Engaging Diverse Communities for Environmental Health Justice

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Project Harvest

WHAT IS PROJECT HARVEST?

Project Harvest is a co-created citizen science project that investigates the quality of household environments in Arizona communities neighboring active or legacy mining and/or toxic release (1,4).

Project Harvest is a response to the community-driven questions, "Are there pollutants in harvested rainwater? Can I use the harvested rainwater for my garden?"
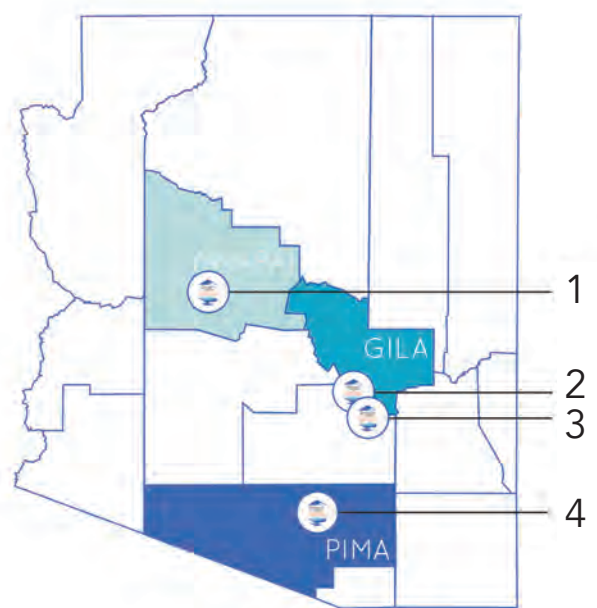
RESEARCH QUESTIONS

How does participation in Project Harvest affect a participant's environmental health literacy?
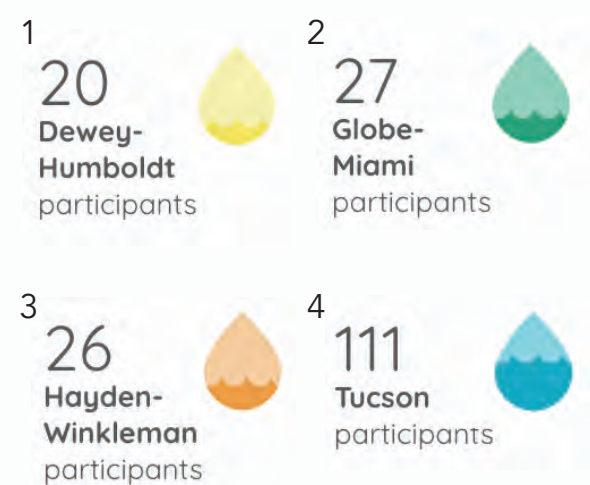
How does the method of data sharing affect a participant's environmental health literacy?

How does environmental monitoring method (LAB vs. DIY) affect a participant's environmental health literacy?

MAP & PARTICIPANTS

A total of **184 participants** provided **3,473 samples** over the course of the project (2017-2020).

1 — 20 Dewey-Humboldt participants
2 — 27 Globe-Miami participants
3 — 26 Hayden-Winkleman participants
4 — 111 Tucson participants

GILA
PIMA

PROJECT TIMELINE

2017
- Project design
- Pre-surveys
- Kits created
- Trainings
- Half of participants receive a DIY kit, the other half LAB
- Begin sample collection

2018
- **Oct-Dec:** Switch kits! DIY gets LAB; LAB gets DIY for this sampling period
- **Dec-Jan:** Booklet & Art installation data sharing events
- **Ongoing:** Learning Research & Evaluation

2019
- **Oct-Dec:** Participants receive either a LAB or a DIY kit for the last sampling year.
- **Dec-Jan:** Booklet & Art installation data sharing events
- **Ongoing:** Learning Research & Evaluation

2020
- **Dec-Jan:** Online data sharing events! Compare/Contrast data sharing styles - What worked for you?
- **Ongoing:** Learning Research & Evaluation

2021
- Comprehensive analysis of:
  - Harvested water, soil, and plant results
  - Learning outcomes

TRAINING
SAMPLE COLLECTION
ANALYSIS
* Data Sharing/Eval

EMPOWERMENT EDUCATION MODEL

Meet the promotoras!

The Spanish term *promotora*, commonly defined in English as **community health worker**, refers to community members who share information with peers in culturally appropriate settings using culturally appropriate communication methods (1).

Applying experience from prior applications of this model in environmental health contexts (3,5), Project Harvest employs promotoras as the designated educators and support for participants. Participants are trained and supported by promotoras, to collect rainwater samples four times a year and soil and plant samples once a year.

DATA SHARING

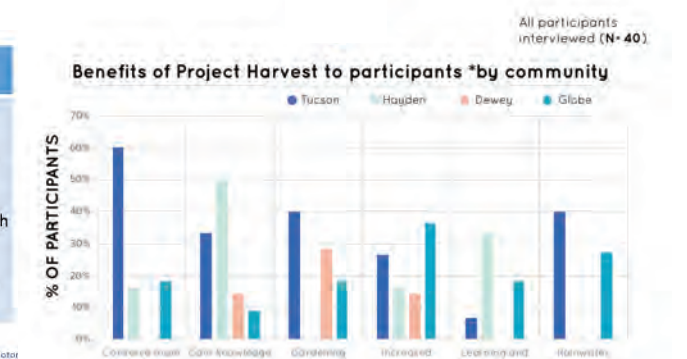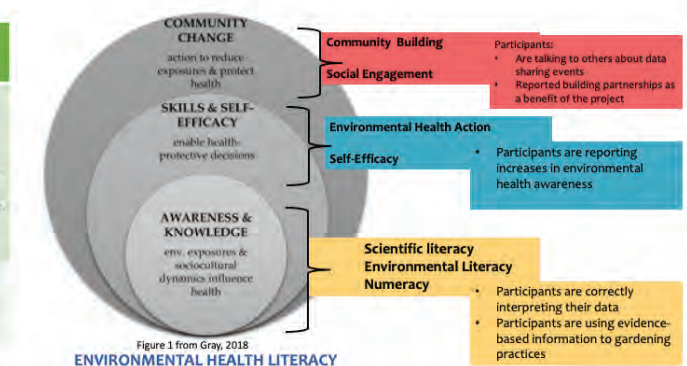### BOOKLET
One group received a formal presentation and an individualized results booklet with graphs highlighting their home results, others in their community, and standards/ reference values.

BOOK & ART
The other group received the booklet and "Ripple Effect", an art-based experience where rainwater quality data is translated into sound waves and participants hear/see water vibrate based on the measured chemical concentrations.

Participants plug in a flashdrive loaded with their data.

Irrigation Standard

Sample concentrations are below these standards, guidelines, and/or advisories
"will change based on contaminant"

Field Blank
This line separates field-blank samples "will not appear on every graph"

Non-harvested rainwater sample
Harvested rainwater sample

The X-axis is labelled with the name of the contaminant.
The Y-Axis shows the level of chemical or microbial concentration.

The unit of measurement and scale will change depending on the contaminant.

Drinking Water Standard

The results are presented in the form of a graph like the one above. The graph was designed in an iterative process to ensure comprehension.

If the light flashes, that means that sample concentration exceeded the comparative standard.

LEARNING RESEARCH

Recommendations for Engaging Diverse Participants

Findings - Non-traditional participants[1] are:	Design Strategies
Motivation More likely to be motivated by existing relationships with individuals/organization, or by addressing a perceived risk.	• Build on existing personal/organizational relationships • Do not pose perceived risk to existing relationships • Leverage participant motivation to connect with each other • Participant liaisons share key identity traits with participants • Clearly connect research to identified community issue(s)
Less likely to be motivated by learning for the sake of learning or by contributing to science.	• Do not assume participant motivation to contribute to scientific research or to increase personal knowledge

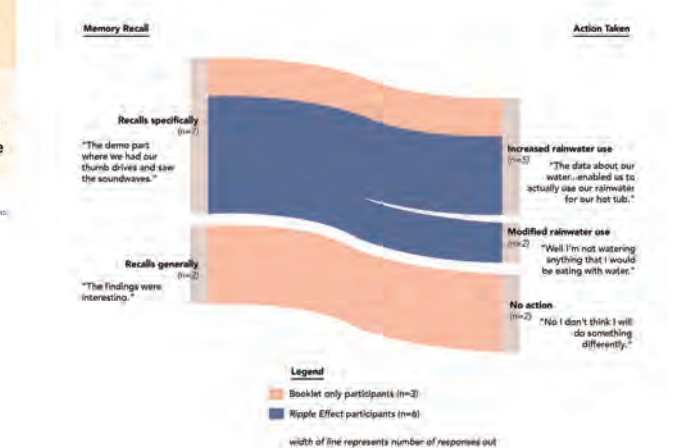| Findings - Non-traditional participants[1] are:	Design Strategies
Support More likely to be supported by personal interactions than by written materials.	• Participant liaisons are highly accessible • Build in opportunities for relationship building • Build in open communication between participants and staff, and participants with each other • Data sharing social events for peer-to-peer data interpretation, with staff support

Findings	Strategies
Barriers Non-traditional participants[1] are less likely to have reliable computer or internet access.	• Provide alternatives to digital participant tools • Provide access to necessary technology and personal user support
Lack of time was the most frequently reported barrier for participants generally.	• Allow for flexibility • Have a tiered participation structure allows for participants to engage based on their available time

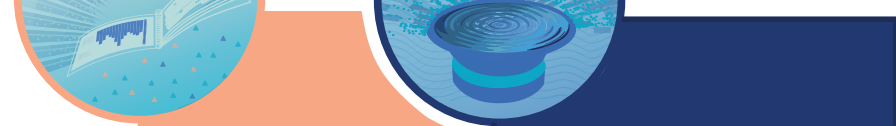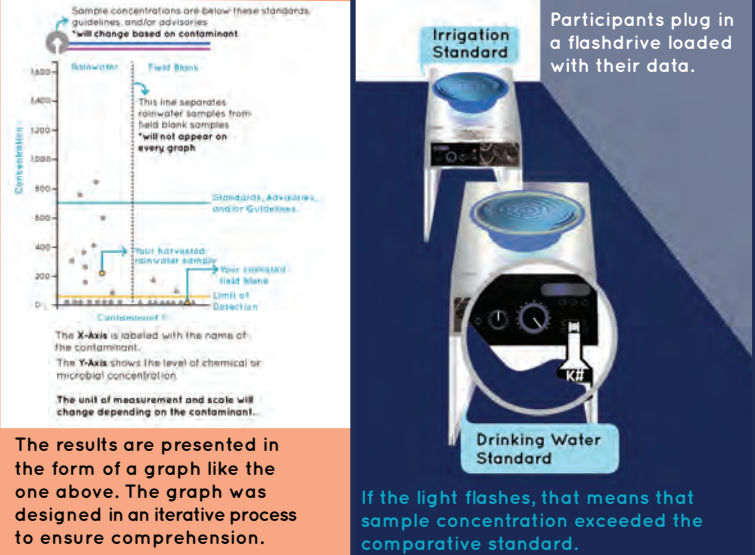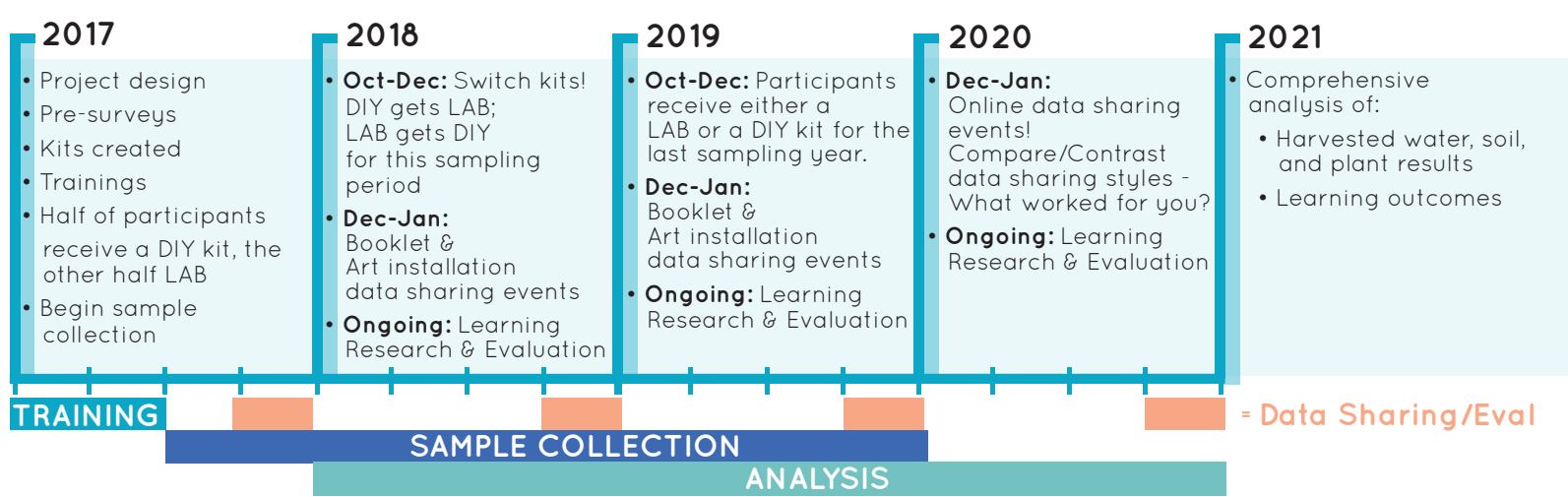### Outcomes of Equity Centered Data Sharing Efforts

Figure 1 from Gray, 2018
ENVIRONMENTAL HEALTH LITERACY

Benefits of Project Harvest to participants *by community

% OF PARTICIPANTS

REPORTED PARTICIPANT BENEFITS
% out of total participants in community

Participant memory recall to action taken (5).

Memory Recall — Action Taken

For more information, visit:
projectharvest.arizona.edu
https://vimeo.com/316657182

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