

Evaluating and Assessing Outreach Activities at Biological Field Stations



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OBFS ANNUAL MEETING

CENTRE FOR ENVIRONMENTAL SCIENCES,

HASSELT UNIVERSITY

MAASMECHELEN, BELGIUM

Agenda



Overview, Introductions



Evaluating Outreach Programs



Assessing Learning Outcomes for Participants

Introductions

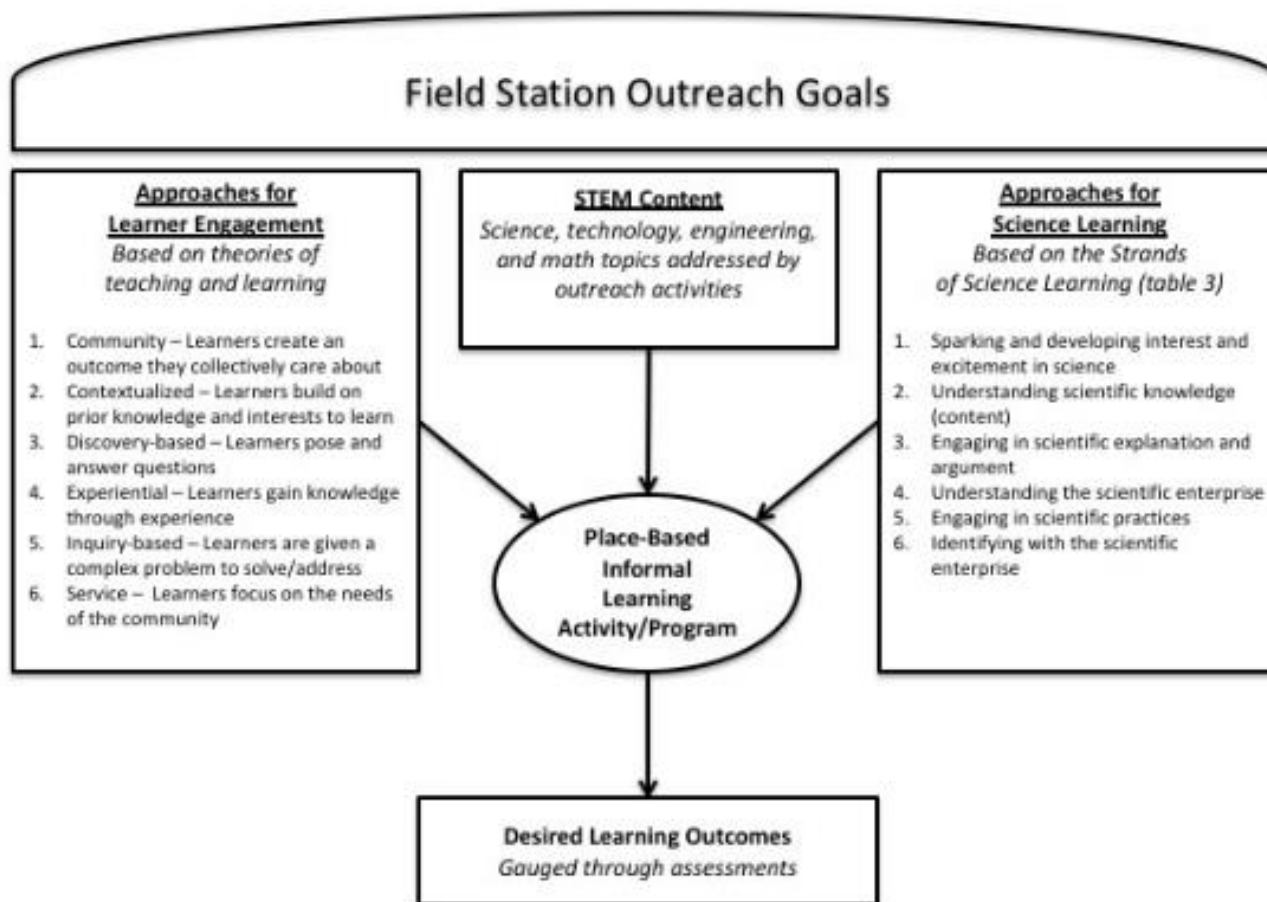


- Who are we?

AND

- Why are we talking about outreach?
- Outreach Survey
 - Field Stations, $n = 179$
 - Outreach programs, $n = 396$

Educational Outreach Framework



Goals of BFS Outreach and Programming



- **Top responses from the Outreach Survey**
 1. Encourage conservation or environmental stewardship, 64%
 2. Teach about the environment generally, 53%
 3. Disseminate place-based knowledge and/or skills, 46%

What are your Outreach Goals?



How do you know if you achieve your outreach goals?



Program Evaluation (Formative/Summative)

- **How can we gauge program success?**
- What outcomes and impacts (un/intentional) resulted?
 - Are these aligned with FS goals?
 - What are the costs/benefits of the program?

Participant Assessment (Summative)

- **How can we gauge participant learning?**
- What un/intended learning did participants experience from the outreach?
 - Knowledge and skill gains
 - Behavior or attitude changes
 - Engagement

Program Evaluation - *How did we do?*



- **Formative – during the outreach**
 - Useful for multi-session programs
 - E.g., Mid-program survey, interviews, or leadership debrief
- **Summative – end of outreach**
 - How well were BFS outreach goals achieved?
 - E.g., Survey, Interviews, follow-up emails
- **Who does the evaluation?**
 - Inside/outside evaluator
 - Education experts

How do you know if you achieve your outreach goals?



Program Evaluation (Formative/Summative)

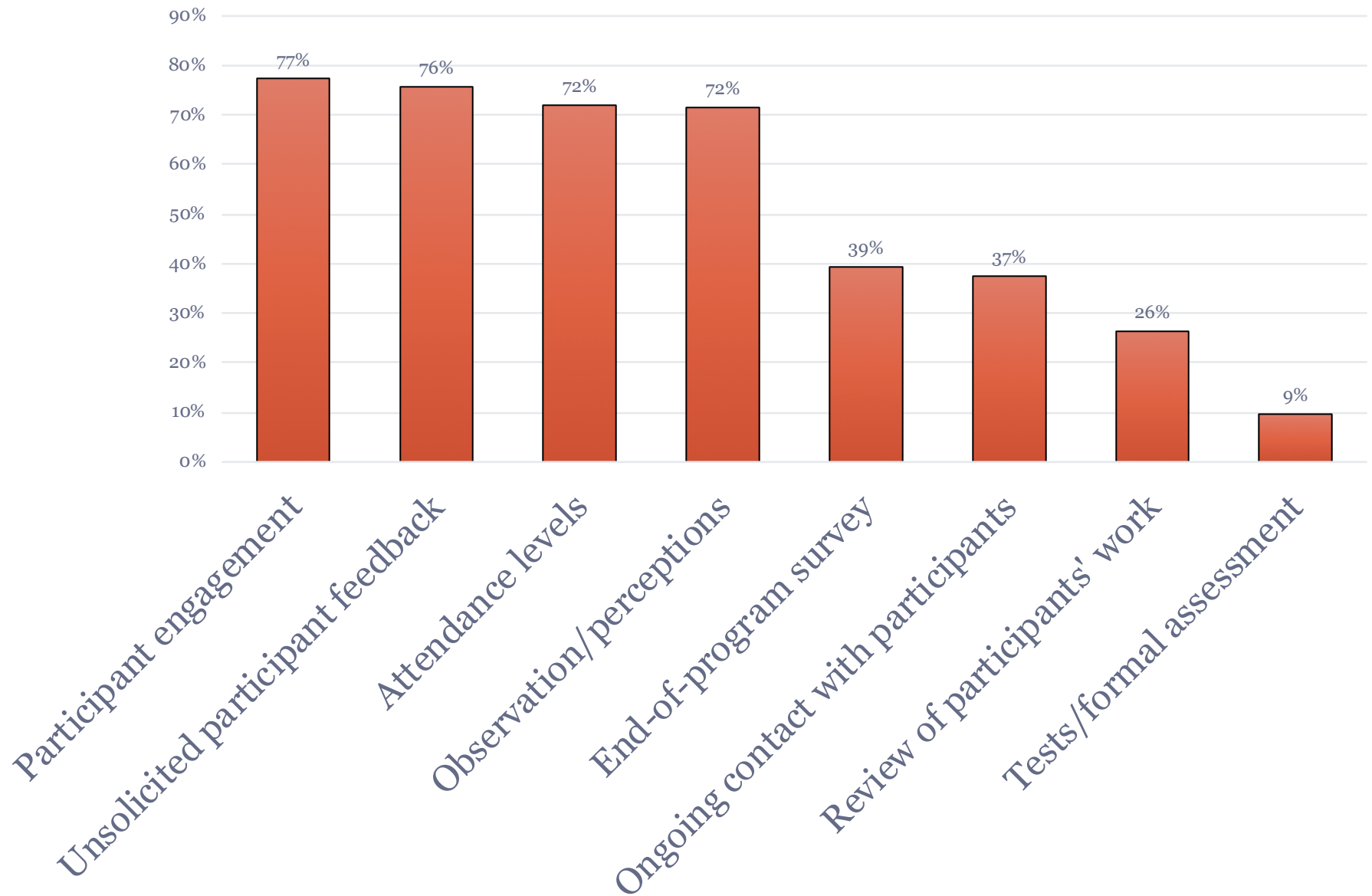
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| BFSs' Perceived Learning Outcomes Participants ... | Mean (1 to 5) |
|---|----------------------|
| Experience an increase or change in knowledge of the topic. Experience an increase or change in interest in the topic. Express an interest in returning to the field station. | 4.71 4.59 4.45 |
| Are more excited to spend time outdoors. | 4.3 |
| Change aspects of their behavior and/or attitude. | 3.99 |
| Are more aware of STEM careers. | 3.78 |
| Improve their data collection or field skills. | 3.6 |
| Improve their data interpretation skills. | 3.56 |
| Learn the difference between anecdotal & empirical evidence. | 3.19 |

Preferred Methods for Assessing Participant Outcomes



How do BFSs gauge participant learning?



- Using all assessment methods (except attendance), BFSs indicate participants display **changes in behavior** and an increased **interest in returning to the field station**
- Surveys and follow up contact are the methods used when BFSs indicate that participants have become more aware of **STEM careers**
- Tests are used when BFSs think participants improve their **data collection skills** and learn the difference between **anecdotal** and **empirical evidence**

Prior knowledge, Recall, and Understanding



- Background Knowledge Probe
- Misconception and/or Preconception Check
- Focused listing
- Questioning
- Empty Outlines/Organizers
- Memory Matrix
- Muddiest Point
- Summary
- Half-Sheet Response
- Poster, Diagram, Collage
- Skit, Speech, Story
- Conclusion/Implication
- Analogy
- Graph/Visual Data
- Drawing

Most Popular Outreach Activities



1. Field Trips, 48%
2. Lectures , 42%
3. Guided Tours, 33%
4. Data collection and sharing (e.g. , BioBlitz), 25%

Who is leading the outreach?



- **Leaders**
 - BFS staff, 70%
 - Professional scientists, 61%
 - Professional educators, 50%
 - Volunteers, 25%
 - Graduate students, 24%