IES 2022 Summer Training Institute
Session 2

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Session 2

Describe, Operationalize & Register Outcomes

Outcomes

- Levels of evidence
- Definition
- Operationalization
- Registration

STRAIGHT TALK ON EVIDENCE

Not Accurately Reported

Newly-published study of federal Job Corps program inaccurately claims to demonstrate term positive effects

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Highlights:

- We discuss newly-published long-term findings from a randomized controlled trial (RCT federal Job Corps program, the nation's largest residential career training program for at-
- We believe this was a well-conducted RCT that, unfortunately, selectively reported its ma the study abstract. The abstract is very important; for busy readers who do not purchase a

Outcomes Definition & Operationalization

◈ Constructs from the logic/theory building exercise

◈ What:

    ◈ target outcomes

    ◈ domain grouping

    ◈ level of evidence classification

    ◈ proximal/mediating variables

    ◈ explanatory/control variables

    ◈ subgroup indicators

    ◈ unintended consequences

    ◈ data source

◈ When:

    ◈ baseline, short-term, longer term

Basic Measurement Concepts

- <u>Validity</u> = measures the intended construct (typically correlated with established measures)
- <u>Reliability</u> = measures accurately (internal consistency, test-retest correlation)

Illustrative Example: RQs

Three years out...
1. What impacts do HPOG programs have on the outcomes of participants and their families?
2. To what extent do impacts vary across selected subpopulations?

Follow-up time	Outcome Domains		
	Educational Progress	Healthcare Employment (Labor Market)	Earnings
Short-term (15-18 months)	Completion of or ongoing enrollment in training[S]	Current or most recent job is in the healthcare sector[S]	Average quarterly earnings in the 5th follow-up quarter[N]
Intermediate-term (three-year)	Completion of training[S]	Current or most recent job is in the healthcare sector[S]	Average quarterly earnings over the 12th and 13th follow-up quarters[N]
Long-term (six-year)	Receipt of a postsecondary credential requiring a year or more of training[S]	Currently employed in a healthcare occupation[C]	Average quarterly earnings over the 23rd and 24th follow-up quarters[N]
Evolution of Measures	Over time, the educational progress measure indicates a rising bar for what constitutes success.	After six years, the addition of healthcare employment as confirmatory reflects HPOG's goal to meet local demand for healthcare workers.	In the short-term, job training programs don't expect earnings gains (because participants are out of the labor market for training). After three years, earnings is a clear indicator of HPOG's success.

Notes: ■ Outcomes designated as confirmatory at the given follow-up time. ■ Outcomes designated as secondary at the given follow-up time.

Data source for each outcome is indicated as follows:

[S] Survey, whether the short-term, three-year, or six-year participant follow-up survey.

[N] Administrative data from the National Directory of New Hires.

[C] Classification by Census Bureau staff of survey-reported occupation.

Sources: Peck et al. (2018), Peck et al. (2019), Litwok et al. (2021).

HPOG's Outcome Domains

Confirmatory & Secondary

◈ Educational progress

◈ Employment

◈ Earnings

◈ Job quality

◈ Career progress

◈ 21st century skills

◈ Public assistance benefits

◈ Financial hardship

HPOG's Outcome Domains

Confirmatory & Secondary

◈ **Educational progress**

◈ **Employment**

◈ **Earnings**

◈ Job quality

◈ Career progress

◈ 21st century skills

◈ Public assistance benefits

◈ Financial hardship

Exploratory

◈ Barriers to employment

◈ Economic status

◈ Psychological well-being

◈ Education-related goals and support

◈ Child development and well-being.

These decisions informed by the program logic model

Outcomes Definition & Operationalization

◇ Operationalization involves the concrete measurement details, given the data, and decisions about transforming those data to construct the outcome, such as…

Domain	Level & Definition	Operationalization Details	Data Source(s)
Educational progress	Confirmatory: Training completion	Binary variable with value 1 if one or more of the following are true in either the short-term or three-year survey: • Completed a degree (associate's or higher) since randomization • Completed a professional, state, or industry certificate, license, or credential since randomization • Completed a diploma or certificate for completing regular college classes since randomization • Received a diploma or certificate from a school for completing vocational training since randomization Value 0 if each of the previous items is false Missing otherwise Note: The names of reported credentials will be manually examined, and only those that reflect completion of training will be considered for this outcome[a]	Short-Term Survey: Q25a, Q25b Three-Year Survey: I2, I3, I3d, I3e
Earnings	Confirmatory: Average quarterly earnings over follow-up quarters 12-13	Continuous variable measuring average earnings in the 12th and 13th quarters after the quarter containing random assignment Value 0 if no earnings during either quarter Missing otherwise	NDNH

Activity: Define & Operationalize an Outcome

With your given intervention in mind...

◈ Define

  ◈ At least two domains

  ◈ At least one confirmatory outcome and one secondary outcome within one of those domains

◈ Operationalize

  ◈ Detail the construction, given a likely data source, of one of those outcomes

◈ Explain

  ◈ Validity

  ◈ Reliability

  ◈ Strengths

  ◈ Limitations

Be prepared to share your example

Registration

- Registry of Efficacy and Effectiveness Studies (REES)
  - "database of causal inference studies in education and related fields"
  - "designed to increase transparency of and access to information about both ongoing and completed efficacy and effectiveness studies"
  - https://sreereg.icpsr.umich.edu/sreereg/

- Open Science Framework (OSF)
  - The OSF aims "to help researchers conduct research more rigorously, and manage and share their work more openly."
  - https://www.cos.io/
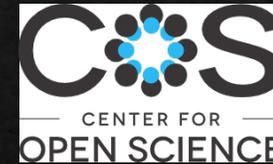
- Experiment.com
  - "an online platform for funding and sharing scientific discoveries. Push the boundaries of knowledge in biology, chemistry, medicine, physics, computer science, paleontology, economics, engineering, neuroscience, and more. For Science!"

Questions?