Collecting High Quality Outcome Data: Part 1
Learning Objectives

By the end of this module, you will be able to:

• Recognize the benefits of collecting high-quality data
• Use theory of change to think about measurement
• Identify and evaluate merits of data sources and instruments
• Describe some uses of data collection methods, and evaluate their merits
Module Overview

- Determining what information is needed: Theory of change as a guide to measurement
- Collecting data that answers the measurement question: Data source, method, instrument
- Summary of key points; additional resources

A note about terminology: Programs and projects are used interchangeably.
What Do We Mean By Data?

- Data: Information collected to answer a measurement question, also known as evidence
- Data collection occurs as a planned process that involves recording information in a consistent way
- Instruments aid in collecting consistent data
Ensuring Data Quality: Reliability, Validity, Bias

- **Reliability** is the ability of a method or instrument to yield consistent results under the same conditions.

- **Validity** is the ability of a method or instrument to measure accurately.

- **Bias** involves systematic distortion of results stemming from how data are collected and how instruments are designed.
Benefits of Collecting High-quality Data

- Sound basis for decision making
- Improve service quality and service outcomes
- Increase accountability
- Tell story of program achievements
Theory of Change – Review

- Cause-and-effect relationship between a community problem/need and an outcome intended using a specific intervention
- A program or project’s theory of change identifies the outcome that will be measured to gauge the success of the intervention in meeting the community problem/need

Evidence
- Guides choice of intervention
- Supports cause-effect relationship
Measurement Question Implied by Theory of Change

Community Problem/Need
Students with poor attitudes towards school at risk of failing academically.

Specific Intervention
Individualized mentoring to promote positive attitudes towards school.

Intended Outcome
Students improve attitudes towards school.

"Did students in the mentoring program improve their attitudes towards school?"
"Did individuals who attended info sessions become more interested in volunteering?"

"Did children in the fitness program improve exercise habits?"

"Did students in the literacy tutoring program improve reading skills?"

"Did capacity building activities allow our organization to recruit more volunteers?"
Identifying a Data Source

- Data source: The person, group or organization that has information to answer the measurement question
  - Identify possible data sources; list pros and cons of each
  - Identify a preferred data source; consider its accessibility
  - Alternative data sources: consider if they can give you same or comparable data
Data source and type of outcome

Depends partly on the type of change you want to measure - attitude, knowledge, behavior, or conditions.

- Data on changes in attitudes or knowledge usually come directly from persons experiencing these changes.
- Data on changes in behavior or conditions can come from either persons experiencing these changes or from other observers.
“How did mentored students’ feelings towards teachers change over time?”

<table>
<thead>
<tr>
<th></th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>• In best position to describe how they feel about their teachers</td>
<td>• May not be open about their feelings towards teachers</td>
</tr>
<tr>
<td>Teachers</td>
<td>• May know how students feel towards them</td>
<td>• May not know how students feel about other teachers</td>
</tr>
<tr>
<td>Mentors</td>
<td>• May know how students feel about a wide range of issues, including teachers</td>
<td>• Depends on students’ willingness to share feelings with mentors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students and mentors may not discuss this issue much</td>
</tr>
</tbody>
</table>
Next, Consider Choice of Methods

<table>
<thead>
<tr>
<th>Method: Process or Steps Taken to Systematically Collect Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey</strong></td>
</tr>
<tr>
<td>Written questionnaire completed by respondent</td>
</tr>
<tr>
<td><strong>Interview</strong></td>
</tr>
<tr>
<td>Interviewer poses questions and records responses; face-to-face or via telephone</td>
</tr>
<tr>
<td><strong>Observation</strong></td>
</tr>
<tr>
<td>Observer records behavior or conditions using via checklist or other form</td>
</tr>
<tr>
<td><strong>Standardized Test</strong></td>
</tr>
<tr>
<td>Used to assess knowledge of academic subjects (reading, math, etc.)</td>
</tr>
</tbody>
</table>
Consider Choice of Methods (continued)

<table>
<thead>
<tr>
<th>Method: Process or Steps Taken to Systematically Collect Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tracking Sheet</strong></td>
</tr>
<tr>
<td><strong>Focus Group</strong></td>
</tr>
<tr>
<td><strong>Diaries, Journals</strong></td>
</tr>
<tr>
<td><strong>Secondary Data</strong></td>
</tr>
</tbody>
</table>
## Consider Feasibility of Methods

### Method: Ease/Difficulty of Use, Data Analysis

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>May be difficult to find or create; very easy to use and analyze</td>
</tr>
<tr>
<td>Interview/Observation</td>
<td>Requires trained, skilled personnel; can provide data that cannot be gathered through surveys</td>
</tr>
<tr>
<td>Tracking Sheet</td>
<td>Easy to develop and use; may not be completed consistently</td>
</tr>
<tr>
<td>Focus Group</td>
<td>Difficult to implement; generates large volume of qualitative data that are difficult to summarize</td>
</tr>
<tr>
<td>Diaries, Journals</td>
<td>Require commitment on the part of subjects; data can be challenging to interpret and analyze</td>
</tr>
</tbody>
</table>
## Method and Outcomes Type—Attitude and Knowledge

<table>
<thead>
<tr>
<th>Attitude/Belief</th>
<th>Knowledge/Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>Thoughts, feelings</td>
<td>Understanding, know-how</td>
</tr>
<tr>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td>Attachment to school (academic engagement)</td>
<td>Becoming a better reader</td>
</tr>
<tr>
<td>Generally Preferred Data Source/Method</td>
<td></td>
</tr>
<tr>
<td>Student: Survey or interview</td>
<td>Learner: Standardized test*</td>
</tr>
</tbody>
</table>

* Use of standardized tests is mandated for certain performance measures in the Education Focus Area. Other types of knowledge (e.g., financial literacy) can be measured using other types methods.
# Method and outcome type—behavior and condition

<table>
<thead>
<tr>
<th>Definition</th>
<th>Behavior</th>
<th>Condition/Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action, conduct, habits</td>
<td>Exercising more frequently</td>
<td>Situation or circumstances</td>
</tr>
<tr>
<td>Beneficiary: Exercise log</td>
<td>Improving stream banks</td>
<td>Land manager: Observation checklist or rubric</td>
</tr>
</tbody>
</table>

**Behavior**
- **Definition**: Action, conduct, habits
- **Examples**: Exercising more frequently
- **Preferred Data Source/Method**: Beneficiary: Exercise log

**Condition/Status**
- **Definition**: Situation or circumstances
Where to Find Instruments

- For CNCS priorities and performance measures, look for instruments by goal and focus area
  - Go to https://www.nationalserviceresources.org/npm/home
  - Programs and projects can look anywhere they like to find instruments:
    - Use Internet search engines
    - Talk to others within your professional network to find out what they are using
    - Look at evidence for intervention – how measured before?
Evaluating Instruments

- Pre-post measurement is preferable to post-only

- Can the instrument measure the outcome?
  - Appropriate for your intervention?
  - Appropriate for your beneficiaries?
  - How many questions measure the outcome?
    - Single question → low-quality data
    - Series of questions: Too long or complex?
    - Instrument should not exceed 2 pages
  - Do questions cover all relevant aspects of your intervention? Can questions not specific to your intervention be removed?
Define Outcome Dimensions

Outcome Dimensions: The main aspects, features, or characteristics that define an outcome and that should be taken into account for measurement to be valid.

Example: Increased attachment to school:
- Feelings about being in school
- Feelings about doing school work
- Feelings towards teachers
- Feelings towards students
Outcomes Often Consist of Multiple Dimensions

- Transitioned to housing: Safe, healthy, affordable housing (O11)
- Increased physical exercise: Frequency, intensity, duration of exercise
- Increased attachment to school: Feelings about being in school and doing school work, feelings towards teachers and students (ED27)
Example: Dimensions of Attachment to School

<table>
<thead>
<tr>
<th></th>
<th>Feelings about being in school</th>
<th>Feelings about doing school work</th>
<th>Relations with other students</th>
<th>Relations with teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I like school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Most mornings I look forward to going to school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>I work hard at school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>I care if my homework is done correctly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I get along well with the other students in school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>I am liked by my classmates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>I get along with most of my teachers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>I want to be respected by my teachers.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Collecting High Quality Outcome Data: Part 1

Summary: Identifying Outcome Dimensions

- National performance measures: look at performance measurement instructions
- Look at your theory of change
- Talk to stakeholders and program staff
- Build up a list of dimensions; look for repeated themes

Community Problem/Need → Specific Intervention → Intended Outcome

Evidence
- Guides choice of intervention
- Supports cause-effect relationship
Instrument Design Issues

- Crowded layout
- Double-barreled questions
- Biased or “leading” questions
- Questions that are too abstract
- Questions that use unstructured responses inappropriately
- Response options that overlap or contain gaps
- Unbalanced scales
Problem: Crowded layout
Most of the time, how do you feel about doing homework?
☐ I usually hate doing homework  ☐ I usually don’t like doing homework  ☐ I usually like doing homework  ☐ I usually love doing homework

Solution: Don’t use crowded layouts
Most of the time, how do you feel about doing homework?
☐ I usually hate doing homework
☐ I usually don’t like doing homework
☐ I usually like doing homework
☐ I usually love doing homework
Double-barreled Question

Problem: Asking two questions in one
How do teachers and students at your school feel about the mentoring program?

<table>
<thead>
<tr>
<th>They strongly like it</th>
<th>They like it</th>
<th>They are undecided</th>
<th>They dislike it</th>
<th>They strongly dislike it</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Solution: Break out questions separately
How do teachers at your school feel about the mentoring program?

<table>
<thead>
<tr>
<th>They strongly like it</th>
<th>They like it</th>
<th>They are undecided</th>
<th>They dislike it</th>
<th>They strongly dislike it</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

How do students at your school feel about the mentoring program?

<table>
<thead>
<tr>
<th>They strongly like it</th>
<th>They like it</th>
<th>They are undecided</th>
<th>They dislike it</th>
<th>They strongly dislike it</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Problem: Biased or “leading” questions
Has the mentoring program improved how you feel about going to school?
☐ Yes
☐ No
☐ No opinion

Solution: Use neutral questions
How has the mentoring program affected how you feel about going to school?
☐ I feel better about going to school.
☐ I feel worse about going to school.
☐ I feel about the same about going to school.
☐ No opinion
Abstract or Broad Question

**Problem:** Questions are too abstract or broad.

Did you enjoy the mentoring program?

- □ Yes
- □ No
- □ Not Sure

**Solution:** Make questions more concrete and specific.

Would you recommend the mentoring program to other students?

- □ Yes
- □ No
- □ Not Sure
Problem: Using unstructured responses when structured responses are appropriate

How much do your grades matter to you?

Solution: Provide structured responses when appropriate

How much do your grades matter to you?

☐ Not at all
☐ A little
☐ Somewhat
☐ A lot
Response Options with Overlaps or Gaps

Problem: Response options that overlap or contain gaps

Approximately how many hours a day do you typically spend doing homework?
☐ Less than 1 hour
☐ 0 to 2 hours
☐ 4 to 5 hours
☐ More than 5 hours

Solution: Scale with no overlaps or gaps

Approximately how many hours a day do you typically spend doing homework?
☐ Less than 1 hour
☐ About 1 hour
☐ About 2 hours
☐ About 3 hours
☐ About 4 hours
☐ More than 4 hours
### Unbalanced scales

#### Problem: Using unbalanced scales

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### Solution: Use balanced scales

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
What else to look for in selecting an instrument

- Can the instrument work in your context?
- Does the instrument use simple and clear language?
- Is the instrument appropriate for the age, education, literacy, and language preferences of respondents?
What else to look for in selecting an instrument, continued

- Does the instrument rely mostly on multiple choice questions?
- Is the ready for use, or does it need to be modified?
- How will you extract information from the instrument to address performance measurement targets?
Summary of key points

• The benefits of collecting high-quality data include providing a sound basis for decision making, improving service quality and outcomes, increasing accountability, and telling your story in a more compelling way.

• Your theory of change, and the key measurement question embedded in it, is a useful a guide to measurement.

• The type of outcome to be measured influences decisions about data sources, methods, and instruments.
Summary of key points

• Knowing the pros and cons of a data sources is helpful for choosing one and for designing an appropriate measurement process.

• CNCS provides sample instruments for most national performance measures. In addition, programs are permitted to look anywhere to find instruments that meet their needs.

• High-quality outcome measurement often requires using an instrument that can capture multiple dimensions of the outcome. Instruments should also be free from other design problems.
Collecting High Quality Outcome Data: Part 1

Additional resources

• CNCS Performance Measurement
  o https://www.nationalserviceresources.org/npm/home

• Instrument Formatting Checklist

• Practicum Materials
  o http://www.nationalservice.gov/resources/npm/core-curriculum