

## **Enhancing Evaluation of Informal Science Education: A Framework for Value**

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### **Session Title:**

Enhancing Evaluation of Informal Science Education: A Framework for Value

### **Session Presenter/Panelists:**

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### **Purpose:**

How to evaluate an evaluation? During this session, we will discuss our preliminary framework for addressing this question. The three-part framework—(1) Worth of the Intervention, (2) Appropriateness of the Evaluation Study, and (3) Usefulness for Stakeholders—comprises a set of criteria for evaluating summative evaluations. We will also share early impressions from our in-progress work on practical applications of the framework.

We will solicit feedback on the framework and brainstorm ideas for innovative evaluation tools and measures. Potential discussion questions include: In what ways does this framework help facilitate progress toward innovative yet rigorous evaluation in informal science education (ISE)? How might this framework be used in practical ways for decision-making and knowledge building? What are its limitations? What new tools and measures are needed for ISE evaluation?

### **Perspectives:**

Evaluation of ISE projects is a complex endeavor, as is using evaluation findings to inform decisions and build knowledge for the field. The diversity of learning environments and audiences, the choice-based nature of informal learning experiences, and practical and fiscal constraints present challenges to feasibly evaluating outcomes in ways that are authentic, meaningful, and reliable (National Research Council, 2009; Falk et al., 2012; Friedman, 2008). Further, methodological rigor varies greatly across evaluation-based literature in ISE, which includes published, peer-reviewed works and non-peer-reviewed “grey literature” (e.g., reports). This variability—combined with a need to clarify theoretical foundations, shared goals, and common assumptions and terminologies (NRC, 2009; Falk et al., 2012)—makes it difficult to compare findings across studies, generalize about broad impacts, and use current knowledge to guide practice (Falk et al., 2012; NSF, 2008).

We set out to understand these challenges and develop tools and measures to enhance evaluation capacities in ISE. Funded by the Gordon and Betty Moore Foundation, our project activities include collecting and characterizing examples of high-quality evaluations; conducting mini case studies of exemplary evaluation projects in ISE; and prototyping innovative ISE measures.

## **Methods:**

To address the question of how to define quality or value for summative evaluation projects in ISE, we reviewed literature that included theoretical frameworks, professional research and evaluation standards, research articles, and other key publications in ISE. We also read evaluation reports, using a purposive snowball sampling approach and focusing on those that were recommended to us as exemplary projects by colleagues or cited in other works. We explored a number of relevant websites, which comprise a vast number and array of online resources for ISE and evaluation professionals—articles, reports, guides, assessment tools, databases, virtual communities, and more. As a result of these efforts, we developed a preliminary conceptual framework for evaluating ISE evaluations. We will collect data on the framework's functionality by using it to review evaluation reports and guide case studies of exemplary ISE evaluation projects; findings will inform further refinement of our framework.

## **Results:**

Our framework features three dimensions that contribute to the quality or value of a summative evaluation for decision making and contributing knowledge to the field. The first dimension is *Worth of the Intervention*: “Should it have been done; was it a worthwhile thing to do when compared to alternatives addressing the same goal(s)?” To address worth of a program, exhibit, experience, or project, the evaluator might draw links to conceptual, empirical, and practical knowledge and perspectives. The second dimension is *Appropriateness of the Evaluation Study*: “Were the evaluation questions, design, methods, and interpretations linked, justified, and justifiable given the particularities of the informal context?” And, the third dimension is *Usefulness for Stakeholders*: “Were the evaluation findings clearly communicated; were they relevant for users by, for example, directly addressing their needs and questions, informing decisions to be made, or growing knowledge of the ISE field?”

## **Importance:**

We recognize that evaluation is both an art and a science. With this framework, we have outlined some of the “scientific” principles that underlie a high-quality, rigorous summative evaluation. However, no one approach works in all instances, and designing and conducting an evaluation in messy real-world conditions is an art. It requires innovation and complicated decisions that account for, among other concerns, the needs and interests of stakeholders; financial, logistical, and other practical constraints; and the historical, social, and cultural context.

We propose that our framework—with each of its main components elaborated—supports a decision-making cycle that can help various stakeholders (e.g., practitioners, evaluators, researchers, funders) consider indicators of value when planning, reviewing, or using evaluations. By outlining critical considerations for evaluating evaluations, this framework may help identify future opportunities for enhancing the rigor of visitor studies and encouraging innovation where it is needed.

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Project description: <http://informalscience.org/project/show/2101>