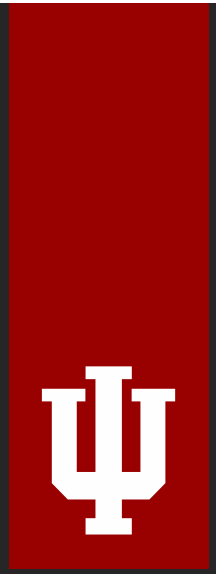


Institutional Research and Decision Support (in collaboration with **Center for Teaching and Learning**)

Developing an Effective Evaluation/Assessment Plan

IUPUI

Webinar outcomes

Upon completion of this webinar, attendees should be able to:

1. Differentiate between **assessment** and **evaluation**.
2. Obtain a basic understanding of the key components of an evaluation/assessment plan.
3. Distinguish the difference between **formative** and **summative** evaluation/assessment.
4. Describe **logic models** (as used in a program evaluation).
5. Develop an *effective* **Evaluation/Assessment Plan** [**Section 5** of *Curriculum Enhancement Grant RFP*]
6. Describe the requirements for the dissemination, timeline, and budget sections of a CEG proposal

CEG RFP: Assessment/Evaluation Plan

1. Address how the overall project effectiveness will be measured
2. Describe the strategy that will be used to monitor the effectiveness of the project as it evolves (formative evaluation/assessment)
3. Describe the evidence that will be used to measure impact on student learning and/or success, e.g., measures of student performance, enrollment change, course DFW rates, program graduation rates (for multi-course series)

Difference Between Assessment and Evaluation

(in an instructional setting)

Assessment is a systematic process of acquiring, documenting, reviewing and using information about someone of something, so as to make improvement where necessary. Assessment is more process oriented, improves quality and is used to provide feedback.

Evaluation is derived from the word '**value**'; hence, **evaluation** focuses on making a judgment or conducting an examination of something to determine its utility, value, or merit. Evaluation is more product oriented and is mainly judgmental.

vs

DifferenceBetween.co

What is an evaluation plan?

- A written plan or document that *provides details of the project (*or *intervention) being evaluated*
- Describes and justifies the *evaluation approach selected*
- Provides instructions for the evaluation or a guide for each step of the evaluation process

Key components of an evaluation plan

- Project goals
- Description of intervention / impact theory (logic model)
- Evaluation methods (design, data collection, analysis)
- Data analysis
- Timeline

Posing Evaluation Questions

Two different types of evaluation questions: ***formative*** help you to ***improve*** your program; and ***summative*** help you to ***prove*** whether your project worked the way you planned.

Benefits of Formative and Summative Evaluation Questions*

Formative Evaluation - Improve	Summative Evaluation - Prove
Provides information that helps you improve your program. Generated periodic reports Information can be shared quickly.	Generates information that can be used to demonstrate the results of your program to funders and your community.
Focuses most on program activities, outputs, and short-term outcomes for the purpose of monitoring progress and making mid-course corrections when needed.	Focuses most on program's intermediate-term outcomes and impact. Although data may be collected throughout the program, the purpose is to determine the value and worth of a program based on results.
Helpful in bringing suggestions for improvement to attention of project staff.	Helpful in describing the quality and effectiveness of your program by documenting its impact on participants and the community.

*Adapted from Bond, Boyd & Montgomery (1997)

Description of intervention/program theory

Your Planned Work

What **resources** you need to implement your project and what **activities** you intend to do to accomplish your project goal(s).

- **Resources/Inputs** include the human, financial, organizational, and community resources a project has available for doing the proposed work.
- **Activities** are the processes, tools, events, and actions that are used to bring about the intended program changes or results.

Source: W.K. Kellogg Foundation (2004) Logic Model Development Guide.

Description of intervention/program theory (continued)

Your Intended Results

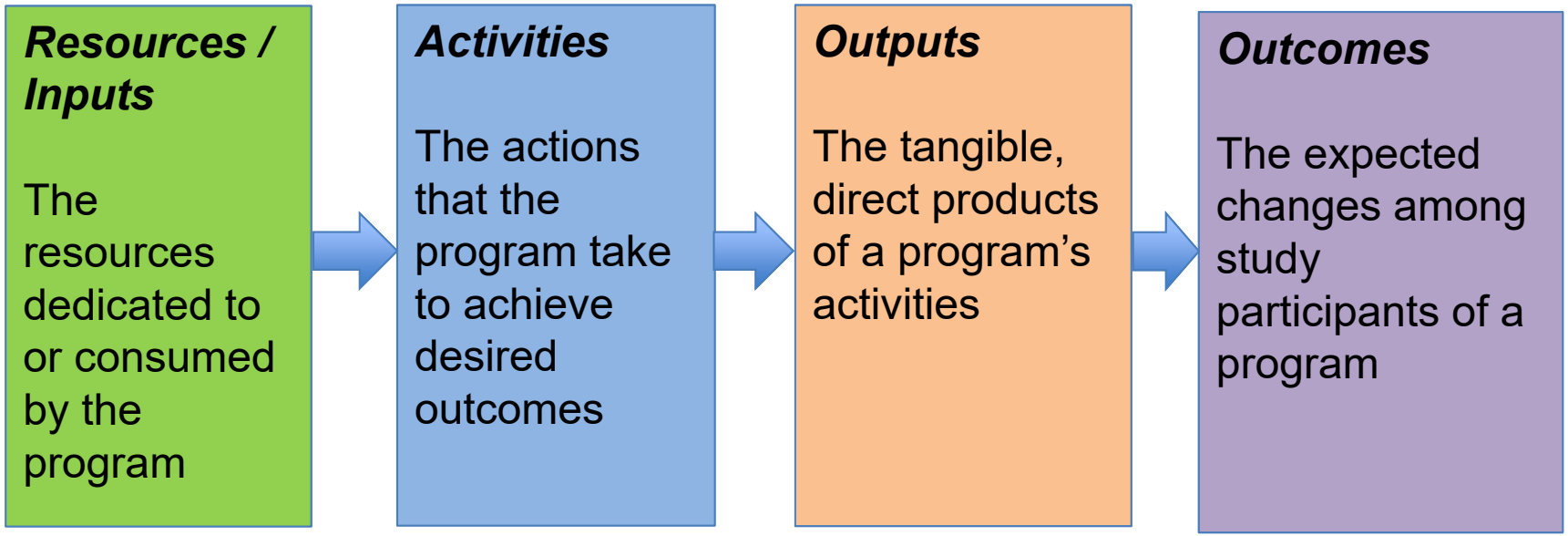
All of the project's desired results (**outputs**, **outcomes**, and **impact**).

- **Outputs** are the direct products of a project's activities and may include types, levels and targets of services to be delivered by the project.
- **Outcomes/Impacts** are the specific changes in a project participants' knowledge, skills, attitude(s), and behavior(s).
- **Long-term goal** is the intended or unintended change occurring in study participants, organizations, communities or systems as a result of project activities over time.

Source: W.K. Kellogg Foundation Evaluation Handbook (2004)

Description of Intervention or Program Theory

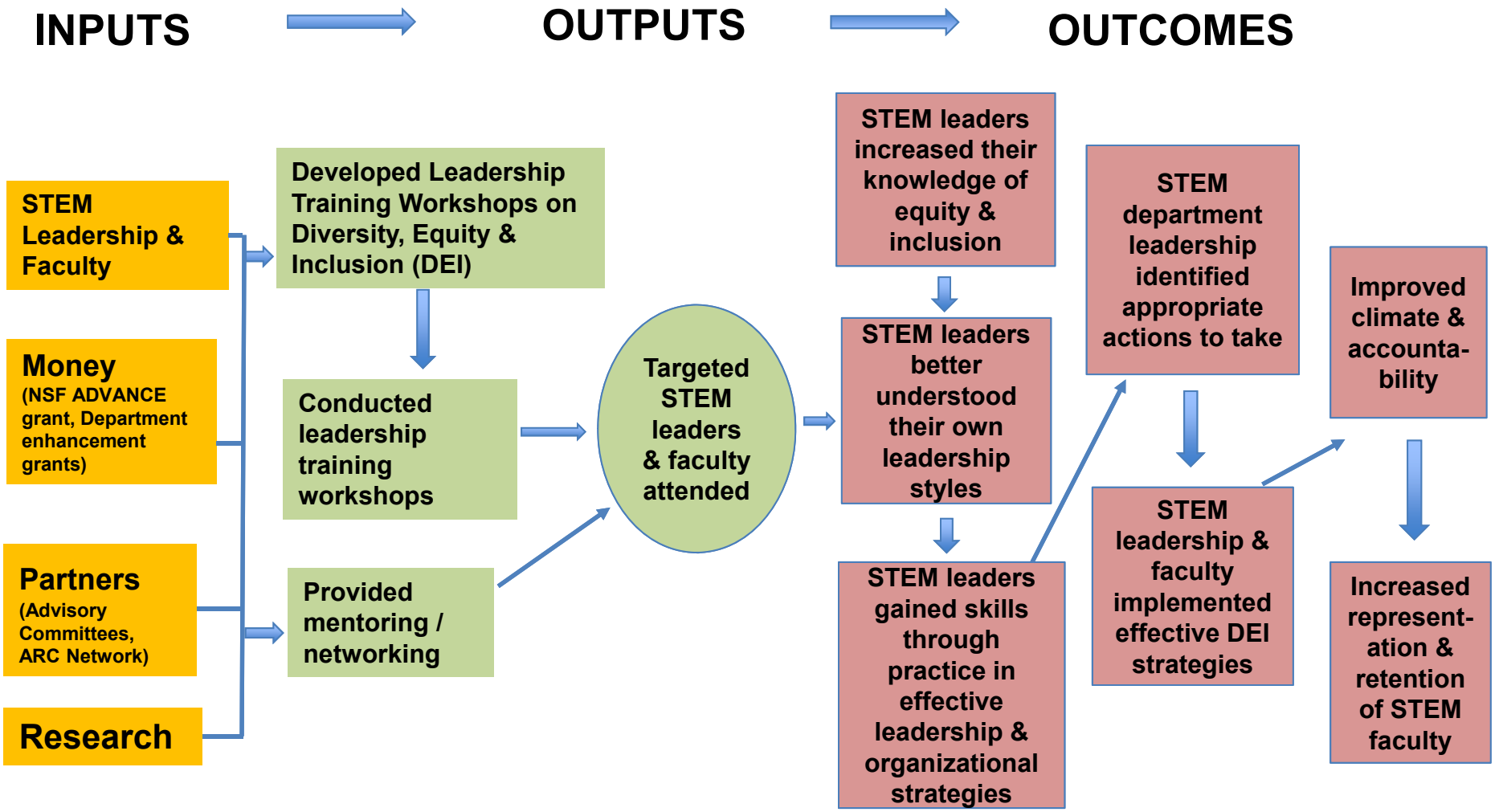
- ***Problem:*** The issue being addressed by the program
- ***Goal(s):*** Intended aims or impacts over the duration of the program



Rationale and Assumptions: What are your underlying assumptions and rationale regarding the intervention and how it works?

External Factors: What else might affect the program?

Example: Logic Model for Project EPIC at IUPUI



Evaluating the Effectiveness of Learning Interventions

- A "**multiple methods**" approach is recommended to assess student learning outcomes (**directly** and **indirectly**).
  - **Direct measures** vs. **Indirect measures**

Theoretical Foundations / Evaluation Considerations

- Learning Goals (**K**nowledge, **S**kills or **A**ttitudes)
- Short Term vs Long Term Learning
- Evaluation vs Improvement (Evaluation Purposes)

Mixed Methods Approaches

- **Mixed Methods** approach involves combining both statistical trends (quantitative data) and stories (qualitative data) to study research problems.
- Core assumption: When an investigator combines both statistical trends and stories, that combination provides a more complete understanding of the research problem than either statistical trends or stories alone.
- **Convergent mixed methods** – the investigator **converges** or **merges** quantitative and qualitative data in order to provide a comprehensive analysis of the research problem.
- **Explanatory mixed methods** – the researcher first conducts quantitative research, analyzes the results and then builds on the results to explain them in more detail with qualitative research.

Mixed Methods Approaches

Note: ***Multi-Methods*** research designs employ multiple quantitative or multiple qualitative approaches …

- **Example**: ***Rebman CEG Proposal*** used a variety of direct and indirect measures of student success (i.e., multiple methods / data sources) that included course-based assessments, national standardized examinations, pre-test/post-test surveys, student course evaluations, graduate exit interviews (qualitative data sources) to evaluate the effectiveness of a new pedagogical method used in the *SHRS K504* course.

4 Key Features of Mixed Methods Approach*

1. Collecting an analyzing quantitative and qualitative data (closed- and open-ended) in response to research questions
2. Using rigorous quantitative and qualitative methods
3. Combining or integrating quantitative and qualitative data using a specific type of mixed methods design
4. Framing the mixed methods design within a broader framework (e.g., experiment, causal-comparative approach, content analysis, grounded theory, etc.)

*Source: Creswell, J. W. (2013, Spring). "What is Mixed Methods Research" [YouTube video - https://www.youtube.com/watch?v=1OaNiTlpyX8]

Mixed Methods Approaches

1. Allow investigators to:
   - **Triangulate** findings from multiple data sources.
   - Converge or corroborate findings.
   - Strengthen the **internal validity** of the studies.
   - Create elaborated understandings of complex constructs for assessing/evaluating student success such as “critical thinking” or “integrative learning.”

Evaluation Considerations

1. Learning Goals (Student Learning Outcomes)
   - **Knowledge**: "what facts and concepts students should understand"
   - **Skills**: "what tasks student should be able to perform"
   - **Attitudes**: "what attitude, beliefs & motivation students should possess"
2. Short Term vs Long Term Learning
   - **Short-term learning** (internal validity): was the intervention successful in achieving its learning goals/objectives?
     (This relates to the **effectiveness** of specific strategies addressed by a project.)
   - **Long-term learning** (external validity): Did the intervention(s) contribute to the students' overall learning experiences?
     (Addresses the issue of ***relevance*** and/or ***broader impact.***)
3. Evaluation Purpose(s) [Use(s) of assessment/evaluation data]
   - ➢ **Formative Evaluation** vs **Summative Evaluation**

Types of Assessment / Evaluation

Formative vs **Summative** Evaluation:

- The aim of **formative evaluation** is to improve upon what has been learnt whereas the aim of **summative evaluation** is to prove the amount of learning that has taken place.
- **Formative evaluation** is a technique that aims at validating the aims or goals of instruction and also to better the standards of instruction. Goal of **formative** evaluation is to ***monitor student learning*** to provide ongoing feedback that can be used by faculty ***to improve their teaching*** and by ***students to improve their learning.***
- **Summative assessment** or **evaluation** is **cumulative** assessment or evaluation technique (to **evaluate student learning**) performed at the end of a semester or any other instructional unit, ***to see how well a student has gained from the instruction***. The focus in **summative** evaluation is on the **outcome**…

Types of Assessment / Evaluation

Example: **CEG Proposal (by Gina Londino-Smolar)**

- *Development of Investigating Forensic Science Laboratory*

Online

Note: Evaluation and Assessment Plan includes both components on *Formative* and *Summative* Assessments …

Types of Assessment / Evaluation

- **Summative Assessment** (Assessment ***of*** learning):
  - Summative evaluation collects **data to ascertain how things went**.
  - Assessments or ***tests*** generally taken by students at the end of a unit or term to **demonstrate the "sum" of what they have or have not learned**
  - Summative data [e.g., via use of **end of course evaluation surveys, *Quality Matters (QM)* rubric, Student Assessment of Learning Gains (*SALG*), *NSSE*, Academic Self-Efficacy / Self-Confidence Scales,** etc.] may also reflect **students' levels of satisfaction with the class** and/or **outline specific elements** or **actions students took in support of their own learning**.

Types of Evaluation Measures

Direct Measures

- Course-embedded assessments
  - Quizzes/Tests/Exams, Papers, Assignments, Oral/Written Presentations, Project work, etc.
- Pre-test/Post-test measures of academic achievement/proficiency
- Standardized Achievement Tests
- Common Final Exams
- Student ePortfolio Assessments
- Quality Matters Rubric

Indirect Measures:

- Pre-Post Knowledge Surveys (or national standardized competency measures (e.g., PACKRAT & PANCE for PA students)
- Participant Satisfaction Surveys
- Interviews (e.g., Graduate Exit Interviews)
- Focus Groups with students
- Usage Data Records (e.g., Canvas LMS tools)
- Course Evaluations / Preceptor Evaluations
- Extant Data (e.g., class enrollment, in-class participation, completion, retention, demographic data, grades, GPAs, %DFW rates, national norms, data from prior cohorts & related data)

➢ **Examples of CEG Proposals** (with acceptable **Evaluation/Assessment Plans**):
- ✓ Higbee & Miller (BME Department Proposal 2018)
- ✓ Rebman CEG Proposal (IU Master of Physician Assistant Studies, MPAS)
- ✓ Gina Londino-Smolar (Development of Investigating Forensic Science Lab Online)

Example of a CEG Proposal*

*(Adapted from **Higbee & Miller - BME Department Proposal 2018**)

- **<u>Note</u> a very useful *presentation format* for the Evaluation/Assessment Plan**

Outcome 1: Students will demonstrate knowledge of the engineering design process

Performance Indicator	Method of Assessment	Targeted Course(s)	Target or Performance
Student teams will identify definitions of design control	Quiz question(s)	BME 24100, BME 22200, BME 38300, BME 35400	70% of students will score at least 70% on assessed problem(s)

Outcome 2: Students will appropriately integrate BME coursework knowledge within the engineering design

Performance Indicator	Method of Assessment	Targeted Course(s)	Target for Performance
Student teams will apply knowledge of mathematics, science, and engineering to deliver a working prototype of a design	Project report of presentation (instructor rubric)	BME 24100, BME 22200, BME 38300, BME 35400	75% of teams will deliver a working prototype 75% of teams will appropriately identify prior knowledge and concepts applied towards design

Use Authentic, Embedded Assessment

- Goal of many undergraduate programs is for students to become lifelong learners by enhancing students' communication skills, critical thinking, and problem solving abilities.
- With authentic, embedded assessment tasks students are asked to demonstrate what they know and are able to do in meaningful ways.
- Authentic assessment tasks are often multidimensional and require higher levels of cognitive thinking such as problem solving and critical thinking.
- **Embedded assessment** means that "that opportunities to assess student progress and performance are integrated into the instructional materials and are virtually indistinguishable from the day-to-day classroom activities" (Wilson & Sloane, 2000).
  - **Example:** See **Section 5** of the **CEG Proposal** by **Gina Londino-Smolar** (***Development of Investigating Forensic Science Laboratory Online***)

Evaluation Methods and Data Analysis

- Data Collection Methods and Analysis:
  - Each of your evaluation questions should address the following:
  - ✓ When collected and by whom?
    - Specific dates, times, persons?
  - ✓ How are data to be analyzed?
    - **Statistical analysis for quantitative data** (descriptive & inferential statistical procedures such as mean, median, chi-square, t-test, ANOVA, regression, calculation and reporting *Effect Size (ES)* statistics, etc.)
    - **Content analysis of qualitative data** (thematic analysis to identify common themes, ideas, topics/categories, and patterns of responses obtained from interviews, focus groups, open-ended survey or case study data)

Planning for Learning and Assessment

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1. What general outcome are you seeking?	2. How would you know it (the outcome) if you saw it? (What will the student know or be able to do?)	3. How will you help students learn it? (in class or out of class)	4. How could you measure each of the desired behaviors listed in #2?	5. What are the assess-ment findings?	6. What improve-ments might be based on assess-ment findings?

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Contact Information

- **Howard Mzumara, Ph.D.**

  Director, Evaluation and Psychometric Services

  Office of Institutional Research and Decision Support (IRDS)

  Indiana University – Purdue University Indianapolis (IUPUI)

  (317) 278-2214 (office phone)

  hmzumara@iupui.edu

  irds.iupui.edu

Section 6: Dissemination

1. A part of any scholarly process
2. Dissemination in research projects
3. Dissemination in teaching projects
4. Your work presented to peers in the field
5. Your work presented to colleagues nearer to home

Section 7: Timeline

1. Managing your time
2. Timeline also a way envision what your project entails from start to finish
3. A planning tool and a series of prompts for your ongoing reflection
4. A measure for readers to judge your readiness to undertake and succeed with a CEG project

Budget Worksheet

Download the Budget Worksheet

Additional Guidelines for Developing or Reviewing a CEG Proposal

1. **Rationale:** the proposal should define thoroughly the learning issue/challenge the project addressed and make a compelling case for why the project is important.
2. **Problem Statement**: the project should focus on an interesting and testable research question rooted in the literature.
3. **Literature Review:** the proposal should demonstrate a firm understanding of prior research relating to the teaching and learning topic.

Additional Guidelines for Developing or Reviewing a CEG Proposal

3. **Student Outcomes**: the proposal should indicate what measures of student learning and success will be in place and how they clearly align with the goals and methods of the project.
4. **Teaching Intervention**: the proposal should make clear how the project's intervention aligns with the project rationale, problem statement, and student learning outcomes.
5. **Project Methods**: the proposed methods (intervention, assessment plan, data collection and analysis) are appropriate and rigorous enough to answer the research question.
6. **Results:** the proposal should indicate some preliminary theories of what results the project will find.

*Adapted from CIRTL Teaching-as-Research (TAR) Rubric

Teaching@IUPUI

Questions and Discussion

Howard Mzumara
hmzumara@iupui.edu

Terri A. Tarr
tatarr@iupui.edu

Richard Turner
rturner@iupui.edu

IUPUI
CENTER FOR TEACHING AND LEARNING

317-274-1300 | UL 1125
ctl.iupui.edu

Teaching@IUPUI

Questions and Discussion

Terri A. Tarr
tatarr@iupui.edu

Richard Turner
rturner@iupui.edu

IUPUI
CENTER FOR TEACHING AND LEARNING

317-274-1300 | UL 1125
ctl.iupui.edu

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