...But How Do We Know? (Part I)

RILS Day 1, 3:30 - 4:30 p.m. Session

Portsmouth, NH
Outcomes and the Steps to Get There
Outcomes and the Steps to Get There

To catch a mouse...

We know the outcome, but do we know the steps to get there?

If we know the steps, do we know if the steps are working?
Consider the following Problems

Problem 1
Unfinished Learning/Gaps in Content Knowledge

Problem 2
Students are Disengaged and Feel Emotionally Exhausted

Problem 3
Insufficient Information to Inform Instructional Response

- Why is this problem occurring? What are some root causes of it?
- What might be a potential solution to this problem? How would you implement it?
- How do you know if you’re making progress on this problem?
Attacking the Problem

Please visit the following link: Problem Exploration Sheet

1. Select a problem from the list (or create your own if you’re feeling ambitious!)
2. Specify why this problem is occurring
3. Identify a potential (and plausible) solution as to how you may want to address the problem
4. Identify pieces of evidence or information that help inform whether you’re making progress in addressing your problem of practice

We will return to this problem and solution tomorrow...
Consider the following Problems

https://tinyurl.com/nhecpaxf
Consider the following Problems

**Problem 1**
Unfinished Learning/Gaps in Content Knowledge

**Problem 2**
Students are Disengaged and Feel Emotionally Exhausted

**Problem 3**
Insufficient Information to Inform Instructional Response

- Why is this problem occurring? What are some root causes of it?
- What might be a potential solution to this problem? How would you implement it?
- How do you know if you’re making progress on this problem?
From Problems to Solutions

How do you know if a solution is working?

There are two big ideas:

Continuous Improvement

*How do we make it work better?*

Understanding Outcomes

*Did it work?*
Setting the Stage for Tomorrow

• Formative vs. summative evaluation? What’s the difference and why does it matter?

• Tomorrow’s Focus
  ▪ How to examine what works
  ▪ Consider a process to build a useful and robust evaluation plan
  ▪ Group work: Developing the beginnings of an evaluation plan

• But First...
What is the difference between formative assessment and formative evaluation?

Type your answer and submit it in the jamboard below:

https://tinyurl.com/6erzkbpj
Table Question (Independent Work!)

What is the difference between formative assessment and formative evaluation?

Type your answer and submit it in the jamboard below:

https://tinyurl.com/6erzkbpj

Do any responses stand out to you?
Are there any with which you might disagree or wish to revise?
A Primer on Evaluation
What is Program Evaluation?
What is Program Evaluation?

Program evaluation is a systematic method for collecting, analyzing, and using information to answer questions about projects, policies and programs, particularly about their effectiveness and efficiency.
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Three questions to consider...

1. Can we generalize our findings?
2. Are we meant to generalize findings?
3. Do findings serve our intended uses?
Program Evaluation: Evidence of a TOA

Program evaluation is a systematic method for collecting, analyzing, and using information to answer questions about projects, policies and programs, particularly about their effectiveness and efficiency.

| Formative Evaluation | Summative Evaluation |

What’s the distinction?
Program Evaluation: Evidence of a TOA

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What’s the distinction?
Program Evaluation: Evidence of a TOA

Program evaluation is a systematic method for collecting, analyzing, and using information to answer questions about projects, policies and programs, particularly about their effectiveness and efficiency.

How formative and summative evaluation are thought of from the outside (also looking at you, assessment)...

nciea.org
Program Evaluation: Evidence of a TOA

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How formative and summative evaluation actually work...
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The distinction: It’s about the intended use of the information.
Program Evaluation: Evidence of a TOA

Before we adjourn...
Program Evaluation: Evidence of a TOA

Before we adjourn...

3:30 How Do We Know If Recovery Strategies Are Working?
Day 1 Evaluation Activity
Juan D’Brot, Center for Assessment
Chris Brandt, Center for Assessment
Scott Marion, Center for Assessment

4:30 Adjourn Day One

Friday, September 23

9:00 Monitoring Progress: But how do you know?
Supplemental Reading
Day 2 Activity Graphic Organizer
Juan D’Brot, Center for Assessment
Chris Brandt, Center for Assessment
Program Evaluation: Evidence of a TOA

Before we adjourn...

Theory of Action, Logic Model, & Evaluation Design Template

This resource is designed to help states develop theories of action to specify how a program or initiative will promote student-centered learning initiatives.

What is a theory of action?

A theory of action is a hypothesis about how a system produces desired outcomes. At a minimum, a theory of action should have three parts: (1) desired outcomes, (2) resources or inputs, and (3) mechanisms – also known as the activities and outputs - that are expected to produce the desired outputs and outcomes. Each one of these parts can be partitioned further or labeled differently. For example, a theory of action might partition desired outcomes into shorter-term and longer-term outcomes. Or it might make a distinction between “outcomes” and “goals” or between “outcomes” and “impacts.” Some theories of action separate inputs into (human) agents and (material) resources. Similarly, a theory of action focusing on a particular strategy for achieving the desired outcomes might label its mechanisms as “strategies” or “actions.”

These variations do not change the basic structure of a theory of action. However, they result in varying foci and degrees of specificity in different theories of action.

What is the role of assessment in a theory of action?

Outside the theory of action. Assessment program sponsors often develop theories of action to situate the role of assessment in an educational system. In most systems, assessments play a dual role. The first, most essential role is to ascertain that specific desired outcomes have come about – for example, that students have reached proficiency on academic content standards. In an important sense, this “evidentiary” role places assessment outside the theory of action. Here, the assessment is part of an evidence model for testing the theory of action. For example, a state’s end-of-year summative assessment is often used as the primary long-term outcome measure of student proficiency in a theory of action.
One Last Item!

Please join us here at 5:30 p.m. for our reception featuring heavy hors d'oeuvres and cocktails
...But How do We Know?
Monitoring Educational Progress (Part II)

RILS Day 2, 9:00 - 10:30 a.m.
Portsmouth, NH
Program Evaluation: Evidence of a TOA

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The distinction: It’s about the intended use of the information.
Evaluation is Context Dependent

• Why is this relevant for the Center for Assessment?
  ▪ Implementing an assessment system or assessment is akin to implementing a program
  ▪ Context defines the intended purpose or use
  ▪ The intended used defines the evidence needed

• Consider the Program Evaluation Standards (JCSEE, 2014)
  ▪ Utility: Are stakeholders’ needs met?
  ▪ Feasibility: Can it be done effectively and efficiently?
  ▪ Propriety: Is it proper, fair, legal, right, and just?
  ▪ Accuracy: Are the findings dependable and truthful?
Evaluation is Context Dependent

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Assessment Depends on Purposes and Uses

• What are some purposes and uses for assessment information?
  - Diagnosis
  - Formative assessment
  - Progress monitoring
  - Evaluation
  - Prediction

- Evaluation, physical therapy, and sports
  - Bad shoulder
  - Initial diagnosis
  - Physical therapy
  - Formative assessment
  - End of session
  - Progress monitoring
  - Can I run my race
  - Final evaluation
  - Should I change my routine?
  - Changing the curriculum
Assessment Depends on Purposes and Uses

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  ▪ Bad shoulder 🔄 initial diagnosis
  ▪ Physical therapy ← formative assessment
  ▪ End of session 🔄 progress monitoring
  ▪ Can I run my race 🔄 final evaluation
  ▪ Should I change my routine? 🔄 changing the curriculum
Brainstorming Evidence Types

Moving from assessment to evaluation

- Also depends on your purpose
- Also depends on how you want to use it

Recall the following types of evaluation:

- **Formative** - to improve the design, development, or implementation of a program or effort
- **Summative** - to make a retrospective judgment about a program or effort
Brainstorming Evidence Types

Consider the following data elements in the jamboard: https://tinyurl.com/vwsj6d26
Discuss them at your table and categorize them as more summative or more formative.

Rules:

1. Work in tables. Think of it as a team-building activity :)
2. Work fast! You only get to move a post-it once!
3. If you disagree with its position, you can change its color, but not its position!
4. We will discuss findings in about 5 minutes.
So how *will* we know? Unpacking the steps in the improvement process
Leveraging the Altitude Model (Perspective)

30,000 Feet 
The Why
(Purpose)

15,000 Feet
(or 10k, or 14k)
The What
(Priorities)

Ground Level 
The How
(Plan)
Framing the Improvement Cycle: Programs

Three Core Questions of Continuous Improvement
(Bryk, 2015)

1. **Goal:** What specifically are we trying to accomplish?

2. **Program or Theory:** What change might we introduce and why?

3. **Evaluation:** How will we know that a change is actually an improvement?
Evaluation Requires A Clear Problem

Specifying the Goal
Text about goal

Defining the Problem Statement
The problem defines the scope of the program

Identifying the Targets
Targets illuminate the population you’re interested in

Key Factors to Consider

1. Ultimately, we want to evaluate the outcome.
2. There’s a lot that has to happen before we get to the outcome of “accelerating student learning.”
3. We need to evaluate of all the steps in between to know if our actions are making a difference (i.e., hitting targets)
The theory of action casts a wide view of the program by specifying relationships between broader improvement strategies and their expected outputs and outcomes.

The logic model draws the logical links and explicit connections between activities, outputs, and outcomes.

The implementation plan builds from the logic model by identifying the actionable components that leverage the knowledge, skill, and will of participants. It can be used to develop assignments, timelines, and who owns what part of the process.
Evaluating the Plan in the Bigger Picture: The Why

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Evaluating the Plan in the Bigger Picture: The Why

We are, in fact, trying to evaluate all of the things in that are included in our bigger picture...

...which is why we need a process.

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Understanding the Evaluation Plan: The What

<table>
<thead>
<tr>
<th></th>
<th>Strategies used</th>
<th>Program resources needed</th>
<th>Implementation fidelity</th>
<th>Progress monitoring data</th>
<th>Determining impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Do you know what strategies were selected?</td>
<td>What resources are needed?</td>
<td>What evidence do you have that these strategies are actually being implemented as intended?</td>
<td>Is the information are you collecting relevant to outcomes?</td>
<td>How do you coherently link all of your evidence?</td>
</tr>
<tr>
<td></td>
<td>Do you know what strategies were enacted?</td>
<td>How these strategies designed to work?</td>
<td></td>
<td>How are you monitoring progress?</td>
<td>Do you have evidence that you’re making an impact?</td>
</tr>
<tr>
<td>02</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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Building an Evaluation 101: The How

• Developing an evaluation plan is a multi-step, recursive process

• It requires a clear understanding of the
  ▪ Problem
  ▪ Program or initiative
  ▪ Intended outcomes
  ▪ Activities of the program or initiative
  ▪ And how everything is linked together

• Logic models are incredibly beneficial to flesh out a theory of action (see blog [here](#))
### Using a Logic Model to Support The How

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<tr>
<th>What is the Activity?</th>
<th>What are the Resources Needed?</th>
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| What is the Activity? | What are the Resources Needed? | What is the (Tangible) Output? | What is the Short-Term Outcome? | What is the Long-Term Outcome? |

Defines the thing we’re doing to support the larger initiative.
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- Defines the thing we’re doing to support the larger initiative
- Defines what we need to get the thing done
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Defines the thing we’re doing to support the larger initiative

Defines what we need to get the thing done

Defines the tangible product that comes from this thing we’re doing
Using a Logic Model to Support The How

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<td>Defines our long-term benefit that helps drive our theory of action</td>
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A Sample Logic Model to Support The How

Theory of Action

Build a Sweet Patio → Have an Outdoor Oasis → Facilitate Good Times with Friends and Family → Better Quality of Life
A Sample Logic Model to Support The How

Theory of Action

Sample Logic Model

<table>
<thead>
<tr>
<th>Activity</th>
<th>Resources/Input</th>
<th>Output</th>
<th>Short-Term Outcome</th>
<th>Long-Term Outcome</th>
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</thead>
<tbody>
<tr>
<td>Design space</td>
<td>Creative planning; Brain, paper, pencil</td>
<td>A design</td>
<td>Model to align to</td>
<td>Patio design finished</td>
</tr>
<tr>
<td>Mark space</td>
<td>Measurement skills, tools, rope, stakes</td>
<td>Stakes and outline</td>
<td>Marked-off space</td>
<td>Patio project foundation complete</td>
</tr>
<tr>
<td>Dig and level hole</td>
<td>Shovel, level, rope, a strong back</td>
<td>A hole</td>
<td>A level hole on which to lay</td>
<td>Patio space ready</td>
</tr>
<tr>
<td>Lay down paver gravel and sand</td>
<td>Paver gravel, level, rebar, paver sand, 2x4, a sense of balance</td>
<td>Paver gravel and sand on ground</td>
<td>Leveled sand to support pavers on a packed surface</td>
<td>Patio foundation complete</td>
</tr>
<tr>
<td>Lay down paver bricks and organize</td>
<td>Paver bricks (lots of bricks), mallet</td>
<td>Paver bricks on sand</td>
<td>A level and well-laid-out patio</td>
<td>Patio structure complete</td>
</tr>
<tr>
<td>Fill with polymeric sand and seal stone</td>
<td>Polymeric sand, broom, sealant</td>
<td>Sand and sealant applied</td>
<td>A locked and sealed patio</td>
<td>Sweet patio completed</td>
</tr>
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Continuous Improvement Model

State or District-Level
- Specify the goal
- Define the problem statement
- Identify the target
  (who is this about?)
- Develop the theory of action
- Refine
- Refine, develop, & expand
- Refine, develop, & expand measures to the theory
- Determine the quality of each measure
- Refine & adjust

School or Classroom-Level
- Test the innovation
- Measure the outcomes
- Adapt or Abandon
- Plan
- Study
- Do
- Scale Up

Monitor Progress and Refine Practices

PDSA Cycles
Iterative Cycles
Reach Sustainable Results
Implementing and Improving a Program

Exactly how do we go about evaluating all of this stuff?
# Evaluation 101: The How

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<td>3 Develop the theory of action; build out the program &quot;logic&quot;</td>
<td>Develop a logic model to identify resources, outputs, and outcomes.</td>
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<td>4 Connect evidence (measures) to the program logic</td>
<td>How will we measure inputs, outputs, and outcomes? What evidence connects to what outcome(s)?</td>
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<tr>
<td>6 Collect data and determine evidence quality</td>
<td>Are data (1) Complete (2) Consistent (3) Practical (4) Impactful (5) Coherent? (see D’Brot, Landl, Domalesski, &amp; Brant, 2020)</td>
</tr>
<tr>
<td>7 Analyze and build a data story</td>
<td>Connect the dots between the activities, evidence, and larger theory of action. Rely on local PDSA cycles and study the variation (why is it occurring?)</td>
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<td>8 Tell the story</td>
<td>Document and communicate the results.</td>
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<td>9 Make changes</td>
<td>Adjust the program or initiative to improve how you are attacking the problem.</td>
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Formative Assessment Practices (Furtak, et. al, 2016)

Theory of Action

- Teachers Explore Student Conceptions
- Design & Practice FA Tasks
- Enact & Reflect on FA Tasks
- Student Learning Improves
Formative Assessment Practices (Furtak, et. al, 2016)

Theory of Action

Teachers Explore Student Conceptions → Design & Practice FA Tasks → Enact & Reflect on FA Tasks → Student Learning Improves

Activities
(some but not all...)
## Sample Logic Model

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<th>Activities</th>
<th>Outputs</th>
<th>ST Outcomes</th>
<th>LT Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified Facilitator, Learning Progressions</td>
<td>Explore student ideas &amp; teacher understandings about concepts taught.</td>
<td>Clearer representations about how concepts develop</td>
<td>Deeper content expertise</td>
<td>• Improved engagement</td>
</tr>
<tr>
<td>Design templates</td>
<td>Design FA tasks</td>
<td>Quality of formative assessment task design</td>
<td>Improved lesson plans; pedagogy</td>
<td>• Deeper learning</td>
</tr>
<tr>
<td>Content experts, teacher teams, tasks</td>
<td>Practice using FA tasks</td>
<td>Quality of questions to elicit student thinking</td>
<td>Improved use of FA practices</td>
<td></td>
</tr>
<tr>
<td>Video, trained observer</td>
<td>Enact FA tasks</td>
<td>Quality interpretation of student ideas and feedback</td>
<td>Improved use of FA practices</td>
<td></td>
</tr>
<tr>
<td>Content experts, teacher teams, tasks</td>
<td>Review video; observation summary. Reflect on &amp; update FA tasks</td>
<td>All of the above</td>
<td>Improved pedagogy, instruction across courses taught</td>
<td></td>
</tr>
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# Sample Measurement Plan

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<th>Measure Activities</th>
<th>Outputs</th>
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<tbody>
<tr>
<td>Explore student ideas &amp; teacher understandings</td>
<td>● PD attendance records</td>
<td>Clearer representations about how concepts</td>
<td>● Teacher surveys</td>
</tr>
<tr>
<td>about concepts taught.</td>
<td></td>
<td>develop</td>
<td></td>
</tr>
<tr>
<td>Design FA tasks</td>
<td>● PD attendance records</td>
<td>Quality of formative assessment task design</td>
<td>● FA task ratings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Practice using FA tasks</td>
<td>● PD attendance records</td>
<td>Quality of questions to elicit student thinking</td>
<td>● Videotaped lesson ratings</td>
</tr>
<tr>
<td></td>
<td>● Team meeting logs</td>
<td></td>
<td>● Classroom observation ratings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>○ Quality of questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>○ Quality of instructional FB</td>
</tr>
<tr>
<td>Enact FA tasks</td>
<td>● Teacher logs</td>
<td>Quality interpretation of student ideas and</td>
<td>● Sorting task</td>
</tr>
<tr>
<td></td>
<td>● Class observations</td>
<td>feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Teacher surveys</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Sample Measurement Plan

<table>
<thead>
<tr>
<th>Short Term Outcomes</th>
<th>Measure Short Term Outcomes</th>
<th>Long Term Outcomes</th>
<th>Measure Long Term Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deeper content expertise</td>
<td>● Content-based assessments</td>
<td>Improved student engagement</td>
<td>● Teacher surveys</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Student surveys</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Parent surveys</td>
</tr>
<tr>
<td>Improved lesson plans; pedagogy</td>
<td>● Lesson plan ratings</td>
<td>Deeper student learning</td>
<td>● Interim assessments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Summative assessments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Performance tasks</td>
</tr>
<tr>
<td>Improved use of FA practices</td>
<td>● Class observations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Walkthrough ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Teacher surveys, logs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved use of FA practices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved pedagogy</td>
<td>● Class observations</td>
<td></td>
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<tr>
<td></td>
<td>● Walkthrough ratings</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>● Teacher surveys, logs</td>
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</tbody>
</table>
## Evaluation 101: The How

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Specify the goal and problem statement</td>
<td>It must be attached to the ToA (e.g., evaluate the impact of acceleration strategies).</td>
</tr>
<tr>
<td>2 Identify the target</td>
<td>Who is dealing with the problem and how? Specificity is key!</td>
</tr>
<tr>
<td>3 Develop the theory of action; build out the program &quot;logic&quot;</td>
<td>Develop a logic model to identify resources, outputs, and outcomes.</td>
</tr>
<tr>
<td>4 Connect evidence (measures) to the program logic</td>
<td>How will we measure inputs, outputs, and outcomes? What evidence connects to what outcome(s)?</td>
</tr>
<tr>
<td>6 Collect data and determine evidence quality</td>
<td>Are data (1) Complete (2) Consistent (3) Practical (4) Impactful (5) Coherent? (see D’Brot, Landl, Domaleski, &amp; Brant, 2020)</td>
</tr>
<tr>
<td>7 Analyze and build a data story</td>
<td>Connect the dots between the activities, evidence, and larger theory of action. Rely on local PDSA cycles and study the variation (why is it occurring?)</td>
</tr>
<tr>
<td>8 Tell the story</td>
<td>Document and communicate the results.</td>
</tr>
<tr>
<td>9 Make changes</td>
<td>Adjust the program or initiative to improve how you are attacking the problem.</td>
</tr>
</tbody>
</table>
Activity Slide

Please visit the “logic model builder” here: https://tinyurl.com/yw693xek

1. Revisit the problem of practice from yesterday
2. Review your work
3. Tackle the three steps named previously using the “logic model builder”

Note: The goal is to not have completed a program evaluation design, but to better understand the need for both formative and summative evaluation evidence.
In Closing

- What are your main takeaways about the last two sessions?
- What outstanding questions would be helpful to write about, create resources for, or revisit in a blog?
- We invite everyone to continue to push our thinking to help us help others.