Building Collaborative Health Research Drawing on New Lessons from Citizen Science

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What is Citizen Science? What Lessons from CS Might be Helpful?

- Citizen Science is Another Form of Collaborative Partnership Science
  - Intended to Address Past Problems with Research
  - Focused on Coming Up With New Strategies to Address These Problems
  - Focused on Developing Innovative Solutions to Unexpected Challenges in Implementing CS

A Few Examples of Citizen Science Partnerships

- Vernal Pools Fauna
- Climate Change & Maine’s Coastal Communities
- Arsenic and Maine’s Private Wells
- Protecting the Saco River Estuary
- Renewable Energy from Tides
- Emerald Ash Borer Infestation
- Bee Colony Collapse

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Learn how to use eBird.org, a citizen science project run by the Cornell Lab of Ornithology that can help you learn when and where to see any bird, how to hear about the latest rare bird sightings, and even keep you life list up to date.
Citizen Science Projects often differ from Community Participatory Research Projects.

Yet, there is the potential to learn from CS projects because of the differences between democratic science efforts and many Community Participatory Research projects.
"Silos" in the Democratization of Science

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**Abstract**

Efforts aimed at democratizing science continue to emerge, but these many efforts remain isolated from each other. This article argues that the full impact of democratization efforts will not be felt until they are integrated with each other. Two strategies for integration are proposed: a typology approach and a generative strategy. Uses of such strategies in other areas have been successful and offer pathways for coordinating science efforts. The article ends with recommendations for how such strategies could be pursued to integrate promising but dispersed democratization of science efforts such as citizen science, community based participatory research, participatory action research, and public participation in scientific research.

**Keywords:** democratization of science, citizen science, community based participatory research, participatory action research, public participation in scientific research, boundary spanning, wicked problems
Citizen Science Approaches

Define a question/issue
Gather information

Develop explanations
Design data collection methods
Collect samples
Analyze samples
Analyze data
Interpret data/conclude
Disseminate conclusions
Discuss results/inquire further

Contributory
Collaborative
Co-Created

(Bonney et al. 2009)
CBPR Approaches to Partnership

CBPR Research Cycle

Issues Emerge at Each Stage
“A Taste of Science”: What Can We Learn from This CS Project?

- Bringing Together Education and Data Collection
- Increasing the Diversity of Participation
- Focusing on Basic Research

**More Information:**  [www.dmns.org/genetics](http://www.dmns.org/genetics) built with general audience in mind, blog posts in English and Spanish, great videos explaining grant and work of Lab
“Safe Beaches and Shellfish”: What Can We Learn from These CS Projects?

- Confronting the Loading Dock Problem
  - Insisting that Data be Useful
  - Developing Decision Support Tools
- Recognizing the Need for Boundary Spanners

More Information:
http://umaine.edu/mitchellcenter/safe-beaches-and-shellfish-beds/
What Can We Learn from CS “Fish” and “Agriculture” Projects?

- Level of Involvement (Trout Unlimited CS Project)
- Level of Knowledge (Marine Fishers CS Projects)
- Length of Experience (Climate Change and Century Farms)

**More Examples:** http://www.vernalpools.me/videos-presentations/
What Can We Learn from CS Projects Where the Causes Lie Beyond the Community?

- Aggregating Data
- Recognizing Lack of Control
- Recognizing Demoralization

Citizen Science Insights May Be Relevant to Community-Based Health Partnerships: Examples

- About Issues of Scale Up
- About Struggles with Data Quality
- About Development of Decision Support Tools
- About Innovative, Democratic Uses of Computers and Low-Cost Technology
Citizen Science Drawing on Diverse Ideas: Examples

- On...the Loading Dock Problem
- On...Boundary Spanning
- On...Wicked Problems
- On...Resilience
- On...How to Scale Up
- On...Human-Natural Coupled Systems
- On...Research Credibility, Legitimacy, and Saliency
Overall: The Centrality of Steps

- Thinking about all steps in research from deciding what problem to study to deciding how the data will be used

Saving Frenchmen’s Bay
- Scallopers
- Clam Diggers
- Shore Home Owners
- Researchers
Overall: The Centrality of Partnership

- Partnership is central
- Partnerships can take on diverse forms and characteristics. They are not necessarily face-to-face. They may come and go. Partners may not have the same goals.

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Overall: Questions To Keep In Mind

- What Transferable Lessons Can We Learn?
- Will Approaches Work for Face-To Face and Non Face-to-Face, Scaled Up Partnerships?
- What Kinds of Training Will Scientists Need?
- What Kinds of Training Will Citizens Need?
- How We Will Need to Change the Ways We Engage in Science?
Applying All of the Ideas: Maine Tribal Basket Makers and Researchers Addressing New Invasive Species Threat

Made from native brown ash trees, Maine Indian baskets are functional art forms that have been passed down through generations of the region’s tribal communities. But the future of the art is being threatened by an invasive beetle species — the emerald ash borer — that already has devastated the ash populations in other states.
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