ENGAGING ALL LEARNERS:
Partnerships and programs to reach diverse audiences

NISE
National Informal STEM Education Network

Association of Children’s Museums
Interactivity 2017
Session overview

MUSEUM & COMMUNITY PARTNERSHIPS
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Q&A

DISCUSSION
NISE NETWORK
NISE Net supports *informal learning about STEM* in communities across the United States.
Over **600 organizations** regularly participate in Network activities.
Together, we reach millions of people each year!
NISE Net engages all audiences in learning about STEM in ways that are fun and easy to understand.
We seek to broaden participation in STEM learning—at school, at home, and in the community.
MUSEUM & COMMUNITY PARTNERSHIPS
Project strategy – Collaboration!

Museums collaborating with local chapters of national youth-serving organizations and community groups
Why collaborate?

To achieve something you can’t do on your own!

Collaboration occurs when organizations and individuals make a commitment to work together and contribute resources and expertise to achieve a common, long-term goal.

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<td>1.</td>
<td>To share resources, expertise, and connections</td>
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<td>2.</td>
<td>To build upon existing strengths</td>
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<td>3.</td>
<td>To reach new audiences</td>
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Levels of partnerships

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<th>Partnership Continuum and Characteristics</th>
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<tr>
<td><strong>PURPOSE</strong></td>
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<tr>
<td>Collaboration: Shared vision, goals + resources</td>
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<td>Coalition: Awareness + understanding</td>
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<tr>
<td>Coordination: Loose connection, low commitment, low commitment</td>
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<td>Cooperation: Roles not defined, informal</td>
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<td>Networking: One time</td>
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<tr>
<td><strong>COMMITMENT</strong></td>
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<td>Collaboration: High level of commitment + trust</td>
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<td>Coalition: Independent decision-making</td>
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<td>Networking: Independent decision-making</td>
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<td><strong>STRUCTURE</strong></td>
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<td>Collaboration: Formalized timelines, responsibilities + roles</td>
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<td>Coalition: Roles not defined, informal</td>
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<td>Coordination: One time</td>
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<td>Cooperation: Independent decision-making</td>
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<td>Networking: Independent decision-making</td>
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<td><strong>COMMUNICATIONS</strong></td>
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<td>Collaboration: Frequent</td>
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<td>Coalition: Independent decision-making</td>
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<td>Coordination: One time</td>
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<td><strong>PROCESS</strong></td>
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<td>Collaboration: Shared decision-making</td>
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Project goals

1. **Broader reach** to multiple and diverse audiences

2. **Mutually-beneficial relationships** among NISE Network partners and community organizations

3. **New knowledge and models** for reaching new audiences and creating successful collaborations
National partners

CORE PARTNERS
Afterschool Alliance
Boys & Girls Clubs of America
Girls Inc.
National Girls Collaborative Project
4-H

ADDITIONAL PARTICIPATION
American Library Association
Arizona State Library
Boy Scouts of America
Girl Scouts
Parent Teacher Association (PTA)
Y (YMCA)
YWCA
Project overview

Professional audience
• Museum educators and professionals
• Youth organization educators and professionals

Public audience
• Elementary school age children
• Traditionally underserved and underrepresented

Process
• Existing and new partnerships
• NISE Net partners take lead responsibility
• Partnership is defined and managed locally

Products
• 100 Explore Science: Zoom into Nano kits
Zoom into Nano kits

EDUCATIONAL PRODUCTS
• Over a dozen hands-on activities for “classroom” and “event” use
• Training videos and supporting materials

PROFESSIONAL RESOURCES
• Planning and promotional materials
• Training videos, slides, and guides
• Collaboration guide and tools
Educational products

Zoom into Nano

Labs and Tools

Nano and Our Lives

Small and Surprising

Tech and Nature
Training resources

Zoom into Nano
Activity Overview

Zoom into Nano
Intro to Nanotechnology

Zoom into Nano
Science Outside of School
Planning resources

Zoom into Nano Out of School Programs Guide

Zoom into Nano Events Guide

Zoom into Nano Promotional Resources
Collaboration resources

Available at www.nisenet.org/collaboration-guide
Evaluation

Audiences
Questions
Methods
Findings
Data were gathered in three ways:

1. **Pre- and post-surveys** of participating professionals from museums and community organizations (N=254)

2. **Activity surveys** about kit materials collected from professionals who facilitated activities (N=119)

3. **Administrative records** including project applications (N=84)
Evaluation Qs for professionals

1. To what extent does participation impact the value professionals place on local collaborations among NISE Net partners and community organizations?

2. To what extent does participation impact professionals’ awareness of key concepts in nano?

3. To what extent does participation impact professionals’ use of professional resources and educational products for creating partnerships and engaging diverse public audiences in nano?

4. To what extent does participation impact professionals’ awareness of theories, methods, and practices for forming partnerships and engaging diverse public audiences in nano?
Value of partnership

 Professionals valued partnership between museums and community organizations and reported being more likely to engage in future collaboration.

AFTER participating in Explore Science—Zoom into Nano, how much do you value fostering local partnerships between museums and community organizations? (n=72)

- 78%
- 21%

I value it A GREAT DEAL  I value it A LOT
I value it A LITTLE  I DON'T VALUE it at all

After the project, 78% of respondents (n=70) were “MUCH MORE LIKELY” to engage in future collaboration with a museum and community organization.
Learning nano concepts

Professionals gained confidence explaining nano concepts and attributed those gains to the project.

- I feel confident in my ability to explain examples of nano to another adult. (n=47)*
  - Pre survey: 75%
  - Post survey: 94%

- How much has Explore Science—Zoom into Nano affected your confidence in explaining to another adult...
  - Examples of nano (n=68): 69%
  - Innovations that are possible because of nanotechnology (n=68): 65%
  - Ways that nanotechnology improves existing products (n=69): 64%
  - How scientists work at the nanoscale (n=69): 55%
  - The size of a nanometer (n=69): 54%
  - How nano-sizes materials behave compared to macro-sized materials (n=69): 51%

Note: See report to learn about other nano concepts.
Use of kit materials

All project resources were used, especially the hands-on STEM activities, introductory videos, and guides. Many respondents—especially those from museums—had personally used kit materials in different ways beyond project requirements.

Which of the following Explore Science—Zoom into Nano materials have YOU PERSONALLY used as part of your Explore Science—Zoom into Nano partnership? (n=70)

- Hands-on STEM activities: 90%
- Introductory videos: 57%
- Guides: 57%
- Training videos: 47%
- PowerPoint slides: 24%
- Spanish-language materials: 23%

Note: This is what each individual respondent used, not what whole organizations used.

67% of respondents (n=64) had used kit materials to engage the public in content areas OTHER THAN NANO.
Confidence with practices

Professionals had **high levels of confidence** for implementing professional practices, and confidence for engaging Spanish-speaking audiences grew.

After participating in *Explore Science—Zoom into Nano*, I feel confident in my ability to:

- Engage girls (*n*=61) 92%
- Deepen a partnership (*n*=46) 91%
- Initiate a partnership (*n*=33) 91%
- Engage underrepresented audiences (*n*=64) 91%
- Engage the public in nano (*n*=57) 89%
- Engage Spanish-speaking audiences (*n*=26) 62%

[Before/after] participating in *Explore Science—Zoom into Nano*, I [felt/feel] confident in my ability to engage Spanish-speaking audiences. (*n*=26)*

- Pre-survey: 27%
- Post-survey: 62%
Evaluation Qs for publics

1. To what extent does the project reach its target audience of children, youth, and families from demographic groups that are underrepresented in STEM fields?

2. To what extent do the educational materials facilitate engagement and learning among public participants?
Partners’ self-reported estimates of underrepresented audiences indicated that the project activities most often reached participants who were **low-income, female, and people of color**.

Which of the following demographic categories apply to [the participants] in *Explore Science—Zoom into Nano* activities?

- Low-income (n=90) 89%
- Female (n=90) 81%
- Racial minority (n=90) 78%
- Hispanic/Latino(a) (n=21) 57%
- At-risk youth (n=90) 56%
- Urban (n=90) 53%
- Speak a language other than English at home (n=90) 43%
- Persons with disabilities (n=90) 24%
- Other (n=90) 9%
Facilitators felt the activities were educational, engaging, and relevant for the public, though there is an opportunity to increase the activities’ relevance.

- 92% of respondents (n=118) thought the activities were engaging or very engaging for the public.
- 85% of respondents (n=117) thought participants learned some or a lot from the activities.
- 68% of respondents (n=118) thought the activities were relevant or very relevant.
PARTNERSHIP PROGRAMS
Children’s Museum of Houston
Mission:
To transform communities through innovative, child-centered learning
Serve children age 0-12 years and their parents and caregivers
817,000 annual visitors
+ 329,000 through outreach programming
810,000 annual visitors + 344,000 through outreach programming

64% of visitors receive free or reduced admissions

Source of free admission by program:
- 36% Paid
- 33% Reduced-fee
- 31% Free
- 45.5% Open Doors Family Passes Group Visits
- 49.6% Free Family Nights
- 4.6% Family Adventures
- 0.3% Junior League Overnights
CMH Open Doors Partners distribute Free Family Passes and/or host one of the Museum’s outreach programs within 2 miles of any family living inside Beltway 8.
A’STEAM Program
After-school Science, Technology, Engineering, Arts (Design), and Mathematics
During one of our focus groups with students, a little girl said “I love the science we do here; we actually get to DO science. At school the only science we ever do is on paper.”

Bethune Elementary (Aldine ISD)
Children’s Museum of Indianapolis
Mission
To create extraordinary learning experiences across the arts, sciences and humanities that have the power to transform the lives of children and families.
Audience

• STEM Scouts – upper elementary and middle school aged students
• Families – designed event to be a family program for STEM Scouts
The Project

The Children’s Museum of Indianapolis

Extraordinary. Always.
Outcomes

- New Audience!
- Opened two new STEM exhibits, have more capacity to offer programs to new types of groups
- Staff experience
Port Discovery
Children’s Museum

Explore Science: Bringing Nano to a New Audience
Babcock Presbyterian Church
A+ Care

- Located in Towson, Maryland
- Before and after care for a low fee

- Partnership:
  - Began in spring 2015
  - Provided NASA’s BEST curriculum through grant with NASA Goddard
  - Chosen for this project to further engage the faith based community
Audience Served

- Faith based partner
- After school program
- 28 children Kindergarten through 5th grade
- Services students from two local Title I schools
- Very diverse group of students!
Nanoscience Exposed

Rainbow Film

Gravity Fail

Stained Glass Art
Nanoscience Exposed

Smelly Balloons

Ready, Set, Fizz!

You Decide!
Successes and Challenges

- **Successes**
  - A+ Care at Babcock Presbyterian was a pleasure to work with.
  - Site coordinator and the children were very enthusiastic to have us there. They do not typically receive these types of enrichment programs.
  - Staff was plentiful and very hands-on.
  - Parents were supportive, said their kids didn’t want to go home! They would pick up their children later on Port Discovery days so their kids could complete the program.

- **Challenges**
  - Due to the after school program location, there is a lot of ethnic, economic, and ability diversity within the group of students. Many children have varying learning disabilities.
  - All students, Kindergarten through 5th grade were in one group.
Best Outcomes

► Continued Partnership
  ► With NISE Net support of the Explore Science kit, Nanoscience Exposed was provided to A+ Care free of charge.
  ► In the 2016/2017 school year, two new after school programs were provided free of charge with support from Baltimore County.

► New grant from local foundation!
  ► Provide after school enrichment to 4 Catholic Schools in Baltimore City in 2017
Berryville Public Library

Audience: Rural, North Central Arkansas

Five Towns Served, Ranging in Population from 291 to Just over 5,000

25% of Families are Living in Poverty
“The kit really represents a bit of a paradigm shift in terms of library programming in our two counties. We know in theory that more and more it will be important for libraries to embrace the promotion of invention literacy/STEM topics along with more traditional forms of literacy. But in small towns it is still easy to say that is for big city libraries with more funding, staff, space, etc. This allowed us to see what we really can do with relatively simple supplies even in the small spaces we have for such programming.” – Director, Berryville Public Library
Q&A

DISCUSSION
Questions for our presenters?
What collaboration challenges have you experienced?
Let’s discuss strategies for working through them!

For example:
• Identifying the right partnership, right now
• Dealing with changes in personnel
• Addressing changing organizational priorities (on either side)
• Fostering organizational buy-in
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