. She spoke of the need to show return on investment and how a national database will help in communicating with funders. Heather also discussed institutional memory, and how this will help capture information. Cheronda Frazier gave her perspective as a director who was at her museum during YouthALIVE! funding. She spoke to the need to document programs with the Program Profile and encouraged participants to be as specific as possible. Cheronda saw the profiles as a way to restart the professional networks. She described the only remaining YouthALIVE! regional network which she leads in New England. She spoke to the resources available through national organizations like the Afterschool Alliance.

Between Sessions

The following assignments were completed by youth program representatives and advisors between the two conference sessions.

Youth Program Representatives

Representatives were asked to enter program data in to a Program Profile Prototype by following the steps to the right. Participants received:

- Guidelines for completing the Program Profile
- A PDF of the Program Profile Prototype to print, review, and plan
- A link to the online site to enter data
- A scanned image of their institution's Program Profile in the 2000 ASTC YouthALIVE! Directory of Programs

Follow these steps to complete the Profile:

- Review the hardcopy and identify data need.
- Collect information and draft responses.
- If your Profile does not provide permission, no data will be used.
- Any items for which you don't have information, mark "NA" (not available).
- Identify any items you are do not wish to share and mark "CD" (confidential).
- Use only one computer can be used to enter information.
- You may enter and leave multiple times before pressing "Done".
- Review your responses.
- Press "Done" to submit by November 16.
- You will receive a copy after submission.
- Provide feedback during Webinar 2 on November 18.

Data entered included information about their program early in its development and about their current program. Questions asked participants to reflect on reasons for change over time as well as to identify aspects of their programs that may be tacitly understood but not explicitly stated.

Participants were encouraged to email or call Carey and Kit with questions. Several participants had questions during the conference and others had questions once they began filling out their profile. The most frequently asked questions from institutional participants was about related programs; that is, a program for younger or older youth that provided an entry or further experience for underserved youth. The second most frequent question related to the meaning of and how to calculate Full Time Equivalency. Some participants were not familiar with this term.

Advisors

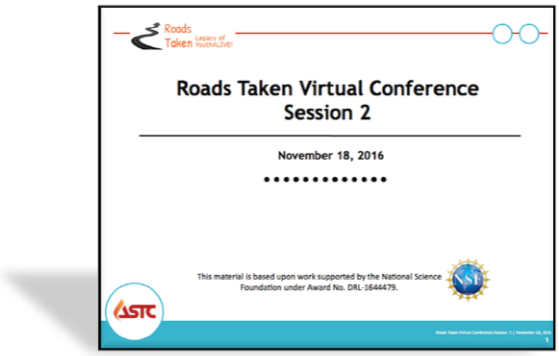
Advisors critiqued the program profile considering the following questions:

1. Did the elements in the Program Profile Prototype provide a comprehensive view of a program?
2. Could the Program Profile Prototype be adapted for used outside YouthALIVE!-seeded programs?
3. What would need to be added?
4. What would need to be removed?
5. Was information in items clearly presented for completion?
6. Did participants need activities for other staff to be included in the development of some sections? (For example, sections such as *Assets* and *Challenges*)

Virtual Conference Session Two – November 18, 2016

AGENDA – Session 2

- Icebreaker
- Introduction—what we are going to accomplish
- Progress Toward Measuring Long-term Impacts – Neal Ramus
- Breakout Discussion 1—revising the Program Profile
- Break
- Breakout Discussion 2—Using the program profiles for research
- Next Steps



The second conference session focused on the Program Profiles with two breakout sessions for small group discussions. After a brief icebreaker, Neal Ramus from the California Academy of Sciences described the progress the Academy had made on measuring long-term impact of their program alumni/alumnae.

The Careers in Science internship program for youth at the California Academy of Science collects a variety of data on the current program: public engagements, contact hours, survey data, and an attitude

and behavior assessment. In 2013, staff identified the need to measure long-term impact and set out to reconnect with alumni/alumnae. Between 2013 and 2016, Neal, a graduate student, and an alum with an extensive history in the program were able to find and contact 87% of former participants, send out surveys, and collect survey data with a 43% response rate.. Neal has been analyzing data, and a summary of results is in the works. A key piece to their project was to reestablish a connection between alums and the California Academy of Science.

Breakout Discussion One

After joining one of two breakout rooms, participants discussed their experience completing the Program Profiles. Carey Tisdal led one group and Kit Klein led the other. Participants discussed the following questions:

- How did the institutional representatives work together to complete the Program Profile?
- What was missing that you wanted to tell about your program?
- Where was it difficult to understand what was wanted?
- What information was difficult to locate?
- What additional information about other programs would be useful for you?

Results are summarized here and were used to inform the Program Profile revisions and Lessons Learned, as described in additional sections of this report.

How did the institutional representatives work together to complete the Program Profile?

With two representatives from each of the ten institutions involved in the conference, participants in the breakout sessions reported several approaches or a combination of approaches:

- One representative served as the main person to compete the profile, calling on the other for additional information.
- Newer program staff asked for information from more senior staff or former staff who knew more of the program history.
- When youth participants were later hired as staff in couple of cases, they were included in completing the Program Profile thus giving the historical perspective of alums.
- One representative completed the checklists, and both representatives collaborated on the open-ended questions.
- The team expanded beyond the two conference participants to include one or more program staff who collaborated on answers.
- Each representative reviewed the printed Program Profile template prior to coming together to complete the online version.
- The team split up the work “like it was a group project” – with each representative assigned specific questions to answer and a time to come together to discuss and agree upon answers.
- Some teams called upon their development, human resources, and finance departments along with others in their institution for a few questions.
- One pair turned to their whole program team to discuss program goals as they were working on the profile, prompting an informal yet very valuable discussion.

- Some used data from previous reports and studies of their youth programs, including logic models.

Several program staff commented on the value of comparing their program during the YouthALIVE! funding to their program now, particularly the discussions among program staff with historical knowledge and newer staff. One advisor said she loved "the fact that not only did it become an opportunity for actually filling out the profile, but it became an opportunity for reflection and learning among the team members who filled it out."

One participant noted the importance of maintaining program history:

> *It was a good reminder how important it is for programs staff to actually make a note someplace when there's a change, because it is incredibly hard going back and digging things out. You know, going through old emails or old annual reports is not the most efficient way to do things. So it was a good reminder to me. It's like actually it is worth putting something down someplace. '* (Session Two, Discussion 1A)

What was missing that you wanted to tell about your program?

Responses varied among the representatives.

- An "under development" option for program strategies that weren't currently in place but would be soon
- A way to star or indicate areas of expertise; A way to indicate which program strategies they did really well, and ones in which "we kind of do this, not really, a little bit"
- Information about budget, like spending per program and percent going toward paying youth versus program costs
- Evaluation information – tools, methods, methodology, frequency
- Size of the institution in terms of visitors per year, rather than just budget size
- Number of visitors or program participants served by the youth in the program (e.g. how many visitors interact with teen explainers, and how many children are taught by youth program participants)
- Percent of staff members' time dedicated to youth programming (are they seasonal, full-time but working on other programs, etc.)
- Ratio of adults to youth (noting differences between summer and school year)
- How the youth program incorporates other departments into the program
- Indications of the value of the program to the youth because it's an expensive program
- Success stories that don't fit into neat boxes or measurements
- Unintended outcomes
- A way to share information about more than one youth program
- Changes over time rather than just at two points in time since changes were sometimes more subtle or in response to local changes

Where was it difficult to understand what was wanted?

- Why ask about intended impacts instead of actual impacts?
- How is information going to be used and by whom, so we know what types of more sensitive information we can share?
- On the question about funders, did you want all funders current and past, and how much detail?

In discussing information about funding, breakout session participants discussed information they would find helpful from other programs: average grant size, percent of funding that comes from different sources (foundations, private donations, operating budget, federal/state/city grants, corporate funding, business sponsorships, etc). There seemed to be agreement that general information would help without needing to give specific names of funders.

What information was difficult to locate?

- Total number served since the program began
- Dates for the program lifecycle section
- Connecting the dots between program pieces was challenging

After trying to figure out total number served, one youth program developed a new system to keep track throughout the years and plans to use the data to create a public document space so anybody in the institution can find it without digging through someone's file cabinet. Creating a tool to help institutions preserve institutional memory is one intended outcome of the Roads Taken project.

What additional information about other programs would be useful for you?

- Key words for searching for similar programs
- Social justice strategies
- High school versus middle school focus
- How youth are compensated – hourly wages, stipends, etc
- Budget spent per youth, cost per youth
- A section for program materials like safety protocols, photo releases, evaluation methods, confidentiality agreements
- Effective practices or a place for sharing effective practices; Successful practices, like what has worked to connect to and engage alumni, and what hasn't worked
- Funding history **(**"like how much is coming from government funding versus private foundations or individuals")
- Longevity of program
- Return on investment (taking into account differences in cost of living)
- How youth find out about the program
- How youth are recruited
- Numbers or percentage of youth in various categories (gender, ethnicity, income level, etc.)

Breakout Discussion Two

After a short break, the groups were rearranged and participants joined another breakout room. For this section of the conference, participants discussed the following:

- What program characteristics in the Program Profiles do you think could have influenced the roads taken by youth participants?
- What program characteristics are missing from the profiles that you think may have influenced the roads taken by youth participants? (Think about information your funders want and what information you put in funding proposals internally or externally.)
- What factors in youth participants' lives (e.g. schools, parents, community factors) do you think may also have influenced the roads taken by alums?

These summarized results from the two breakout rooms were used to inform the Program Profile revisions and Lessons Learned, as described in following sections of this report.

What program characteristics in the Program Profiles do you think could have influenced the roads taken by youth participants?

Funders and museum administrators often want to know outcomes of programs, particularly the long-term impacts on youth. How many go to college or go into STEM careers? Researchers also want to explore impact, and ask what particular program characteristics and strategies lead to the outcomes and impacts. To help identify program characteristics to include in the Program Profiles, and thus in future practice and research, we asked conference participants for ideas. They suggested the following:

- Mentoring by staff
- Cross-age mentoring (youth working with slightly older youth to mentor them)
- Career planning activities (including exposure to colleges and careers)
- Goal setting activities
- Length of time in program (prolonged engagement)
- Authentic work
- Leadership opportunities
- Developing public speaking skills and confidence
- Networking skills ("talking to people they don't know")
- Communication skills
- Presentation skills
- Teamwork (including youth supporting youth)
- Work skills ("morning meetings where they all have to be there, they have to participate, they have to be in attendance and be punctual, and that's also an important life skill that they gain.")

What program characteristics are missing from the profiles that you think may have influenced the roads taken by youth participants?

- Parent/guardian involvement and roles
- Sense of community
- Sense of program identity

- Fostering lifelong engagement
- Social justice activities (community outreach – community focused social justice)
- Agency
- Increased STEM literacy
- Improved attitude toward STEM

Also discussed was information funders prize. They "want to get more kids into STEM careers… helping diversify the STEM field." However, program staff explained that STEM career choices were not necessarily program goals. They were more interested in increased comfort with STEM.

What factors in youth participant lives (e.g. schools, parents, community factors) do you think may also have influenced the roads taken by alums?

- Schools
- Parents
- Other teenagers (including who else participants know in the program)

Participants discussed how all of these factors influenced youth. One participant pointed out, "What we would love to know is which ones have a better or worse influence than others, and what's the magic that occurs in combination?"

What terms or phrases would you type into a search tool to look for information?

This question was added at the last minute to the discussion questions.

- Teen enrichment programs
- Justice
- Service learning

Closing of Virtual Conference

At the end of the conference session, project leaders discussed next steps. Wendy Hancock suggested a follow-up online discussion for anyone with more questions or ideas. The online participant survey to be conducted by Sue Allen, project evaluator, was described. The process of writing and sharing this report was described.

Next phases of the Roads Taken project were described to participants:

- Institutional research and searchable database (Phase 2)
- Long-term impact research with former YouthALIVE! participants (Phase 3)
- Session proposal for the ASTC annual meeting in 2017

Participants were invited to participate in each next step, with project leaders to contact everyone as each opportunity emerges.

Prototype Findings

This section includes a discussion of the changes that are under consideration for a revised Program Profile. (See Appendix B for the original template used by conference participants.) Suggestions are characterized in eleven topics, and each topic has two parts. First, we describe the additions to the Program Profiles that were suggested in Conference Session Two breakout discussions, advisor critiques, and in the Participant Survey. Second, we describe the changes indicated by this evidence and provide possible items to include. In the summary, we discuss the practicality of including all these changes and the need for additional prototyping in Phase Two of the Roads Taken project.

Spectrum of Expertise in the Program

Changes Suggested

Participants wanted Program Profiles to indicate a range of expertise in the program related to strategies as well as the stage of development. In breakout groups, one participant explained.

> *I felt like there were some [places] I wanted to say we've done this like really well and we do this all the time and this is definitely something we're on top of, and then there were some [places] I wanted to say, we kind of do this, not really, a little bit. We've tried it in the past but we don't have it quite figured out yet. ... I wanted there to be more of a spectrum there. ... If somebody was looking to ... start a new family night and, they could look at other museums and say, 'Yes, contact me about this' or 'No, don't contact me about this.' (Session Two, Discussion 1B)*

Another participant commented,

> *One of the things that I would have really liked to have was an in-development option. Because as I just recently started with the program, there are several things that I am working towards to have in the next semester or next year that we don't currently do. So just to show that these are practices that we value, we just haven't been able to actually implement them as of right now. (Session Two, Discussion 1B)*

Indicated Changes

In capturing the range of expertise related to each strategy, an additional item can be included in the Program Profile for each item. For example, an Likert scale item could be added:

Q. Spectrum of Expertise: Refers to the state of development of a strategy and the expertise the program has to offer others. For each Strategy please indicate where this strategy falls along a spectrum of expertise.

1. Do not plan to use
2. In development
3. Implemented but still being improved
4. Mature and effectively implemented strategy

Associated Programs

Changes Suggested

As they developed their Program Profiles, the most frequent question asked in phone calls and emails was, "What if a museum currently has multiple programs for youth?" Several institutions had more than one program of this type and for this target audience. Often, these involved separate programs for middle school age and high school age participants. Others had associated programs in which their youth taught and for which they kept records of contact hours. In addition, they had youth programs for other target populations in which participants in their central programs participate; for example, camps, robotics courses, or computer classes.

Indicated Changes

In the development of a searchable database, it will be important for us to remember to adapt Program Profiles for a wider range of youth programs; that is, those with different target audiences, varying hours per year, varying times per year, and varying strategies. This will mean identifying fields that apply to all programs and those that apply only to certain subsets. For example, general audience youth programs in science museums, 4H programs, Boy Scouts, and Girl Scouts can eventually be included in a searchable database. Experience in developing the initial database will provide a firm foundation for its expansion.

But, for immediate database development, a field needs to be added for associated prolonged engagement youth programs. For this program, the database would need a link to the associated Program Profile. Another item suggested in breakout discussions was a simple list of the names of programs in which youth teach; for example, programs for younger children or general audience robotics programs. This second set of programs would not have a linked Program Profile in the database.

Q. Associated Program: Is this Program Profile associated with another program? Generally, this will be a program for older or younger youth. Please list the exact name of this program:

Q. Programs in which Youth Teach: In what other educational programs in your institution do youth in this program teach others or facilitate activities? Please list the names of these programs.

Relationships beyond the Program

Changes Suggested

In discussion, we also asked participants about the other departments in their institutions in which their participants may work. While some of these areas were covered as Strategies, conference participants noted that these areas provided opportunities for mentoring by staff members outside the program,

and hours teens worked in these areas was sometimes logged. Database users, they indicated, could benefit by more specific information.

Similarly, they explained, some youth work in or have internships in community partner organizations. For example, youth may be assigned to work at a YMCA summer program or may have an internship in a university research lab.

Indicated Changes

Field for both internal and external opportunities for authentic work appear useful for the Program Profiles.

Q. Opportunities for Authentic Work—Internal: Apart from educational programs, in what other areas in your institution do youth in this program have opportunities for authentic work (e.g. exhibit development, guest services)?

Department or Area Name	Authentic Work Opportunity

Q. Opportunities for Authentic Work—External: Outside your institution, what opportunities for authentic work do youth in your program have? Generally, these opportunities are offered by your community partner organizations such as Boys & Girls Clubs summer camp instructors or internships in university research labs. Opportunities could also be with business and industry community partners. Please name the partner and explain the type of work done by the youth in your program.

Community Partner Name	Type of Organization	Authentic Work Opportunity

Recruitment Methods

Changes Suggested

On the Participant Survey, one participant commented:

> *I'm also a little interested in learning more about the demand for other programs. We often have over 150 applicants for 18 positions (which is really more like 7 positions, once you take into account "returning interns" in our career ladder who are keeping their position). Is that acceptance rate standard? Or is our demand abnormally higher than our supply? (Participant Survey)*

As we considered this comment, we realized that we had not asked institutions to describe their recruitment and selection processes in the Program Profile. From our previous experience, we knew that individual programs had very different processes. One program we evaluated sent emails and fliers to teachers and counselors in schools with large numbers of underserved students. In this program, teachers and counselors wrote letters of support for students they knew or had work with. Potential for high achievement was a criterion for selection. In another program, each community organization (e.g.

Boys & Girls Club, social service agencies) was given a set number of official applications that they could distribute to any of the youth they served. In this program, youth of all perceived achievement levels were admitted to the program to reach a wide range of youth.

Indicated Changes

Institutions could benefit by understanding each other's recruitment and selection processes.

Q. Recruitment Methods: What strategies and tactics do you use to identify and reach students in the target population, so that they can apply for the program?

Q. Selection Methods and Criteria: Please explain how decisions are made about which applicants are accepted into the program and the criteria you use to accept and reject applicants?

Q. Demand versus Selection: Demand for your program means the number of applications you received. Selection means the number of places in the program available each year for those applying.

Demand: In the last three years, what was the average numbers of applications you received from prospective participants submitted?	
Selection: What was the average number of youth selected for the program?	

Funding and Financial Information

Changes Suggested

Conference participants discussed funding sources and financial information in some depth in breakout sessions. Several participants characterized financial information as sensitive.

> *We ended up taking a little bit more of a cautious approach because we weren't too sure how some of this information was actually ultimately going to be reported on. (*Session Two, Discussion 1A)

Discussion centered on what information would be useful to program leaders versus what information was sensitive to either the institution[2] as a whole or among internal audiences. Sensitive included the names of specific external funders, ratios such as cost per participant, and the percentage of the budget

[2] For the purposes of this project, institutions were promised that their individual Program Profiles would be used only for analysis, and, if the data were used to develop public documents as examples in later phases of the project, then the example would be returned to the institutional representatives for editing and approval prior to any sharing with the institutional name.

for participant payroll. In general, participants indicated that public information should be limited to percentage of the overall budget from internal and external sources. Some, but not all, participants said that their institutions might be willing to share percent of program budget for participant payroll or cost per participant if the information did not appear on a public database and was shared only in aggregate with no institutional names.

Indicated Changes

Collecting sensitive information can be considered at later phases of the *Roads Taken* project when greater numbers of institutions are involved and institutions have had more opportunity discuss these issues with their finance or development departments. Currently, the goal of this project is the sharing of useful, public information.

An additional item that appears appropriate and avoids sensitive areas is the following:

Q. Funding by Internal and External Sources:

What percent of your program budget comes from internal sources (i.e. institutional operating budget sometimes referred to as "hard money")?	
What percent of your program budget comes from external sources (e.g. grants, donations, endowments sometimes referred to as "soft money")?	

Staffing

Changes Suggested

In Session 2 breakouts, participants asked for more information about staffing: (1) patterns of seasonal staffing changes, (2), adults per youth participants, and (3) mentors per youth.

The most straightforward of these suggestions focused on seasonal staffing changes. As one participant commented:

> *I would also like to know, does staffing change seasonally? Do you hire more people to help with the program in summer than you do in the winter times? So does your staffing change throughout the year?* (Session Two, Discussion 1B)

Many of the participants indicated they hired summer staff, and it would be helpful to have additional information about this topic.

The number of youth per adult may be a more difficult ratio for institutions to calculate. First, some full-time program staff members' time is split among different programs, the youth program being only one. The percentage of their time devoted to this program may vary with lower percentages during the school year when the participants meet less frequently and a higher percentage during the summer when the program meets more frequently and students doing authentic work may need supervision. Second, some people filling out the Program Profile were not familiar with the concept of Full-time Equivalency (FTE). FTE is a useful way of comparing programs on a similar metric. Yet, when youth program budgets were not clearly separated from other parts of a department budget, FTE was challenging to calculate. In addition, a number of programs hired summer staff, some of whom worked full-time in the summer only, and others who worked part-time—both in the same program. If a metric

of the number of youth per adult participant were to be adopted, the accuracy of the calculations will need to be monitored.

Similarly, another conference participant wanted to know the number of youth per mentors participant. From our experience evaluating prolonged engagement youth programs, we know that the term mentor is used is a wide variety of ways. It may refer to adult program staff members, staff members in other institutional departments (e.g. exhibits), older youth mentoring younger youth, or even supervisors of interns in community organizations (e.g. program leaders in community-based organizations or research lab staff in universities or businesses). Participants will need to develop a common definition for the idea of a "mentor" before fields are added to the Program Profile.

Indicated Changes

In order to keep the Program Profiles as easy as possible for program staff to fill out and use, we concluded that only one of these topics should be added to the Program Profile, that is, seasonal staffing changes. This item should be simple and descriptive rather than asking for numbers that could be easily misinterpreted due to differences in program size and strategies.

Q. Seasonal Staffing: Describe how the program is staffed during the school year and during the summer season. If additional staff members are hired for the summer, please briefly describe their roles and duties.

School year staffing	
Summer staffing	

Information Management, Evaluation, and Research

Changes Suggested

Several items suggested by conference participants focused on information management for program management and tracking alums; evaluation methods and studies; and research or long-term studies of participants after leaving the program.

Survey respondents indicated they were interested in learning about what others were using as "tracking tools/databases." It is not entirely clear what these tracking systems would include. In our previous experience, some prolonged youth programs track names and address, email, and phone numbers for both participants and parent/guardians and these may need to be updated frequently since underserved populations tend to move often and change schools often, sometimes more than once during a school year. Tracking systems may also include demographics collected at program entry which may not change (e.g. date of birth to calculate age, ethnic identification) and some which may change such as ZIP code of residence, school attended, grade level, gender identification, and parent/guardian consent for photos or research and evaluation studies. The program components or program experiences in which youth participate may also be tracked as they move through the program. Finally, tracking systems may be use to keep in touch with alums.

At the other end of the spectrum, we found that there were some notable differences in the long-term impacts or outcomes for the programs. Some of the programs had long-term outcomes that specified

the targeted percent of participants that would enter STEM careers. For other programs, an anticipated long-term outcome was youth participants going on to complete college in any subject area. In addition, several institutions cited a life-long interest in a STEM area as an impact; however, the specific STEM areas differed by institution types with botanical gardens and aquaria citing conservation impacts, and science museums and science centers citing a life-long interest in science or engineering.

One of the original YouthALIVE! impacts was for youth participants to become frequent museum visitors in their adult years. We found little evidence of this impact in the discussion of long-term outcomes on the Program Profiles submitted as part of this prototyping process.

The Participant Survey asked what types of information were most likely to be requested by funders. This fell into three categories (1) characterizing youth participants, (2) youth after participation, and (3) comparison studies.

Comments related to characterizing youth participants from the conference participant survey (Allen, 2016, p. 5) included:

- *Gender, diversity, and socio-economic status*
- *Demographics. Retention.*
- *Numbers/demographics; whether or not we fulfilled expected outcomes*

Funder requested information related to youth after program participation from the conference participant survey (Allen, 2016, p. 7) included:

- *Interest/pursuit of STEM Career*
- *Retention and completion of a STEM major*
- *Our funders are much more interested in college acceptance rates, major academic achievements (projects or scholarships), press coverage, after college successes, long-term impacts of the program, and hearing from the youth themselves.*
- *Return on investment, college degrees obtained or selected, etc.*
- *Academic gains from program. Alumni data- matriculated, graduated, STEM major?*
- *Stories of rising seniors and college choice*

Conference participants completing the survey reported that funders are also interested in "Comparisons between program participants and teens who do not participate." As we know from our prior experience, external funding for programs rarely reaches a level or extends the timeframe to an extent where many long-term impacts can be assessed or comparison programs can be carried out. This is one reason for planning Phase 3 of the Roads Taken project.

Finally, one participant pointed out, and others agreed, that the programs needed to share evaluation methods.

> *So I appreciated the impact questions like short-term and long-term. But I think a lot of people have questions about our evaluation methods. So I would add an additional piece in there like what types of tools or methods of evaluation and maybe frequency. We give it at the end of the program. We give it every two years. ... Whatever type of evaluation methodology our programs use to get at those short and long term impacts. (Session Two, Discussion 1B)*

Since both Klein and Tisdal have evaluated prolonged youth programs for grant-based projects, we know that in addition to knowledge of the data collection methods, expertise in the data analysis and reporting is somewhat scarce within youth programs. In addition, program staff members sometime underestimate the time and practice required to master data analysis and reporting skills. For these reasons, participatory research strategies are planned for Phase 2 & 3 of Roads Taken so that program staff are engaged in research at appropriate levels and have access to the expertise of researchers for other tasks.

Indicated Changes

In addition to plans for participatory research, some Program Profile fields can be added that may provide data for joint development projects (e.g. a system shared by programs to track youth during and after participation.)

Q. Youth Demographics: Demographics are standard participant characteristics that can be grouped to describe the youth audience of the program. What youth demographics does your program collect?

Demographics	How do you collect this item?	How frequently do you update this item?
Date of birth/age		
Grade level at entry		
Ethnic identification		
Gender identification		
Other 1		

Q. Personal Information. Personal information methods used to contact youth and parents, medical information collected for youth safety (e.g. allergies), and permissions used such a photo releases. This information is generally confidential and used only within the program. What personal information does your program collect?

Personal Information Type	How do you collect this information? (e.g., application, survey, parent/guardian form)	How frequently do you update this information? (e.g., yearly, seasonally, monthly)

Some programs keep in touch with program alums to follow their pathways after participation. Allen identified this as an area most programs saw as a weakness. The Program Profiles could include information about characteristics and activities of alums that have been useful for programs to track.

Q. Alumni/Alumnae Tracking. This information provides ways to reach program alums as well as capture their educational and career pathways. (Examples: phone number, mailing address, high school graduation, college email, college address, college attended, major, degrees received, new positions) What information from alums does your program collect?

Alumni Information	How do you collect this information? (e.g., mail survey, email survey, phone calls)	How frequently do you update this information? (e.g., yearly, seasonally, monthly)

In breakout discussions, Roads Taken Conference participants also said they wanted additional information in the Program Profile about the evaluation methods programs were using.

Q, Evaluation Methods: Evaluation methods are approaches by which information is systematically collected, analyzed, and reported to draw conclusions about the value of the program and support decision-making by program staff members, administrators, and stakeholders. Which of the following evaluation methods does your program use?

Data Collection Method	Analysis Method	Reporting Method	Willing to share instrument or protocol?

Q. Evaluation Reports. Evaluation reports are presentations of findings and conclusions produced from systematically collected and analyzed data. If evaluation reports from your program are available online (e.g, informationscience.org or your institution website), please list a linked citation.

Linked Citation

Q. Research Articles or Reports. Research is systematically conducted inquiry that allows generalizable knowledge about some aspect of your program or characteristics of youth participating in your program. If your program has been part of a research project, please list any articles or reports that were part of this research? (If products or abstracts are available online, please provide a citation with the links to the information.)

Linked Citation

Alumni/Alumnae Relations and Engagement

Changes Suggested

The Participant Survey also reported that some participants wanted to know about alumni/alumnae relations and engagement strategies. Based on discussions, we learned that alums provide role models for current participants, create a network in colleges and universities for current youth participants to connect into, and may provide the job resources for current participants. In addition, several programs appear interested in conducting long-term studies of participants after leaving the program.

Indicated Changes

In addition to tracking alumni/alumnae, participants in the conference wanted to know about methods different programs use to keep alums involved in the youth program and up-to-date about events they can attend or ways they can participate.

Q. Alumni/Alumnae Outreach: What methods do you use to keep alums informed about what is going on in the program?

Q. Alumni/alumnae Engagement: What methods do you use to engage alums in the current program (alumni/alumnae events, inviting alums to present to current participants, asking alums to lead campus tours)?

Barriers to Participation

Changes Suggested

In responding to the survey, one participant commented that information about barriers to participation would be useful to share.

How other programs address barriers for participation (program is free, transportation, food, provide materials, bi-lingual materials etc.) (Participant Survey)

Indicated Changes

An additional item on barriers to participation may be useful in the Program Profile.

Q. Overcoming Barriers to Participation: What are barriers to participation your participants face (e.g. lack of transportation, youth hungry after school, English as a second language, competition from jobs) and how do you overcome these barriers?

Barriers	Strategies to Overcome Barriers

Change in Target Audience over Time

Changes Suggested

An interesting comment by one conference participant in an email indicated that the target audience for his institution's program had changed over time. This change appeared to have been due to the changing demographics of the community, funder priorities, and an evolution of thinking about the programs from the YouthALIVE! equity focus to a more current work-force development focus.

Indicated Changes

This change needs to be incorporated into an existing item. The current item can be updated. The addition is shown in red below.

> ***Program Life Cycle****: What have been the major events in the life of your program? (e.g. staff reductions, staff increases, number of youth participants, shifts in the specific target audience, major changes such as initiating paid authentic work)?*

Summary

Adding all these fields to the Program Profile could increase the time it takes to develop a Program Profile and the ease of completing the task. The *Changes Indicated* need to be vetted and tested in the next phase of the **Roads Taken** project, at first with a small group, ideally the 10 institutions that participated in the Roads Taken Conference. A small group of three to five different institutions may need to prototype a revised version and see if they can complete the Program Profile in our target timeframe of six to ten hours.

Lessons Learned

Lessons from the Process

The process goal for the conference was to use virtual conference technology to engage participants in to:

1. Test and revise a Program Profile tool for reflective practice within programs at a single institution and sharing information among programs.
2. Engage youth program practitioners and researchers in a collaborative process to ensure multiple perspectives inform future research design as well as making sure research results are valid, credible, and usable for multiple stakeholding groups.

We found that the virtual conference format allowed for a diversity of participants, when travel cost and time for a face-to-face conference would have been prohibitive. The smaller breakout sessions allowed for the greatest input by participants. However, the whole-group icebreaker activities were not particularly successful, and the conference format did not allow for the development of personal-professional relationships sometimes facilitated at conferences and in joint tasks in face-to-face settings.

The format of two sessions with the task of completing a Program Profile between them worked well for achieving the process goal. All organizations were able to complete their profile by the deadline with minimal input from the project leaders. However, since representatives from organizations worked in pairs within their own organization and had little contact with other participants, camaraderie did not develop across organizations.

At the same time, the youth program representatives expressed interest in professional networking and support.

Input from the participants provided valuable insight for revising the template to ensure that multiple perspectives will inform future research.

Lessons from the Program Profile Discussions

In Session Two breakout discussions, adviser critiques, in email, and from the participant survey, we learned that several additional fields should be considered for the Program Profiles. In addition, institutional representatives wanted to share some sensitive information, but only in aggregate. This information could be better collected via a related survey. There were 11 areas for change indicated and questions to prompt Program Profile information were developed. Additional thought will be given to the length of time each item would add to the development of the Program Profile, types of information best presented only in aggregate for confidentiality, and areas where common language may be lacking to obtain consistent information.

Spectrum of Expertise in the Program: Participants wanted Program Profiles to indicate a range of expertise in the program related to strategies as well as the stage of development.

Associated Programs: Some institutions had more than one program with prolonged engagement for underserved youth. Often, these involved separate programs for middle school age and high school age

participants. Others had associated programs in which their youth taught and for which they kept records of contact hours.

Relationships beyond the Program: Participants reported that it would be useful for programs to share both internal and external opportunities for authentic work provided outside the program itself. Internal opportunities may be provided by other departments (e.g. exhibits, guest services) and external opportunities may be provided by community partner organizations (e.g. YMCA camps, university research labs).

Recruitment Methods: Revised Program Profiles need to include a description of recruitment and selection processes; that is, how youth find out about the program, apply to the program, and are selected to participate. Participants also wanted profiles to include information on the average number of applications in relationship to the number of spots in the program, that is demand versus selection.

Funding and Financial Information: Participants reported that financial information can be sensitive with institutions preferring for some things to be shared only in aggregate. The group agreed that percentage of the program budget funded from internal and external budget sources was information that most institutions would be comfortable sharing publically. Information that many institutions would not be willing to share publically include names of specific external funders, cost per participant, and percentage of budget for participant payroll.

S*taffing*: Participants asked for more information on (1) patterns of seasonal staffing changes, (2) youth per adult, and (3) youth per mentors. Given the difficulty explaining consistent ways of calculating a comparative measure of adults per youth in the program and range of definitions of mentors, these two measures did not make the cut for additions to the Program Profiles.

Information Management, *Evaluation, and Research*: Several additional items suggested by conference participants focused on: information management for program management and tracking alums; evaluation methods and studies; and research or long-term studies of participants after leaving the program.

Alumni/Alumnae Relations and Engagement: We learned that alums provide role models for current participants, create a network in colleges and universities for current youth participants to connect into, and may provide the job resources for current participants. In addition, several programs appear interested in conducting long-term studies of participants after leaving the program.

Lessons from the Evaluation

Evaluation of the project was provided by Sue Allen of Allen and Associates. Eighteen of the 21 participating youth program representatives completed an online survey (a response rate of 86%). Summarized here, the full report by Allen (2016) can be found in Appendix C.

Lessons from the evaluation cover several topics. Direct quotes are taken from the evaluation report.

Program Profiles

- Youth program representatives "were able to fill out the Program Profiles for their organizations in approximately 3-6 hours."
- "Aside from information collected in the Program Profiles, conference participants … were interested in finding out more about youth trajectories beyond the program: HS graduation, college, and STEM careers of alumni."
- Participants were "interested in hearing about funding options and detailed breakdowns of program costs."

Long-term Impact Research

- Youth program representatives "felt the alumni would be difficult to contact, and especially so for outsiders;" i.e. people not directly involved with the program tasked with data collection.
- To suggest hypotheses, "participants believed the most likely factor responsible for program success was the relationships between youth and others in the organization (peers, mentors, and staff more generally). Several participants also mentioned authentic work and learning opportunities, and the continuity of year-round consistent programming over time."
- "Participants believed the greatest influences on youth beyond the program would be their relationships with close family members."

Professional Networking

- A large majority of youth program representatives "expressed interest in being part of an ongoing network of youth program providers, and believed they could make time for this. However, they did not see this as a natural follow-on opportunity arising from the Roads Taken webinars, and most did not feel a strong personal connection with others in the conference (perhaps because most of the collaborative work to reflect on the youth programs was done within, rather than across, organizations)."

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Appendix A – Bios for Conference Leaders, Advisors, and Evaluator

Conference Leaders

Wendy Hancock, Senior Program Manager, Professional Development, Association of Science-Technology Centers (ASTC). With over 15 years of experience as an educator and program manager, Hancock oversees and facilitates a variety of professional learning opportunities for the informal science education community. These include face-to-face and online professional development activities, 25+ online Communities of Practice, and ASTC's minigrant award programs. Hancock is a founding board member of the Innovation Collaborative, a group drawing on the expertise of leading national arts, sciences, and humanities institutions and researchers to impact formal and informal learning environments. She has also served as an advisor on a variety of IMLS and NSF grants including Coalition to Advance Learning in Archives, Libraries and Museum (IMLS) and as the final Principal Investigator for an ExhibitFiles, an online community site for exhibit designers and developers, funded by NSF. Hancock served as project PI and was responsible for the conference production and logistics, along with oversight of the project.

Carey Tisdal, Director, Tisdal Consulting. With over 25 years of experience as an evaluator and instructional developer, Tisdal has broad experience in STEM learning, youth programming, and evaluation. She was elected as member of the Board of Directors for the VSA in 2007 and served as secretary and on the Executive Committee from 2009 to 2010. Evaluation experience with STEM youth programming includes the evaluation of Museum Tech Academy, funded through the NSF ITEST program, which engaged teens (12-17 years old) in archeology project-based learning involving technology skills and evaluation work with the Youth Exploring Science (YES) program at the St. Louis Science Center on their grant from the Office of Naval Research (*Community STEM Outreach Program: A Local Model for National Impact*). Tisdal served as lead facilitator for this AISL conference project.

Christine (Kit) Klein, Director, Insight for Learning Practices LLC, has provided STEM education research and evaluation services to science centers, museums, afterschool programs, K-12 schools, and universities for over 20 years, through Klein Consulting since 2004 and through Insight for Learning Practices beginning in 2015. Her work with youth programming in STEM OST learning includes external evaluator for *Teenage Designers of Learning Places for Children* with the St. Louis Science Center and Science Museum of Minnesota, and lead external evaluator for the *Community STEM Outreach Program: A Local Model for National Impact*. Klein co-facilitated this AISL conference project.

Advisors

The six advisors were selected from national youth program organizations, organizations whose members offer STEM programs for high school aged youth, and researchers familiar with the YouthALIVE! Initiative. Each took an active role in the conference and critique of the Program Profile Template.

Cheronda Frazier, Director of Community Engagement, Center for Aquatic Sciences at Adventure Aquarium, is a marine biologist and has extensive experience in science education and youth programming. She is responsible for the administrative oversight of the Center's underserved youth and community programs and special initiative projects. For more than twenty-three years, Frazier has worked to build effective science and youth development programs for youth. She works to identify their needs and develops, implements, and evaluates programs that help youth become successful and contributing adults to society. Through SACNAS (Society for Advancement of Chicanos and Native Americans in Science) and ASTC (Association of Science-Technology Centers) Frazier has been awarded conference fellowship awards for her work in equity and diversity in the workplace. Frazier is currently the Mid-Atlantic YouthALIVE! Regional Network Chair and sits on the Association of Science-Technology Centers' (ASTC) Equity and Diversity Committee and the Leadership and Professional Development Committee.

Ellen S. Gannett, Director, National Institute on Out-of-School Time (NIOST) at the Wellesley Centers for Women at Wellesley College, ensures that research bridges the fields of child care, education, and youth development in order to promote programming that addresses the development of the whole child. Her work ranges from system building for afterschool and youth development to professional development to creating evaluation systems. Celebrating her 34th year with NIOST, she directs a national team of Education and Training Associates who facilitate seminars for public school administrators and community leaders on afterschool and youth development. Currently she serves as one of the Technical Assistance Providers for the Wallace Foundation's Next Generation Afterschool System Building Initiative. She is project director for the Massachusetts Department of Elementary and Secondary Education technical assistance and training initiative for 21st Century Community Learning Center grant recipients and served as the Principal Investigator for the Robert Bowne Foundation Afterschool Matters Initiative. She is also a senior project advisor on NIOST's A Program Assessment System (APAS) which includes a linked system of program evaluation and child and youth outcomes tools.

Anita Krishnamurthi, Vice President, STEM Policy, Afterschool Alliance, works to advance policies, research and strategic partnerships so afterschool providers can offer rich STEM education experiences for the children and youth in their afterschool programs. In this role, one of her major current projects is leading the Afterschool STEM Hub, a coalition of afterschool leaders that serves as a think tank of key leaders in the field. An astronomer by training, Krishnamurthi has been working in science education for the past 15 years in varied roles at the National Academy of Sciences in Washington, D.C., NASA Headquarters and the Astrophysics Division at NASA's Goddard Space Flight Center. She joined the Afterschool Alliance in June 2010 to launch the organization's STEM initiative as the first Director of STEM Policy after serving as the John Bahcall Public Policy Fellow for the American Astronomical Society.

Mary Ellen Munley, Principal, MEM & Associates, serves as research advisor to a collaborative of contemporary art museums exploring long-term and continuing impacts of intensive teen programs. She also designed and conducted a study of the long-term impact (over 20 years) of participation in a teen program at the United States Holocaust Memorial Museum. She has more than 30 years' experience as a museum educator, administrator, and audience research and evaluation specialist. She is a recipient of the American Association of Museums award for excellence in the practice of museum education. Munley is a member of The Museum Group, an international, not-for-profit consortium of senior level museum professionals who work separately and collectively to serve museum clients. Currently she is the principal of her own consulting firm, MEM & Associates, a practice dedicated to enhancing the role of museums in the lives of individuals and their communities.

Heather Norton, Vice President of Education, Orlando Science Center, leads the ASTC STEM Afterschool Community of Practice. She oversees all educational programming at the Orlando Science Center, including management of all grant-funded educational programs. She currently supervises a team of over 60 trained educators. She leads all Orlando Science Center educational departments including School Services, Camps and Afterschool, Overnights, Offsites, Preschool, Early Childhood Programs, Science Competitions, Teacher Professional Development, Reservations, and Birthdays.

Cary Sneider, Associate Research Professor, Portland State University, teaches courses in research methodology in a Master of Science Teaching degree program. He is currently Co-Principal Investigator on Science in the Learning Gardens, an NSF grant to Portland State University, and plays a similar role for Engineering for All, an NSF grant to Hofstra University. Sneider also serves as a Consultant on STEM Education for the Noyce Foundation and the Stephen D. Bechtel Jr. Foundation, and on several advisory boards. He is Chair of the LinkEngineering committee for the National Academy of Engineering. He contributed to *A Framework for K-12 Science Education: Practices, Crosscutting Concepts and Core Ideas*, and served on the writing team for the *Next Generation Science Standards*. In 2011 he joined the National Assessment Governing Board, which sets policy for the National Assessment of Educational Progress (NAEP), also known as "The Nation's Report Card." Before moving to Oregon, Sneider was Vice President for Programs at the Museum of Science in Boston, and prior to that he served as Director of Astronomy and Physics Education at Lawrence Hall of Science, U.C. Berkeley. He has conducted research on the institutional legacy of the ASTC YouthALIVE! Initiative (Sneider & Burke, 2011).

Evaluator

Sue Allen, Director of Research at the Maine Mathematics and Science Alliance and an evaluation consultant. Allen was the Director of Visitor Research & Evaluation at the Exploratorium, where she spent 15 years studying learning on the public floor. From 2008-2011 she served as a Program Director and Acting Division Director at the National Science Foundation. She is interested in assessing learning, integrating diverse informal science education resources, and professional development for informal science educators. She is currently co-leading a project to build community-embedded expertise in out-of-school STEM, funded by the National Science Foundation. In addition, she is leading a Noyce-funded project to provide online professional development to afterschool providers around the nation, using peer-coaching and video-based reflective activities.

Appendix B: Program Profile Template Provided to Participants and Advisors

Roads Taken Program Profile Prototype

Getting Started

Thank you for prototyping the Roads Taken Program Profile. Your effort will help us make the Profile easier to complete and more useful. Remember, this is a prototype. Based on the feedback you give us, it will be revised for Phase II of the project.

We recommend you use the following steps to complete the Profile:

1. **Review the hard-copy and identify data needed.**
2. **Collect information and draft responses.**
3. **If you do not respond "Yes," on item "1," we will not include your data in the report.**
4. **Any items for which you don't have information, mark"NA" (not available).**
5. **Identify any items you do not wish to share and mark"CD" (confidential).**
6. **Only one computer can be used to enter information.**
7. **You may enter and leave multiple time pressing "Done".**
8. **Review your responses.**
9. **Submit via SurveyMonkey by November 16.**
10. **We will send you a copy of your Program Profile when it is complete to the last page.**
11. **Provide feedback during Webinar 2 on November 18.**

Thank you very much for your time and support. Please feel call or email us using the contact information below.

Carey Tisdal, Project Co-PI
314-496-9097
ctisdal@sbcglobal.net

Christine (Kit) Klein, Project Co-PI
314-504-1465
ckleinconsulting@gmail.com

1

1. **Permission to Use Data**: I understand that by filling out the Program Profile, **I** am giving permission for aggregate data, without institutional and program names, to be shared in the final report. For any field for which I either do not have information, **I** will entered **"NA,"** indicating the information is not available. For any individual field for which **I** do not want to share data, **I** will enter **"CD,"** indicating my institution considers this data confidential. If individual Program Profiles are developed as examples for the final report, **I** understand that our current program leader representative will be contacted so the information can be reviewed and approved by the appropriate individuals in my institution prior to its inclusion in the report or sharing in any form.

- ○ Yes
- ○ No

2

Roads Taken Program Profile Prototype

General Information

Enter general information about your program.

2. Name of Institution

3. Current Youth Program Name

4. Name of Person Entering Data:

5. Year Program Started

6. Website Link

7. Contact Name

8. Contact Title

9. Contact Phone Number

10. Contact Email Address

3

Roads Taken Program Profile Prototype

Program Facts

Items on this page will characterize the scope and size of your program.

11. Museum Annual Budget:

12. Program Annual Budget:

13. Age Range of Participants:

14. Target Population:

15. Number of years youth can participate:

16. Frequency of Meeting

Fall

Summer

Winter

17. Average Program Contact Hours Per Year:

18. Average Number Served Per Year:

19. Total Number Served Since the Program Began:

20. Number of Full-time Program Staff Members:

21. Number of Program Part-time Staff Members:

22. Total Full-time Equivalent Per Year Program Staffing:

5

Strategies

The next few pages ask you about strategies used in your current program and strategies used in the past. This information will be used to help others identify expertise that your program can share as well as help you network with museums using similar strategies. The strategies will also help researchers identify programs using contrasting strategies to look for influences on long-term impact among program alums.

Strategies are grouped into two categories: (1) Youth Engagement Strategies and (2) Organizational Strategies. Definitions are included with each strategy. Please read the definitions because you may call the strategy by another name. If available, check the ASTC 2000 Program Profile we shared to find strategies used in your museum during YouthALIVE! (YA) funding.

Youth Engagement Strategies--Learning Strategies

23. **Learning**

	Never Used	YA Only	Now Only	Both YA & Now	NA	CD
Communications Skills Building--focuses on a wide range of applications, from one-on-one interactions and oral presentation skills, to written projects and technological interfaces. These skills are cultivated through peer coaching, on-the-job practice, and workshops.	○	○	○	○	○	○
Career Planning--engages the teens in learning about the world of work through workshops, guest speakers, field trips, discussions, mentoring, and job shadowing.	○	○	○	○	○	○
Educational Goal Setting--enhances both younger and older teens' awareness of the importance of education. Activities such as field trips, financial assistance workshops, and sessions with guest speakers encourage them to pursue post-secondary education.	○	○	○	○	○	○
Creative Arts--includes activities such as drama, painting, writing, and computer graphics that immerse young people in other perspectives of their world, give them opportunities to express themselves, and apply their knowledge.	○	○	○	○	○	○
Field Trips--include group visits to colleges, research labs, businesses, or other settings that expand youth awareness and understanding.	○	○	○	○	○	○
Team-Based Projects--involve groups of youth working as teams with designated roles to complete a project. Sometimes involves design challenges (e.g,. robotics, engineering) scientific research, or group presentations.	○	○	○	○	○	○
Financial Planning--includes budgeting, banking, and money management.	○	○	○	○	○	○
Science Knowledge or Skills--includes hands-on workshops, classes, and reading that focus on science, technology, engineering, or mathematics knowledge and skills.	○	○	○	○	○	○

24. Are there other **Learning Strategies** used in your program not included on this list?

25. Do you use other terms in your program to refer to any of these **Learning Strategies**?

Roads Taken Program Profile Prototype

Youth Engagement Strategies--Authentic Work

26. **Authentic Work**

	Never Present	YA Only	Now Only	Both YA & Now	NA	CD
Paid Positions for Youth--an integral aspect of work-based learning programs, providing teens with incentive and motivation to stay involved.	○	○	○	○	○	○
Explainer/Interpreters--young people who generally work in the institution's galleries and display areas involving visitors more directly with the exhibits by discussing concepts, answering questions, and providing assistance with the operation of exhibits.	○	○	○	○	○	○
Demonstrators--young people who work with mobile carts or stations in a specific area of the institution where they give "shows" or lead activities that highlight an exhibit.	○	○	○	○	○	○
Exhibition Development--brings teens together with museum exhibit staff. Teens provide fresh insight and enthusiastic assistance in conceptualizing, building, and testing exhibits.	○	○	○	○	○	○
Field and Lab Research–pairs teens with scientists from the institution or local universities in actual research projects during weekends and the summer.	○	○	○	○	○	○
Teaching younger children--involves youth leading workshops or hands-on activities with younger children in collaboration with community partner organization or at their sites. Teaching reinforces knowledge and skills of the program youth.	○	○	○	○	○	○

	Never Present	YA Only	Now Only	Both YA & Now	NA	CD
Career Ladder--refers to a sequence of programs, or steps within a program, in which students move up in rank, status, and/or responsibility as they gain additional experience. Organizations that pay participants typically increase hourly rates as youth advance in rank.	○	○	○	○	○	○

27. Are there other **Authentic Work Strategies** used in your program not included on this list?

28. Do you use other terms in your program to refer to any of these **Authentic Work Strategies**?

Roads Taken Program Profile Prototype

Youth Engagement Strategies -- Leadership

29. Leadership

	Never Present	YA Only	Now Only	Both YA & now	NA	CD
Youth Leadership Development– provides teens with structured, hierarchical experiences to explore their skills and talents as team members and agents of change in their communities.	○	○	○	○	○	○
Youth Advisory Council--gives youth a voice in their programs and in the institution. Generally, teens elect representatives from their group to work with youth staff to improve the program and represent them with institution management.	○	○	○	○	○	○

30. Are there other **Leadership Strategies** used in your program not included on this list?

31. Do you use other terms in your program to refer to any of these **Leadership Strategies**?

Roads Taken Program Profile Prototype

Youth Engagement Strategies -- Relationships

32. Relationships

	Never Present	YA Only	Now Only	Both YA & Now	NA	CD
Mentoring by Adults–pairs teens with adults who work in the museum or a specific segment of the community (e.g. scientific researcher or engineer). These adults model successful behavior and support the teens in pursuing their goals.	○	○	○	○	○	○
Cross-age Mentoring--pairs older, more experienced teens, with younger adolescents who may have recently joined the program. Older teens develop a sense of responsibility for their peers and young teens gain role models for their participation in the program.	○	○	○	○	○	○

33. Are there other **Relationship Building Strategies** used in your program not included on this list?

34. Do you use other terms in your program to refer to any of these **Relationship Building Strategies**?

Roads Taken Program Profile Prototype

Organizational Strategies - Partnerships

35. Partnerships

	Never Used	YA Only	Now Only	Both YA & Now	NA	CD
Family Involvement--usually centers around an event that participants plan and implement to showcase their accomplishments for their families.	○	○	○	○	○	○
Relationships with Schools--usually involve a collaborative relationship with teachers or guidance counselors who assist in recruiting and retaining young people in the institution's program.	○	○	○	○	○	○
Partnerships with Community-Based Organization--usually involve a collaborative relationship in recruiting, retaining, or supporting youth. Examples include home shelters, YMCA, Boy & Girls Club.	○	○	○	○	○	○
Partnerships with Professional Organizations--usually involves a collaborative relationship to support learning and authentic work. Examples include Society of Black Engineers, American Chemical Society, and Architects of America.	○	○	○	○	○	○
Partnership with Businesses--usually involve a collaborative relationship with staff from an organization to support learning and authentic work as well as to serve as mentors.	○	○	○	○	○	○
Partnerships with Colleges & University–includes support such as locations for authentic work (eg. research), presentations for educational planning, sites for field trips, and faculty or students serving as mentors.	○	○	○	○	○	○

36. Are there other **Partnership Strategies** used in your program not included on this list?

13

37. Do you use other terms in your program to refer to any of these **Partnership Strategies**?

14

Roads Taken Program Profile Prototype

Organizational Strategies -- Professional Development

38. Professional Development

	Never Used	YA Only	Now Only	Both YA & Now	NA	CD
Organizational Staff Development– helps museum staff outside youth program develop a better understanding of adolescent development and the role of adult mentors within the program.	○	○	○	○	○	○
Program Staff Development--helps program staff members from a variety of backgrounds develop an understanding of adolescents as well as disciplinary knowledge, and engagement skills.	○	○	○	○	○	○

39. Are there other **Professional Development Strategies** used in your program not included on this list?

40. Do you use other terms in your program to refer to any of these **Professional Development Strategies**?

Roads Taken Program Profile Prototype

Program Description

The following items ask you to summarize important aspects of your program in longer, paragraph form. Aim for one to three paragraphs to describe each characteristics.

If you would like examples of similar type descriptions, you can refer to either the following sources. They will open in a new window.

- Room to Rise PDF pp. 76-79
- Afterschool Alliance STEM Profiles

41. **Current Program Snapshot**: Describe the important characteristics of your program. (You may want to start with a description from your brochure or website.)

42. **Guiding Philosophy**: What is your program's guiding philosophy?

43. **Short Term Impacts:** What are intended outcomes at the end of program participation?

44. **Long-term Impacts:** What are the intended outcomes for youth 10 to 20 years after they leave the program?

45. **Funding History**: Over the life of your program, how has it been funded? (e.g., internal budget, NSF, NIH, local businesses, local professional societies)

46. **Program Life Cycle:** What have been the major events in the life of your program? (e.g. staff reductions, staff increases, number of youth participants, major changes such as initiating paid authentic work)

47. **Program Assets**: What are the major assets of your program? (e.g. partnership with a local university, science labs, interns, community support)

48. **Program Challenges**: What challenges does your program have? (e.g. staff turnover, leadership changes, mission change, location of museum)

49. **Quotes about the Program**: What do participants, parents, or partners say about the program? (If available.)

Roads Taken Program Profile Prototype

Thank you

Thank you for your time and expertise devoted to prototyping the Roads Taken Program Profile. When you respond "Yes" to the following question, you will receive a copy of your submission.

50. We have completed our review and are submitting our Program Profile.

- ( ) Yes, this is our final submission.

Appendix C – Evaluation Report

Evaluation Report for
"Roads Taken" Youth Programs Virtual Conference
Sue Allen, Allen & Associates
Dec 15, 2016

Background

Funded by the NSF AISL program, The Roads Taken virtual conference was the first of a three-phase participatory research project designed to confer, map, and explore the long-term impact of STEM youth programs. Using ASTC's innovative YouthALIVE! Initiative as an exemplar, the Roads Taken project hopes to contribute to the understanding of the long-term impacts of such programs (i.e., 10 to 25 years after participation).

The virtual conference

The virtual conference involved two webinars (held on 10/28/16 and 11/18/16). The goal was to engage youth program practitioners in the development and testing of a Program Profile prototype, a structured document that helps institutions to characterize their own youth programs in ways that that should be useful to future researchers and practitioners. Between the two webinars, pairs of representatives from participating organizations completed the document by providing descriptions of their current and past program designs, program changes over time, reasons for such changes, and various other descriptors.

Survey and analysis

Following the webinars and the completion of the Program Profile by each organization, participants were asked to complete a brief survey (see Appendix). The survey was designed to inform the revision of the Program Profile, by finding out how onerous the process was, whether it offered benefits to those completing it, and whether there were components that should be added, further clarified, or otherwise improved. The survey also gave participants opportunities to share their own beliefs about the critical aspects of their own programs that led to success or limitations; these will be used in the design of research during the later phases of the Roads Taken project.

The survey was administered using SurveyMonkey to 21 conference participants from 10 institutions. While almost all participants had worked in pairs to complete the Program Profile for their institution, the survey was administered to individuals and responses were anonymous. Because of the small samples, statistics are limited to descriptive rather than comparative, and textual responses are listed verbatim.

Many questions were Likert scales, with 1 being the most negative response, 4 being a neutral response, and 7 being the most positive response. In cases where the statements themselves were phrased as negative, the responses were reverse-coded so that in every case (below) the results show more desirable responses as having higher numbers.

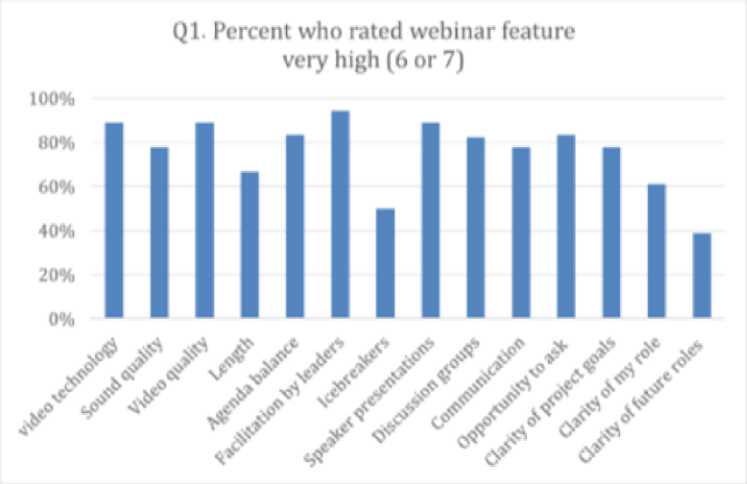
To simplify the analysis of Likert scale questions, we combined the numbers of respondents who gave the two most positive responses (i.e., people rating their view as 6 or 7 on a scale from 1 to 7) and called them "people who gave a very high rating." This is the variable reported out in the charts below.

Results and discussion

A. Participants' feedback on the webinars

Most of the 18 survey respondents gave very high ratings to the two webinars, particularly the quality of facilitation and the speakers. Impressively, they were also very positive about the video and sound quality, despite being in a videoconference with 30 people. This is a testimony to both the effective content of the webinars and the power of the videoconferencing platform used.

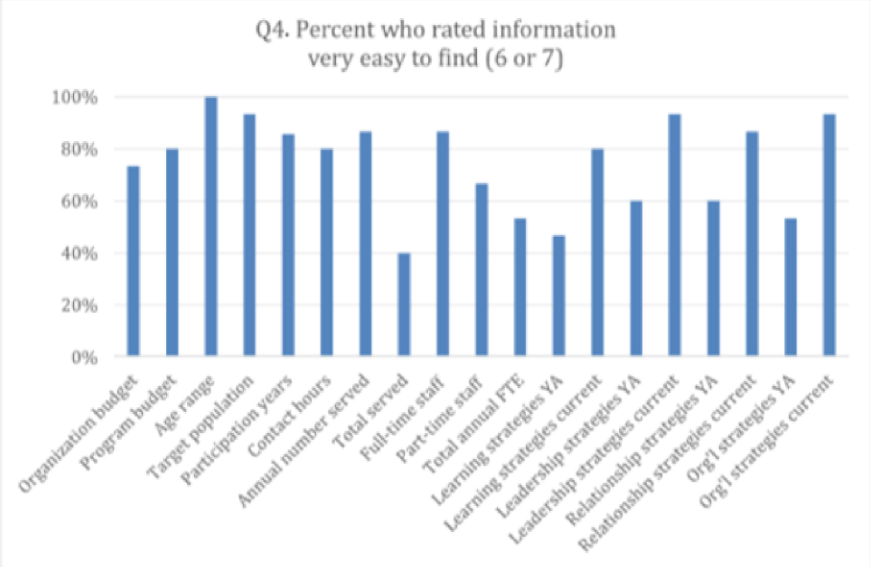
The only slight weaknesses were the ice-breakers (very highly rated by only half of the participants) and the clarity of future roles of participants. (highly rated by less than half).



B. Participants' perspectives on the Program Profile

Overall, each organizational pair reported taking a total of 0-10 hours to complete the Program Profile, with the most frequently reported times being 3-6 hours.

Respondents reported that most of the information was very easy to obtain. The exceptions were: total number of youth served since the program began, and the detailed strategies used in the original YouthALIVE! program.



Q5. Additional information respondents would find useful
Respondents listed several categories of additional information they would find useful:

Funding and financial:

- Current program funding sources
- Funding structures and sources

- Funding for programs, specifically is programs are funded through unrestricted institutional support, rather than grants
- It would be helpful in benchmarking our program to know how much of each program's budget is spent on participant payroll.
- Cost per participant (including AND excluding teen pay/stipend)

Alumni engagement:
- Methods for keeping alumni engaged
- Alumni engagement strategies
- I'd also be interested in hearing about how other programs keep up alumni relations.

Relationships beyond the program:
- What relationships other staff members in their museums have with program participants
- How other programs locate and use community partnerships - specifics.

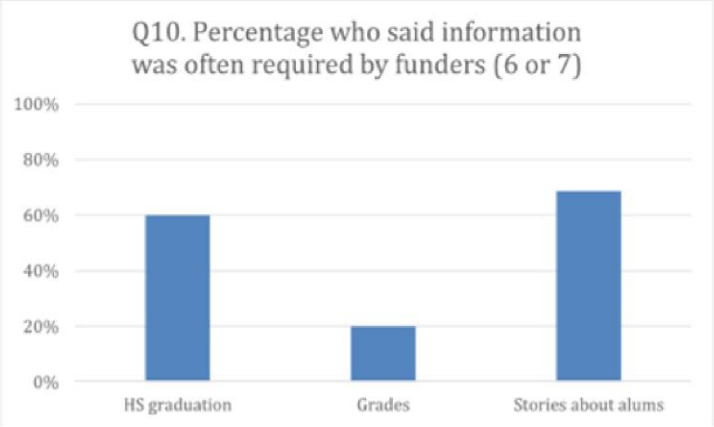
Miscellaneous
- I'm also a little interested in learning more about the demand for other programs. We often have over 150 applicants for 18 positions (which is really more like 7 positions, once you take into account "returning interns" in our career ladder who are keeping their position). Is that acceptance rate standard? Or is our demand abnormally higher than our supply?
- How other programs address barriers for participation (program is free, transportation, food, provide materials, bi-lingual materials etc.)
- Measurements of "success,"
- Tracking tools/databases

Q6. Likely search-phrases for other programs
When asked to name 3 short phrases they might use to find information about another program, respondents came up with a surprising variety of terms, yet all were focused on the youth programs as a whole, rather than narrowing the focus to specific components they might be interested in.

science internships for youth	science experiences for youth	STEM programs for youth
teen workforce development and funding sources	career and college readiness	youth leadership
Youth	Teens	STEM
informal science education	teen programs	high school internships at science museum
youth development	at risk youth	science literacy at risk youth
Museum Youth Programs	Underserved Youth	Youth Programs

	Programs	
Youth enrichment programs	teen service learning programs	youth skill building programs
youth development	peer mentor	teen programs
teen/youth development groups/programs	STEAM development for youth/teens	volunteer opportunities for teens
STEM	Youth	Programs
youth development programs	teen museum programs	career development opportunities in museums
museum teen programs	youth job opportunities	youth workforce preparedness
youth engagement	young leaders	potential at risk youth
youth professional development	life skills for youth	Opportunities for underrepresented youth
Youth Programs	Informal learning	

Q10. Information requested by funders



Respondents indicated that their program funders were most interested in knowing what happened to the youth beyond the program (including high school graduation, college paths, and life stories). In addition to the three categories shown in the chart above, respondents added the following:

Characterizing youth participants:

- Gender, diversity, and socio-economic status
- Demographics. Retention.
- Numbers/demographics; whether or not we fulfilled expected outcomes

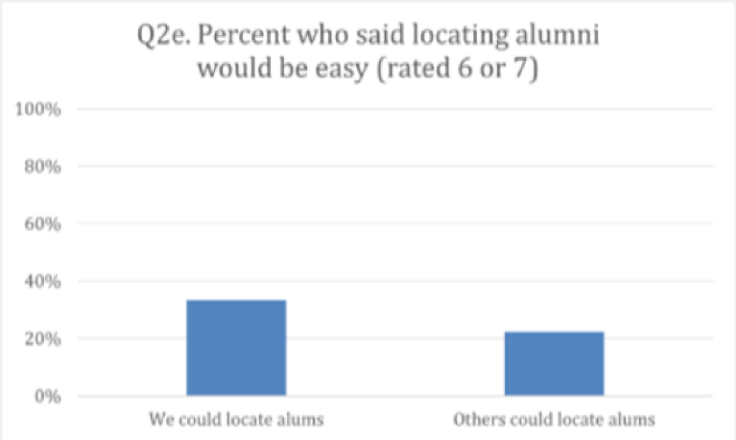
Characterizing youth lives beyond the program

- Interest/pursuit of STEM Career
- Retention and completion of a STEM major
- Our funders are much more interested in college acceptance rates, major academic achievements (projects or scholarships), press coverage, after college successes, long-term impacts of the program, and hearing from the youth themselves.
- Return on investment, college degrees obtained or selected, etc.
- Academic gains from program. Alumni data- matriculated, graduated, STEM major?
- Stories of rising seniors and college choice

Comparison study

- Comparisons between program participants and teens who do not participate

Q2. Challenges of contacting alumni



Despite their need for information about alumni, respondents believed that they were not easy to contact, especially by program outsiders.

C. Anticipating Phase 2 of the research: **Participants' b**eliefs about factors that influence youth program outcomes

Q7. Perceived key factor in success

The most commonly mentioned key factors in program success were relationships of youth within the organization (9 mentions), the authentic work of youth (5 mentions), and the learning opportunities (4 mentions). Interestingly, nobody even mentioned any of the

organizational strategies (viz. partnerships with other organizations or professional development about the youth for rest of the staff).

- The focus on job skills, the stipends, the access to mentors.
- Paid internship, focus on diversity, authentic science experiences, youth mentoring, year-round program
- Institutional buy in and dedicated staff and resources
- Two things: 1. The ability to do authentic work gives students an understanding of what the science field is and also puts them at a competitive advantage. 2. The class and internship combo- allows for serious science/work env and peer exchange/fun.
- Relationships. Between participants and between program staff and other institution staff who frequently interact with our interns.
- Consistency and focus on the topics- science is a high interest subject. Make sure the info is available to all of the learners, despite their perceived abilities
- Consistency - seeing the teens 3-4 x week all year.
- The support of the museum as a whole
- Consistency of support for program from institution and consistency of staff involvement
- The initial backbone structure provided by YouthALIVE!
- Hands on experience with programs for youth
- The authentic work experience that the participants have that directly supports the operations of the museum and the experiences of the visitors.
- Providing paid job opportunities for teens
- Personal commitment by staff.
- The staff that has been with the program for years, especially those that have been through the program previously. Also, the time we spend with our students working on and with them.
- The long duration and sophisticated level of policy, procedure, and strategy.

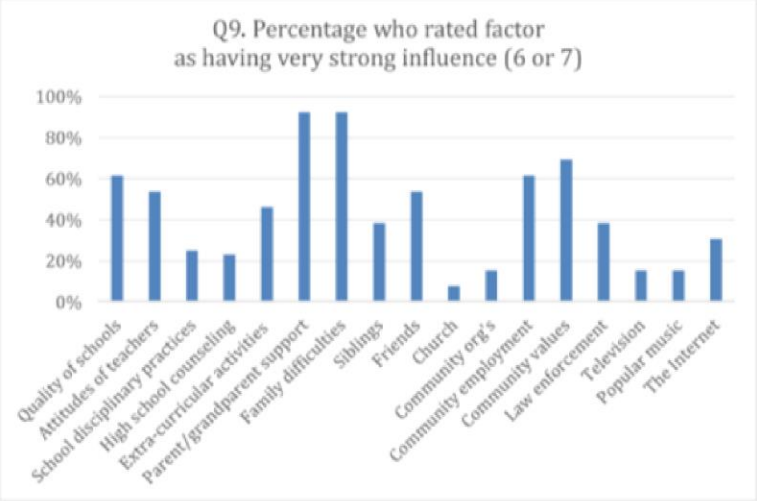
Q8. Perceived key weakness
The most frequently mentioned factor that could be improved was the tracking and engagement of program alumni (mentioned by 5 respondents).

- More continuous effort to cultivate life skills among the youth, keeping track of them through the program and beyond, not succumbing to institutional amnesia.
- Tracking alumni
- Has to be dynamic to meet the evolving needs of the institution and youth involved to optimize resources and relevancy.
- Institutional value- its integrated and some people value it, but I'd like to see it in other departments budgets, work plans, goals/performance evaluations etc. Communication- about program and for fund raising.
- I feel like I'm often struggling with the balance between this program being an effective staffing supply and being a program. Basically, how can we make sure that our participants are getting a program and not just being a workforce. We are doing that, but it requires constant negotiations of time and scheduling.

- Consistent staffing with equally consistent training- YA ended while I was still at the museum. I left material for the program to carry on, but there wasn't any real institutional memory after I left. New staff need mentoring and assistance to maintain the work load and quality
- Transportation and space for the teens
- Access to diverse professionals in STEAM careers
- Opportunities for youth to engage with other youth involved in museum programs
- More direct impact on the Museum and its guests.
- Data collection on impact of programs on youth afterwards
- Alumni tracking and engagement to both gather formative data around program improvement and long term impact.
- Research and evaluation on long-term impacts on participants to be used for funding requests
- Longevity, especially post-program.
- Space, and transportations
- Alumni engagement and strategies to addressing newest STEM careers that are outside the "normal" pipeline/pathway.

Q9. Perceived factors influencing youth lives beyond program

In general, respondents believed that youths' future lives were most strongly influenced by the close families, followed by their schools and communities, and least by impersonal communication media such as television and music. This pattern seems reminiscent of the Bronfenbrenner-style model of learning ecosystems proposed in the recent NRC report on youth programs (NRC, 2016). The only exception is "church," which may perhaps have been regarded as something only some of the youth participate in.



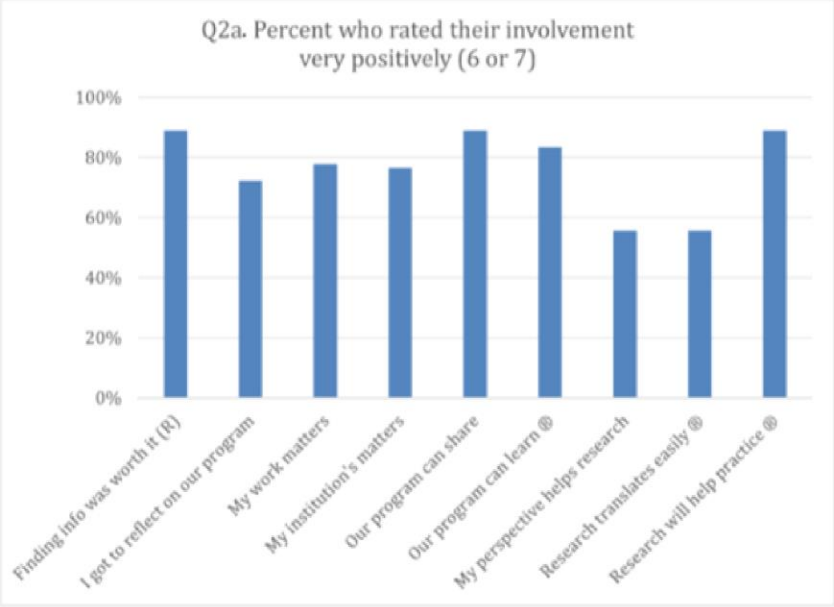
D. Overall impacts of conference on participants

Finally, the participants showed a range of impacts as anticipated by the project team:

i) Participants expressed high levels of engagement in the Roads Taken research:

Participation levels were extremely high: Of the 21 program staff who attended the first webinar, ALL 21 also attended the second webinar, and 18 (86%) also completed the final online survey that this report analyses.

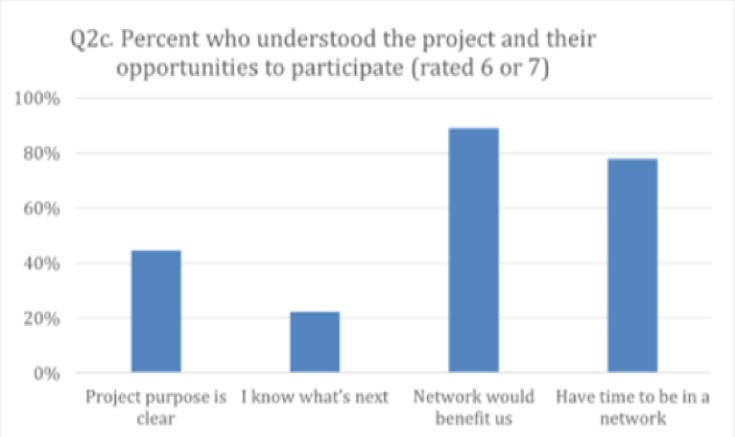
Respondents felt very positive about their role and contributions to the Roads Taken project and to the field of youth programming more broadly. The believed they had things to share as well as learn. There was slightly less certainty about the value for research, but every indicator had a majority of strong positive response.

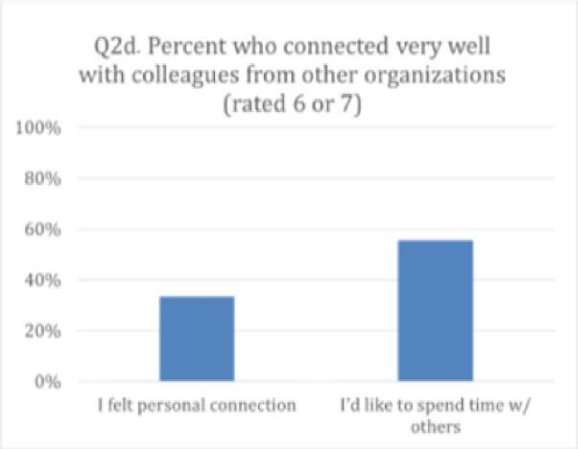


ii) Just over half the respondents felt strongly that they had a better understanding of the history, research, and youth program landscape. This is not quite as high as

the webinar appreciation and involvement indicators, but still shows evidence of learning.

iii) Respondents expressed strong support for the idea of being in a youth program network. At the same time, they did not feel particularly strongly connected with the people they had shared the conference with, nor did they see network-creation as an obvious next step for them following the conference. Very few saw a clear next step at all.





Summary

- The Roads Take conference achieved a very high level of engagement and satisfaction by pairs of youth program staff, despite being held entirely online.
- The teams were able to fill out the Program Profiles for their organizations in approximately 3-6 hours, and did not find this onerous.
- Aside from the information in the Program Profiles, conference participants (and, apparently, their funders) were most interested in finding out more about youth trajectories beyond the program: HS graduation, college, and STEM careers of alumni. At the same time, they felt the alumni would be difficult to contact, and especially so for outsiders.
- Participants were also interested in hearing about funding options and detailed breakdowns of program costs.
- Overall, participants believed the most likely factor responsible for program success was the relationships between youth and others in the organization (peers, mentors, and staff more generally). Several participants also mentioned authentic work and learning opportunities, and the continuity of year-round consistent programming over time.
- The most commonly mentioned weakness was lack of tracking and engagement of alumni, despite the interest in this topic.
- Participants believed the greatest influences on youth beyond the program would be their relationships with close family members.
- A large majority expressed interest in being part of an ongoing network of youth program providers, and believed they could make time for this. However, they did not see this as a natural follow-on opportunity arising from the Roads Taken webinars, and most did not feel a strong personal connection with others in the conference (perhaps because most of the

collaborative work to reflect on the youth programs was done within, rather than across, organizations).

Recommendations

Based on these findings, we suggest the following:

- Promote broad use of the Program Profile, since participants see the process as valuable and not onerous.
- Explore options for tracking and engaging alumni to help programs address funders' requests for impacts. Consider including adding a section on "alumni engagement and tracking strategies" to the Program Profile.
- Also include in the Program Profile a question that asks for breakdown of costs to separate participant payroll from other costs.
- Add program and staff longevity as variables to explore in causal studies.
- If the project team has the goal of revitalizing youth program networks, act now (while enthusiasm is high) to empower conference participants to do this.

Appendix: Survey Questions

Welcome.

Thank you for being willing to take this survey about the Roads Taken Virtual Conference. Your responses will provide feedback about the quality of the webinars, and will help the team make final revisions to the Program Profile.

We think this survey will take 10-15 minutes to complete.
It has 10 questions.

Sue Allen, the project's external evaluator, will receive your answers to the questions. Your name and your institution's name will not be associated with any of your comments, so please be very honest!

If you have any questions about this survey, please contact: Sue Allen, sueallenresearch@gmail.com

Q1.
Please rate your satisfaction with each of these aspects of the webinars.
Use the scale below, where 1 = "Not at all satisfied," 4 = "Neutral," and 7 = "Extremely satisfied."

- Opportunity to get comfortable with the video-conferencing technology
- Sound quality
- Video quality

- Length
- Balance of items in the agenda
- Facilitation by leaders
- Icebreakers
- Speaker presentations (webinar 1)
- Discussion groups (webinar 2)
- Communication before and after the webinars
- Opportunity to ask questions
- Clarity of project goals
- Clarity of my role
- Clarity of future roles I might play

Q2.
Please rate your agreement with each of these statements.
Use the scale below, where 1 = "Not at all satisfied," 4 = "Neutral," and 7 = "Extremely satisfied."

- I learned something new about the history of YouthALIVE! programs.
- I didn't feel much personal connection with the other people on the video-calls.
- My institution has played an important role in the evolution of STEM youth programs.
- Staff member participation in an active network of youth programs would benefit our institution.
- I'm not excited to participate in a network of youth programs because we don't have the time.
- Developing a Program Profile gave me the opportunity to reflect on our youth program.
- Project purpose is clear
- My work is important to the larger field of STEM youth programs.
- It would be difficult to locate many of our program alums.
- An effective way to get a high percentage of our alums to participate in research would be for a research group external to the program to contact them.
- I have a better understanding of how our program compares with other STEM youth programs.
- I think my perspective will make a significant contribution to the research.
- The research from this study probably won't be very useful in practice.
- Our program has things to share with the wider STEM youth program community.
- Our program doesn't have much to learn from other STEM youth programs.
- It's hard to translate research into practice in STEM youth programs.
- I would enjoy spending more time with the people I met online from other organizations.
- I know what comes next on this project.
- Finding all the information for the Program Profile was a waste of my time.

Q3.

About how many hours, in total, did it take you plus the other institutional representative to fill out the Program Profile?

Q4.

- Please rate how difficult or easy it was to find each piece of information. Use the scale below, where 1 = "Extremely difficult," 4 = "Neutral," and 7 = "Extremely easy."
- Organization's annual budget
- Program annual budget
- Age range of participants
- Target population
- Number of years youth can participate Frequency of meeting
- Average program contact hours per year
- Average number served per year
- Total number served since the program began
- Number of full-time staff members
- Number of part-time staff members
- Total Full-time equivalent per year program staffing
- Learning strategies during YA
- Learning strategies current
- Leadership strategies during YA
- Leadership strategies current
- Relationship strategies during YA
- Relationship strategies current
- Organizational strategies during YA
- Organizational strategies current

Q5.
Is there additional information about other programs that would be useful to you?

Q6.
What are three terms or short phrases you might type into a search engine to look for information about another program?

Q7.
In your opinion, what aspect of your program was most important for its successes?

Q8.
In your opinion, what aspect of your program could use the most improvement?

Q9.
In your opinion, how much did the following factors influence the lives of the alums after they left your program? Use the scale below, where
1 = "Had no influence" and 7 = "Had an extremely strong influence."

- Quality of schools

- Attitudes of teachers
- School disciplinary practices
- Quality of high school counseling
- Extra-curricular activities (e.g. sports, band, science club)
- Parent/grandparent support
- Family difficulties
- Siblings
- Friends
- Church
- Community organizations (Boys & Girls Clubs, Scouts)
- Community employment opportunities
- Community norms and values (e.g., race relations, acceptance of women in the workplace)
- Local law enforcement practices
- Television
- Popular music
- The Internet

Q10.
What information about participants is valued by funders?
Use the scale below, where 1 = "Never requested," and 7 = "Always required."

- High school graduation rates
- Grades
- Stories about alums of the program
