An Integrated R&D and Evaluation Approach for Grant-Funded Education Projects

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Handout at http://eers.org/conferences

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Specialists in STEM and Workforce Education

- 9-person for-profit contracting firm
- **14** U.S. Department of Labor workforce development education projects
- **4** U.S. Department of Education grant subcontracts
- **10** National Science Foundation project research or evaluation projects

Hezel Associates, Syracuse NY

Autumn 2015 NSF Proposal Partnerships

- Total of 12 proposals submitted – ITEST, AISL, RET, and DRK-12 programs
- Of these, five were very different than the other seven…

That experience resulted in these presentations…

Research and Evaluation

Orienting Questions

- Are you an evaluator? A researcher? Both?
- Do you work on grant-funded education programs?
- Do you work on STEM education projects?
- What other types of projects do you support?
- Familiar with the *Common Guidelines for Education Research and Development*?

Research and Evaluation

Key Questions to be Addressed

- How is "**research**" framed by concepts relating to the Common Guidelines?
- How might "**evaluation**" be framed to complement that?
- How might reconciling these functions improve grant-supported education research, evaluation, and projects (STEM or otherwise)?
- Why should you care? *What should you know?*

Research and Evaluation

The Problem – *The "NSF Conundrum"*

Historically, distinctions between "research" and "evaluation" have been unclear or inconsistent

- Grantee **Principal Investigators** focused on delivery of program activities
- External **evaluators** often became *de facto* researchers, testing the PI's innovation
- Quality of both research and evaluation suffered (Ritchie, 2008)

Research and Evaluation

What is the difference between “research” and “evaluation”…?

Research and Evaluation

Research is…

Evaluation is…

Research and Evaluation

One Response – *The Common Guidelines*

- The *Common Guidelines for Education Research & Development* (US ED & NSF, 2013) reframe this work as development of education *innovations*
- Anything worth doing in education is worth studying and improving…

…and we can collectively do better.

Research and Evaluation

One Response – *The Common Guidelines*

- Innovations should be conceived, improved, and adopted to achieve lasting education outcomes for stakeholders
- Learning from such work should advance collective understandings about teaching and learning

But what about "evaluation?"

Research and Evaluation

Research **Evaluation**

Research and Evaluation

Research *& Development*

Reframed as **Research and Development** (R&D)

Evaluation

Research and Evaluation

Research *& Development*

Reframed as **Research and Development** (R&D)

Program Evaluation

Reframed as **Program Evaluation**

Research and Evaluation

Research & Development

Reframed as **Research and Development** (R&D)

*Structured study of the **innovation** in terms of its promise of effectiveness*

Internal to the project, working with designers

Program Evaluation

Reframed as **Program Evaluation**

Research and Evaluation

Research & Development

Reframed as **Research and Development** (R&D)

*Structured study of the **innovation** in terms of its promise of effectiveness*

Internal to the project, working with designers

Program Evaluation

Reframed as **Program Evaluation**

*Study of implementation and results of the **project's R&D** activities*

External to the project, third-party perspective

Research and Evaluation

Research *& Development*

Program Evaluation

6. Scale-up
5. Effectiveness
4. Efficacy
3. Design & Development
2. Early-Stage/Exploratory
1. Foundational

(IES & NSF, 2013)

Research and Evaluation

Research & Development

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(IES & NSF, 2013)

Program Evaluation

- Implementation-Results
- Process-Product
- Monitoring
- Performance Reporting
- Formative Feedback
- *Examines both **research** & **design** activities!*

Research and Evaluation

Research *& Development*

6. Scale-up
5. Effectiveness
4. Efficacy
3. Design & Development
2. Early-Stage/Exploratory
1. Foundational

(IES & NSF, 2013)

Purposes

Iteratively improve the innovation's design; so its promise for impact

Advance collective understandings about teaching and learning

Research and Evaluation

Research *& Development*

6. Scale-up
5. Effectiveness
4. Efficacy
3. Design & Development
2. Early-Stage/Exploratory
1. Foundational

(IES & NSF, 2013)

Purposes

Development

NSF *Broader Impacts*

Research

NSF *Intellectual Merit*

Research and Evaluation

Research *& Development*

6. Scale-up
5. Effectiveness
4. Efficacy
3. Design & Development
2. Early-Stage/Exploratory
1. Foundational

(IES & NSF, 2013)

Purposes

EERS 2016

Improving Outcomes

EERS 2016

Building Knowledge

Implications

So, why should you care?

- Common Guidelines R&D orientation is now required by some for STEM education grant proposals
- Potentially referenced by other US ED grant proposal RFPs
- Provides a useful framework for other research and development projects/proposals

Implications

So, why should you care?

- Legitimizes foundational, exploratory, and design and development as *research*
- Design and Development Research arguably has the most to offer in the real world
- Establishes common distinctions among types of impact study – efficacy, effectiveness, and scale-up

Note: The What Works Clearinghouse

Implications

So, why should you care?

- Good Methodology – Impact study of an under-developed innovation is as dumb as case studies to prove that an innovation works
- Bears on project budgets (e.g., 5-10% versus 25-80% of total funding)
- Proposal effort for R&D research study is much greater than for an external evaluation

Those "different" 2015 NSF proposals

Implications

Development	Research
Internal PI	
Internal PI	Internal Co-PI
Internal Co-PI	Internal PI
Internal PI	External Co-PI
External Co-PI	Internal PI

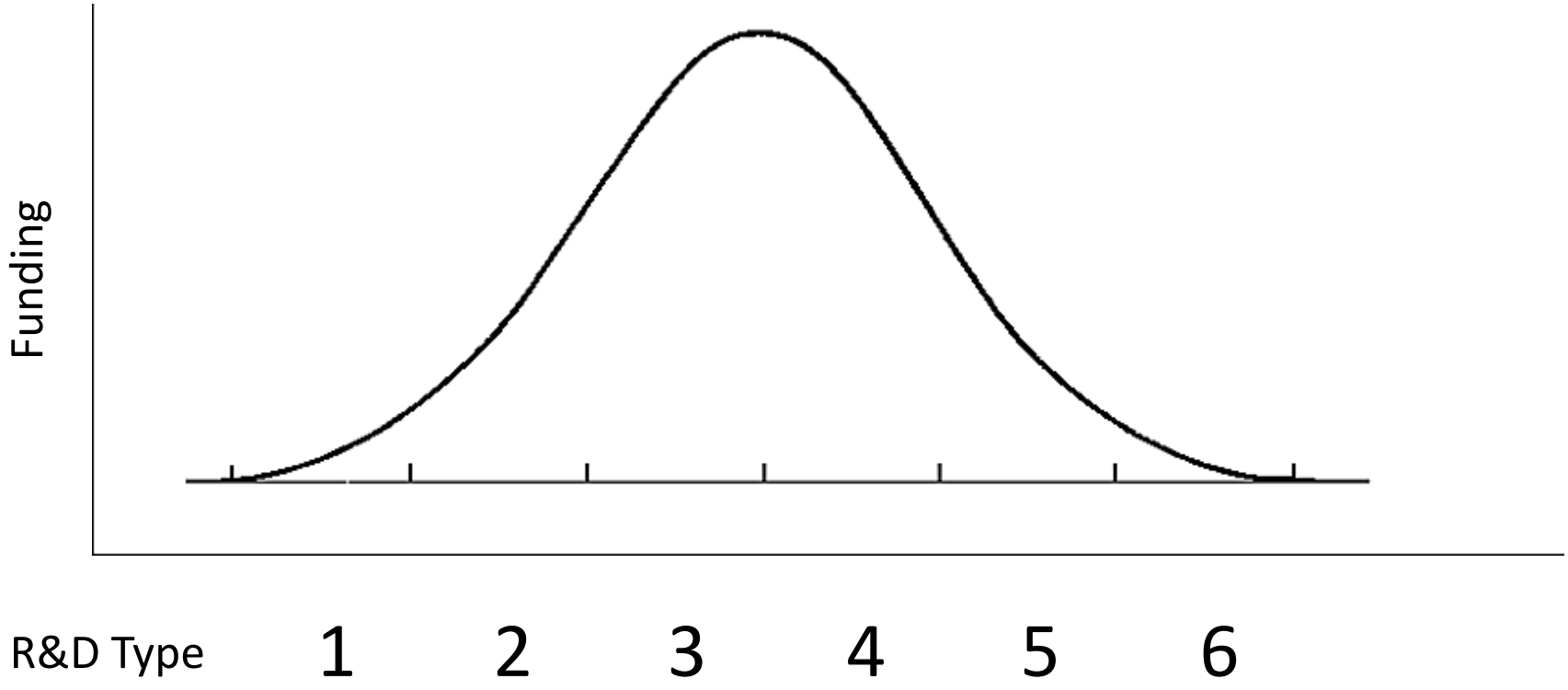
"Internal" vs. "external" relative to grantee

Implications

Development	Research
Internal PI	
Internal PI	Internal Co-PI
Internal Co-PI	Internal PI
Internal PI	External Co-PI
External Co-PI	Internal PI

Implications

Commitment of Education R&D Funding



Implications

Unresolved Issues

- This R&D orientation is still very new in the context of education
- Some have a vested interest in not owning the idea of “research”
- Dual research imperatives of **improving design** and **advancing understandings** might require different skills or people

So, what’s next…?

A Unified Model? Option 1

I. **Research & Development** (R&D)
   A. Iteratively improve the innovation's design (Development)
   B. Advance collective understandings (Research)

II. **Program Evaluation** (External)
   A. Assess implementation of R&D activities
   B. Assess results of R&D activities

A Unified Model? Option 2

I. **Research & Development** (R&D)
   A. Design the innovation
   B. Study the design
      A. Inform improvement of the design (Development)
      B. Advance understandings of learning (Research)

II. **Program Evaluation** (External)
   A. Assess implementation of R&D activities
   B. Assess results of R&D activities

A Unified Model…?

The proposed integrated approach simply adds program evaluation of the R&D activities…

R&D: Common Guidelines

Organization – *For all R&D Types 1-6*

- Purpose
- Justification Guidelines
- Guidelines for Evidence to be Produced
- Guidelines for External Feedback Plans

Go to eers.org, Conference Materials

R&D: WWC Standards

Quality Standards – *Impact R&D Types 4-6*

- Study Design
- Sample Attrition
- Baseline Equivalence

  - Meets WWC standards without reservations
  - Meets WWC standards with reservations
  - Does not meet WWC standards

Evaluation: Research & Development

Focusing on Design and Development Research

- Hezel Associates Framework for Evaluating Design & Development Research
- Evidence Framework for Design Based Implementation Research

A Unified Model…?

Time to apply these tools to real examples…

A Unified Model…?

There is no one right way to do this; just try to do it better…

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