

“National Living Lab”

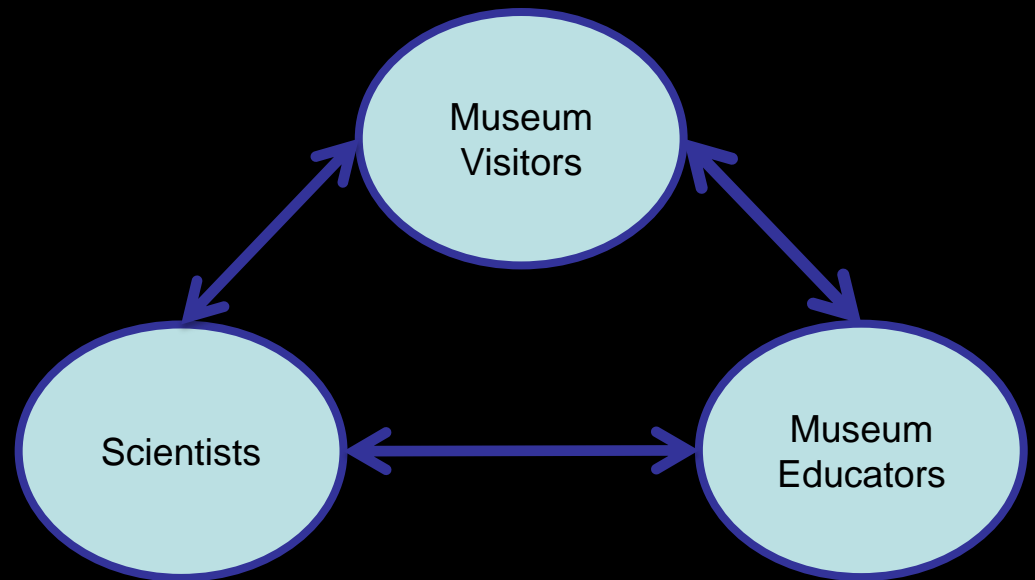


Broad Implementation: Creating Communities of Learners for Informal Cognitive Science Education (Kipling; 1113648)

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Living Laboratory Model



Discovery Center



Living Lab Area in the Discovery Center



Example Research Topics

- **Social Reasoning**
 - How do apologies affect children's feelings and behavior?
 - How do children learn stereotypes about groups of people?
- **Math and Language Cognition**
 - How do toddlers conceptualize words that indicate spatial relationships?
 - Do children understand multiplication before they learn about it in school?
- **Causal Learning Through Play**
 - Do children play more when the evidence they receive is not clear?
 - Does competition affect children's reasoning?
- **Conceptualizing Art & Music**
 - What do children believe "counts" as art?
 - Can music play a role in Children's friendship preferences ?
- **Understanding Emotion**
 - What do young children think is scary?
 - How do children recognize emotion in others?



Living Laboratory “by the numbers”

Public:

- More than 21,000 participants in research studies (since 2005)
- More than 16,000 additional educational opportunities recorded for “non-participant” **adult visitors** (since 2008)

Professionals

- More than 350 **researchers** (grad students, post-docs, lab managers and research assistants) trained as interpreters by museum staff
- 17 articles published (or in-press) in peer-reviewed journals, with a dozen more in review or preparation
- More than 250 staff and volunteer **educators** have accessed the questions, methods and results of the science/apply it to their daily work with children and caregivers
- A dozen “research toy” activities, three stand-alone exhibits, and many spontaneous opportunities to engage adult visitors in learning alongside their children



Living Laboratory – “national”

- Implement the model at three additional “Hub” sites
 - Madison Children’s Museum, with University of Wisconsin
 - Maryland Science Center, with Johns Hopkins University
 - Oregon Museum of Science & Industry, w/ Lewis & Clark College
- Leverage their implementation experiences - along with on-going collaboration in Boston - to further develop and distribute resources to facilitate adoption at sites throughout the US
 - Museum of Science, with Harvard Graduate School of Education



So, Why a Network?

A network was beginning to form organically...

- Mini-network forming around Boston, with a “hub” at MOS (staff visits, NEMA workshops/conferences)
- Potential “nodes” beginning to spring up across US
 - Project associates from original NSF project
 - Staff movements from MOS and its LL collaborators to other institutions
 - Interest sparked through museum and academic conferences
- MOS (and academic collaborators) were fielding requests for information/resources/advice, but lacked the capacity to help broadly and systematically

...but it needed definition and leadership.



Communities of Learners

- Project associates and other potential collaborators shared what had been most helpful so far/what was still needed to jump-start their own programs:
 - in-person visits (“see the model in action”)
 - support from professionals experienced in this work
 - “ready to go” resources (training and educational materials) that could be customized to their site
- Establishment of additional “hubs” in different regions would make it easier for professionals to access the model, coming face-to-face to familiarize with logistics and impacts
- Virtual Hub would provide access to shared resources, and opportunity for communication across regional professional communities doing this work

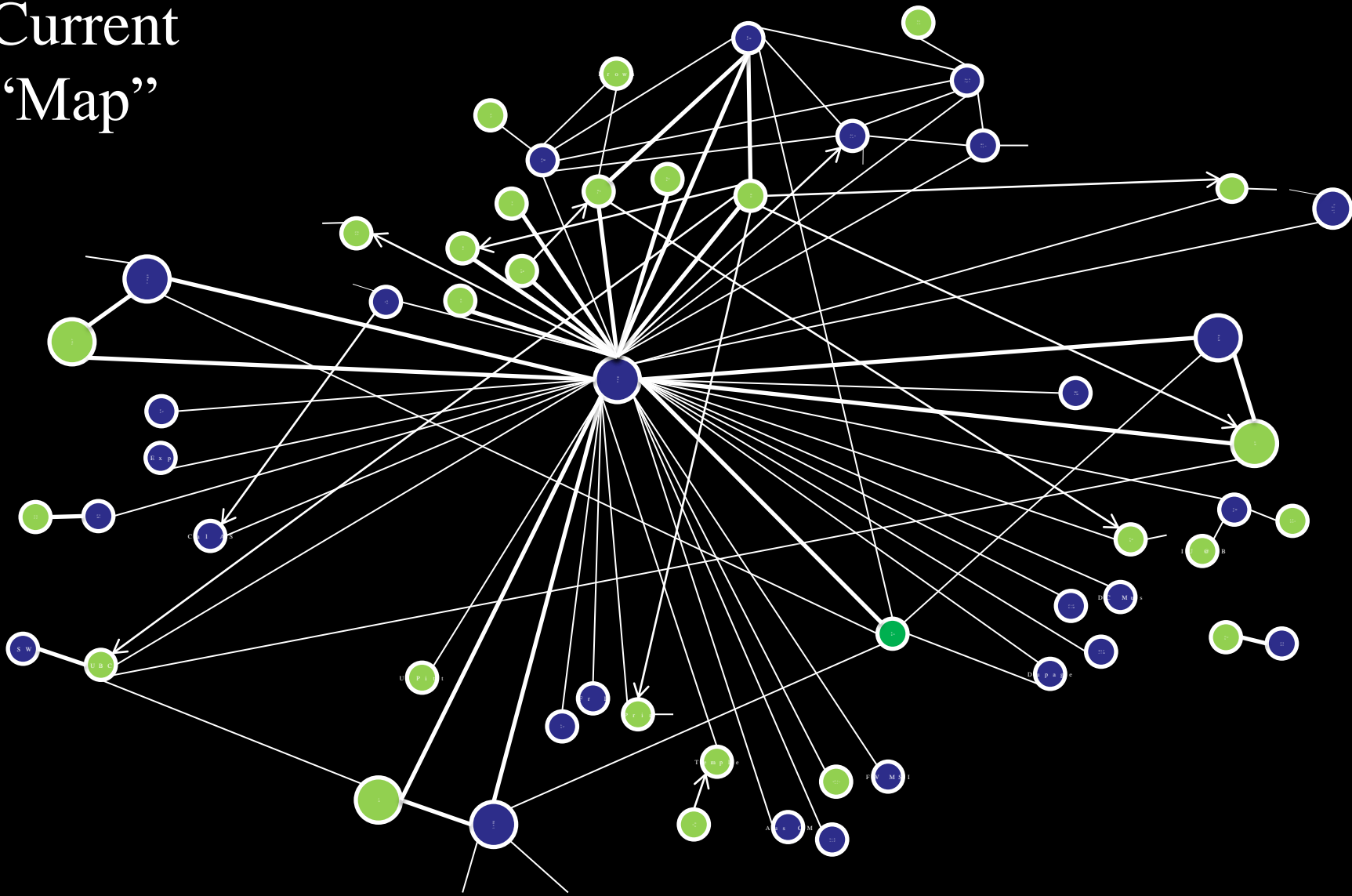


Strategies toward Network Development

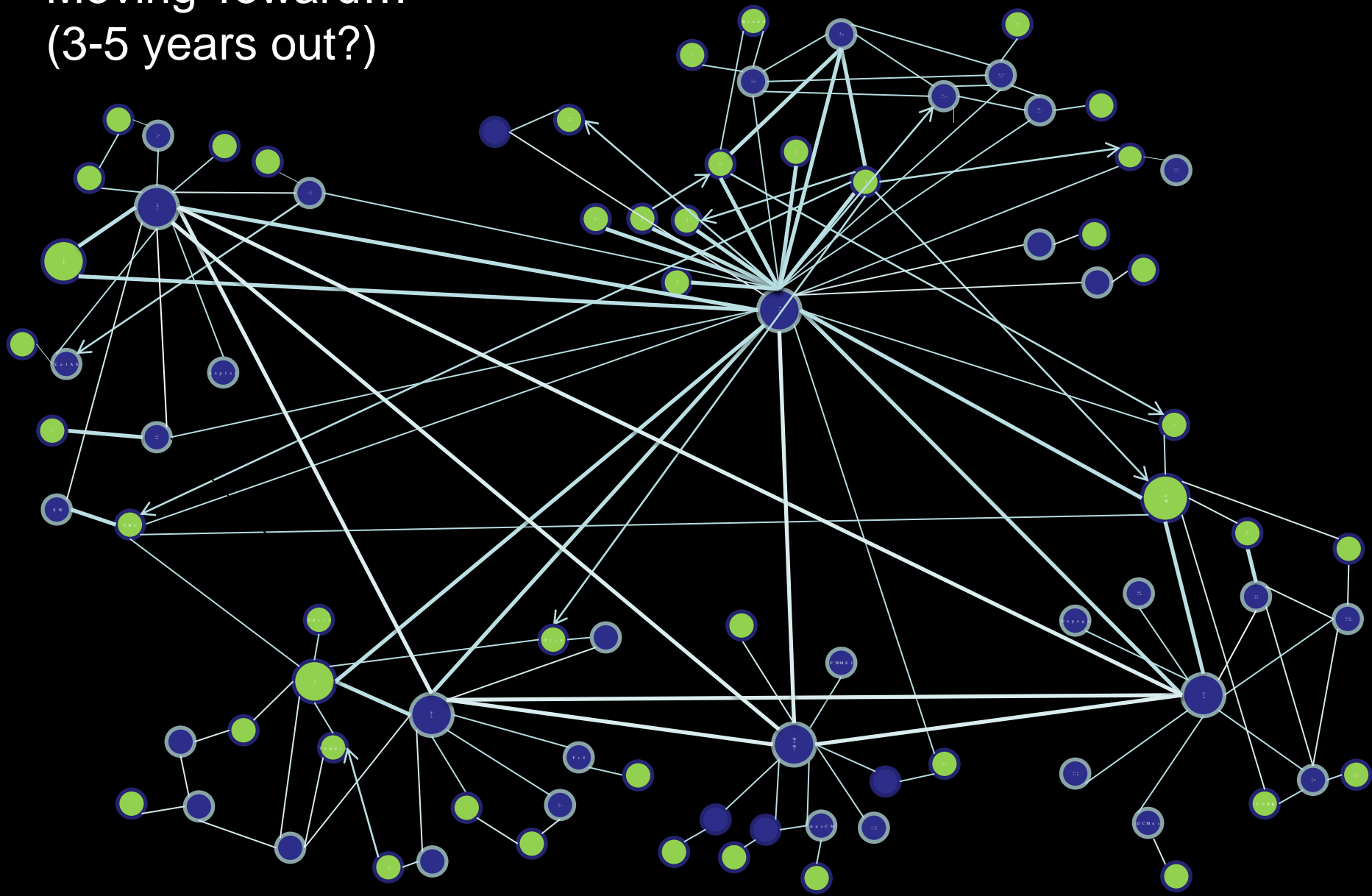
- Involve a variety of interested professionals in early planning stages
 - Leverage existing networks for museum and academic professionals (e.g. ASTC, ACM, SRCDD, APA)
 - Include professionals who already collaborate in other ways, but others who have little collaborative experience
- Develop “net work habits of mind” among staff at initial hub institutions and project advisers
 - Drive communication to a V Hub, so common challenges can be addressed collectively and positive outcomes can be shared
 - Develop capacity for museum/academic “hub” to serve as leaders in the network and the net work
 - Involve advisers/participants who had strong potential to become nodes



Current “Map”



Moving Toward...
(3-5 years out?)



Evaluation

- Focus on the collaborative process as Hubs implement their programs/customize resources developed at MOS
 - how to facilitate collaboration with new node-dyads
- Expand understanding of the impact of this model on the two professional groups
 - identify/develop needed resources (decrease time/cost for start-up)

Inform development of the eventual network

- *Purpose* – content (ICSE) vs. method (on-site research)
- *Structure* – maximum “distance”, leadership development
- *Style* – Virtual Hub vs. regional face-to-face
- *Value* – capturing “hidden” costs/benefits, and redistributing



“National Living Lab” Project Information

Virtual Hub: livinglab.org

MOS studies: mos.org/discoverycenter/livinglab

email: livinglab@mos.org



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