Logic Models & Evaluation

April 22, 2013
Designing Effective Evaluations for Your Intervention Strategies
Definition of Evaluation

Study designed and conducted to assist some audience to assess an object’s merit and worth.
(Stufflebeam, 1999)

Identification of defensible criteria to determine an evaluation object’s value (worth or merit), quality, utility, effectiveness, or significance in relation to those criteria.
(Fitzpatrick, Sanders & Worthen, 2004)
Definition of evaluation

■ Goal 1
  ● Determine the merit or worth of an evaluand.

■ Goal 2
  ● Provide answers to significant evaluative questions that are posed

Scriven (1991)

It is a value judgment based on defensible criteria.
Evaluation Questions

- Provide the direction and foundation for the evaluation (without them the evaluation will lack focus)

- The evaluation’s focus will determine the questions asked


Success is what counts.

(Rincones, 2009)
Typical Elements of a Logic Model

Input
Resources needed: human, financial, organizational, etc.

Activity
Tasks that use your resources in order to produce an output

Output
Results or products generated by the completion of your activities

Outcome
Effects or changes the intervention makes on participants

Success is what counts. (Rincones, 2009)
What does a logic model look like?

- **Graphic display of boxes and arrows; vertical or horizontal**
  - Relationships, linkages

- **Any shape possible**
  - Circular, dynamic
  - Cultural adaptations, storyboards

- **Level of detail**
  - Simple, complex

- **Multiple models**

*(Rincones, 2009)*
Success is what counts.

Need Assessment Questions?
- What resources are needed for starting this intervention strategy?
- How many staff members are needed?

Process Evaluation Questions?
- Is the intervention strategy being implemented as intended?
- Are participants being reached as intended?

Outcome Evaluation Questions?
- To what extent are desired changes occurring? For whom?
- Is the intervention strategy making a difference?
- What seems to work? Not work?

(Rincones, 2009)
### Intervention Strategy:

<table>
<thead>
<tr>
<th>Evaluation Questions</th>
<th>Tasks</th>
<th>Personnel Involved</th>
<th>Frequency</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Task 1.1</td>
<td>VP Academic</td>
<td>Monthly</td>
<td>Students</td>
</tr>
<tr>
<td></td>
<td>Task 1.2</td>
<td>IR Director</td>
<td>Every Term</td>
<td>Focus Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Question 1</td>
<td></td>
<td></td>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>Task 2.1</td>
<td>IR Director</td>
<td>Every Term</td>
<td>Faculty</td>
</tr>
<tr>
<td></td>
<td>Task 2.2</td>
<td>IT Director</td>
<td>Every Year</td>
<td>Staff</td>
</tr>
<tr>
<td>Question 2</td>
<td></td>
<td></td>
<td></td>
<td>Personnel records face-to-face</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Interview protocol to be developed</td>
</tr>
</tbody>
</table>

**Sources**

- Students

**Methods**

- Focus Group

**Sample**

- 50

**Instrument**

- TBD

*Success is what counts.*  
*(Rincones, 2009)*
Evaluation & Research
# Evaluation vs Research

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Problem</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>To ask specific questions about a specific program</td>
<td>Determined by the concerns and needs of the client</td>
</tr>
<tr>
<td>Example</td>
<td>Are learning communities an effective way to engage developmental students at ABC College</td>
<td>Grant funder such as Lumina, Heinz, etc. – those funding AtD</td>
</tr>
</tbody>
</table>

*Success is what counts.*  
(Rincones, 2009)
## Evaluation vs Research

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<thead>
<tr>
<th>Purpose</th>
<th>Problem</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Research</strong></td>
<td>To test generalizable principles or theories</td>
<td>Other researchers or experts in the field</td>
</tr>
<tr>
<td><strong>Problem</strong></td>
<td>Determined by the researcher</td>
<td></td>
</tr>
<tr>
<td><strong>Audience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Do underprepared students have low academic self-efficacy</td>
<td>Faculty in colleges of education will use this research to train elementary educators on techniques to increase academic self-efficacy</td>
</tr>
<tr>
<td><strong>Problem</strong></td>
<td>A group of 500 students from 5 institutions will complete an academic self-efficacy index and scores will be correlated to grades and GPA</td>
<td></td>
</tr>
<tr>
<td><strong>Audience</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Evaluation vs Research

<table>
<thead>
<tr>
<th></th>
<th>Manipulated Independent Variable</th>
<th>Random Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>True Experiment</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Quasi Experiment</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Non Experiment</strong></td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

*(Rincones, 2009)*

*Success is what counts.*
Why Experimental Design is Difficult at Community Colleges?

- Nothing is random (by nature) in colleges
- Most things cannot be controlled for
- We have difficulty manipulating the independent variables that we think make a difference (income status, academic ability, etc.)
- We feel it’s unethical to withhold a treatment from a group that desperately needs it – just to prove something works

Success is what counts.

(Rincones, 2009)
The one-group pretest-posttest design

- Used when you are mostly interested in “within subjects” change.

- Used when you can’t randomly select subjects and randomly distribute them to treatment groups.

(Rincones, 2009)
The Core Team worked with the faculty teaching the Student Success Course to create an assessment tool to measure study skills and test-taking tips. Students were pre-tested during the first week of class and post-tested at the end of the term. Their post-test scores were compared to their pretest scores to determine changes.

(Rincones, 2009)
Problems with one group pre/post

- Students can change just by sitting in class for a semester which could cause changes in subjects – maybe it isn’t what you taught them (how do you know?)

- When subjects take a pretest it sometimes sets them up to learn more during the course because they remember what they didn’t know on the pretest.

- Would you not expect their study skill to improve over the semester just by completing the course – would the behavior change by itself

- What can you not control for that could cause the difference – time of day, difference in teachers, composition of the students in the class, their previous experiences…..

Success is what counts.

(Rincones, 2009)
The static-group comparison

- Involves two groups, one gets the treatment and the other receives a different treatment. You can have more than two groups if you want.

- Two groups are selected, group one gets the treatment, the second gets an alternative treatment, neither are pre-tested, both are post-tested.

- Results are compared.
The static-group comparison

\[ X_1 \quad 0 \]
\[ X_2 \quad 0 \]

Two existing classrooms of students. Class 1 receives traditional College Writing and class 2 receives College Writing plus supplemental instruction. Grades are compared for both groups at the end of the term.
The pretest-posttest control group design

Group 1 (random) pretest --- exper. treatment ---- posttest

Group 2 (random) pretest ---------------------------- posttest

\[
\begin{array}{llll}
R & 0 & X^1 & 0 \\
R & 0 & X^2 & 0 \\
\end{array}
\]

(Rincones, 2009)
Example

- ABC college tests the success of a newly revised orientation program for new students.

- As students enroll, they are randomly selected and randomly enrolled in one of two different orientation programs. Group 1 was given a new orientation program with heavy focus on student engagement, increased faculty/student contact and emphasis on student support programs. Group 2 completed the regular orientation program. Both groups were pre and post tested using several attitude and behavior assessment tool.

(Rincones, 2009)
Quasi-experimental Design
Nonequivalent groups/nonequivalent control group design (Pretest-Posttest)

Group 1 (not random) pretest --- exper. treatment ---- posttest
Group 2 (not random) pretest ----------------------------- posttest

\[
\begin{array}{ccc}
0 & \times & 0 \\
\hline \\
0 & \hline \\
0 & 0 \\
\end{array}
\]

Success is what counts.  
(Rincones, 2009)
The English faculty conduct a withdrawal pilot intervention study. Teachers volunteer to study the literature, create strategies and change the way they teach class to attempt to decrease withdrawals. 10 sections were used for the withdrawal pilot and 10 similar sections were used as a comparison group.
Once grades were in …

<table>
<thead>
<tr>
<th></th>
<th>Comparison Group</th>
<th>Intervention Group</th>
</tr>
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<tbody>
<tr>
<td>English Classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>66</td>
<td>58</td>
</tr>
<tr>
<td>B</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>C</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>F</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>Unsuccessful Completions</td>
<td>83</td>
<td>65</td>
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</table>

There were 5.3% fewer W’s, I’s and F’s in the Intervention Group when compared to the Control Group

Success is what counts.

(Rincones, 2009)
Most Strategies...

- Involve the evaluation of interventions and are asking the question “did it work?”
- Are not research studies
- Don’t have to find statistically significant differences (may not be important differences)
  - Or worry about power, significant sample sizes, etc.
Logic Models and Evaluation Plan at College of The Mainland

(Rincones, 2009)
Success is what counts.

Logic Model Worksheet—Advising for Academic Success

Situation: Evidence indicates that the Academic Advising process does not function in a manner that supports student success. Priority: Establish an advisement framework to ensure that prerequisites are met, improve student retention, and increase successful course completion rates.

Success is what counts. (Rincones, 2009)
Logic Model Worksheet—Developmental Education

Situation: 90% of first-time students need developmental education in at least one subject. For those students who enroll in DE, only 44% to 53% successfully complete the course.

Priority: Improve students’ successful completion of developmental courses and ensure that they are prepared for college level courses.

Success is what counts. (Rincones, 2009)
### Priority 1: Redesigning Academic Advising System to Support Student Success

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• Increased retention of students  
• Higher number of degrees and certificates awarded | • Benchmark and cohort trend analysis | • Collect and track data on course completions data  
• Collect and track data on student retention  
• Collect and track data on awards | • Data Team  
• IRE Staff | • Annually | • Student Database System |

**a. To what extent do faculty, staff, and advisors understand the advisement process?**

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• Collect and track data on student retention  
• Collect and track data on awards | • Data Team  
• IRE Staff | • Annually | • Student Database System |
<table>
<thead>
<tr>
<th>A. What elements of the revised process are perceived as strengths? What needs for improvement were identified?</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Areas in need of improvement will be addressed.</td>
</tr>
<tr>
<td>C. Survey and focus groups</td>
</tr>
<tr>
<td>D. Develop survey instrument</td>
</tr>
<tr>
<td>E. Administer survey to students</td>
</tr>
<tr>
<td>F. Develop protocol for focus groups</td>
</tr>
<tr>
<td>G. Train facilitators</td>
</tr>
<tr>
<td>H. Conduct focus groups with faculty, staff and students</td>
</tr>
<tr>
<td>I. Analyze qualitative data</td>
</tr>
<tr>
<td>J. Review results with faculty and staff and discuss areas in need of improvement</td>
</tr>
<tr>
<td>K. IRE Staff</td>
</tr>
<tr>
<td>L. Data Team</td>
</tr>
<tr>
<td>M. Evaluation Committee</td>
</tr>
<tr>
<td>N. Fall 2008</td>
</tr>
<tr>
<td>O. Data gathered through survey and focus groups.</td>
</tr>
</tbody>
</table>

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**Success is what counts.**  
(Rincones, 2009)
### Priority 2: Improving Student Success in Developmental Education

<table>
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<tr>
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<th>Tasks</th>
<th>Personnel</th>
<th>Frequency</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To what extent did the first year experience student success course for students with a developmental education need improve student outcomes?</td>
<td>• Improved successful completion rates in DE</td>
<td>Benchmark/Trend analysis Cohort tracking</td>
<td>• Collect and track data on course completions data</td>
<td>• IRE Staff Data Team General Education Assessment Committee Testing Center</td>
<td>• Trend data—Annually Mastery data—Fall 2007 and Fall 2009</td>
<td>• Student Database System • CAAP</td>
</tr>
<tr>
<td>a. What elements in the first year experience course were perceived by faculty, staff and students as strengths? What needs for improvement were identified?</td>
<td>• Areas in need of improvement will be addressed.</td>
<td>Focus groups</td>
<td>• Develop protocol for focus groups Train facilitators Conduct focus groups with faculty, staff and students Analyze qualitative data Review results with faculty and staff and discuss areas in need of improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Success Indicators</td>
<td>Methods/Strategies</td>
<td>Timeframe</td>
<td>Tools/Methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>-----------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. To what extent do students who complete the first year experience</td>
<td>Increased knowledge of emotional intelligence skills</td>
<td>Pre/post test control group design **</td>
<td>Spring 2008—Beginning of term</td>
<td>EIQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>course demonstrate improved emotional intelligence skills?</td>
<td></td>
<td>Create experimental groups through advisement process Admit assessment Instruments to treatment and control groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Do students who complete in a first year experience course have a</td>
<td>Greater awareness of college culture and expectations</td>
<td>Pre/post test control group design **</td>
<td>Spring 2008—Beginning of term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>greater awareness of the college culture and expectations?</td>
<td></td>
<td>Develop survey Admit survey to treatment and control groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Do students who complete a first year experience course demonstrate</td>
<td>Students are more engaged in college experience and course work</td>
<td>Benchmark/Trend analysis</td>
<td>Spring 2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>more behaviors of student engagement?</td>
<td></td>
<td>Administer CCSSE to over sample of dev ed and gatekeeper classes</td>
<td>Spring 2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To what extent did faculty professional development impact teaching</td>
<td>Increased successful course completion rates for males and minorities.</td>
<td>Collect and track data on course completions data</td>
<td>Annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and learning?</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

(Rincones, 2009)
| a. Do faculty who participate the professional development course have a greater understanding of student characteristics and their impact on learning? To what extent do faculty incorporate this knowledge into their instruction activities? | • Faculty will perceive training to be beneficial and applicable to their classroom instruction. Greater awareness and understanding of different learning styles, student needs and culture influences on learning. New skills and knowledge are incorporated into classroom instruction. | • Repeated measures design. Review of syllabi and other relevant course materials. | • Administer survey/assessment instruments to participants. Collect syllabi, other relevant course materials and analyze. | **IRE staff**<br>• Evaluati<br>on Committ<br>ee | • Assessment of knowledge—pre-, post training and 4-6 week follow-up.<br>Assessment of application in classroom. | • TBD |

**Student participation in this study will be solicited during the advising process, prior to registration. A treatment group will be created by assigning every other student to the “First Year Experience” Student Success course. Students in the control group will be enrolled in the same developmental education classes as the treatment group. Assessment instruments will be administered in the developmental classes, at the beginning and at the end of the semester.**

(Rincones, 2009)