Learning Progressions 101

PowerPoint Slides
to be used in conjunction
with the Facilitator’s Guide
Recommended citation:

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Session Agenda

• Introduction
• Session Goals and Objectives
• Background
• Defining Learning Progressions
• Four Guiding Principles of Learning Progressions
• Summary
• Evaluation
Introduction

• To begin this module, you will respond to 10 statements about learning progressions that we often hear people say.

Anticipation Guide

• The following statements will be addressed throughout the module and revisited at the end of the module in the self-assessment.
Introduction, continued

• Decide whether you: Strongly Disagree (SD), Disagree (D), Agree (A) or Strongly Agree (SA) with each statement, and indicate by putting a check in the corresponding box to the left of the statement.

• As you proceed with the module, make notes (to the right) whether your opinion or understandings have changed and why.
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<th>Statement</th>
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<td>1. Learning progressions are the same as a scope and sequence or curriculum that lists the order of what to teach next.</td>
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<td>2. Big ideas help to frame descriptors in a learning progression.</td>
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<td>3. An example of a big idea would be: learning how to read.</td>
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<td>4. To validate a learning progression, one would consult cognitive research, as well as teacher observations and analysis of student work collected over time after targeted instruction.</td>
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<td>5. Students can use learning progressions as a self-assessment to monitor their own progress.</td>
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<td>6. Learning progressions can be used to diagnose individual students’ strengths and weaknesses.</td>
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### Introduction, continued

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<th>SD</th>
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<td>7. Progress maps, developmental continuums, and learning continuums are qualitatively different from learning progressions.</td>
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<td>8. Other countries have been using research-based learning progressions for many years to guide classroom assessment and instruction.</td>
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<td>9. Learning progressions can guide development of formative assessments and formative uses of assessment data.</td>
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<td>10. Learning progressions describe increasingly more difficult content and skills.</td>
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Session Goal and Objectives

• The goal of this module is to introduce you to the topic of learning progressions and to allow you to explore some of the key differences between learning progressions and more traditional ways of approaching content instruction.
Session Objectives, continued

Objectives: Participants will be able to:

1. Identify learning progressions and distinguish them from curricular progressions and scopes and sequences.

2. Recognize that learning progressions are grounded in cognitive research and validated with action research (teacher observations, student work samples).
3. Identify the four Guiding Principles of learning progressions, including the role of big ideas in framing the progressions and alignment with formative uses of assessment.
Session Objectives, continued

4. Relate at least one classroom use of learning progressions to support student learning (e.g., student self-assessment, progress monitoring, developing formative assessments and pre-assessments, developing curriculum and instruction).
Background

Researchers define learning progressions as:

• "...a picture of the path students typically follow as they learn...a description of skills, understandings, and knowledge in the sequence in which they typically develop" (Forster & Masters, 2003, p.1).

• "descriptions of the successively more sophisticated ways of thinking about an idea that follow one another as students learn" (Wilson & Bertenthal, 2005, p.48).
Background, continued

• "anchored on one end by what is known about the concepts and reasoning of students entering school... [for which] there now is a very extensive research base." At the other end of the learning continuum are "societal expectations (values)" about what society wants students to know and be able to do in the given content area" (Duschl, Schweingruber, & Shouse, 2007, p. 219).
Defining Learning Progressions

• The following short readings introduce us to a way of looking at learning progressions.

Defining, continued

• A detailed explanation of the four principles of learning progressions by Hess is available at http://mast.ecu.edu/modules/lp/lib/documents/CCSSO2_KH08.pdf.
Four Guiding Principles of Learning Progressions

Learning progressions are based on four interrelated guiding principles (Hess, 2008).

1. They are grounded in available research.
2. The big ideas/the "essence" of concepts/processes are the binding threads.
Guiding Principles, continued

3. They may not be linear, but articulate movement toward increased understanding (e.g., deeper, broader, ability to apply or generalize/transfer concepts and skills).

4. They go hand-in-hand with well-designed/aligned assessments.
Guiding Principles, continued

Principle #1: Learning progressions are grounded in research.

Learning progressions are based on the following research principles:

1. What cognitive research tells us about building deeper understanding.

2. What content-specific research tell us about how learning in the content area builds upon earlier skills/concepts.
Guiding Principles, continued

3. What we elicit & learn from ongoing action research through formative assessment use
- Observations (ongoing & systematic)
- Evidence (what's there/what's not there)
- Assessment Tasks (short constructed responses that "uncover" student thinking)
Guiding Principles, continued

Principle #2: The "big ideas" are the binding threads of LPs.

Big Ideas, also called Enduring Understandings, are those concepts and skills that have enduring value beyond a single lesson, unit of study, or a grade level in school.
Guiding Principles, continued

• Enduring Understandings are stated in such a way that they identify why those concepts and skills are important learning.

• Many state content standards often use phrases such as: "understands purposes for reading," or "applies problem solving strategies," or "uses tools to collect data."
Guiding Principles, continued

• Written in this way, these content objectives do not provide the reason (or importance) for learning the related concepts or skills.

• In other words, why are problem solving strategies or use of tools important - or even essential - to learning in a particular content discipline?
Guiding Principles, continued

• More on big ideas...
• Consider this mathematics Big Idea example written as a statement of enduring knowledge: "Transformations and symmetry are used to analyze real-world situations (e.g., art, nature, construction, and scientific exploration).“
Guiding Principles, continued

• This statement identifies why learning about transformations and symmetry is important to mathematics...because one can use this knowledge to analyze real-world situations in art, nature, etc. It also suggests how the concepts transfer across disciplines.
Guiding Principles, continued

• An example: How a big idea frames the learning over time, from foundational skills to later learning over time

• Examine “A Learning Progression for Developing Breadth and Depth of Vocabulary” at http://mast.ecu.edu/modules/lp/lib/documents/chart.pdf and on the following slide.
### A Learning Progression for Developing Breadth and Depth of Vocabulary (Hess, 2008)

#### Early/Foundational Skills for Developing Vocabulary
- Identify vocabulary (pictures, symbols, objects, or words) that demonstrate knowledge of basic pragmatic functions (e.g., social words, asks questions, makes requests)
- Generalize use of pictures, symbols, objects, and actions to identify their meaning
- Use vocabulary to identify objects and events, (e.g. applies vocabulary in variety of settings).

#### Developing & Expanding Skills for Developing Vocabulary
- Expand vocabulary with words related to known words (e.g., words that sound the same, are spelled the same, are in the same category, etc.)
- Use word structure/know parts of words to make sense of the whole word:
  - Word parts (syllables, base words, word roots, affixes)
  - Meanings of word parts
  - Compound words, compound word families (e.g., everyone, everywhere, everything)

#### What Vocabulary Development Skills would come even later in the progression?

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**A sample continuum of skills with a unifying thread - vocabulary development**
Guiding Principles, continued

• Why focus on "Big Ideas" to organize concepts & skills in learning progressions?

• To answer this, use the resources at http://www.specialconnections.ku.edu/cgi-bin/cgiwrap/specconn/main.php?cat=instruction§ion=main&subsection=ss/bigidea

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Think of a particular piece of content that you are very familiar with. How does a focus on "Big Ideas" reshape how your view this content?
Principle #3: LPs may not be linear.

1. LPs are probably not linear (lock-step) but articulate movement toward increased understanding.

2. LPs do not simply describe harder things to learn, they describe breadth, depth, and/or more sophisticated understanding over time.
Guiding Principles, continued

3. As one "thread" of the LP develops it intertwines with learning of other threads. As an understanding of text structure develops in reading, both writing composition skills and reading comprehension also develop.
Guiding Principles, continued

Principle #4: LPs go hand-in-hand with well-designed assessments.

• The next example shows how formative assessments can be designed to elicit a variety of responses along a learning continuum.

• Some students are still using additive reasoning (typically seen in grades 1-3).
Guiding Principles, continued

• Some students are in transition between additive reasoning and using multiplicative reasoning.
• Some students have made the transition to using multiplicative reasoning (typically seen in grades 4-5).
One tricycle has three wheels. How many wheels do 29 tricycles have?

Additive Strategy

Multiplicative Strategy
Farmer Brown donated 7 dozen eggs to the senior center. How many eggs did he donate?

Transitional Multiplicative Strategy
Write an equation to match this picture.

Source: OGAP 2008
Guiding Principles, continued

• How are LPs different from curriculum sequences or scope & sequences?
• Let's continue to think about math instruction. An example of a typical approach to the teaching of mathematics in an early childhood classroom might look like the following:

• [http://www.wicharterschools.org/pages/uploaded_files/Appendix_B_-_Math_Scope_and_Sequence.pdf](http://www.wicharterschools.org/pages/uploaded_files/Appendix_B_-_Math_Scope_and_Sequence.pdf) Link not valid
Guiding Principles, continued

• A curriculum that is shaped by the ideas of a learning progression approaches the same content:
Guiding Principles, continued

• Think back to the four guiding principles presented.
  – How is the curriculum that has been informed by learning progressions different than traditional instruction?
  – How might this benefit children??
  – What are some challenges you see to this approach???
Activity – Four Principles

• Look at the example the early math learning trajectory at

• Individually, create a basic learning progression for a skill or portion of a skill they commonly teach.
Activity – Four Principles, continued

• Once drafted, trade your progressions with those of others.
• Provide feedback on both the suggested progression and instructional tasks.
Summary

• Where are teachers using learning progressions outside of the United States?

• Learning progressions (also called progress maps, learning continuums, developmental continuums, and learning trajectories) actually were first developed and refined outside the United States.
Summary, continued

• Examine how each education department has organized research-based learning continuums to guide teaching and learning:
  1. State of Victoria, Department of Education & Early Childhood Development. Victoria, Australia:
Summary, continued

– Reading Learning Progression:

– Science Learning Progression:
Summary, continued

– Speaking and Listening Learning Progression:

– Writing Learning Progression:
Summary, continued

Summary, continued

3. Department of Education and Training, Western Australia. Materials published in Beverly, MA. To access this resource, search for "STEPS Professional Development" using an Internet search engine (e.g., Google).

Focus and Reflection Questions
Focus and Reflection Questions, continued
Application and Extension Activities
Application and Extension Activities, continued
Application and Extension Activities, continued
Self-Assessment

• A self-assessment with response feedback is available at http://mast.ecu.edu/modules/lp/quiz/. Participants may take this assessment online to evaluate their learning about content presented in this module.
Session Evaluation

• A form for participants to evaluate the session is available in the Facilitator’s Guide.