LINKING RESEARCH WITH PRACTICE

Using a Research-Based Learning Progression Schema in the Design of Performance-Based Assessment Tasks and Interpretation of Student Progress

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Overview of project

This performance assessment pilot project was conducted during the 2010-2011 school year in classrooms across twenty NYC public elementary schools. The Center for Assessment was asked to design three performance-based assessments (PBAs) at each grade level that could be used by teachers for monitoring progress on specific skills and concepts during the school year. All PBAs were required to be aligned with the Common Core State Standards; however, unique to this performance-based assessment project was that it involved using a research-based learning progressions schema in mathematics (Hess, 2010) and writing (Hess, 2011) to:

(a) formulate a thoughtful K-5 cross-grade assessment plan;
(b) design and field test performance-based assessments that could potentially elicit evidence of more sophisticated learning and understanding over time; and
(c) interpret results and monitor individual and class progress in writing and mathematics at the K-5 grade levels.

Unlike much smaller-grained learning progressions that are used to develop individual test items (e.g., for on-line item banks), the grain size of progress indicators in the Hess Learning Progressions Frameworks (LPFs) are more suited to designing curriculum and more robust performance assessments. Not only were the LPFs used to design the performance-based assessment tasks, but also to develop a series of lessons whereby the PBAs could be embedded within an instructional unit of study, thus ensuring all students' potential opportunity to learn. The three PBAs were used as a pre-assessment, mid-assessment, and post assessment within each unit of study. This paper focuses only on summarizing the K-5 writing aspect of the NYC project; however, this parallels the work done in mathematics.

Theoretical framework

Educators today face new challenges in order to shift from how they have traditionally taught writing to elementary students to organizing instruction around the *Common Core (CC) State Standards in English Language Arts and Literacy*, which places a high emphasis on text-based writing, as well as expands the writing to more genres that students engage with at all grade levels. For example, in the past teachers might have focused informational writing instruction at the earliest grade levels on composing and editing complete sentences and perhaps paragraphs. The Common Core now calls for students from grades K-high school to demonstrate the ability to write narratives, informational texts, and persuasive texts (i.e., reasoned opinions at gr k-5; arguments at gr 6-12).

In the U.S., educators have understandably paid much more attention to getting to the "end point" of grade level content standards, than to considering the ways that learning actually progresses *within a grade level* or on researching how learning "connects and builds" from one

year to the next. There are currently many state- and district-level initiatives seeking to provide guidance to teachers and schools about how to use formative classroom assessment to plan instruction and measure progress; how to "break down/unpack" content standards in order to develop and map curriculum; and how to make the content described in standards more accessible in order to provide meaningful "academic" instruction for students participating in alternate assessments. Many of these instructional and assessment challenges could be informed by educator use of thoughtfully constructed and validated learning progressions.

"Learning progressions, progress maps, developmental continuums, and learning trajectories are all terms that have been used in the literature over the past decade to generally mean research-based, descriptive continuums of how students develop and demonstrate deeper, broader, and more sophisticated understanding over time. A learning progression can visually and verbally articulate an hypothesis about how learning will typically move toward increased understanding for most students. There is currently a growing body of knowledge surrounding their purposes and use, as well as ongoing research in identifying and empirically validating content-specific learning progressions" (Hess, 2012, pp. 2-3).

Learning progressions propose the *intermediate* understandings for within grade-level learning, describing "reasonably coherent networks of ideas and practices…that contribute to building a more mature understanding. … (Often,) the important precursor ideas may not look like the later ideas, yet crucially contribute to their construction" (NRC, 2007, pp. 219-220).

Simply stated, for this PBA project, learning progressions and student work analysis were used to help teachers better understand how learning could be facilitated over time with targeted instruction. In the areas of reading, writing, language use, and complexity of text structures, research-based LPs provided guidance for planning instruction, developing formative tools and performance assessments, and interpreting student performance. The use of analyzing student work drawn from assessment evidence to validate these hypotheses and to understand how learning progresses has often been noted as a key factor in effective collaborative planning, more focused instruction, and targeted formative assessment use (Corcoran, Mosher, and Rogat 2009; Hess 2008; Wiggins and McTighe 2001).

Modes of inquiry

The focus of this project was to develop and pilot three progress-monitoring performance assessments using assessment prompts aligned to the CC standards at six grade levels. Learning progressions that articulated characteristics of increasing text complexity and development of understanding in the application of reading and writing skills were used to identify the genre focus for each grade and design three increasingly more complex performance assessment tasks. Teachers from ten NYC schools were nominated by their administrators as Assessment Development Leaders (ADLs) to collect data on the use of the draft assessments and provide feedback to Center for Assessment staff. ADLs attended professional development work sessions with Center staff to co-develop the pre-assessment writing prompts for each grade level. They were then provided with the draft assessments, administration guidelines, protocols and support for conducting cognitive labs with a representative sample of selected students from their K-5

classrooms; and a student work analysis protocol for collaboratively analyzing student performance with their peers. After each assessment was field tested with a small sample of students, ADLs collaboratively analyzed results of student writing across classrooms from different schools. These analyses were used to: (1) refine/clarify task prompts and scoring criteria; (2) develop targeted instruction for the units of study (See figure 1 for example); (3) and to annotate selected anchor papers before wider field testing was conducted in other NYC classrooms. This general development process was used by ADLs working collaboratively with the Center for Assessment in the piloting of each of the three progress-monitoring assessments.

To ensure that all students were afforded the opportunity to learn what would be tested, performance assessments were embedded in instructional units – which we called "replacement units" - a term used by Marion and Shepard (2010) to mean that these units would be used to replace current writing instruction. While these units were designed to address somewhat similar topics as what was in the existing curriculum, they would do so in ways that embodied the Common Core standards and promoted deeper learning than typically might occur. Therefore, these units could *replace* existing units of study and would not be an add-on to an already overcrowded curriculum.

Project data sources and artifacts

Artifacts from the NYC pilot project include: PBA administration guidelines with think aloud protocols for teachers piloting new performance assessments; scribing guidelines for young, English language learner (ELL), and/or language-delayed students; a student work analysis protocol (Appendix A); eighteen CC-aligned performance tasks in writing with scoring rubrics and benchmark papers, annotated to show where on the learning pathway the performance would lie; protocols for selecting anchor papers and setting up calibration and scoring practice; and six sample replacement units of study.

Conclusions and scholarly significance of the work

Learning progressions are hypothesized learning sequences that can be validated with evidence, in this case, qualitative analyses of student work samples. Providing teachers with practical tools such as LPs and well-developed performance assessments empowers them to interpret results with consistency, monitor ongoing progress, and plan next steps for targeted instruction. Emerging research in the area of teacher use of LPs in the classroom indicates that teacher perceptions of learners, especially low-performing students; teacher day-to-day practice (formative assessment use and lesson planning); and collaborative student work analysis when applying a learning progressions schema can enhance teacher understanding and provide new insights into the process of learning over time (Hess, 2012).

Classroom use of research-based learning progressions is talked about in scholarly papers and articles, yet rarely have educators been provided with the tools to effectively apply the underlying cognitive learning models that they represent. Learning progressions, while still in their infancy of classroom use, offer new possibilities in guiding teaching and learning that is empirically grounded.

Figure 1 Excerpt from the K-12 ELA Learning Progressions Framework (Hess, 2011)

STRAND 6: Writing Informative Texts/ Communicating Information (WI) - Different genres of expository text provide information/explanations (science procedures, content-based articles, biographies, research reports, historical documents, etc.) for different purposes and require use of genre-specific features, text structures, and supporting evidence to produce a coherent unit of thought that informs or educates the intended audience.

(K-4) Elementary School Learning Targets

E.WI By the end of grade 4, students can *… apply organizational strategies (e.g., sequence, description, definition, compare-contrast, cause-effect) to develop, summarize, and communicate factual information about topics and events for authentic audiences.*

Grades K-2	Grades 3-4
Students use a process approach to compose informational texts …	**Students use a process approach to compose informational texts…**
E.WI.a generating ideas for using a range of responses (e.g., discussion, dictation, drawing, letters/invented spelling, writing), when responding to a topic, text, or stimulus (event, photo, video, peers, etc.)	**E.WI.j** generating their own ideas for writing; using strategies to clarify writing (e.g., conference with peers, find words for stronger descriptions)
E.WI.b describing information about a topic or text using drawings with details, written words (labels, names), and fact statements (e.g., "Spiders make webs") and 'reading back' what they have written	**E.WI.k** locating information from at least two r[illegible] (print/ non-print) to obtain information on a topic (e.g.,
E.WI.c representing facts and descriptions through a combination of illustrations, captions, and simple sentences that often connect two clauses; applying basic capitalization and end punctuation	**E.WI.l** using note-taking and organizational s[illegible] organizers, notes, labeling, listing) to record a[illegible] organize information (e.g., showing sequence,c[illegible] cause/ effect, question/answer) relating topic/ subtopics to evidence, facts
E.WI.d with support, using various information retrieval sources (e.g., word wall, book talks, visuals/images, Internet) to obtain facts and compose information on a topic	**E.WI.m** writing an introduction of several sentences that sets the context and states a focus/ controlling idea about a topic/ subtopics (e.g., "Many sports can be played outside in winter.")
E.WI.e with support, using simple note-taking strategies to record and **group facts** (e.g., numbering, T-chart, graphic organizer) to plan writing	**E.WI.n** selecting *relevant* facts, details, or examples to support the controlling idea, including use of domain-specific vocabulary
E.WI.f selecting *and ordering* fact statements using domain-specific vocabulary to describe a sequence of events or explain a procedure (e.g., list necessary materials and tell steps in logical order)	**E.WI.o** presenting factual information about subtopics of larger topics, grouping relevant details using several related and varied sentence types
E.WI.g presenting factual information describing subtopics of larger topics using sentences in *somewhat random order* (listing fact statements rather than connecting or relating ideas)	**E.WI.p** incorporating text features (e.g., [illegible] charts, graphics) to enhance clarity and m[illegible] writing
E.WI.h organizing factual information about subtopics of larger topics using relevant details in *several related sentences*	**E.WI.q** writing a conclusion or concludin[illegible] the focus
E.WI.i with support, revising by adding concrete details, descriptions, and concluding statement/closure; editing using grade appropriate grammar, usage, spelling (high frequency words), and mechanics	**E.WI.r** with support, editing informational [illegible] grade-appropriate spelling (words that fol[illegible] punctuation and capitalization, variety of sentence types
	E.WI.s revising full texts from the reader's perspective: making judgments about clarity of message, intent of word choice, and overall continuity of text/visual/auditory components

The Grade 2 informational writing PBA pre-assessment typically elicited this set of evidence.

Based on analysis of student work from the informational writing PBA pre-assessment, instruction and the mid- and post-assessments mainly targeted these more advanced skills: organizing information and selecting relevant supporting evidence for each subtopic.

Figure 2 Using the increasing complexity of text structures to develop a systematic plan across grade levels for instruction and PBAs

Grade Level	Progress-Monitoring Writing Assessment Focus	CCSS Standards Assessed	Content Focus (selected based on increasing complexity of text structures)
K	**#1** – beginning-middle-end **#2, #3 –** beginning-middle-end; problem-solution	**K.W.3**-Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened. **K.W.5**-With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed. **Language standards** 1–2 up for grade K on page 26.	Narrative writing Text structure & cues: chronology
1	**#1** – beginning-middle-end **#2, #3 –** beginning-middle-end; problem-solution	**1.W.3**-Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure. **1.W.5**-With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed. **Language standards** 1–2 up for grade 1 on page 26.	Narrative writing Text structures & cues: chronology, description
2	**#1 -** description **#2 -** description **#3 -**compare-contrast	**2.W.2**-Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section. **2.W.5**-With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. **Language standards** 1–2 up for grade 2 on page 26.	Informational writing Text structures & cues: sequence, description, compare-contrast
3	**#1 -** description **#2-** description **#3-**compare-contrast	**3.W.2**-Write informative/explanatory texts to examine a topic and convey ideas and information clearly. **2a.** Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. **2b.** Develop the topic with facts, definitions, and details. **2c.** Use linking words and phrases (e.g., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information. **2d.** Provide a concluding statement or section. **3.W.5**-With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, & editing. (Editing for conventions should demonstrate command of **Language standards** 1–3 up to grade 3 on pages 28 - 29.)	Informational writing Text structures & cues: sequence, description, compare-contrast, cause-effect
4	**#1, #2, #3** –critique of literary texts* ** focus depends on texts used(*e.g., character traits/ character development)	**4.W.1**-Write opinion pieces on topics or texts, supporting a point of view with reasons and information. **1a.** Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support a writer's purpose. **1b.** Provide reasons that are supported by facts and details. **1c.** Link opinion and reasons using words and phrases (e.g., *for instance*, *in order to*, *in addition*). **1d.** Provide a concluding statement or section related to the opinion presented. **4.W.5**-With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of **Language standards** 1–3 up to grade 4 on pages 28 - 29.)	Responding to *literary* texts – opinion on a text/author's craft Text structures & cues: chronology, description, compare-contrast, cause-effect, problem-solution (e.g., conflict, character development)
5	**#1, #2, #3** –critique of informational texts* **focus depends on texts used(* e.g., author's use of language, author's organization and support for ideas presented, clarity of message or ideas)	**5.W.1**-Write opinion pieces on topics or texts, supporting a point of view with reasons and information. **1a.** Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. **1b.** Provide logically ordered reasons that are supported by facts, details. **1c.** Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*). **1d.** Provide a concluding statement or section related to the opinion presented. **5.W.5-** With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of **Language standards** 1–3 up to grade 5 on pages 28-29)	Responding to *informational* texts - – opinion on a text/author's craft Text structures & cues: sequence, description, compare-contrast, cause-effect, proposition-support

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APPENDIX A - Student Work Analysis ---- A Formative Assessment Tool

Subject Area: **Grade Level:**

Formative or Performance Task:

Aligned to CC Standards:

1. Using district/classroom assessment or rubric, describe expectations for performance:
(See wording of prompt, genre-specific rubric wording, and related CC standards for determining expectations for this assessment)

_____

_____

2. Quickly "sort" students' work by degree of objectives met. (List student names in each category in order to monitor progress over time with each performance task.) Start by sorting 2 larger piles: met OR not met objectives. You may also need a "not sure" pile. Then re-sort each of those piles into two: not met-partially met, AND met and met and exceeded. Any remaining papers that you were not sure about can now be matched with" typical" papers in one of the other existing piles. This is not scoring!

Objectives NOT met	Objectives PARTIALLY met	Objectives FULLY met	Objectives fully MET AND EXCEEDED
____% of class	_____ % of class	____% of class	____% of class

3. Choose a couple samples from each grouping/category and describe "typical" performance, or specific performance of selected students in that grouping.

Objectives NOT met	Objectives PARTIALLY met	Objectives FULLY met	Objectives fully MET AND EXCEEDED

4. Describe learning needs of identified students (or students in each targeted group)

Objectives NOT met	Objectives PARTIALLY met	Objectives FULLY met	Objectives fully MET AND EXCEEDED

5. Identify differentiated strategies to move ALL groups of students forward. Note any patterns or trends.

What targeted instruction can <u>all students</u> benefit from?

What targeted instruction will <u>smaller groups</u> <u>of students</u> need?

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Providing educators with research-based models of effective instruction and assessment, moving students towards greater engagement and deeper learning