Evaluation and External Oversight in the Advancing Informal STEM Learning (AISL) Program
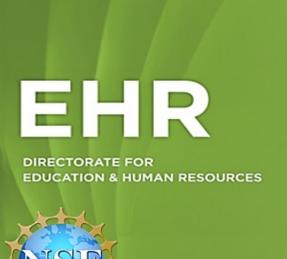
October 2021

Overview of the Webinar

- Introduction of presenters

- Reminder: NSF Merit Review Criteria

- Reminder: Solicitation-Specific Review Criteria

- Evaluation

- Advisory Boards

NSF Merit Review Criteria

Intellectual Merit and **Broader Impact**

1. What is the potential for the proposed activity to:
   - a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   - b. benefit society or advance desired societal outcomes

2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

4. How well qualified is the individual, team, or institution to conduct the proposed activities?

5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

AISL Solicitation-Specific Review Criteria

Broadening Participation

➢ To what extent does the proposal identify the characteristics and needs of the targeted underrepresented groups (public or professional) to be served?

➢ To what extent does the proposal include specific plans or strategies for addressing or accommodating the specific interests, community or cultural perspectives, and/or educational needs of participants of the identified underrepresented groups?

Evaluation

Evaluation in AISL Projects

All AISL project proposals are required to specify the evaluative processes they will use to achieve the following **two** goals:

1. **Support iterative improvement**. Evaluative processes should ensure that a project gets appropriate, rigorous, external input throughout the life of the project. Such input is essential for project monitoring, management, and continuous quality improvement. External feedback should enrich (and potentially challenge) teams' perspectives.

2. **Promote accountability**. Evaluative processes should address questions such as: Is the project addressing its stated goals? What is the quality of the work?

• *These requirements are consistent with the External Feedback component of the Common Guidelines for Educational Research and Development.*

Role of Evaluation is About

The objectives of an evaluation may include:

- Recommending evidenced-based adjustments to project plans.

- Determining the effectiveness and impact of the products or processes.

- Attesting to the integrity of outcomes reported by the project.

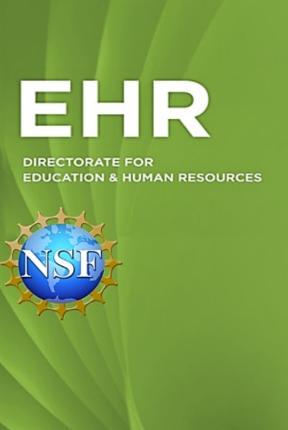- Assessing whether the project is making satisfactory progress toward its goals.

Project Evaluation Elements

Proposals should describe critical features of the evaluation design:

- Evaluation questions
- Data to be gathered & Sampling methods
- Data analysis plans
- Expertise of those responsible for evaluation.

Proposals should *distinguish* evaluation from other critical research components. This does not mean that research & evaluation have no relationship.

Evaluation for Iterative/Continuous Improvement

Iterative cycles of evaluation (e.g., front end, formative, remedial) inform the development and implementation of project activities.

Such evaluations should be sufficiently independent and rigorous to

(1) influence the project's activities at appropriate junctures to improve the quality of its processes and outcomes and

(2) determine (near the completion of the project) whether the project addressed its intended outcome goals.

Evaluation & Knowledge Building

Projects that use evaluation to achieve AISL's knowledge-building criterion need to describe how their approaches to evaluation achieve three goals:

(1) support iterative improvement,

(2) promote accountability, and

(3) *build knowledge with respect to advancing understanding of learning STEM in informal environments.*

Advisory Boards

AISL Projects & Advisors/ Advisory Boards

Connected with the program's strategic priority of encouraging collaboration & partnerships, advisors and advisory boards are one way to bring needed expertise and perspectives to the work being conducted.

Considerations for establishing Advisors/Advisory Boards

What is the overall purpose of your work?

What questions are you asking?

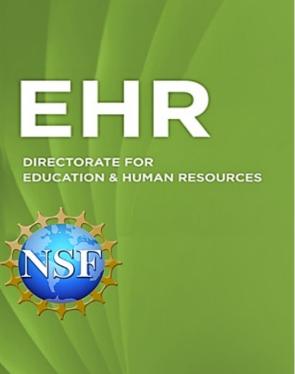How is your project set up to address the core team's biases?

Whose experience, expertise, perspectives could be important contributions to the work?

Purpose(s) for Advisors/Advisory Boards

Advisory boards can provide perspectives/expertise on:

- Content - (e.g., the Intellectual Merit of proposed work)

- Context

- Broader impacts work (e.g., connections to the wider field[s])

- Broadening Participation work

- Other

Thinking about Advisors/Advisory Boards

From the AISL program perspectives, the inclusion of advisors or advisory boards is not about checking a box.
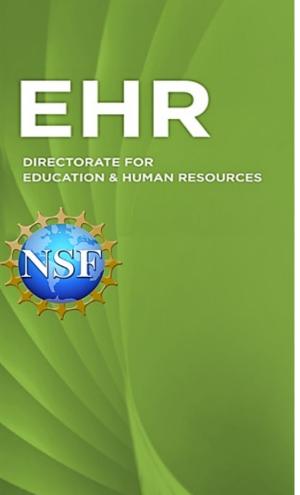
Consider:
- What is the work these people or groups will do (what are the goals and objectives)?
- How are they really contributing to the work, not rubber stamping the work?
- Mutual benefit: How do they learn from you/your project as well as bring knowledge to the project?
- What is the frequency of contact? Form(s) of communication?
- How will you know the Project Team ←→ Advisor/Advisory Board relationship is working?

Use of Advisory Boards as the External Evaluator

Similar to what should be done if hiring an individual or firm to conduct the evaluation:

- Bring the *Evaluation Advisory Board* (evaluator) on at the beginning of the project, not after everything has been decided.

- The *Evaluation Advisory Board* designs the evaluation plan in concert with the team. This means that there will likely be one advisor who is the Lead on the advisory board.

- The *Evaluation Advisory Board* determines how data is collected, when reporting will occur and generates the evaluation report according to the agreed upon timeline.

Additional Resources

Check out these resources on the CAISE website:

Designing Evaluation
https://www.informalscience.org/what-evaluation-0

11 Tips for a Better Advisory Board Meeting
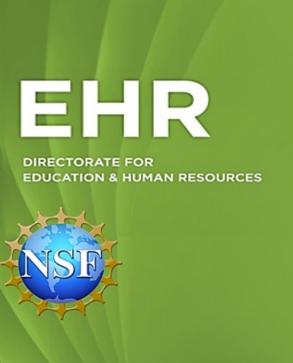https://www.informalscience.org/news-views/11-tips-better-advisory-board-meeting

Project Planner
https://www.informalscience.org/projectplanner#Home

Questions & Comments