Improving Science Learning Through Brain-Based Research: Leveraging museum-university partnerships
Improving Science Learning Through Brain-Based Research:
Leveraging Museum-University Partnerships

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Holly Truitt, spectrUM Discovery Area
Michael Kavanaugh, University of Montana
A Partnership in Learning

Science from the Start: Engaging Researchers, Undergraduates and a Science Museum
Tamar Kushnir
Associate Professor,
Human Development,
Director,
Early Childhood Cognition Lab
2012

At the Sciencenter:

• Research by Tamar and graduate students on the floor of the Sciencenter

• Living Lab model
2013 - 2016

• SENCER ISE grant (Science Education for New Civic Engagements and Responsibilities)

  – Work with Tamar’s advanced senior seminar to develop tools for parents to engage their children
Intended Outcomes:

Parents use the exhibit signage to make connections between different exhibits.
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Parents use the exhibit signage to make connections between different exhibits.

• Scavenger hunts
• Signage at front desk

This year with funding from the Bronfenbrenner Center for Translational Research:

Seminar students will facilitate interactions at exhibits.
Learning Outcomes: for Cornell students

• Students spend time at the museum observing and researching how young children learn in a “natural” environment
Training for Cornell Students

• With funding from National Living Lab

• Used Portal to the Public elements
Head Start
Family Engagement Workshops
Head Start
Teacher PD Workshops
Science Together
Parent Workshops at Sciencenter
Research at the Sciencenter
Publications

**Summer 2015 Issue**

**From the Publisher**

**From the Guest Editor**

**Tribute Introduction**

**Remembering Alan J. Friedman**

**My Boss, My Mentor, My Friend**

**The Legacy of a Museum Legend**

**SENCER Synergies with Informal Learning**

**In Memoriam: Alan J. Friedman**

**Including Civic Engagement as a Component of Scientific**

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**Engaging Parents in Early Childhood Learning: An Issue**

Michelle Kortenaar, *Sciencenter*

Allison Srirara, *Sciencenter*

Tamar Kushnir, *Cornell University*

There is a gap between what researchers know about early childhood learning and what is happening in the care of children. We see evidence of this every day at the Sciencenter, where children's scientific exploration and engagement is being encouraged and supported. Parents in the current issue are confident that the students see early childhood development as individuals and that this partnership allows the Sciencenter to integrate research in a community.

At the Sciencenter, a hands-on science museum in Ithaca, NY, we encourage children to develop their inferences, and perform experiments just like scientists. What we see are examples of Cornell's Early Childhood Cognition Lab and other labs around the world that use evidence to make predictions about their work. Kushnir and Gopnik also lead to explanation-seeking behavior. Children ask "why" when young children, given the opportunity to explore, do so in the same way.

At the Sciencenter, we have also learned that not all children have the same level of understanding and experience. There is a gap between what researchers know and what educators interact with the children in their care. We see evidence of this in our exhibits and in the world. We see parents interact with children and move them along to new activities when the children are engaged.

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**Sciencenter And Cornell University Research On Early Childhood Cognition**

Posted on April 21, 2015 by Ellen Mappen in General | ISE-University Partnerships | Spotlights | Comments (0) | Permalink

This article was co-written by Sciencenter staff Michelle Kortenaar, Director of Education, and Ali Srirara, Grant Administrator.

Three years ago, the Sciencenter, a hands-on science museum in Ithaca, New York, was approached by researchers from Cornell University's Early Childhood Cognition Lab (ECC Lab) who were in search of a real-world setting in which to study the processes by which children learn about cause and effect.
What We Learned

• Student engagement led to parent and teacher engagement

• Funding helps sustain university-ISE partnerships

• Wishlist
Neuroscience in Your World

A Partnership for Neuroscience Education Across the K-12 Spectrum
Your Brain exhibition at The Franklin Institute opened in summer 2014
Framework for *Neuroscience in Your World* (2011-2016)

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<thead>
<tr>
<th>Breadth of Audience</th>
<th>Depth of Content</th>
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<tr>
<td>K-4 Students and Teachers</td>
<td>Museum visit exhibit exploration</td>
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<td>5-8 Students and Teachers</td>
<td>Themed museum experience</td>
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<tr>
<td>9-10 Students and Teachers</td>
<td>Museum mini-course</td>
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<tr>
<td>11-12 Students and Teachers</td>
<td>School elective course</td>
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</table>
K-4: Exhibition visit and educator’s guide
5-8: Museum workshop (Memory & Multitasking)
9-10: Eight curriculum modules about the adolescent brain
11-12: Elective curriculum on neuroscience & society
K-8: Teacher professional development

- Science of memory, learning, and brain development
- Strategies for classroom implementation
- Opportunities for district-wide training
Lessons learned:
➔ Brain science
➔ Experience design
➔ Multi-level approach
➔ Broader applications to education
hello
field trip
lab = exhibit
greatest lesson
collaboration is nonlinear
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