Evaluating and Assessing Grant Education Programs

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1. Include evaluation as part of project from beginning

- Project planning
- Needs assessment
- Collection of baseline data
- Testing of prototypes and pilots [formative]
- Evaluation of project effectiveness [summative]
### 2. Determine purpose of evaluation

<table>
<thead>
<tr>
<th>Formative</th>
<th>Summative</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Purpose: guiding developmental process; making improvements</td>
<td>‣ Purpose: making overall assessment or decision</td>
</tr>
<tr>
<td>‣ Data for program improvement, modification, and management</td>
<td>‣ Data to determine effectiveness of program, product, organization</td>
</tr>
<tr>
<td>‣ “What is working and what is not?” “What needs to be changed?”</td>
<td>‣ “Are intended results of program achieved?” “Are there unintended results?”</td>
</tr>
</tbody>
</table>
## 2. Determine purpose of evaluation

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<tr>
<td>Often conducted by internal evaluator</td>
<td>Use of external evaluator</td>
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<tr>
<td>Item data often more important than overall scores</td>
<td>More global data</td>
</tr>
<tr>
<td>Testing segments, prototypes</td>
<td>Testing final products</td>
</tr>
</tbody>
</table>
3. Develop specific, measurable evaluation questions

- Based on
  - Program components with measurable outcomes
  - Original objectives of project
  - What stakeholders want: funding agency, program coordinators, administrators, policy makers, participants

- Can be descriptive (what is happening? is the program delivering what is promised? on time), relational (is there a relationship?) causal (does the program/intervention cause an outcome?)
3. Develop specific, measurable evaluation questions

- What is the effectiveness of the IT curriculum?

  versus

- What is the impact of the IT curriculum in increasing 4-H members’: (a) STEM literacy, (b) critical STEM workforce skills, and (c) interest in mathematics, science, and technology (IT) careers.
3. Develop specific, measurable evaluation questions

- Is there a relationship between teacher knowledge of scientific inquiry and student performance on an inquiry assessment? [relationship]
- What are the characteristics (i.e. content/topics, frequency, delivery format, training strategies) of teacher professional development in scientific inquiry in Nebraska? [descriptive]
4. Match the evaluation design to the questions

- Is your evaluation question descriptive, relational, or causal?
- What comparisons do you want to make? (pre–post–followup, treatment–control)
5. Develop a data collection plan

- Who will you collect data from?
  - Students, teachers, parents, project leaders, program coordinators, administrators, stakeholders

- What data will you collect?
  - Attitudes/perceptions, knowledge, skills, behaviors, products (e.g. lesson plans, journals, student work)

- When will the data be collected?

- How will the data be collected?
Methods of data collection

Qualitative

- Interviews
- Photo-elicitation
- Focus groups
- Observation – written narrative either subjective or guided
- Videotape/audiotape – develop categories and themes from information

Quantitative

- Assessments
- Inventories, Questionnaires, Surveys
- Observation – record frequency, duration, or intensity of prescribed/predetermined behaviors (can be done while event is occurring or coded from video/audio tape)
6. Use reliable and valid instruments

- Assessment Tools in Informal Science
  www.pearweb.org/atis
- FLAG
  www.flaguide.org/tools/newsearch.php
- Online Evaluation Resource Library
  oerl.sri.com
- Program–related databases (NSF ITEST, etc)
7. Analyze data

- Show increases, progress, and change relative to earlier state (% increase, statistically significant increase)
- Show perceptions of progress from stakeholders
- Descriptive analysis – frequencies and %s
- Relationship analysis – correlations
- Causal – comparisons between means
8. Provide information to relevant audiences

- Use executive summaries
- Use face-to-face briefings, phone conversations
- Provide continuous updates
- Establish culture of collaboration
Other Questions

- How much of the budget should go to evaluation?

  Rule of thumb is 10% of direct costs
How can I find an evaluator?

http://ec.wmich.edu/evaldir/index.html

http://www.eval.org/find_an_evaluator/evaluator_search.asp
Other Questions

- Are evaluation and research the same thing?
## Comparison

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<th>Experimental Research</th>
<th>Evaluation</th>
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<tbody>
<tr>
<td>Problem selected by researcher; driven by the current research/literature</td>
<td>Problem determined by situation and constituents</td>
</tr>
<tr>
<td>Use instruments with sound psychometrics</td>
<td>Use reliable and valid instruments when available; modify to fit unique project aspects</td>
</tr>
<tr>
<td>Must use hypothesis testing and statistical methods of analyses</td>
<td>Sometimes uses hypotheses and statistical methods of analyses</td>
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## Comparison, cont

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<th>Evaluation</th>
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<tr>
<td>Objectivity; pre-determined method that does not deviate during experiment</td>
<td>Value judgments; method should change if problems arise (use of formative evaluation)</td>
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<tr>
<td>Examines cause-effect relationships</td>
<td>Determines worth; guides improvement</td>
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<tr>
<td>Controlled environments</td>
<td>Naturalistic environments</td>
</tr>
<tr>
<td>Generalizability to population of interest</td>
<td>Project or program specific</td>
</tr>
<tr>
<td>Conclusions</td>
<td>Decisions</td>
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Evaluation Resources