Creating fun and guiding learning!
Techniques for excellent facilitation

ACM InterActivity 2019
Thursday, May 9, 12:45pm-2:00pm
Session overview

Introductions
Science activity facilitation
Making + tinkering activity facilitation
Discussion and resources
Presenters

Rae Ostman, Arizona State University
Brad Herring, Museum of Life and Science
Ali Jackson, Sciencenter
Chip Lindsey, Children’s Museum of Pittsburgh
Please stand up!
How much experience do you have in children’s museums?

A LITTLE [ ] SOME [ ] A LOT [ ]
How much experience do you have delivering programs?

A LITTLE  SOME  A LOT
How much experience do you have with science activities?

A LITTLE  SOME  A LOT
How much experience do you have with making + tinkering activities?

A LITTLE          SOME          A LOT
How much experience do you have training others?

A LITTLE  SOME  A LOT
Welcome!
We’re glad to have you.
The National Informal STEM Education Network (NISE Net) is a community of informal educators and scientists dedicated to supporting STEM learning.
Hundreds of organizations participate in the NISE Network.
Together we reach millions of people a year!
We have projects and resources for many different STEM topics
(Science, Technology, Engineering, Math)
Design-based RESEARCH on ways to increase positive attitudes:
• interest
• relevance
• self-efficacy

Resources to support professional PRACTICES:
• activity design
• activity facilitation
• staff training
FINDINGS

• Good facilitation practices support chemistry engagement and learning generally

• Practices that are important for chemistry also apply to other areas of STEM
**ROLE OF THE FACILITATOR**

<table>
<thead>
<tr>
<th>To encourage positive attitudes, focus on:</th>
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<tr>
<td>Fostering a fun experience</td>
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<tr>
<td>Building confidence</td>
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<tr>
<td>Sharing excitement</td>
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<td>Finding concrete connections</td>
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<td>Exploring with someone</td>
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<td>Offering guidance and suggestions</td>
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<td>Asking questions</td>
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<td>And don’t worry as much about:</td>
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<tr>
<td>Getting across a lot of facts</td>
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<td>Developing deep knowledge</td>
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<td>Writing equations</td>
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<td>Mastering abstract ideas</td>
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<td>Explaining to someone</td>
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<tr>
<td>Showing the “right” way</td>
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<td>Providing answers</td>
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## FACILITATION STRATEGIES

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<th>15%</th>
<th>58%</th>
<th>22%</th>
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<tr>
<td><strong>Invite participation</strong></td>
<td><strong>Support exploration</strong></td>
<td><strong>Deepen understanding</strong></td>
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<td>Greet participants</td>
<td>Let participants do the activity</td>
<td>Ask discussion questions</td>
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<td>Model what to do</td>
<td>Be flexible and attentive</td>
<td>Make connections</td>
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<td>Engage the whole</td>
<td>Ask guiding questions</td>
<td>Share what you know</td>
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<tr>
<td>group</td>
<td>Be a good listener</td>
<td>Acknowledge what you don’t know</td>
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<td>Have fun!</td>
<td>Use simple, clear language</td>
<td>Wrap up</td>
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<td>Offer positive feedback</td>
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<td>Support learners through challenges</td>
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<th><strong>Self-efficacy</strong></th>
<th><strong>Relevance</strong></th>
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TRAINING

• Improv exercises
• Hands-on activities and games
• (Guides, slides, and videos)
What’s in the Box?

Improv Exercise

1. Everyone find a buddy.

2. Person A walks up to person B holding a mimed box.

3. Person B steps forward and asks, “What’s in the box?”

4. Person B opens the box and announces the content, with whatever they imagine.

5. Person A gives a specific reason for giving the gift to Person B. The reason should explain how the gift meets one of their partner’s needs.

6. Person B accepts the reason given by their partner and adds information to help support it.
Debrief questions

1. How did you know what was in the box? What did you do to figure out what was inside?
2. Who was surprised by what was in the box they were carrying?
3. How would you describe your experience in this exercise? What helped us be successful?
4. What techniques did you use to come up with a specific reason that the gifts were great?
5. How could you apply these techniques to engaging with guests? What is a specific example from your experience?
Online digital library: nisenet.org

Monthly newsletter: nisenet.org/newsletter

Social networking: nisenet.org/social
THANK YOU

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Making Connections: Learning Through Making

Welcome to MAKESHOP
This is a place to mess around with materials and tools, play with ideas and make things together.

We invite makers of all ages to explore MAKESHOP. For your safety, space is limited in capacity and by age group. No matter your age, we believe you can make.
Facilitation of Making

Maker Educators play an essential role in supporting learning through facilitation:

• Questioning & Discussion
• Collaborative Engagement
• Design of Space & Interpretive Materials
• Modeling
Facilitation of Making

- Key component to maker-based learning experiences
- Learned skill of maker educators
- Need for both professional learning and theory-building
Making Connections

Using an awareness of the maker-program’s goals to facilitate learners toward a particular learning objective
Learning Practices of Making

- Inquire
- Tinker
- Seek and Share Resources
- Simplify to Complexify
- Express Intent
- Develop Fluency
- Hack and Repurpose
Facilitation Strategies

Simple Interactions

• Research-Practice Partnership with the Akiva Lab at the University of Pittsburgh

• Strategy identification by engaging educators in reflective practice by watching videos of their own interactions with visitors

• Not a “one size fits all” approach to facilitating successful maker-based learning experiences
Learner Types

The Novice
The Observer
The Hesitator
The Template-Bound
The Lone Wolf
The Window Shopper
The Lifeguard
The Scout
How to Play the Game

Divide into groups of 5-6 players

1. Distribute 5-10 Facilitation Strategy Cards to each player randomly
2. Place one Learner Type card and one Learning Practice card face up on the table as a pair
3. Each player chooses one Facilitation Strategy from their hand that they feel could be used to best facilitate the selected Learner Type’s engagement in the selected Learning Practice, and places this card on the table
4. After each player has played their cards, the group discusses the reasoning and approach of each presented strategy
5. Repeat using different combinations of Learner Types and Learning Practices.