



# The SRI International Afterschool Science Networks Study

California Afterschool Science:  
Learning Opportunities and External Organizational  
Support



# Afterschool science

- Most afterschool programs report that they provide some science activities (Noam et al., 2010; Penuel & McGhee, 2008), yet little is known about these activities, including their frequency or features of science offered.
- One condition that can positively impact OST science learning opportunities is access to ideas and materials from external science support organizations, and opportunities to build a deeper understanding of how to make science engaging in informal settings.



# Study purpose

- The Afterschool Science Network (ASN) project explores the connections and disconnections that exist between publicly-funded **afterschool providers** (elementary ASES programs) and **intermediaries with science expertise** (museums, County Offices of Ed, science teachers, etc.).
- Our goal is to understand how afterschool programs and the intermediary organizations that serve them are connected, and how these connections influence the quality of opportunities to learn science.

# Network lens

- Why employ a “network lens” on the issue of supports for afterschool science?
- We are exploring both the **nature of afterschool science offerings** (features, extent of offerings, resources) as well as the **nature of the connections** (network) between afterschool sites and organizations that can support afterschool science programming (extent of connections, org types, org characteristics associated with different types of network involvement).

# Network lens

- Ultimately, we are working to explore the relationship between a program's network ties and the quality/qualities of its science offerings.
- Although we are an unconventional SNA study (with no network boundaries or clearly known membership)....

we believe the “network lens” can provide insight into the challenge of improving afterschool science learning, and provide policy makers and funders with actionable findings.



The SRI International  
Afterschool Science Networks Study

# The California context

- In 2002, California voters approved Proposition 49 investing at least \$550 million each year in afterschool programming for grades K-9. Program implementation began in 2006.
- This initiative includes more than 3,600 programs, serving over 400,000 children each year.
- Grantees are partnerships between CBOs and districts. Schools must have at least 50% of students qualified for FRPL.



# ASN project design

- **Afterschool Program Survey**
  - Extent and quality of science offerings
  - Sources of science supports
- **Intermediary Survey**
  - Types & extent of supports provided to programs
  - Relationships with other intermediaries
- **Case Study Site Visits**
  - Qualitative view of science and impact of supports
- **Materials Analysis**
  - Review for quality



What do we know about our  
“network” so far?



# Supports are diffuse

Site coordinators listed the external sources of curricular materials or support for science offerings.

- 32% listed 0 support organizations
- 63% listed 1 support organization
- 5% listed 2-3 support organizations

Very few organizations were named by more than one site.

Some site coordinators were limited in what they knew about the sources of their science materials or support



# Supports are local

60% of support organizations mentioned were

- County Offices of Education
- School Districts
- CBOs such as a gardening club or a local youth development organization

10% of the named organizations were connected to large-scale or NSF-funded organizations.

Others included state offices or programs, local government, for profit develop'rs/distrib'rs, and IHEs



# Many chains

- The system does not have hubs.
- While there are various networks and statewide service providers, we learned early on that no central organization or type of organization has connections to all (or most) others.
- Where connections exist, we suspect programs are connected to larger intermediaries indirectly through proximal organizations (like a school district or county).
  - E.g., afterschool site > county office of education > science institution.



# Many chains

- There may be many different chain configurations connecting afterschool sites to the larger intermediary organizations.
- Larger intermediary organizations don't seem to reach afterschool sites directly. Rather, other organizations may be able to bundle and customize resources, providing a more local and richer connection for the afterschool site.

# Next steps

- Finalizing the analysis of data regarding program capacity for science, program science offerings, and the mediating impacts of external supports
- We are also exploring network structures and partnerships among the known support organizations
  - Expect to build egocentric network models to identify configuration types – typical, most influential, common to large institutions



# Thank you!

For further discussion, please contact me at:  
[ann.house@sri.com](mailto:ann.house@sri.com)



The SRI International  
Afterschool Science Networks Study

# The program survey

- Survey topics included:
  - extent of science offerings
  - science topics covered
  - challenges of offerings science
  - science materials used
  - supports from outside organizations
- We used a random sample to represent CA elementary ASES sites, stratified to include both urban and rural locations
- 600 sites in sample, 71% of site coordinators completed and returned the survey



# Science offerings

- Statewide, 73% of surveyed afterschool sites offered science in 2010-2011.
- Of those who offer science
  - 30% offer it once a week
  - 18% offer science 2-5 times per week
  - 52% less than once a week

Science is often a small portion of programming





# Challenges

Among those programs that offer science,  
the highest-rated challenges in offering science:

- It is difficult to offer field-based science activities outside school premises
- No laboratory facilities available

Suggests that site coordinators would like to provide hands-on inquiry

lowest-rated challenges:

- Science is not a priority at our school
- Children are not interested in participating in science activities

There is enthusiasm for science from both staff and students, but sites struggle with how to implement



# Materials

Site coordinators listed the science activities or instructional materials typically used at their site.

- 16% of sites reported 2 or more materials in use
- 27% of sites reported 1 type of material in use
- 57% of sites reported 0 materials in use

Case studies suggest that those without materials create activities on their own from public sources, in piecemeal fashion



# Types of materials

Material type	% of sites using this type of material
School-based curriculum (e.g., FOSS, GEMS, school text)	17%
Afterschool curriculum (e.g., KidzScience, Science Explorer for Groups)	22%
Science activity (e.g., standalone lesson plans from a website or book; Discovery NASA or 175 Science Experiments)	61%
Science activity kit (e.g., standalone solar energy kits, microscope lab kit)	11%
Unclear material or type	18%



# Types of support

Site coordinators report that supporting organizations provide:

- ideas for lessons & activities 73%
- supplies for lessons & activities 72%
- science curricula/materials 69%
- information, advice, referrals 60%
- training/coaching for staff 51%
- science knowledge/expertise 39%
- lead activities on site 34%
- lead activities off site 19%

Activity ideas and supplies are a constant need, but providing this does not necessarily bring lasting benefits that improve learning opportunities

