

Framework for Summative Evaluation in Informal Science Education

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The purpose of the project, in broad terms, is to contribute to strengthening evaluations in informal science education (ISE) and building capacity for doing so. We focus here on summative evaluations, which have been called upon to inform decision-making and practice, contribute knowledge to the field, and help make the case for the value of informal experiences. To serve these functions, summative evaluation must be high quality.

We developed and revised a framework for summative evaluation based on an extensive literature review and iterative refinements over the course of our research. Research activities included a critical review of summative evaluation reports, case studies of what we judged to be exemplary summative evaluations, and interviews with eight leading individuals in ISE evaluation-related fields.

Our intention is not to replace the many, valuable evaluation-related resources available but rather to succinctly synthesize key elements that comprise a high-quality summative evaluation. Brevity and focus, we hope, will make the framework manageable and usable. We propose that the framework can help various ISE stakeholders (e.g., practitioners, evaluators, researchers, funders) identify and consider indicators of quality in summative evaluations. That is, the framework should be useful as a guiding lens for planning or conducting future and current summative evaluations (forward-looking) and also in reviewing or using completed evaluations (backward-looking).

The framework has three dimensions: (a) the rationale underlying the intervention (e.g., program, exhibition); (b) methodological rigor balanced by contextual appropriateness; and (c) usefulness to stakeholders.

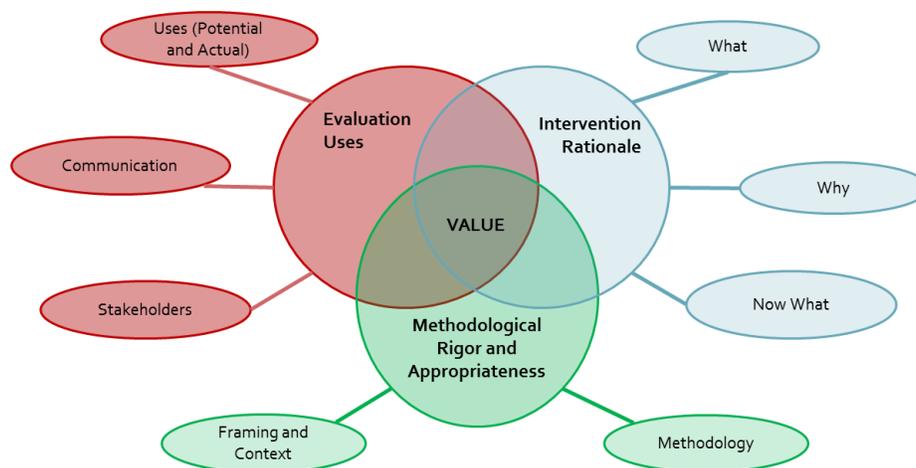
- **Intervention Rationale:** Examine the rationale behind the intervention (“should it have been done?”). Examine its underlying theories and logic, with links to conceptual, empirical, and practical knowledge of the field. Consider how these factors influence evaluation planning and design. Seek a full understanding of what participants’ experiences entail.
- **Methodological Rigor and Appropriateness:** Maintain clear and reasonable scope, purpose, and questions given the resources available. While allowing for the emergence of unexpected findings, use tightly justified and justifiable links among evaluation questions, design, methods, interpretations, and conclusions. Use designs and methods that are as rigorous as possible, given the particularities of the informal context.
- **Evaluation Uses:** Address stakeholders’ needs and questions. Be clear, concise, and timely with communications. Be strategic about framing findings, making appropriate recommendations, and supporting immediate stakeholders and/or the field in using the evaluation.

Upon completion of the summative evaluation, information from all three dimensions of the framework—the intervention and its rationale, empirical evidence from the evaluation study, and what is useful for stakeholders—may be brought together to provide summary reflections on the *value* of the intervention.

See other side for a figure and table with sub-dimensions and a series of guiding questions. These questions can be asked of any given summative evaluation, and the responses serve as indicators of evaluation quality.

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Intervention Rationale

- **What:** What is the substance of the intervention? Who are the participants and what are they doing? What does the intervention look like when implemented?
- **Why:** What is the underlying rationale and justification for development? Why was the intervention done in the first place? Why was the intervention designed and developed in this way? Is there theoretical, empirical, and/or practical grounding or evidence to support its design and development? Have moral (i.e., “do no harm”) considerations been taken into account?
- **Now What:** Is a summative evaluation warranted at this time? What questions, program elements, links in logic, or assumptions bear closer examination?

Methodological Rigor and Appropriateness

- **Methodology:** Is there methodological rigor? Several elements should be explicitly and tightly-linked in the evaluation’s “chain of reasoning”: questions, study design, data collection instruments and methods, analysis, results, interpretations, and conclusions. Are measures and methods fully accessible for others to examine, replicate, adapt, or otherwise learn from? Is fidelity of implementation examined? Are generalizations to other people or contexts appropriate, with limitations spelled out? Are unexpected findings taken into account?
- **Framing and Context:** Is the scope and purpose of the evaluation appropriate for the resources available and the “life stage” (maturity and stability) of the intervention? Is the evaluation study contextually appropriate? Do the design and methods take into account factors such as participants’ expectations for an informal experience, degree of choice, engagement, and maintenance of a positive experience?

Evaluation Uses

- **Stakeholders:** Does the evaluation project specify its intended stakeholders and their needs? What are the intended uses of the study?
- **Communication:** Is the mode of communication appropriate for the audience(s)? Is it transparent, digestible, and timely?
- **Uses:** Does the evaluation usefully frame the findings for the intended stakeholders and purpose? Are recommendations appropriately grounded in evidence, tied back to the study questions, and actionable? Once the evaluation study is completed and disseminated, what is its impact? To which stakeholders is it ultimately useful and in what ways?

Value: Are any summary judgments or reflections on the value of the intervention reasonable and justified, drawing upon information about the intervention and its rationale, empirical evidence from the evaluation study, and an understanding of what is useful for stakeholders?

Note: Guiding questions are phrased for use with current or future projects. To facilitate the review of completed evaluation projects, rephrase questions using the past tense.