CRESST REPORT 848

THE IMPLEMENTATION AND EFFECTS OF THE LITERACY DESIGN COLLABORATIVE (LDC): EARLY FINDINGS IN EIGHTH-GRADE HISTORY/SOCIAL STUDIES AND SCIENCE COURSES

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Abstract

The Bill and Melinda Gates Foundation invested in the Literacy Design Collaborative (LDC) as one strategy to support teachers' and students' transition to the Common Core State Standards (CCSS) in English language arts. This report provides an early look at the implementation of LDC in eighth-grade history/social studies and science classes in two states, and the effectiveness of the intervention in these settings. The study found that across states and subjects, teachers understood LDC and implemented it with fidelity. Teachers also generally reported positive attitudes about the effectiveness of LDC and its usefulness in introducing literacy instruction into content area classrooms. Quasi-experimental analyses using Coarsened Exact Matching (CEM) techniques and hierarchical linear modeling (HLM) found a small statistically significant positive effect on reading scores in the one state where suitable data were available, but no effects on writing scores. However, students generally performed at low levels on assessments designed to align with the intervention, suggesting the challenge of meeting CCSS expectations. Exploratory analyses suggest that LDC may have been most effective for higher achieving students. However understandable, the findings thus suggest that, in the absence of additional scaffolding and supports for low-achieving students, LDC may be gap enhancing.

Chapter 1: Introduction

The Common Core State Standards (CCSS) in English language arts (ELA) bring rigorous, new demands for student accomplishment to ensure that students will have the literacy knowledge and skills they need to be prepared for success in college and careers. For most states, these new English language arts standards dramatically increase expectations for students' ability to read literary and informational texts closely, analyze evidence, communicate orally and in writing for a variety of audiences and purposes, and conduct research.

The new standards bring with them requirements for pedagogical shifts and challenges for teachers who are expected to support their students' accomplishment of these more rigorous goals. The challenge extends not only to elementary school teachers and secondary English teachers, those who historically have been charged with students' literacy development, but to secondary content-area teachers as well. That is, the CCSS specifically encompasses literacy standards for middle and high school coursework in history/social studies, science, and technical

subjects. Secondary school content-area teachers now are expected to integrate literacy development with their content goals and thus to engage students in curriculum and instruction that simultaneously support student learning in both domains.

The Bill and Melinda Gates Foundation invested in the Literacy Design Collaborative (LDC) as one strategy to support teachers' and students' transition to these new expectations. Although LDC is at a relatively early stage of implementation, the Foundation was interested in getting an early read on program effectiveness and contracted with the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) to conduct two quasi-experimental studies of LDC's implementation and learning impact. The first study, which is reported here, examined LDC as it was implemented in eighth-grade history/social studies and science classes during the 2012–2013 school year in selected districts from Kentucky and Pennsylvania. The second study, reported in a separate companion report (Herman et al., 2015), examines LDC effects in a districtwide implementation in sixth-grade Advanced Reading courses in a large countywide district in Florida.

This chapter presents background on the study, including a brief description of the LDC intervention and the evaluation questions that guided the eighth-grade study. In the following chapters, we summarize study methodology, present implementation and outcome results, and examine the implications of our findings.

Literacy Design Collaborative Overview

LDC supports the transition to the Common Core State Standards in English language arts by providing flexible module templates that enable middle and high school teachers to integrate reading, research, and writing standards into their content-area instruction. End-of-module, extended writing tasks provide the heart of the approach. Teachers use fill-in-the-blank templates to design a culminating content-focused writing task, which then is used to organize a module of instruction. The module is designed to address relevant content in literature, history/social studies, or science as well as relevant reading and writing demands aligned with the CCSS. For example, the following templates structure end-of-module tasks for students' argumentative and expository writing respectively:

> TASK 1 TEMPLATE (Argumentative/Analysis L1, L2, L3): After researching _____ (informational texts) on _____ (content), write an _____ (essay or substitute) that argues your position, pro or con, on _____ (content). Support your position with evidence from your research. L2. Be sure to acknowledge competing views. L3. Give examples from past or current events or issues to illustrate, clarify, and support your position. *(Appropriate for: social studies, science)*

> TASK 11 TEMPLATE (Informational or Explanatory/Definition L1, L2): After researching _____ (informational texts) on _____ (content), write a _____ (report or substitute) that defines and explains _____ (content). Support your discussion with evidence from your research. L2. What implications can you draw? *(Appropriate for: ELA, social studies, science*)

After deciding on the end-of-module writing task, teachers then use an LDC-specified framework (or *instructional ladder*) to design instructional activities to support students in developing the content and requisite literacy skills to successfully complete the culminating task. The steps of the ladder include core activities, such as note-taking, identifying evidence to support claims, and evaluating contrasting positions, that scaffold student learning and provide ongoing opportunities for formative assessment. The final product—instructional ladder plus template task—is referred to as an LDC module.

The Foundation has been exploring a variety of approaches and partners to support LDC implementation. The approaches vary in the extent of professional development and coaching support that teachers and schools receive and in their focus on individual teachers, or districtwide and/or schoolwide implementation. Depending on the district or school context, teachers work individually or collaboratively with other teachers and/or specialists to create the modules, which typically are subjected to a process of review and refinement. In some settings, all teachers for a particular course and grade use common modules.

As we describe later, teachers in the current study participated in two to three professional development sessions during the study year. Study teachers were in almost all cases expected to implement at least two modules during the academic year, with one targeting explanation and the other focused on argument.

Evaluation Questions

At the time of the study, study teachers had had only one or two years of prior experience in implementing LDC and were part of the initial trials of LDC with early district implementers. At this early phase of LDC development, the study addresses a comprehensive set of evaluation questions:

1. How do teachers implement LDC?
2. What is the impact of LDC on student learning?
3. What conditions and contexts, including quality of implementation, influence LDC effectiveness?

In addressing these questions, the study implemented a quasi-experimental design and developed and validated new measures of implementation and learning impact, as described in the next chapter.

Chapter 2: Study Methodology

The study focused on eighth-grade teachers of history/social studies and science and their students in both Kentucky and Pennsylvania to study program effects over the 2012–2013 school year. Teachers in the study were early implementers of LDC. Study methodology featured a strong quasi-experimental design to examine LDC's effects on students' state assessment performance, coupled with implementation and student outcome measures that were specially developed to align well with LDC goals. The implementation measures included logs, teacher surveys, and analysis of LDC modules with accompanying student work. Below we provide more detail on these elements of the study methodology.

Study Sample

Population. The study population was centered in five districts across Kentucky and six districts located within one Intermediate Unit region in Pennsylvania. These districts were the earliest adopters of LDC, part of the Phase 1 LDC implementation in 2010–2011 and its Phase 2 expansion in 2011–2012. Within these districts, we sought to include in our sample all Phase 1 and Phase 2 teachers of eighth-grade history/social studies and science who taught in the 2012–2013 school year, for a total of 36 Kentucky teachers and 24 Pennsylvania teachers. Combining teachers across states and course subjects was necessary to maximize the available statistical power. Eighth grade was selected as a focus because both Kentucky and Pennsylvania administer a writing assessment at Grade 8, in addition to standardized measures of reading and language, and the Kentucky state assessment also includes an eighth-grade social studies measure. These measures were used in the quasi-experimental design (QED) to examine LDC effects on student learning.

The breadth of LDC implementation within schools varied across states, districts, and schools. In some sites, all social studies and science teachers in eighth grade participated in LDC, while in other sites participation was voluntary. Almost all LDC teachers in the study population implemented at least two LDC modules during the study year, 2012–2013. These modules typically had been collaboratively developed with at least one partner teacher. The timing for implementing these modules was at the discretion of individual teachers.

Sample for quasi-experimental design. All LDC teachers in the study population and their students during the 2012–2013 school year were included in the QED study of LDC effects in Kentucky. Using longitudinal student and teacher data from Kentucky's state database and drawing on eighth-grade students in similar courses across the state, we used propensity matching techniques to create a comparison sample of students who were equivalent to the LDC group in demographics, prior academic performance, and the prior effectiveness of their teachers

and schools. These techniques and the resulting samples are described in more detail in Chapter 4 in the context of the QED results.

Table 1 shows the demographic characteristics of the LDC student sample in Kentucky, based on available state data, as well as data on the students' exposure to LDC. These data indicate that the study's LDC student population was predominantly White, with nearly equal representation of males and females. Nearly half of the students qualified for free or reduced price lunch. Ten percent of the students were identified as students with disabilities. English language learner students were little represented.

Table 1

Demographic Characteristics of Kentucky LDC Students: All Eighth-Grade Students Taught by LDC Social Studies and/or Science Teachers in the Study Population (n= *2,529)*

Demographic characteristic	*n*	%
Ethnicity		
Hispanic	66	3.0
White	2288	90.0
Black	65	3.0
Other (Asian, American Indian, Alaskan Native)	110	4.0
Qualify for free or reduced price lunch	1177	47.0
English language learner	11	0.4
Gender: Female	1241	49.0
Special education	262	10.0
LDC Exposure		
LDC in social studies and science	1429	56.5
LDC in social studies only	827	32.7
LDC in science only	273	10.8

Based on the demographics of eighth-grade students statewide who were administered the eighth-grade Kentucky state assessment (K-PREP), the study treatment sample appears generally similar to the state population, with two apparent exceptions: The study sample has a smaller proportion of Black students (3% compared to 10.5%), a larger proportion of White students (90% compared to 81%), and a slightly lower representation of students who qualify for free or reduced price lunch (47% versus 52%). (See Pearson, 2013, for demographics of the state testing population.)

Over half of Kentucky students in the sample were exposed to LDC in both social studies and science, with about a third exposed in social studies only and 10% exposed in science only. In Chapter 4, we provide details on how we modeled students' LDC dosage.

Table 2 shows the demographics of the Pennsylvania LDC population.[1] The data indicate that, like the rest of the state, the majority of students are White, although statewide the proportion is slightly higher than that in the LDC schools—71.7% versus 65.1%. Relative to the state population, LDC students are more likely to be Hispanic (8.5% versus 24.7%) and less likely to be Black or Asian. LDC students also are somewhat less likely to be economically disadvantaged, as measured by free or reduced price lunch status. Presence of English language learners is low in both populations. Student performance on the state reading test indicated that statewide performance on the seventh-grade reading and math exams in 2011–2012 was slightly lower than the performance of the LDC student sample selected for the quasi-experimental analysis. The mean seventh-grade reading scale score was 1435 for our sample compared to 1413 for the state at large, and the mean math scale score was 1529 in our sample compared to 1500 in the state. Grade 8 mean scale scores for 2012–2013 were not yet published for Pennsylvania at the date of publication, so a comparison could not be made on the outcome measures to our sample.

Table 2

Demographic Characteristics of Pennsylvania LDC Students: All Eighth-Grade Students Taught by LDC Social Studies and/or Science Teachers in the Study Population (n *=1446)*

Demographic characteristic	*n*	%
Ethnicity		
Hispanic	347	24.7
White	914	65.1
Black	72	5.1
Other (Asian, American Indian, Alaskan Native)	66	4.7
Qualify for free or reduced price lunch	483	33.4
English language learner	63	4.4

Sufficient data to support a rigorous quasi-experimental design were not available in Pennsylvania, where the study could not gain access to statewide student longitudinal data. Instead, feasibility issues limited available data to LDC and demographically similar districts

[1]Complete data on gender were not available.

within the Intermediate Unit and to student performance on state tests only for the year prior and subsequent to the LDC implementation. Because of stakeholder interest, we used these data to explore LDC effects. Due to data limitations, these QED analyses are summarized in Appendix F and are not discussed further in the body of this report.

Sample recruitment and completion rates for LDC-only measures. District leaders and district-level LDC coordinators in both states fully supported study recruitment, but teacher participation in the special measures was totally voluntary. The effective study sample size thus varied with the various instruments used in the study. Table 3 and Table 4 display the number of study-eligible teachers who were invited to participate in the study, those who agreed to participate, and the completion rates for each of the study measures in Kentucky and Pennsylvania respectively. Because no special agreement was needed to include teachers in the analysis of available state assessment and demographic data, all teachers in the study population were included in the study sample.

In Kentucky, approximately half of the eligible eighth-grade teachers agreed to participate in the study and completed the major research activities, including logging about modules, submitting module materials, and administering the specially developed student learning measure, the Integrated Learning Assessment (ILA). Unfortunately, fewer than half of the Kentucky teachers who administered the ILA also returned the one-page opportunity-to-learn (OTL) survey that was included with the assessment materials. The teacher survey, which demanded a smaller amount of teachers' time than the other data collection components of the study, attracted a larger proportion of eligible participants: three quarters of our Kentucky LDC teacher sample completed the survey.

Table 3

Study Completion Rates: Kentucky

LDC teachers (eighth-grade history/social studies and science)	*n*	% relative to all eligible LDC teachers	% relative to consented teachers
Teachers eligible for CRESST study and teacher survey	36	--	--
Teachers consenting to CRESST study	19	53	--
Teachers completing:			
Logs	18	50	95
Teacher artifacts	18	50	95
ILA	18	50	95
OTL survey	8	22	42
Teachers participating in survey	27	75	--

In Pennsylvania, at the request of our partners in the Intermediate Unit, we relaxed our eligibility requirements to allow teachers new to LDC to participate in the study. This was a strategy to increase buy-in on the part of the small districts participating in the study, and had the effect of allowing 10 additional teachers to participate. We did not, however, change the eligibility requirements for the separately administered teacher survey, and therefore the samples were different for these two separate data collection efforts. With the strong support of the Intermediate Unit, recruitment was very successful, with over 90% of targeted teachers consenting to participate in the research (see Table 4). The large majority of these teachers completed all major research activities, although a smaller majority completed the OTL survey. The completion rate for the teacher survey also was quite high.

Table 4

Study Completion Rates: Pennsylvania

LDC teachers (eighth-grade history/social studies and science)	*n*	% relative to all eligible LDC teachers	% relative to consented teachers
Teachers eligible for CRESST study	24	--	--
Teachers consenting to CRESST study	22	92	--
Teachers completing:			
Logs	20	83	91
Teacher artifacts	20	83	91
ILA	20	83	91
OTL survey	15	63	68
Teachers eligible for teacher survey	16	--	--
Teachers completing teacher survey	14	88	--

Implementation Measures

Our implementation measures draw on research on instruction and instructional change, given that the ultimate goal of the LDC intervention is to align teachers' instruction to the Common Core State Standards. Classroom practice is notoriously impervious to reform (Cuban, 1984; Lortie, 1975); however, an emerging body of research has documented the relationship between student achievement and specific instructional practices that create opportunities to learn (see Bryk, Sebring, Allenworth, Luppescu, & Easton, 2010; Rowan & Correnti, 2009; Winters & Herman, 2011). Our implementation measures thus focus on classroom instruction, while recognizing that multiple factors influence and inhibit teacher innovation and instructional change. The measures include web-based teacher logs, collected twice weekly during LDC module implementation, collection and analysis of LDC modules, and a teacher survey. In all measures, teachers were asked to focus on the same focal class, if they taught more than one section of eighth-grade history/social studies or science.

Web-based teacher log. Study teachers were asked to complete a log twice weekly during their implementation for each of two LDC modules, one implemented in the fall and the second in the spring. The logs focused on (a) the degree to which instruction generally aligned with the structure of the LDC intervention, (b) the degree to which instruction explicitly specified and addressed the discrete literacy skills required to complete the summative writing task, and (c) the quality and extent of formative assessment practices incorporated into LDC instruction. Each log

was designed to capture classroom instruction on the particular day the log was completed and focused on only one of the teacher's classes—the same class for all logs.

The log included opening (gateway) items that asked teachers to specify which component of the LDC module they addressed on that particular day (i.e., Preparing for the Task, Reading Process, Transition to Writing, Writing Process) and then branched to back-end items for the identified component(s), where teachers answered additional questions about component instructional objectives and strategies. For example, the Reading Process section asked teachers to check all the specific reading skills that were addressed in the day's instruction. Follow-up items asked teachers to identify how they assessed student understanding and/or reading skills during the period and how they responded if a student had difficulty with the reading assignment. The emphasis on formative assessment aligns with LDC intent, which views the steps in the instructional ladder as opportunities for the teacher to track student progress and intervene appropriately to support student learning. Logs were analyzed at the teacher level.

Participating teachers were asked to complete logs twice per week over the course of two LDC modules: one implemented in the fall and one in the spring. Almost all teachers logged about two different modules, with the exception of one Kentucky teacher who only implemented one module during the school year, and one Pennsylvania teacher who failed to submit logs for one of her two target modules. On average, Kentucky teachers submitted 11 logs for the two modules, and Pennsylvania teachers submitted 10 logs. There was, however, a great deal of variation across teachers, with individual participants submitting between four and 15 logs.

Log data were aggregated by teacher and then summarized across teachers for four groups of teachers: Kentucky history/social studies, Kentucky science, Pennsylvania history/social studies, and Pennsylvania science. That is, item-by-item mean scores were computed for each teacher across all logs that teacher submitted for a given module (Module 1 or Module 2) and across the two modules. The computations included teachers' responses only to those items that were associated with the LDC component(s) that the teacher specified for each log. For example, log reading component mean scores were based only on responses to logs for which teachers reported implementing the reading component of the module. (See Exhibit A1 in Appendix A for a copy of the Kentucky/Pennsylvania log.) Group means were then computed across teachers and modules. Implementation analyses also considered various composite measures, as described further in implementation results below.

Analysis of LDC modules. Teachers were asked to submit modules and classroom artifacts directly into the online survey engine when they completed logging about a given module. These artifacts included

1. a completed template task (often printed from Module Creator, an online tool for developing a module, available to many LDC teachers);
2. copies of all texts used in the module;
3. one sample of supplemental instructional materials used during the reading component and one from the writing component (e.g., graphic organizers, worksheets, lesson plans) that each spoke to the specificity of instruction; and
4. three samples of student work on the template task, marked high, medium, and low.

Teachers also had an opportunity to submit any additional materials that they believed would help us understand their module instructional practice. We followed up with teachers who had completed logging but did not submit their materials. As the data in Table 3 and Table 4 above show, module materials were received from all teachers who completed the logs. Our final count of collected materials was 22 Kentucky social studies modules, 13 Kentucky science modules, 20 Pennsylvania social studies modules, and 18 Pennsylvania science modules. These 73 modules represented nearly all of the modules on which teachers logged during the implementation study.

Raters used the specially developed CRESST Assignment Measure rubric to score the Kentucky and Pennsylvania modules on nine dimensions of quality. Attending to both content and literacy demands, the dimensions address the quality of the central writing task and the texts it draws on, the quality of the instructional ladder, and overall module coherence:

- Dimension 1: Effective Writing Task
- Dimension 2: Alignment to the CCSS and Local and State Literacy and Content Standards
- Dimension 3: Text Alignment
- Dimension 4: Text Appropriateness
- Dimension 5: Text Rigor
- Dimension 6: Fidelity to LDC Module Instruction
- Dimension 7: Quality Instructional Strategies
- Dimension 8: Coherence and Clarity of Module
- Dimension 9: Overall Impression

Each dimension was scored on a 1–5 scale, where a score of 1 indicated poor quality, a score of 3 indicated the quality was moderately realized, and a score of 5 indicated that the quality of the dimension was fully realized (see Exhibit A2 in Appendix A for the scoring rubric).

Subject matter teachers in history/social studies and science were recruited as scorers and received special training to ensure they could consistently apply the rubric to the collected modules. The training provided detailed rubrics for each dimension, exemplified by anchor papers (i.e., module components) demonstrating each score value, and multiple opportunities for practice and feedback on rubric application. Scorers established their consistency before embarking on scoring and consistency was checked throughout the scoring process. The measurement quality of the resulting scores was established through generalizability, factor analysis, and decision study methodologies and is reported as a separate paper (see Reisman, Herman, Luskin, and Epstein, 2013, in Appendix B, which describes the measures, including development, piloting, scoring, generalizability and dependability studies, and results). Raters generally found the scoring dimensions intuitive and well aligned with the available artifact data. Both the social studies and science analyses revealed low rater variance across scoring dimensions (between 0% and 14% of total variation depending on the dimension and subject) and high teacher and/or teacher by module variation (between 28% and 72% depending on the dimension and subject), suggesting that the scores were capturing real differences in module implementation across teachers. Moreover, based on factor analyses, all nine dimensions loaded on a single factor for both subjects, making the case that the CRESST Assignment Measure effectively measures a coherent trait that might be understood to be LDC implementation, or perhaps more generally, instructional quality in the integration of literacy and content. In Chapter 3, we use dimension scores to provide descriptive results on quality of implementation and overall mean scores to examine the relationship between module implementation and student performance.

Teacher surveys. CRESST collaborated with Research for Action (RFA) on the design of a 2013 implementation and scale-up survey for teachers. The survey included a section on module implementation with items designed to mirror the intent of the CRESST log measure items. These survey items queried

- relative time spent on the various module components;
- relative emphasis given to specific reading and writing skills;
- use of formative assessment and strategies for providing feedback; and
- perceptions of LDC impact.

Further, we drew on RFA survey variables as context and possible moderators of LDC implementation and impact—for example, experience using LDC, attitudes regarding literacy instruction, extent of professional development, leadership support, and collaboration.

Descriptive statistics were computed at the teacher level. (See Exhibit A3 in Appendix A for a copy of the LDC teacher survey.)

Student Outcome Measures

Student outcome measures for the study include state assessment data and CRESST-developed Integrated Literacy Assessments (ILAs). Student demographic information also was secured with the available state assessment data.

State assessment data: Kentucky. The study used data from the Kentucky Performance Rating for Educational Progress (K-PREP) to measure students' 2012–2013 performance in English language arts, writing, and social studies. K-PREP contains both multiple choice and short constructed response items in a blended model of criterion- and norm-referenced testing. The writing assessment features an on-demand writing sample in which students create an essay in response to reading a single passage.

Reported reliability for the eighth-grade reading and social studies tests are .87 and .90 respectively (Pearson, 2013).

State assessment data: Pennsylvania. The study used available data on student performance on the Pennsylvania System of School Assessment (PSSA) in reading. Data were requested on eighth-grade LDC and comparison students for 2012–2013 and for these students' prior performance as seventh-graders in 2011–2012. Data were provided by local districts within the Intermediate Unit.

The PSSA reading tests are composed predominantly of multiple choice items, but also include several constructed response items. Reported reliability based on coefficient alpha is .91 for the 2012–2013 eighth-grade reading test, .89 for the seventh-grade reading test in 2011–2012, and .93 for the seventh-grade math test in 2011–2012 (Data Recognition Corporation, 2012, and Data Recognition Corporation, 2013; see http://www.portal.state.pa.us/portal/server.pt/community/pssa_technical_reports/7447).

The original study design also included students' eighth-grade PSSA writing scores, which are based on a direct writing assessment. Unfortunately, however, because of substantial missing data, these scores could not be included in study analyses. Moreover, limited demographic data were available for all students in our sample.

Integrated Literacy Assessment (ILA). The CRESST ILAs are designed to measure both students' literacy development relative to the CCSS in English language arts and the depth of students' content understanding in literature, history/social studies, or science. Across content areas, the two-day ILAs feature a consistent structure that roughly mirrors components of LDC:

On Day 1, students read several texts that typify those encountered in the discipline and address an important content principle or theme and respond to selected and constructed response reading comprehension and analysis questions about each text. The questions are aligned with the CCSS in ELA. On Day 2, students respond to an essay prompt that, consistent with the CCSS, asks them to synthesize what they know with what they have read to produce an evidence-based, extended explanation or argument responding to a content-related problem. Student essays were scored by trained raters using a generalized, analytic scoring rubric that was customized for each prompt. Table 5 and Table 6 show the dimensions addressed by the writing task rubric and an example of the score values for each one of the dimensions.

Table 5

ILA Scoring Rubric for Final Writing Task

Dimension	Name	Description
A	Content understanding	This is a measure of overall how well the student has demonstrated that they understand the materials and the topic in their essay.
B	Rhetorical structure/quality	Argument: establishes a claim, acknowledging alternate or opposing claims, and supports it consistently with relevant evidence and logical reasons. Explanation: establishes a thesis; previews the main points; and thoroughly develops the topic with well-chosen information, examples, and analysis.
C	Organization	Consistent focus, logical progression of ideas, and structure appropriate for the task.
D	Reference/support with text	This is a measure of how well statements in the essay are supported by references to text details. A text detail is a quotation, paraphrase, or any other reference to information and ideas in the texts provided.
E	Grammar and conventions	The essay is written with a command of standard English conventions: proper English usage and control of grammar, appropriate tone, paragraph, and sentence structure.

Table 6

Scoring Dimension Example for Rhetorical Structure/Quality

Description	Score
Important elements of the argument are clearly and thoroughly described and articulated.	4
Elements of the argument are clearly described.	3
There is an attempt to describe some elements of the argument.	2
Elements of the argument are not described, or the descriptions are unclear.	1

ILA content foci. The ILA design seeks to respond to the challenge of disentangling the background information that students bring to the assessment from the knowledge that they gather from reading the actual texts in the assessment (Klein, 1983). Assessment designers and evaluators must take care to not unfairly privilege students whose teachers spent considerable time on a topic over those whose teachers' coverage was more cursory. We addressed this potential confound in the ILAs in two ways: first, we selected topics that students should have covered in their recent curriculum, or that were closely related to topics they had covered; second, we included relevant background knowledge in the actual exam so that even students with virtually no familiarity in the topic could orient themselves to the substance of the texts and write meaningfully about them (Baker, 1994).

The history/social studies ILA used in the study focuses on Reconstruction following the Civil War. The assessment includes background information in the form of a short summary describing Reconstruction and a timeline of key events. Each of the three documents in the assessment includes a headnote with key background information about the author and the context. The three documents—a speech by Frederick Douglass, an excerpt from South Carolina's Black Codes, and a freed person's testimony of KKK violence—vividly describe a wide range of challenges faced by African Americans in the Reconstruction-era South. The writing task was designed as an argument task; students were asked to argue that African Americans were not actually free during the Reconstruction era using evidence from the three documents. Although Reconstruction is not explicitly part of the eighth-grade standards in Kentucky, students learn about U.S. history through the Civil War, right up to Reconstruction. Given the extensive background knowledge included in the assessment, we believed it would effectively gauge students' ability to learn from text and write effectively about it.

The science ILA focused on science inquiry skills in the context of Darwin's theory of evolution. Students were asked to read and respond to questions about three documents: one a description of "fitness" and how the term is used when discussing evolution; a second which was a diagram related to the process of natural selection and how it is an agent of evolution and leads to change over time; and the third a short description of an actual scientific study investigating mate choice by females in a group of birds called widowbirds. The final extended essay task asked students to create an argument to refute a given (incorrect) assertion. The content and intellectual demands of the task aligned with academic standards in both states. Kentucky's science standards at the time (prior to their 2013 adoption of the Next Generation Science Standards) used "diversity and unity" as one of the eight major organizing themes for its Grade 8 expectations, and specified that students develop their scientific thinking and reasoning through using scientific methods to solve real-life problems by identifying, analyzing, and using patterns

to understand present events and predict future events (see Kentucky Core Academic Content Standards for eighth-grade science, http://education.ky.gov/curriculum/docs/Documents/POS with CCS for public review.pdf). Similarly, Pennsylvania's eighth-grade science standards require that students be able to explain theory, use evidence to support arguments, and understand and be able to explain basic concepts of adaptation and survival (see Pennsylvania eighth-grade science standards, http://www.pdesas.org/standard/views).

Copies of the science and history/social studies ILAs administered in the study, with accompanying rubrics, can be found in Appendix A: Exhibits A4, A5, and A6.

ILA administration and scoring. ILAs were administered at the end of the 2012–2013 school years in LDC classrooms only. Teachers were sent test materials, including student test forms and directions for administration, and asked to administer the assessment to the one class that had been the target of their logs. The ILAs were administered over two class periods. On Day 1, students read the texts and responded to selected and constructed response reading comprehension and content analysis questions.

Six secondary content teachers were recruited for the essay scoring, including three history/social studies teachers and three science teachers. Four of the six had been involved in prior ILA scoring projects. Scorer training provided orientation to each prompt and rubric dimensions for scoring it. After reviewing anchor papers (prescored criterion papers exemplified each dimension and score point) teachers practiced scoring and received feedback on their use of the rubric. Teachers had to qualify for actual scoring by demonstrating at least 80% agreement on qualifying sets of expert-scored papers.

One social studies rater and one science rater failed to achieve sufficient reliability after multiple training sessions and thus did not participate in the essay scoring, leaving two raters for each subject area. Essays were divided among these raters and a proportion of papers were double-scored to document reliability. In addition, check papers were threaded throughout the scoring process and raters who veered from expected ratings were provided feedback and additional training, as necessary. Specific rubrics were developed to score short answer questions. It was possible for students to be awarded partial credit on a select number of short answer questions.

ILA reliability. Table 7 and Table 8 display rater reliability in the scoring of the Evolution and Reconstruction ILAs. As Table 7 shows, raters achieved exact agreement of 70% or more for four of the five dimensions and just missed for the fifth dimension (organization, 69% exact agreement). For the Reconstruction ILAs, two dimensions fell below 70% exact agreement:

rhetorical structure and quality at 65% and grammar and conventions at 55%. However, there was virtually 100% agreement plus or minus one score point.

Table 7

Interrater Reliability for Double-Scored Evolution ILA Essays (n = *54)*

Dimension	% exact agreement	% agreement within one point
Content understanding	70	96
Rhetorical structure/quality	78	100
Organization	69	91
Reference/support with text	76	100
Grammar and conventions	74	100

Table 8

Interrater Reliability for Double-Scored Reconstruction ILA Essays (n = *80)*

Dimension	% exact agreement	% agreement within one point
Content understanding	71	100
Rhetorical structure/quality	65	100
Organization	70	100
Reference/support with text	73	100
Grammar and conventions	55	100

Table 9 displays reliability statistics for the two assessments. To maximize sample size for our reliability tests, we pooled assessments across both states. As can be seen in the table, reliability across writing dimensions and reading items was quite high for both assessments.

Table 9

Reliability of Evolution and Reconstruction ILAs

Assessment	Component	Number of students	Number of items/dimensions	Cronbach's alpha (reliability)
Evolution	Reading	388	13	.717
Evolution	Writing	335	5	.823
Reconstruction	Reading	449	16	.724
Reconstruction	Writing	458	5	.885

Opportunity to learn ILA content. Despite the care with which ILA topics were selected to align with eighth-grade content standards in both states, responses to the study's post-intervention opportunity-to-learn survey shows some mismatches. Teachers completed this short, one-page survey at the time that they administered the ILAs. In addition to asking about details of ILA administration (i.e., the administration date and amount of time students spent completing them), the survey asked teachers to summarize their LDC instruction (number of modules taught in 2012–2013 and topics covered). The survey also asked teachers to report on the degree of emphasis they placed in their 2012–2013 instruction on the content areas covered by the ILAs: for LDC history/social studies teachers, the Reconstruction period in American history; and for LDC science teachers, the scientific theory of evolution. (See Exhibits A7 and A8 in Appendix A for copies of the Evolution and Reconstruction OTL surveys.)

Unfortunately, as noted earlier, return rates were not high for this survey, particularly in Kentucky. Just three of seven Kentucky science teachers returned the short survey along with their students' assessments, while eight of 10 Pennsylvania science teachers returned the survey. In social studies, four of 11 Kentucky teachers and seven of 10 Pennsylvania teachers returned the survey.

Responses in Table 10 and Table 11 show surprisingly low coverage of ILA topics, particularly for science. Only one of three responding Kentucky science teachers reported placing any emphasis on evolution, and this emphasis was slight. In Pennsylvania, none of the eight science teachers reported any emphasis on evolution in their classrooms. In Kentucky, half of social studies teachers reported placing no emphasis on Reconstruction and half reported placing slight emphasis. Pennsylvania teachers on average placed more emphasis on Reconstruction, with the majority placing at least some emphasis on the subject (recall that history standards for eighth grade went through the Civil War, so it shouldn't be surprising that some teachers reported not covering Reconstruction).

These data provide important context for interpreting ILA results. At the same time, however, the texts that students were asked to read during the ILA provide sufficient information for them to respond to the essay prompt.

Table 10

Science Teachers Reporting Level of Emphasis Placed on Evolution in Their Classes

	No emphasis		Slight emphasis		Moderate emphasis		Sustained emphasis	
State	*n*	%	*n*	%	*n*	%	*n*	%
Kentucky	2	66.7	1	33.3	0	0.0	0	0.0
Pennsylvania	8	100.0	0	0.0	0	0.0	0	0.0

Table 11

Social Studies Teachers Reporting Level of Emphasis Placed on Reconstruction in Their Classes

	No emphasis		Slight emphasis		Moderate emphasis		Sustained emphasis	
State	*n*	%	*n*	%	*n*	%	*n*	%
Kentucky	2	50.0	2	50.0	0	0.0	0	0.0
Pennsylvania	2	28.6	2	28.6	3	42.9	0	0.0

Chapter 3: LDC Implementation

In this chapter, we present descriptive findings from our implementation measures, including teacher logs, surveys, and analysis of LDC modules. Results were analyzed separately by state and subject area to explore potential implementation differences, but in the interest of space, the tabled data are provided in two appendices (Appendix C for survey results and Appendix D for log results). In reviewing these findings, it is important to keep in mind the small sample sizes and that while log, survey, and module samples overlap, they are not fully the same. For example, some teachers completed the survey but not the log and vice versa.

Teacher Background

Teachers' background, prior experience, and attitudes about literacy instruction, gleaned from teacher survey responses, provide important context for the implementation findings. Survey responses indicate a wide range of experience among participating Kentucky and Pennsylvania teachers. On average, Kentucky teachers and Pennsylvania science teachers had between 12 and 14 years of experience, with a range of three to 32 years of prior experience. Pennsylvania social studies teachers were somewhat less experienced, with a mean of eight years (see Table C1 in Appendix C).

Typical participating teachers in both states reported spending the majority of their teaching careers in the same district and at the same school. The majority of teachers in both states had special education students, students reading or writing below grade level, and students with advanced literacy skills in their current classrooms. Kentucky teachers had less experience than Pennsylvania teachers in teaching English language learners (see Table C2).

Teachers' reports on whether they were required to use LDC varied considerably across states and subjects. Nearly all Kentucky science teachers reported that LDC use was required, as did about two thirds of social studies teachers in both states. In contrast, half of responding Pennsylvania science teachers reported that their LDC participation was voluntary (see Table C3).

There was a fair amount of variation in teacher experience with developing and teaching LDC modules. All responding teachers reported that they had developed at least one LDC module during the 2012–2013 school year with the average teacher reporting a role in developing just under two modules. Based on the number of modules taught in 2011–2012 and 2012–2013, Pennsylvania teachers and Kentucky social studies teachers on average taught about four modules over the two school years. Kentucky science teachers, however, only taught an average of about 2.5 modules during this period. Note as well that although all study teachers

were at least trained in LDC by the 2011–2012 year, the range of responses indicate that at least some had not implemented a module until 2012–2013, the study year (see Table C4).

Generally, participating teachers in Kentucky and Pennsylvania agreed that content area teachers share responsibility for building students' literacy skills, and that writing can help students develop deeper conceptual understanding. Some respondents, particularly in Kentucky, however, were concerned that content area teachers do not have sufficient time to teach reading and writing (see Table C5).

Log Findings

The log data provide information on the forms of activities in which students were engaged during module implementation, the specific reading and/or writing activities in which students participated, and teachers' use of formative assessment. Note that there was wide variation across teachers, so the means reported below must be interpreted with caution. Results are reported by module and overall for each of the four categories of teachers (Kentucky and Pennsylvania social studies and science).

Across both states and subjects, teachers reported that by far, the most frequently used form of instruction was independent reading and/or writing, constituting half or more of classroom LDC time. Explicit strategy instruction—directly supporting student skill development—was relatively infrequent, making up on average less than 10% of classroom time; mini-lessons were also infrequent (see Tables D1 through D4 in Appendix D).

During the LDC reading component, teachers uniformly reported that independent reading and research, note-taking and annotation, summarizing information, and vocabulary were likely to be at least touched on briefly or a major focus of instruction. Social studies teachers in both Kentucky and Pennsylvania also reported some degree of focus on critical reading skills, such as drawing conclusions from text, citing textual evidence to support claims, and evaluating strengths and weaknesses of evidence. Building these skills seemed to be less of a focus in science classrooms in either Kentucky or Pennsylvania. Across states and subjects, critical analysis, such as comparing arguments, examining authors' perspectives and/or bias, distinguishing fact from opinion, and analyzing text structure were less emphasized, but were at least touched on according to most teachers' reports (see Tables D5 through D8).

Responses to log items on formative assessment strategies teachers used during the reading process component also illuminated differences between social studies and science teachers. While both social studies and science teachers reported frequently circulating and reviewing student work, social studies teachers were more likely to use a wider variety of strategies, such as listening as students had discussions about text and engaging students in questioning. If teachers

discovered misunderstandings, the most frequently cited strategy to address the misunderstanding was to conduct a one-on-one conference with a student. There also was some evidence of teachers using other approaches such as stopping the class and modeling a strategy, offering hints and suggestions, or simply giving students more time to self-correct (see Tables D9 through D16).

During the writing component of LDC modules, teachers across both states and subjects reported considerable attention to a number of writing skills, including text structure, how to write different types of paragraphs (introduction, body, conclusion), and incorporating quotes and evidence from texts. Formulating a thesis statement seemed to be a stronger focus in Kentucky than in Pennsylvania (see Tables D17 through D20).

The most commonly cited strategies for assessing student understanding during the writing process component were observing and reviewing student work, and reviewing students' rough drafts of the writing task. Teachers tended to use similar strategies to respond to misunderstanding as they did during the reading process component, including holding one-on-one conferences with students, offering hints or suggestions, or allowing more time for students to self-correct (see Tables D21 through D28).

Teacher Survey Responses

Below we focus on teacher survey responses to items aligned with the log foci, followed by results on variables likely to influence teachers' LDC implementation. The latter includes responses to a series of additional questions on teacher efficacy, school and district support for LDC, professional development, teacher collaboration, and perceptions of the effectiveness and impact of the initiative. As with the log data, survey responses show substantial teacher variation.

LDC implementation. The survey queried teachers about the relative time they spent on each of the four components of an LDC module: Introduction/orientation, reading, transition to writing, and writing. Responses suggest that Kentucky teachers spent relatively the most time on the writing process component, which accounted for about 36% of the LDC time, followed by the reading process component, which drew about a quarter of the module instructional time. Kentucky science teachers spent relatively more time introducing the module, while Kentucky social studies teachers focused more of their time on transitioning to writing. In Pennsylvania, teachers reported allocating roughly equal time to reading and writing, with about a third of the total module time devoted to each (see Table C6).

Similar to log responses, Kentucky and Pennsylvania teachers reported giving at least some attention to a range of reading skills and strategies during the reading component. The vast

majority of teachers reported giving at least some attention to all skill areas queried on the survey, with the exceptions being analysis of rhetorical devices, which drew little attention from all teachers, and examining authors' perspective, which was not typically a focus of science teachers.

There were indications that patterns of strong emphasis varied between the two states and subjects. For example, while large majorities of Pennsylvania teachers reported giving heavy emphasis to summarizing important points of reading, note-taking, and independent reading, these skills drew relatively less attention in Kentucky. In contrast, Kentucky social studies and science teachers particularly emphasized one skill area: drawing conclusions from evidence. In general, science teachers placed great emphasis on a smaller set of skills, including independent reading, summarizing important points, note-taking, and drawing conclusions from text (see Tables C7 through C10).

Turning to skill and strategy emphases during the writing component, survey responses indicate that teachers also gave substantial attention to a wide range of writing skills and strategies—a majority in each group gave at least some attention to nearly all of the skills queried by the survey. There was considerable variation across states and subjects, however, in the writing skills on which teachers placed strong emphasis. Kentucky teachers gave a great deal of emphasis to a larger group of writing skills than Pennsylvania teachers. Incorporating quotes and evidence seemed to be more important to science teachers (the only skill over half of Pennsylvania science teachers placed great emphasis on). Formulating counterarguments, particularly in Pennsylvania classrooms, drew little attention, as did using transitional words and phrases (see Tables C11 through C14).

Kentucky and Pennsylvania teachers further reported using a variety of strategies for assessing student learning during the course of instruction. The most common approaches across states and subjects were circulating to review student notes and work, asking students oral questions, reviewing student rough drafts, and grading student work. Peer-oriented strategies such as listening as students discussed reading or writing with peers and asking students to provide feedback to each other, were more heavily emphasized in Pennsylvania than Kentucky (see Tables C15 through C18).

Similarly, teachers reported using a wide range of strategies to respond to student misunderstandings observed during the course of instruction. However, the degree of emphasis on different strategies varied by state and subject. Holding one-on-one conferences with students and asking peers to provide feedback were more popular strategies in Pennsylvania. Social studies teachers more frequently than science teachers reported giving students more time to self-

correct. Grading student work was cited as a frequently used strategy by all four groups of teachers. Respondents tended not to use reteaching or reviewing the skill in later lessons as major strategies. In addition, the majority rarely or never responded with grammar exercises when they noticed problems in student work (see Tables C19 through C22).

Implementation support. Most teachers in both states and subjects reported that district leadership supported the LDC framework, although Pennsylvania social studies teachers and Kentucky science teachers were somewhat less likely to agree that district administrators understood the initiative. There was considerable variation across teachers in their reports on whether their school administrators supported LDC. Nevertheless, teachers in all groups tended to agree that school administrators understood the initiative, encouraged teachers to participate in it, and prioritized formative assessment.

Teachers, particularly in science, were considerably less likely to report that they received feedback about their LDC instruction from school administrators. Science teachers also were less likely to feel that school leaders communicated how LDC was aligned with other initiatives. Differences between science and social studies also emerged in reports on visits to classrooms by district leaders, school leaders, and colleagues during LDC module instruction. Just one fifth of Kentucky science teachers and one third of Pennsylvania science teachers received a classroom visit from a district or network LDC project lead, compared to 43% of social studies teachers in each state. Likewise one third of science teachers in each subject received visits by principals during LDC instruction, while half of Kentucky social studies teachers and nearly all of Pennsylvania social studies teachers reported principal visits. The pattern also held for visits from instructional coaches, department heads, and teacher colleagues (see Tables C23 through C27).

A gap between science and social studies teachers also is apparent in professional development participation; over 85% of social studies teachers participated in formal professional development for LDC compared to only half of science teachers. For those teachers that did participate, the number of sessions was on average two to three but ranged between one and six. Professional development took place in a wide variety of settings, and there was some variation across groups. For example, cross-district meetings not surprisingly were more common in Pennsylvania (where the Intermediate Unit plays a leadership role). Teachers who responded generally found the professional development in all settings to be effective. Professional development covered a wide variety of topics, but teachers reported relatively little attention on implementing modules with special needs students, including English language learners, special education students, and students with either high or low literacy levels (see Tables C28 through C37).

Turning to teacher collaboration, there was considerable variation across states and subjects in the frequency of collaboration. While over 85% of Kentucky social studies teachers, and over half of Kentucky science teachers and Pennsylvania social studies teachers reported regularly scheduled common planning time to discuss LDC, only one sixth of Pennsylvania science teachers did so. Reports on the frequency of formal and informal teacher collaboration varied quite a bit across teachers, states, and subjects. Scheduled meetings on LDC occurred at least every semester and often more frequently. Informal discussions were not surprisingly more frequent. Teachers generally found collaboration with their colleagues to be helpful in a variety of ways, including especially the development, implementation, and revision of the LDC modules. Kentucky science teachers seemed to find collaboration somewhat less helpful (see Tables C38 through C46).

Perhaps as a consequence of such collaboration and other support, respondents generally seemed confident in their ability to implement their modules. Some teachers, however, did appear to have concerns about how to use the instructional ladder. In particular, science teachers were more likely to report certain barriers to teaching LDC than social studies teachers. For example, science teachers struggled more with locating content-rich reading materials at an appropriate reading level, and with finding the time to give feedback on student writing and to develop modules. Science teachers were also less likely to feel they had sufficient time to prepare to teach modules (see Tables C47 through C51).

Attitudes about LDC efficacy. Teachers generally found LDC to be a helpful and effective tool. A majority of teachers in both subjects and states reported that LDC was helpful in meeting a wide variety of instructional goals, including implementing the CCSS, teaching literacy in content area classes, assessing their students' literacy strengths and weaknesses, and increasing the rigor of writing assessments. Smaller percentages of teachers reported that LDC was helpful in better engaging students. Similarly, across states and subjects teachers tended to agree at least somewhat that LDC was an effective tool in improving students' literacy, promoting formative assessment, and integrating literacy into secondary and content area classrooms (see Tables C52 through C59).

Despite general support for the initiative, a third or fewer teachers in each group reported that students were more engaged during LDC implementation than during non-LDC time. And in Kentucky, about a quarter of teachers felt their students were less engaged during LDC than their regular instruction (see Table C60).

The data provide some indication that students are struggling to meet the demands of LDC. Although a majority of teachers reported that students experienced at least some success on the

LDC final writing task, reading mini-tasks, and writing mini-tasks, fewer than half of teachers reported that students had a great deal of success on these tasks. Kentucky social studies teachers in particular were less confident about their students' success on the tasks, with about a third reporting students had little success on the writing mini-tasks and the final writing task, and half reporting students had little success on the reading mini-tasks. These results suggest that Kentucky and Pennsylvania teachers and their students may need help to increase the productivity of the reading and writing mini-tasks, as well as success on the final writing task (see Table C61).

However, although there was variation across respondents, teachers tended to agree at least somewhat that LDC had resulted in higher quality student writing and supported students' college readiness. Reflecting on their most recent module, most teachers in each of the four groups felt that a majority of their students had improved both their understanding of content and their literacy skills (see Tables C62 and C63).

LDC Module Analysis

As noted earlier, LDC modules and associated student assignments and work were collected as part of the log process and were scored on nine dimensions of quality. All teachers save one submitted two modules. In the absence of clear score differences, the results below combine scores across the two modules and are presented below by subject and state. Social studies and science modules were analyzed separately because raters exclusively scored modules in their subject area and any differences in subject matter findings may be the result of scorer differences. Further, given the small sample sizes and lack of representativeness, any observed differences lack generalizability and must be treated as tentative.

Social studies module results. Table 12 presents descriptive statistics for social studies modules by state. The data indicate that module scores generally are similar across the two states. Perhaps the biggest distinction is that teachers in Pennsylvania scored considerably higher on fidelity to LDC module instruction (D6). The higher score on this dimension likely reflects the fact that all teachers from Pennsylvania submitted modules designed on the online LDC platform, Module Creator. Approximately half of Kentucky social studies modules were submitted using an older paper template for LDC or without any template. If it was difficult for raters to identify the four skill clusters—Preparing for the Task, Reading Process, Transition to Writing, and Writing Process—the module could not receive a score of 3 on D6. However it is important to note that a module could earn a 3 on D6 by simply defaulting to mini-task options automatically provided in Module Creator for each skill cluster. In other words, the average

score of 3.35 in D6 for Pennsylvania social studies modules does not necessarily suggest that those teachers elaborated or expanded on the default options provided for instruction.

Of the other dimensions, the effectiveness of the writing task and the quality of text alignment, appropriateness, and rigor received relatively the highest ratings, indicating at least moderate quality. The quality of instructional strategies, module coherence, and raters' overall quality judgments received somewhat lower scores. Mean scores across all dimensions are essentially the same for Pennsylvania and Kentucky, 3.03 and 2.99 respectively (not shown in the table), indicating moderate quality. As with log and survey data, however, the module data also show substantial variation by teacher.

Table 12

Descriptive Statistics for Social Studies Modules by Dimension and State (n = *40)*

	Pennsylvania (*n* = 18)		Kentucky (*n* = 22)	
Dimension	*M*	*SD*	*M*	*SD*
Effective writing task	3.38	0.95	3.38	1.26
Alignment to literacy and content standards	2.71	0.99	2.10	1.19
Text alignment	3.36	1.09	3.48	1.28
Text appropriateness	3.07	0.86	3.36	1.03
Text rigor	3.02	1.03	3.58	1.25
Fidelity to LDC module instruction	3.35	0.64	2.70	1.33
Quality instructional strategies	2.80	0.87	2.86	1.13
Coherence and clarity of module	2.80	0.85	2.80	1.31
Overall impression	2.76	0.90	2.68	1.04

Note. Ratings are on a 1–5 point scale, where a score of 1 indicates that a dimension is not in evidence, 3 indicates that quality was moderately realized, and 5 indicates that quality is fully realized.

Science module results. Table 13 presents descriptive statistics for science module ratings by state. Results show a general advantage for Kentucky, particularly for fidelity to LDC module instruction, and again largely explained by Kentucky teachers' uniform use of Module Creator. Although the difference in the means across dimensions may appear substantial—3.44 for Kentucky and 3.05 for Pennsylvania (not shown in the table)—these do not rise to measurement significance. Given the high variability in scores, the lack of sample representativeness, and the possibility of preexisting differences between teachers, we caution the reader to avoid drawing inferences on how modules' quality may have varied between the two states.

Across all dimensions, Kentucky modules averaged moderate quality or higher. Relative strengths for the Pennsylvania modules included alignment to standards, text alignment and appropriateness, and fidelity to LDC, which were rated as at least moderate in quality.

Table 13

Descriptive Statistics for Science Modules by Dimension and State (n = *29)*

	Pennsylvania (*n* = 14)		Kentucky (*n* = 15)	
Dimension	*M*	*SD*	*M*	*SD*
Effective writing task	2.80	1.15	3.27	1.14
Alignment to literacy and content standards	3.18	1.11	3.21	1.24
Text alignment	3.39	1.10	3.62	1.27
Text appropriateness	3.10	1.14	3.69	1.04
Text rigor	2.80	1.08	3.25	1.36
Fidelity to LDC module instruction	3.59	0.79	4.00	1.03
Quality instructional strategies	2.92	1.00	3.19	1.24
Coherence and clarity of module	2.92	1.10	3.46	1.23
Overall impression	2.76	0.99	3.25	1.19

Note. Ratings are on 1–5 point scale, where a score of 1 indicates that a dimension is not in evidence, 3 indicates that quality was moderately realized, and 5 indicates that quality is fully realized.

Summary of Implementation Data

Results from teacher logs, surveys, and analysis of teacher-created modules and student work provide at least one consistent finding: Across all sources, the data show substantial variation across teachers in all aspects of LDC implementation, from how teachers allocated instructional time across the various components of LDC, to the primary organizational forms teachers used for instruction, the reading and writing skills they most emphasized in LDC instruction, and the specific strategies they used to formatively assess and provide students' feedback on their learning. The quality of LDC modules also varied substantially across teachers.

With this variation as a caveat, the findings provide a portrait of by whom, how, and with what support LDC was implemented by the study sample, as well as participating teachers' impressions of effectiveness.

Who. Survey results indicate that study teachers were generally highly experienced and stable in their positions, having spent most of their careers in the same districts and schools. Most of the study teachers had one to two years of experience beyond their initial training in implementing LDC. All of the teachers had participated in the development of at least one LDC

module and the majority had developed two or more modules. Although most of the teachers were required to participate in LDC, rather than having volunteered to do so, they felt committed as content teachers to help develop their students' literacy skills.

How. Log, survey, and module analysis results indicate that teachers followed the LDC framework. As indicated by the logs and surveys, students were engaged in independent reading and writing during the majority of LDC instructional time. While teachers tended to at least touch upon a wide variety of reading and writing skills during this time, they spent relatively little time in direct strategy instruction or in delivering mini-lessons. Note-taking and summarizing appeared to be relatively frequent student activities during independent reading, and for social studies classrooms, critical reading skills such as citing and evaluating evidence and using it to draw conclusions also were in evidence. There was little attention to critical analysis and synthesis skills, such as differentiating fact and opinion, comparing arguments, or analyzing authors' perspectives. In writing, teachers also reported some attention to a wide range of skills but with a relative emphasis on elements of structure. Across both reading and writing, teachers reported engaging in frequent formative assessment, involving multiple strategies for monitoring student learning and for responding to student misunderstandings as they occurred.

Analyses of teacher-developed modules provide a window into the quality with which LDC is being implemented. Fidelity to the LDC framework was judged a relative strength in the ratings, and ratings across most of the nine dimensions examined either approach or achieve moderate levels of quality. Results, however, also suggest room for improvement, which is to be expected given participating content teachers' experience levels with LDC and with teaching literacy.

With what support. Survey responses indicated that teachers felt their district leadership supported the LDC intervention, but school-level support was less consistent across the sample. All teachers participated in professional development and found it beneficial. Teachers found their colleagues collaborative, although formal time for planning and collaboration was uneven across the sample. Nonetheless, teachers reported that collaboration with their peers was very helpful in implementing LDC. Science teachers appeared to be less involved in professional development and collaboration than were their history/social studies peers.

Attitudes toward LDC. Teachers reported that they found LDC a helpful and effective tool in meeting a variety of goals, including implementing the Common Core State Standards, using formative assessment, incorporating literacy into content classrooms, and increasing the rigor of their writing assignments. At the same time, although teachers felt that LDC had benefited their students' writing and college readiness, less than half reported that their students

had a great deal of success on their LDC module reading and writing mini-tasks or on the final writing task. These results suggest that participating teachers may have needed additional help with the design and implementation of the modules and with their LDC instruction.

Chapter 4: Student Learning Results

The study used multiple measures of student learning both to examine LDC effects and to explore relationships between LDC implementation variables and student outcomes. Below we first provide descriptive results for both the CRESST ILAs and state assessment measures for the LDC sample only. The results of the quasi-experimental analysis of LDC effects on learning in Kentucky then follow.

Descriptive Results

Evolution and Reconstruction ILAs. As noted earlier, subject-specific CRESST-designed Integrated Learning Assessments (ILAs) were administered in Kentucky and Pennsylvania study classrooms. The social studies ILA focused on Reconstruction following the Civil War, while the science ILA assessed scientific thinking in the context of evolution. Each ILA included both a set of multiple choice and short answer items that addressed reading comprehension and analysis, and a final essay that was scored on five dimensions, each using a 1–4 scale. Writing results were summarized as a total score across the five dimensions and by dimension.

Table 14 and Table 15 display descriptive statistics for the total performance of students on the ILAs in Kentucky and Pennsylvania respectively for the reading and writing portions of the assessments. These results show considerable variation in performance across students in both states and assessments. However, mean reading and writing scores on both assessments were quite low. In reading, for both states, students on average earned roughly half of the total possible score points on both the Evolution and Reconstruction assessments. On the writing component, the mean scores ranged between 36% and 43% of the total possible, depending on the state and assessment.

Table 14

Descriptive Results of ILAs Administered in Kentucky

Assessment	Component	*n* of students	Total possible score	Mean score	*SD*	Minimum	Maximum
Evolution	Reading	166	15	7.59	3.13	0	15
Evolution	Writing	132	20	7.63	2.61	5	17
Reconstruction	Reading	252	18	9.90	2.90	1	16
Reconstruction	Writing	253	20	8.56	2.89	5	19

Table 15

Descriptive Results of ILAs Administered in Pennsylvania

Assessment	Component	*n* of students	Total possible score	Mean score	*SD*	Minimum	Maximum
Evolution	Reading	222	15	7.49	3.16	0	14
Evolution	Writing	203	20	7.29	2.37	5	16
Reconstruction	Reading	197	18	9.98	3.53	1	17
Reconstruction	Writing	205	20	7.87	2.69	5	17

As can be seen in Table 16 and Table 17, which combine data across states, student performance on the five writing dimensions was generally similar. On both ILA assessments, average dimension scores fell between Levels 1 and 2. Grammar and conventions appears to have been a relative strength. Mean scores on the Reconstruction writing task appear slightly higher than scores on the Evolution writing task. However, the two tasks are not directly comparable nor are study samples representative, so no inferences can be drawn about students' relative success in the two subject areas.

Table 16

Descriptive Statistics for ILA Evolution Writing Task Score Dimensions

Dimension	*n*	Mean	*SD*	Minimum	Maximum
Content understanding	335	1.30	0.58	1	4
Rhetorical structure/quality	335	1.44	0.59	1	3
Organization	335	1.54	0.75	1	4
Reference/support with text	335	1.41	0.58	1	4
Grammar and conventions	335	1.73	0.70	1	4

Table 17

Descriptive Statistics for ILA Reconstruction Writing Task Score Dimensions

Dimension	*n*	Mean	*SD*	Minimum	Maximum
Content understanding	458	1.57	0.70	1	4
Rhetorical structure/quality	458	1.68	0.67	1	4
Organization	458	1.68	0.76	1	4
Reference/support with text	458	1.48	0.65	1	4
Grammar and conventions	458	1.84	0.62	1	4

Kentucky Performance Rating for Educational Progress (K-PREP) results. As described earlier, the Kentucky study drew on eighth-grade students' end-of-year performance on three K-PREP assessments: reading, writing, and social studies. Table 18 displays descriptive statistics for these performance data at the end of the study year, 2012–2013, and the prior year. The 2012–2013 results in reading, writing, and social studies suggest that study LDC students scored just above the state mean in reading and social studies and just below it in writing, but differences are negligible. In the year prior, sampled students' performance was slightly above the state mean in reading and slightly below it in social studies, but again the differences are negligible (3 scale score points). (See Pearson, 2012, 2013, for data on statewide Grade 8 results.)

Table 18

LDC Students' K-PREP Performance for Study and Prior Years

Variable	*n*	Mean	*SD*	Minimum	Maximum
K-PREP reading					
Study year, 2012–2013	2529	213.27	15.23	157	278
Prior year, 2011–2012	2529	211.34	15.84	162	274
K-PREP writing					
Study year, 2012–2013 only	2529	10.02	2.59	0	16
K-PREP social studies					
Study year, 2012–2013	2529	215.94	17.01	109	300
Prior year, 2011–2012	2529	218.36	15.74	114	300

Note. Scores are for LDC students as eighth-graders in 2012–2013, and seventh-graders in 2011–2012.

Before moving to our analysis of the extent to which LDC and features of it influenced student learning, we report on the correlations between the five study measures addressing

student learning outcomes: ILA writing, ILA reading, K-PREP reading, K-PREP writing, and K-PREP social studies, all of which were administered in spring of the study year. As one would expect from measures addressing different constructs, correlations shown in Table 19 and Table 20 are moderate. The relatively highest correlations, .6 and above, are between the different K-PREP measures. Moderate correlations were also found between reading-oriented K-PREP measures (K-PREP reading and K-PREP social studies) and ILA reading. K-PREP writing and ILA writing show a relatively low correlation. While this may seem surprising at first glance, there are two explanations. First, both measures are based on a small sample of tasks—one for the ILA and two for the K-PREP direct writing assessment. Substantial research indicates the very limited generalizability of individual student scores on such tests (Cronbach, Linn, Brennan, & Haertel, 1995; Gao, Shavelson, & Baxter, 1994; Resnick, Resnick, & DeStefano, 1993). That is, students' writing performance is likely to vary with different topics and types of writing tasks, so it takes many tasks to get a reliable estimate of student writing. As a result, both K-PREP and ILA writing scores contain substantial error, which depresses correlations between the two. Second, the two assessments are conceptually different. Only one of the two K-PREP writing tasks is passage based, and it involves only one passage to stimulate writing, while the ILA involves the synthesis of multiple texts with background knowledge.

Table 19

Correlation Between Evolution ILA and State Assessments

	Evolution ILA writing score	Evolution ILA reading score	2013 K-PREP reading	2013 K-PREP writing	2013 K-PREP social studies
Evolution ILA writing score	—				
Evolution ILA reading score	0.61 (121)	—			
2013 K-PREP reading	0.61 (121)	0.56 (151)	—		
2013 K-PREP writing	0.58 (121)	0.51 (151)	0.74 (152)	—	
2013 K-PREP social studies	0.58 (121)	0.55 (151)	0.80 (152)	0.68 (152)	—

Note. n presented in parentheses.
All correlations significantly different from zero ($p < .0001$).

Table 20

Correlation Between Reconstruction ILA and State Assessments

Assessment	Reconstruction ILA writing score	Reconstruction ILA reading score	2013 K-PREP reading	2013 K-PREP writing	2013 K-PREP social studies
Reconstruction ILA writing score	—				
Reconstruction ILA reading score	0.45 (233)	—			
2013 K-PREP reading	0.54 (242)	0.60 (239)	—		
2013 K-PREP writing	0.46 (242)	0.37 (239)	0.60 (252)	—	
2013 K-PREP social studies	0.49 (242)	0.62 (239)	0.68 (252)	0.46 (252)	—

Note. n presented in parentheses.
All correlations significantly different from zero ($p < .0001$).

Quasi-Experimental Analysis of LDC Effects in Kentucky

This section presents the results of our quasi-experimental design analysis of the impact of LDC in social studies and science classes on student learning in Kentucky. We begin by describing the treated teacher and student samples for the analysis. We then summarize the matching process we used to select similar comparison students and to control for the prior effectiveness of teachers and schools. Next we outline the structure and design of the two hierarchical linear models (HLMs) we employed to estimate the impact of LDC. Finally we present the results of LDC's impact on three outcome measures—K-PREP reading, writing, and social studies—using the two modeling approaches.

Teacher and student sample. As described earlier, our LDC teacher sample includes all eighth-grade social studies and science teachers in the five target Kentucky school districts who began teaching LDC in either 2010–2011 or 2011–2012 and continued implementing LDC in 2012–2013. This group included 37 teachers, of whom seven are Phase 1 (began LDC participation in 2010–2011) and 30 are Phase 2 (began participation in 2011–2012). As we explain further below, our analyses, where possible, control for the prior effectiveness of teachers by calculating the "value added" to their students using assessment scores from 2008–2009 and 2009–2010 (prior to the start of the LDC initiative). These data were available for five of the seven Phase 1 teachers, and 17 of the 30 Phase 2 teachers. Table 21 summarizes the phase participation and availability of prior effectiveness data for our group of treatment teachers.

Table 21

Treatment Teacher Sample by Phase Participation and Availability of Prior Effectiveness Data

	Data available for prior effectiveness	
	Yes	No
Phase 1 (began participation in 2010–2011)	5	2
Phase 2 (began participation in 2011–2012)	17	13

The eligible student sample for the analysis includes all students (a) who were enrolled in an eighth-grade social studies or science class taught by one of the 37 teachers, and (b) for whom prior achievement scores were available. This sample includes 2,529 students and is described in Chapter 2 of this report. As noted in Chapter 2, these students are quite similar to all students statewide on both demographic and student achievement variables. The treatment sample does have a higher proportion of White students, lower proportion of Black students, and slightly lower proportion of students eligible for free or reduced price lunch than the population of students statewide.

Selection of comparison students. Treatment students and teachers were not randomly selected to participate in the LDC initiative. To estimate the impact of LDC it is therefore necessary to control for the effects of student, teacher, and school characteristics. One way to control for these characteristics is to use matching techniques to identify a group of comparison students who are demographically and academically similar to the intervention students. Our matching is conducted at the student level, and accounts not only for student demographics and prior achievement, but also the prior effectiveness of teachers and schools as well.

We employ a matching technique known as Coarsened Exact Matching (CEM) to identify comparison students. Coarsened Exact Matching is a flexible matching approach with many favorable properties, and allows the researcher to specify the precise conditions under which a comparison student may be matched with an intervention student. For categorical variables such as race/ethnicity or free/reduced price lunch status, this often entails exact matching, while for continuous measures, such as prior outcomes and prior teacher effectiveness scores, cut-points for matching can be specified. With this approach we can set precise cut-points on the most important prior indicators such as prior academic achievement to ensure that where possible every treatment student is matched with a suitable comparison.

This process was applied for each of the three outcome measures, resulting in three matched datasets. Creating separate matched datasets for each outcome maximized the sample

size for each outcome analysis as patterns of missing data varied across outcome measures. Table 22 summarizes the variables used for the matching. Please note that although we include indicators for students, teachers, and schools, all matching is at the student level. Student characteristics in the model include a number of demographic variables (race/ethnicity categories, gender, free and reduced price lunch eligibility, etc.) as well as prior achievement on two state assessments (reading and science). In addition to controlling for these student characteristics, our matching methodology also selected comparison students whose teachers had similar prior effectiveness. Prior effectiveness was produced by calculating a teacher's value added on student learning in 2009–2010. The assessments used for this variable depended on the outcome measure we were testing; the matching model used to test the impact of LDC on writing used writing scores for 2008–2009 and 2009–2010 to calculate prior teacher effectiveness, and likewise for reading and social studies. Students under teachers without prior effectiveness data were matched to comparison students under teachers with missing data as well (most of these teachers were likely new to the profession). Finally, a school prior effectiveness variable was calculated using prior seventh-grade science, math, and reading assessment data. Seventh-grade data were used to ensure that the school effectiveness variable was independent of the teacher effectiveness variable in the matching model.

Table 22

Summary of Matching Variables

Indicator type	Variable
Student	Gender
Student	White
Student	Hispanic
Student	Black
Student	Asian
Student	Special education
Student	Free/reduced price lunch eligible
Student	Title I
Student	English language learner
Student	Prior achievement in reading
Student	Prior achievement in science
Teacher	Availability of teacher prior effectiveness data
Teacher	Teacher prior effectiveness
School	School prior effectiveness

The CEM process was successful in finding similar matches for a large majority of the eligible 2,529 LDC students. Ninety-one percent of the treatment students were retained in the sample for the writing outcome analysis after matching, as were 88% of treatment students for the reading analysis and 90% for the social studies analysis. See Table 23 for a summary of the number of treatment and control students before and after matching. The matching models were effective in achieving close balance with regard to prior student scores and demographics, as well as for the teacher and school effectiveness indicators (see Tables E1 through E3 in Appendix E for prior achievement and demographic characteristics of eligible and matched treatment and comparison samples for each outcome; for ease of interpretation, we display only student characteristic variables in these Appendix tables and leave out teacher and school effectiveness variables).

Table 23

Summary of Treatment and Comparison Samples by Outcome

Sample	Treatment	Comparison
Eligible for matching	2529	43333
Matched sample for writing	2300	12208
Matched sample for reading	2232	13174
Matched sample for social studies	2284	18265

Modeling approach. For each of the three outcome measures, two separate two-level hierarchical linear models (HLMs) are employed. Each HLM attempts to model students' dosage under treated and non-treated teachers in eighth-grade science and social studies courses. In each model, where possible, measures of teacher effectiveness on the outcome measure of interest prior to the LDC intervention are estimated and used as value-added controls. Student demographic and prior achievement variables, and teacher and school prior effectiveness are also included in the models. Our estimates therefore control for observables in two ways, at the matching and modeling stages. The models also examined potential interactions between the LDC treatment and prior school and teacher effectiveness as well as student characteristics. These interaction variables were intended to test whether LDC had differential effects on student learning depending on the school, teacher, and/or individual student's standing on the given variable. These interaction analyses should be considered highly exploratory and results treated as tentative.

Table 24 summarizes how observations are defined at each level in the two HLMs. In Model 1, Level 1 observations are student/course combinations. As a result each student can be and likely is represented multiple times at Level 1. A weight is applied to Level 1 observations so that each student's science course(s) cumulatively sum to 0.5, and each student's social studies courses cumulatively sum to 0.5. Thus a student who took some combination of science and social studies courses will receive a cumulative weight of 1. One individual teacher is associated with each student/course observation and thus each individual teacher is an independent observation at Level 2.

In Model 2, each observation at Level 1 represents one student. Level 2 observations represent the combination of a social studies and science teacher. To simplify the design, students with more than one science or social studies teacher were randomly assigned one of those multiple teachers. Therefore, each Level 1 observation is associated with one Level 2 observation. This should not present a significant problem as a substantial majority of students in 2012–2013 were associated with only one science and one social studies teacher. Prior teacher and school effectiveness indicators were aggregated as cumulative sums for the teacher combination at Level 2.

Table 24

Observations by Level for Two Hierarchical Linear Models

Level	Model 1	Model 2
Level 1	Student/course combination	Student
Level 2	Teacher	Social studies and science teacher combination

Each of the two models has advantages. In Model 1, it is not necessary to remove any teacher observations. However, the repetition of students at Level 1 is somewhat nonstandard and therefore the standard errors may be underestimated. On the other hand, the structure of Model 2 requires that a small amount of information on teacher impact be eliminated, but the structure of the model is more standard, and therefore we have a higher level of confidence regarding the standard errors. Overall we favor Model 2 given greater confidence regarding standard errors, and we therefore choose to display those results in the next section. Detailed results from both models, which show a high level of consistency across model specifications, are displayed in Appendix Tables E4 through E9.

Further, note that prior teacher effectiveness was a variable of interest but was missing for some teachers because they were relatively new to the system or were not teaching at the same

grade at the prior time point. Our Coarsened Exact Matching process matched treatment students under LDC teachers whose data were missing with comparison students whose teachers also had missing scores; the missing teacher effectiveness scores were set at zero. Because we have more confidence in the match for those teachers who were not missing information from the period prior to intervention, we created and tested the effect of missing and the interaction between treatment and teachers who were missing prior data; we also tested the joint significance of the main LDC effect and its interaction with missing since we lose some power to find an overall effect by testing these effects separately. These analyses showed no significant main or interaction effects for missing and therefore these variables were excluded from subsequent analyses.

HLM results of the impact of LDC on student learning. HLM results for Model 2 for each of the three primary outcomes are displayed in Table 25, Table 26, and Table 27. The models shown here include a number of interactions between treatment status and student characteristic variables, as well as the interaction between treatment status and the prior effectiveness of the teacher. Results for Model 1 and for models not including the interaction terms are presented in Tables E4 through E9 in Appendix E. It should be noted that in Model 1 at Level 2 each teacher is coded as 1 if s/he was in the LDC intervention and zero if not. In Model 2, each teacher combination observation at Level 2 would receive a value of zero if neither teacher were treated, 1 if one of the two were treated, and 2 if both teachers were treated. Thus the treatment effect coefficients for each model represent the effect of one treated teacher. While the value-added models controlled for all of the student, teacher, and school indicators previously discussed, we limit our presentation in the body of the report to the intervention effects of interest. Table 25 shows HLM results for the K-PREP reading scores. The data indicate that LDC had a small statistically significant, positive effect on students' reading performance. LDC students scored higher in reading than did their carefully matched comparison group, demonstrating that LDC had a measurable effect on students' literacy learning.

To provide a benchmark for interpreting this effect, we used a relatively new methodology to convert the effect size into a gross indicator of the number of months of learning it represents (see Hill, Bloom, Black, & Lipsey, 2007). Following this approach, we used available data to estimate the growth in K-PREP reading scores from eighth to ninth grade. We then determined the proportion of typical growth represented by the observed LDC effect size—that is, the LDC effect size divided by the effect size expected from Grade 7 to Grade 8. We then used this proportion to calculate the number of months, relative to a nine-month academic year, the additional growth associated with LDC. Relative to typical growth in reading from eighth to ninth grade, the calculation found that the effect size for LDC represents 2.2 months of

schooling. Given that a typical Kentucky teacher spent four to eight weeks teaching LDC, it appears that LDC was effective in achieving literacy gains in a shorter period of time than regular instruction.

Table 25

2012–2013 LDC Student Effect Estimates on K-PREP Reading, Including Interactions With Prior Teacher Effectiveness and Student Characteristics

Level 2 variables	Model coefficient (*SE*)
LDC treatment	0.058 (0.023)*
LDC treatment by teacher effectiveness	-0.181 (0.202)
Level 1 treatment by student characteristic interactions	
Gender	-0.004 (0.017)
Special education	-0.110 (0.034)*
Free/reduced price lunch eligible	0.053 (0.017)*
Prior achievement	0.034 (0.011)*

Note. Fixed effects for demographic predictors and for prior school and teacher effectiveness not shown.
*p = .05.

The data also show interactions between LDC effects and student characteristics. Both students' prior achievement, based on their prior year K-PREP scores, and students' socioeconomic status (SES), as revealed by their free or reduced price lunch status, show positive interactions with the treatment. That is, LDC students who were relatively higher achieving prior to their LDC experience showed relatively greater benefit than did those who started relatively lower achieving, although the observed effect is very small. Interestingly, LDC students eligible for free or reduced price lunch also appeared to have benefited more from LDC, after controlling for other variables. Although, again, the observed effect was very small, we speculate that LDC students with lower SES status perhaps had access to special resources (e.g., Title I programs, specialist teachers) that provided essential support. We did not find evidence of differential effects of LDC by gender. Controlling for other factors, special education students appeared to do less well under LDC; however the share of students falling into this category was small.

The results for K-PREP social studies are shown in Table 26. The coefficient for the main effect for LDC is small and not statistically significant, indicating that LDC's addition of literacy to course requirements did not diminish students' content performance. Table 26 also reveals a significant interaction between prior teacher effectiveness and LDC. LDC students taught by

teachers who were relatively less effective prior to LDC benefited more than did students of relatively more effective teachers. However, this interaction is difficult to interpret and should be treated cautiously given that all teachers', including science teachers', prior effectiveness scores were based on their students' eighth-grade social studies performance for the study's baseline year (because Kentucky does not assess science in eighth grade).

Students' prior year performance on the K-PREP and their free or reduced price lunch status show the same, small positive interaction with LDC treatment status as in the reading outcome model. LDC students who started the year performing at a relatively higher level experienced more benefit from LDC in their social studies performance, as did students who were from a relatively lower SES, as evidenced by their free or reduced price lunch status. We did not find differential treatment effects of LDC by gender or special education status.

Table 26

2012–2013 LDC Student Effect Estimates on K-PREP Social Studies, Including Interactions With Prior Teacher Effectiveness and Student Characteristics

Level 2 variable	Model coefficient (*SE*)
LDC treatment	-0.026 (0.023)
LDC treatment by teacher effectiveness	-0.288 (0.082)*
LDC treatment by student characteristics interactions	
Gender	0.013 (0.016)
Special education	-0.007 (0.037)
Free/reduced price lunch eligible	0.039 (0.019)*
Prior achievement	0.050 (0.017)*

Note. Fixed effects for demographic predictors and for prior school and teacher effectiveness not shown.
*p = .05.

K-PREP writing results, as shown in Table 27, show neither main nor interaction effects for LDC. There is no evidence of any impact of the LDC intervention on this particular writing assessment.

Table 27

2012–2013 LDC Student Effect Estimates on K-PREP Writing, Including Interactions With Prior Teacher Effectiveness and Student Characteristics

Level 2 variable	Model coefficient (*SE*)
LDC treatment	0.030 (0.042)
LDC treatment by teacher effectiveness	0.004 (0.120)
LDC treatment by student characteristics interactions	
Gender	-0.032 (0.031)
Special education	0.031 (0.047)
Free/reduced price lunch eligible	-0.002 (0.027)
Prior achievement	0.016 (0.016)

Note. Fixed effects for demographic predictors and for prior school and teacher effectiveness not shown.
*p = .05.

Summary of Student Learning Results

In summary, the Kentucky HLM results suggest a small positive LDC treatment effect on K-PREP reading scores, an effect size which translates into approximately 2.2 months of instruction based on available methodology. Neither K-PREP social studies nor K-PREP writing scores provide any evidence of a treatment effect in either direction. In both reading and social studies, the analyses found positive interaction effects for students' prior achievement and free/reduced price lunch status and a negative interaction with students' special education status. These findings suggest that initially higher performing students received relatively more benefit from LDC than did initially lower performing students and that lower SES status, as indicated by free and reduced price lunch status, was associated with higher scores. Special education students appeared to derive less benefit from LDC. In addition, the social studies analysis revealed a negative interaction with prior teacher effectiveness, indicating that students whose teachers were initially relatively more effective showed less benefit than their peers with teachers who were initially less effective.

The Pennsylvania data show no evidence of any effect of LDC. However, the limitations of the available data render these analyses inconclusive.

Chapter 5: Implementation Variables Related to LDC Success

In this chapter, we report on analyses of the relationship between variables derived from our implementation measures and student outcomes. Drawing on data from the three implementation measures—teacher log, teacher survey, and LDC module analysis—we explored a variety of composite implementation variables and examined their relationship to student learning outcomes. Because of data limitations in Pennsylvania, the analysis focuses on Kentucky teachers. When more standard regression analyses failed to produce stable patterns of results, we investigated the extent to which a variety of implementation variables differentiated LDC teachers at relatively high, middle, and low levels of effect on student learning, based on the estimated value added of teachers during the study year. We then compared the mean scores on each variable using an ANOVA difference in means test. These processes are further described in the following section. Because these analyses are exploratory, particularly given the small sample sizes, results should be interpreted with caution.

Identification of Implementation Variables

Both substantive theory and psychometric analysis guided the development of composite variables. Our identification of priority variables centered on evidence-based teacher practices that were likely to influence student learning (e.g., Heritage, 2010; Herman, Osmundson, Dai, Ringstaff, & Timms, 2011; Hinchman & Sheridan-Thomas, 2008) and on variables that influence the implementation of new practices and programs—for example, teacher beliefs, sense of efficacy, leadership support, collaboration, and professional development (see for example, Fullan, Hargreaves, & Lieberman, 2010; O'Day, Bitter, & Gomez, 2011; Supovitz & Weinbaum, 2008). Through cycles of hypothesis generation and a variety of exploratory factor analyses (EFA) and cluster analyses, we identified 19 variables for additional study.

These variables, their sources, and operational definitions are shown in Table 28.

Table 28

Teacher-Level Implementation Variables Used in Within-Treatment Analyses

Instrument source	Variable	Description
LDC module measure	Overall module quality	An overall module quality score was created as the mean score across the nine dimensions for each module, averaged for the two modules submitted by each teacher.
Teacher log	Range and intensity of reading instruction	Sum of reading skills reported for each teacher log in which reading was addressed. A mean total score for each teacher was then computed as the average across all relevant logs. Scores for each reading skill indicated the emphasis it was given that day: *focus of student work* = 2; *touched on briefly* = 1; *not today* = 0.
Teacher log	Attention to close reading of text	Mean sum of reading skills reported representing high-level analysis of text on logs for which reading was addressed. Scores for each close reading item indicated the emphasis it was given that day: *focus of student work* = 2; *touched on briefly* = 1; *not today* = 0.
Teacher log	Attention to basic reading skills	Mean sum of basic reading skills items reported on logs for which reading was addressed. Scores for each basic reading skill item indicated the emphasis it was given that day: *focus of student work* = 2; *touched on briefly* = 1; *not today* = 0.
Teacher log	Attention to writing skills	Mean sum of all writing skills reported on logs for which writing was addressed. Coding: *focus of student work* = 2; *touched on briefly* = 1; *not today* = 0.
Teacher log	Range and intensity of formative assessment of student learning	Mean sum of all formative assessment practices reported in logs addressing reading and/or writing. Scores for each formative assessment practice indicated the extent to which it was used: *to a great extent* = 2; *to some extent* = 1; *not at all* = 0.
Teacher log	Range and intensity of feedback to students	Mean sum of all practices for providing feedback to students based on student work in reading and writing. Scores for each feedback practice indicated the extent to which it was used: *to a great extent* = 2; *to some extent* = 1; *not at all* = 0.
Teacher log	Range and intensity of teacher literacy practices (reading skills, writing skills, formative assessment)	Continuous variable measuring the extent to which teachers reported attention to: reading skills, writing skills, formative assessment practice, and providing feedback. Each of these four domains was weighted equally to create the variable.
Teacher log	Teacher log cluster variable: High quantity literacy practice	Cluster binary variable distinguishing teachers who reported conducting a greater quantity of practices during LDC module instruction from teachers who reported a smaller quantity of practices. Variable was created by first performing cluster analysis on individual items in each domain (reading skills, writing skills, formative assessment), and then performing a second cluster analysis using the identified cluster variables.
Teacher survey	Factor 1: Attention to close reading of text	Factor 1 derived from exploratory factor analysis including teacher survey items on attention to reading skills, writing skills, and use of formative assessment. Factor 1 reflected reading items related to close reading of text. Variable confirmed and tested for reliability using confirmatory factor analysis.

Instrument source	Variable	Description
Teacher survey	Factor 2: Attention to paragraph writing/structure	Factor 2 derived from exploratory factor analysis including teacher survey items on attention to reading skills, writing skills, and use of formative assessment. Variable reflected writing items related to paragraph construction and structure of writing. Confirmed and tested for reliability using confirmatory factor analysis.
Teacher survey	Factor 3: Teacher-led formative assessment practice	Factor 3 derived from exploratory factor analysis including teacher survey items on attention to reading skills, writing skills, and use of formative assessment. Variable reflected teacher-oriented formative assessment practices. Confirmed and tested for reliability using confirmatory factor analysis.
Teacher survey	Factor 4: Peer-oriented formative assessment practice	Factor 4 derived from exploratory factor analysis including teacher survey items on attention to reading skills, writing skills, and use of formative assessment. Variable reflected student-to-student formative assessment practices. Confirmed and tested for reliability using confirmatory factor analysis.
Teacher survey	Total modules taught in 2011–2012 and 2012–2013 school years	Sum of responses to teacher survey Questions 16 and 17.
Teacher survey	Support for teaching literacy in content area classrooms	Mean across three items addressing content teachers' time and responsibility for teaching literacy. Coding: *disagree* = 0; *disagree somewhat* = 1; *agree somewhat* = 2; *agree* = 3.
Teacher survey	Teachers' perceived capacity to teach LDC	Mean response to questions about teacher efficacy (Question 26) and barriers with regard to LDC (Questions 39). Coding: *disagree* = 0; *disagree somewhat* = 1; *agree somewhat* = 2; *agree* = 3, with Items 39c–g reverse coded.
Teacher survey	District and school support for LDC	Mean response to items about various ways that district and school leadership show support for LDC (Question 43). Coding: *disagree* = 0; *disagree somewhat* = 1; *agree somewhat* = 2; *agree* = 3.
Teacher Survey	Utility of teacher collaboration	Mean response to items asking about extent and helpfulness of teacher collaboration in implementing LDC (Question 49). Coding: *disagree* = 0; *disagree somewhat* = 1; *agree somewhat* = 2; *agree* = 3.
Teacher survey	Professional development dosage	The number of formal scheduled LDC PD sessions in 2012–2013 (Question 55).

As the table shows, the implementation analyses included a variable representing overall module quality, which was calculated by taking the mean of the nine quality dimension scores and then averaging across modules to the teacher level. As noted in the appended report on the CRESST Assignment Measure, factor analyses indicated that all the module dimensions load on a single factor, supporting the claim that the CRESST Assignment Measure effectively measures a single coherent trait. Analyses in this chapter thus are limited to the mean dimension score and do not test differences on individual dimensions.

A number of teacher-level implementation variables were created from teacher log responses. The variables are summary measures of teacher responses in four key domains of the log, which also represent component emphases for LDC: teachers' daily focus on reading skills, teachers' daily focus on writing skills, teachers' daily use of strategies to assess student learning, and teachers' daily use of strategies to provide feedback to students. The latter two domains together constitute our measure of formative assessment practice. Mean sum variables were created for each domain, based on both the number of skills or strategies the teacher reported when reading and/or writing was addressed and the depth of attention reportedly given to the skill (e.g., on the writing variable, a writing skill would be coded as 2 if the teacher reported it was a primary focus on the day of the log, and a 1 if the teacher reported that it was only touched on briefly). For the reading skills domain, we also separated mean sum variables for two subgroups of items: those emphasizing close reading of text and those addressing more basic reading skills. The decision to analyze this domain at a finer level of detail was based on both our theoretical assumptions regarding the relative importance of skill development in these two areas and exploratory analysis of the log and survey data that provided evidence of the dichotomy.

Finally, we included two variables that attempt to capture variety in the teachers' reported attention to all four domains. One variable is the mean sum of activity reported across all four domains described above, with equal weighting given to each. The second variable is a binary indicator derived from cluster analysis, a statistical methodology that creates a specified number of teacher groups based on the association of teacher responses to a series of items. We conducted separate cluster analyses for each of the above four domains. In each case, the derived clusters separated teachers into two groups: a high group that was high in reported practice in each domain and a low group, which represented those who reported a smaller sum of practice. We then conducted a second cluster analysis using the derived cluster variables. The final cluster variable is a binary variable (i.e., coded 1/0) that distinguishes two groups based on the individual cluster scores. The first group reflected teachers who were high on all the individual clusters and the second, teachers who were low on all the individual clusters. The two clusters thus represent teachers who more extensively implemented targeted practices in each domain (coded 1) versus those whose implementation was relatively less extensive.

The teacher survey variables include four factors derived from an exploratory factor analysis.[2] This factor analysis included all survey items designed to parallel the log reports in

[2]Note that the exploratory factor analysis was performed on a larger sample of teachers that included teachers in Pennsylvania and from our parallel study of sixth-grade reading in Florida. Reliability analyses focused just on the Kentucky teachers and suggested that the constructs held for the smaller sample of teachers.

four key domains: reading skills, writing skills, assessing student learning, and feedback. Exploratory factor analysis clustered items in four theoretically distinct factors which we characterized as attention to close reading of text, paragraph writing/structure, teacher-led formative assessment practice, and peer-oriented formative assessment practice. We then tested the reliability of the identified factors. As can be seen in Table 29, reliability was high for each of the factors, including Factor 4, which had relatively few items. Other survey variables include the total number of modules taught in 2011–2012 and 2012–2013 (a measure of teacher LDC experience), a measure of teachers' commitment to teaching literacy in content area classes, a measure designed to capture teachers' perceived capacity to teach LDC, perceived district and school support for LDC, the perceived utility of teacher collaboration around LDC, and a variable measuring the amount of professional development received.

Table 29

Reliability of Teacher Survey Factors

Factor	Description	Number of items	Cronbach's alpha
1	Close reading	10	.89
2	Paragraph writing/structure	4	.84
3	Teacher-led formative assessment strategies	11	.83
4	Peer-oriented formative assessment strategies	3	.74

Methodology

The teacher sample for this analysis included the 17 Kentucky teachers with complete data for each of the three measures (assignment, log, and survey). The analysis took part in two stages. First HLM models were used to calculate the value added for each teacher and break the teachers into three groups based on their effectiveness. Second, ANOVA difference in means tests were used to see if there was a statistical difference between the groups on each of the chosen implementation variables. The student sample included 352 students from the 17 teachers' classes for whom we have valid 2012 K-PREP pre-scores, 2013 K-PREP outcome scores, and reading and writing scores on a CRESST ILA. The ILA portion of the outcome measure was based on either the Reconstruction or Evolution topic, depending on whether a given student was participating in an LDC classroom in history/social studies or science.

HLM was used to classify teachers into three levels of relative effectiveness, teachers whose students achieved relatively high, medium, and low levels of performance during the study year. The analysis controlled for students' prior year, 2012 performance on K-PREP

reading and science assessments and used a composite outcome measure to determine teachers' relative value added. Scores on the four available 2013 measures—2013 K-PREP reading, 2013 K-PREP writing, ILA reading, and ILA writing—were standardized and then averaged to create a more robust overall measure. As noted in Chapter 2, correlations between K-PREP and ILA scores are moderate, which is not surprising given differences in the design and intended learning targets of the two measures. By averaging the scores across the two, we sought to capture a fuller and more reliable picture of student learning than any of our measures would individually—for example, K-PREP which is not as well aligned to LDC, and the ILAs which are better aligned but show lower reliability than the K-PREP.

Table 30

Mean Scores on Implementation Variables for Teachers With Low, Medium, and High Value Added and ANOVA Test of Difference in Means

		Low value added (n = 5)			Medium value added (n = 7)			High value added (n = 5)				
Instruments	Variable	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*	Test statistic	*p* value
Assignment measure	Overall module quality	5	3.27	0.53	7	3.05	0.80	5	3.63	0.89	0.84	0.45
Teacher log	Range and intensity of reading instruction	4	6.73	2.56	7	11.93	7.08	5	10.78	3.30	1.26	0.32
Teacher log	Attention to close reading of text	4	1.63	1.49	7	3.95	2.26	5	3.10	1.55	1.91	0.19
Teacher log	Attention to basic reading skills	4	5.10	1.71	7	7.98	4.91	5	7.68	1.79	0.90	0.43
Teacher log	Attention to writing skills	4	7.06	1.20	7	12.27	6.93	5	12.37	5.91	1.24	0.32
Teacher log	Range and intensity of formative assessment of student learning	4	7.85	2.17	7	10.85	5.56	5	8.86	8.24	0.35	0.71
Teacher log	Range and intensity of feedback to students	4	7.96	5.69	7	15.05	7.04	5	12.25	12.94	0.78	0.48
Teacher log	Range and intensity of teacher literacy practices (reading skills, writing skills, formative assessment)	4	5.42	1.38	7	9.29	3.96	5	8.43	4.27	1.47	0.27
Teacher log	Teacher log cluster variable: high quantity literacy practice	4	0.25	0.50	7	0.86	0.38	5	0.60	0.55	0.04	0.15
Teacher survey	Factor 1: Attention to close reading of text	3	-0.57	0.23	7	0.14	0.93	5	-0.11	0.54	0.97	0.41
Teacher survey	Factor 2: Attention to paragraph writing/structure	3	-0.45	0.50	7	0.15	0.88	5	0.02	0.38	0.79	0.48
Teacher survey	Factor 3: Teacher-led formative assessment practice	3	-0.54	1.01	7	0.50	0.75	5	0.01	0.63	2.04	0.17

Instruments	Variable	Low value added (n = 5)			Medium value added (n = 7)			High value added (n = 5)			Test statistic	p value
		n	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*		
Teacher survey	Factor 4: Peer-oriented formative assessment practice	3	-0.62	0.83	7	-0.10	1.10	5	-0.49	0.55	0.45	0.65
Teacher survey	Total modules taught in 2011–2012 and 2012–2013 school years	3	3.33	0.58	7	3.86	1.07	5	3.60	0.55	0.42	0.67
Teacher survey	Support for teaching literacy in content area classrooms	3	2.22	0.19	7	2.29	0.30	5	2.07	0.15	1.21	0.33
Teacher survey	Teachers' perceived capacity to teach LDC	3	1.03	0.56	7	1.53	0.40	5	2.00	0.67	3.18	0.08
Teacher survey	District and school support for LDC	3	1.58	0.38	6	2.13	0.48	5	2.20	0.54	1.67	0.23
Teacher survey	Utility of teacher collaboration	3	1.88	1.07	7	2.55	0.56	5	2.58	0.95	0.88	0.44
Teacher survey	Professional development dosage	3	1.67	1.53	7	2.29	1.11	5	3.80	1.30	3.31	0.07

As the data in Table 30 show, five teachers each were identified in the relatively high and low groups, and the middle group was composed of seven teachers. Mean scores on the range of implementation variables were then computed for each group and statistical differences between groups examined through ANOVA difference in means tests. As with the implementation findings reported earlier, results show wide variation within each of the three groups. No differences were found to be statistically significant, which is not surprising given the small sample size and the substantial within-group variation. Although a highly tentative and exploratory finding, it seems noteworthy that the relatively low group shows relatively less implementation on nearly all of the variables than does the relatively high group—or stated alternatively, while no causality can be attributed, teachers whose students performed relatively the best were more thorough implementers than those whose students fared relatively the worst.

Chapter 6: Summary and Conclusions

This report has summarized CRESST's study of the implementation and effects of LDC in early-implementing eighth-grade history/social studies and science classrooms in Kentucky and Pennsylvania. The study is one of two[3] conducted by CRESST, with funding from the Bill and Melinda Gates Foundation to examine how LDC supports secondary teachers' and students' transition to the Common Core State Standards in English language arts. Both studies address the following evaluation questions:

1. How do teachers implement LDC?
2. What is the impact of LDC on student learning?
3. What conditions and contexts, including quality of implementation, influence LDC effectiveness?

In the sections below, we consider contextual factors that are important in interpreting study results before summarizing our findings with regard to each question. We conclude with implications and next steps for research and practice.

Contextual Considerations

The nature and generalizability of the study sample present important limitations for the study. The study addresses only a subsample of those schools, teachers, and students across the country and even within Kentucky and Pennsylvania who currently are implementing LDC. The study includes only teachers and students in those districts and schools that were early implementers and of these, only those in the targeted subjects and grade level. Because of the Foundation's interest in a rigorous quantitative study, our study design required common outcome measures and could not accommodate scores from different grade-level assessments. Further, the study focuses on teachers who had at least one year prior experience in implementing LDC, so that it would not be judging intervention effects as teachers were initially learning how to implement LDC. Thus, the study is limited to districts that were funded in Phase 1 and Phase 2 of LDC's initial rollout.

Even as we attempted to maximize sample size by drawing on sites across two subject areas and two states, study power and generalizability are limited. Because of data availability, we could conduct a rigorous quasi-experimental design only in Kentucky, where our sample was limited to students taught by 37 eighth-grade history/social studies and/or science teachers and their carefully matched comparison group. This sample size limits the study's power to detect moderate program effects. Our ability to identify relationships between LDC implementation and

[3]A companion study examines the implementation and effects of LDC in a districtwide implementation in Advanced Reading (see Herman et al., 2015).

outcomes is even more constrained, as only about half of the teachers agreed to participate in the implementation components of the study.

The representativeness of the study sample further limits the generalizability of any study findings. Demographically and in prior achievement our Kentucky sample looks similar to the state as a whole. However, the study cannot control for unobserved variables that may influence student success, and indeed by virtue of their willingness to participate in early LDC trials, study districts and schools may well be at least somewhat unique.

That study teachers had minimum prior experience implementing the intervention is still another important contextual consideration. The majority of the teachers in the study had only one year of experience implementing the intervention prior to the study year, and in fact that prior year included both initial learning and initial implementation. One year is hardly adequate time for teachers to meaningfully integrate and become effective with new practices—and the literary focus of LDC certainly required substantial changes in practice for both Kentucky and Pennsylvania study teachers. That is, LDC—as does the Common Core—requires that content teachers take responsibility for teaching literacy, a new responsibility for which they have little or no prior training. On the one hand, LDC provides a flexible template to enable middle and high school teachers to easily integrate CCSS standards in reading, research, and writing into their content area assignments, but on the other hand, the ongoing pedagogy to support their students' literacy development is a new, to-be-learned skill for the great majority of these teachers.

Intervention dosage for both teachers and students is another factor worth consideration. Study LDC teachers had implemented only one or two 2–4 week modules prior to the study year. Similarly, student dosage—the amount of treatment students received—also was limited. For the study year, LDC-oriented instruction made up only four to six weeks of the school year. It is ambitious, in short, to expect LDC to have measurable impact student learning at this early point in implementation.

How Did Teachers Implement LDC?

Twice-weekly teacher logs and end-of-year teacher survey results indicate that LDC study teachers did implement the major components of the intervention. They followed the LDC framework in developing and using their modules, introducing module content and goals, engaging students in reading module texts, transitioning to writing, and working with students on their end-of-module writing assignment. The bulk of module time, as would be expected, was spent in the reading and writing components. In implementing these components, teachers reported developing their students' skills in a range of reading and writing strategies, although

both survey and log results show substantial variability across teachers. Similarly, teachers reported frequent use of formative assessment: they reported using a variety of strategies to monitor their students' ongoing learning for both reading and writing, and generally reported taking action when misunderstandings and/or problems were observed, again with substantial variation in the strategies used. The log and survey data of course are self-report data, from which we can better infer the frequency of reported behavior than the quality of that behavior (Porter, 2002). We thus cannot directly infer the quality of teacher practice from the log data.

The study's analysis of LDC modules provides a more direct window into issues of quality. A specially developed assignment measure was used to assess the quality of teacher-developed modules on nine dimensions. Ratings by trained expert teachers indicate Kentucky and Pennsylvania modules were generally in the middle to high range of moderate quality. The relatively highest ratings were for the fidelity to LDC module instruction dimension, which again suggests teachers' commitment to implementing the model. As with other implementation findings, however, results showed wide variation in quality ratings across teachers.

The wide variation in Kentucky modules and in implementation strategies and teacher preparation, as captured by teacher logs and surveys, may provide one reason why we could not find strong relationships between any single LDC implementation measure and student learning outcomes. That is, the quality and effectiveness of LDC implementation depend on the quality of the assignments in which students are engaged, as measured through the modules and the ways in which those activities are implemented in classroom interaction, as we attempted to detect in the log and survey measures, among other unobservables. A high-quality module that is not implemented with effective teaching, assessment, and learning strategies would not be expected to have a strong effect on student learning, while a poor-quality module that is not consistent with important content and literacy goals also would not be expected to have an impact. In other words, there may be an interaction between the qualities assessed by our log and survey measure and those assessed by the module that we are unable to investigate with our current small sample.

How Did LDC Affect Student Learning?

Teacher perspectives. The implementation data, while showing wide variation, suggest that teachers overall were committed to the LDC intervention. Survey results indicate that Kentucky and Pennsylvania teachers found LDC to be a helpful and effective tool in meeting a wide variety of instructional goals, including implementing the CCSS, incorporating formative assessment and teaching literacy in content area classes, and increasing the rigor of writing assessments. Although sample sizes are too small to draw firm inferences, there were indications

that science teachers were more challenged by implementation than were social studies or ELA teachers: Science teachers reported less involvement in professional development, less collaboration with their peers on LDC, and more obstacles to LDC implementation.

The majority of LDC teachers also agreed that their students experienced at least some success in each of the LDC component tasks—the reading mini-tasks, writing mini-tasks and final writing task. At the same time, however, Kentucky and Pennsylvania teachers also noted that at least some of their students struggled, suggesting that content area teachers and their students may need help to increase the productivity of the reading and writing mini-tasks, as well as success on the final writing task. Although there was variation across respondents, teachers tended to agree at least somewhat that LDC had resulted in higher quality student writing, and supported students' college readiness.

CRESST ILA results. Students' performance on the CRESST ILAs stand in some contrast to teachers' positive perspectives but underscore teachers' concern about LDC's success with all of their students. The CRESST ILA generally parallels the sequence of reading and writing activities in LDC: Students are asked to read and respond to several related texts about a central subject matter concept or topic and then to synthesize what they have read with their existing knowledge to write an extended argumentative or explanatory essay. ILA topics for social studies and science were selected to be consistent with eighth-grade content standards in both Kentucky and Pennsylvania—Reconstruction for social studies, and evolution for science. Student essays were scored on five dimensions: content understanding, rhetorical structure and quality, organization, use of evidence/text support, and grammar and conventions. Specially trained, expert teachers used a four-point scale to rate each dimension, where a score of 4 represented advanced performance, 3 represented proficient, 2 represented a basic level of performance, and 1 below basic, relative to relevant Common Core State Standards for ELA.

ILA results for participating eighth-grade LDC social studies and science students were disappointing in that students scored between a Level 1 and Level 2 on all five dimensions. Performance on the grammar and conventions dimension tended to be the highest, but did not reach the level of basic. Limited data from the study's opportunity to learn survey may provide important context here, particularly for the science ILA. The survey asked teachers about their students' curriculum exposure to the given ILA topic. Relatively few teachers responded. However, the responses of those who did raise questions about whether students had the anticipated prior exposure, despite the topic being part of state grade-level standards for both content areas.

Even so, because the structure of the ILA provides students relevant, grade-appropriate reading and context sufficient to respond to the ILA essay question, the absence of prior exposure should not have been a fatal problem. Motivation may have also depressed performance as the test was given at the end of the school year. Nonetheless, the results suggest the challenge of moving student performance from current status to the expectations of the Common Core.

LDC impact on student learning. Our quasi-experimental design methodology was realized only for the LDC study in Kentucky, due to data availability issues described earlier. The methodology used Coarsened Exact Matching to identify a group of comparison students who were demographically and academically similar to the study LDC students. The matching was done at the student level, but accounted not only for student demographics and prior achievement, but also for the prior effectiveness of teachers and schools. The resulting treatment and comparison student samples were used to test LDC effects on three outcomes: K-PREP writing, K-PREP reading, and K-PREP social studies. For each of these outcome measures, two separate, two-level hierarchical linear models were run, each modeling students' dosage under treated and non-treated teachers in eighth-grade science and social studies courses, and each incorporating measures of teacher effectiveness on the outcome measure of interest prior to the LDC intervention as additional value-added controls. Student demographic and prior achievement variables and school prior effectiveness also were included in the models, as were the interactions of these variables with the LDC treatment. Our estimates therefore control for observables in two ways, at the matching and modeling stages.

Results for all three outcomes were consistent for both models, suggesting the robustness of these findings. The analysis found no evidence of an LDC effect for writing or for social studies. However, for K-PREP reading, both models showed a statistically significant, positive effect for LDC. LDC teachers showed a positive value added relative to control teachers. Results suggest that having one LDC teacher improves a student's performance on the K-PREP reading assessment by 0.058 standard deviation points, corresponding to 0.91 scale score points. The effect of having both a social studies and science LDC teacher, based on these data, would be a 1.82 scale point increase in reading scale score. These results thus suggest that LDC's attention to reading in content-area classrooms is contributing to the students' reading performance—decidedly positive news for the intervention. We return to these observed effects in our conclusion.

What Conditions and Contexts Influence LDC Effectiveness?

Interesting interaction effects emerged from our QED analysis that point to conditions and context that influence LDC implementation and impact. In particular, both students' prior achievement, based on their prior year K-PREP scores, and students' socioeconomic status (SES), as revealed by their free or reduced price lunch status, show positive interactions with the treatment. That is, LDC students who were relatively higher achieving prior to their LDC experience showed relatively greater benefit than did those who started relatively lower achieving, although the observed effect is very small. Interestingly, LDC students receiving free or reduced price lunch also appeared to have benefited more from LDC, after controlling for other variables. Although, again, the observed effect was very small, we speculate that LDC students with lower SES status perhaps had access to special resources (e.g., Title I programs, specialist teachers) that provided essential support. Controlling for other factors, special education students appeared to do less well under LDC; however the share of students falling into this category was small.

The results for the K-PREP social studies analysis also revealed similar interaction effects. LDC students who started the year performing at a relatively higher level experienced more benefit from LDC in their social studies performance, as did students who were from a relatively lower SES, as evidenced by their free or reduced price lunch status. However, the study did not find differential treatment effects for special education students.

Conclusions

In summary, LDC shows promising, positive results in supporting teachers' transition to the College and Career Ready Standards (CCRS), and in improving student learning. At the same time, however, study findings suggest challenges that LDC will need to overcome to move to higher levels of success. We summarize our perspective on major study implications.

Positive effects on student learning. That LDC shows statistically significant results on Kentucky students' state assessment scores in reading is worth celebrating. This positive finding is particularly so in light of both study teachers' limited prior experience implementing the tools and the limited dosage students experienced. That is, as noted earlier in this chapter, study teachers had only one or two years of experience with LDC prior to the study year, and for the great majority it was only one year. Based on research on teachers' implementation of new practices, this is insufficient time for teachers to become fully comfortable and competent with the kinds of new pedagogical practices that LDC represents (Coburn, 2003; Hargreaves & Fullan, 2012). Consider that LDC requires that content teachers take responsibility for teaching literacy, a new responsibility for which they have had little or no prior training.

Intervention dosage is another factor to consider in evaluating LDC effects. In general, the longer and more intensive the treatment, the more likely an intervention is to show measurable effects. LDC teachers typically implemented two modules of two to three weeks' duration each during the study year, meaning that LDC-oriented coursework totaled only four to six weeks, only a small fraction of the full academic year.

Nonetheless, the study found a statistically significant learning effect for LDC in Kentucky, approximately equivalent to 2.2 months of regular schooling. Given their contexts of early implementation and limited dosage, this effect is noteworthy.

Positive effects on teachers. The effect found for student learning is matched by teacher enthusiasm for the tool. Across states and districts, teachers were positive about the professional development they received and reported that they found the tools helpful and effective in meeting a variety of goals, including implementing CCRS, using formative assessment, incorporating more complex thinking and problem solving into curriculum and instruction, and improving student learning. Teachers' reports about their fidelity of tool implementation provide additional evidence of their positive attitudes.

Struggles in moving to higher standards. While our study found positive effects on teachers and students, findings also demonstrated the challenge of moving to more rigorous Common Core State Standards. We see evidence of this challenge in students' low performance on measures specifically designed to reflect the deeper learning demands of new college and career ready standards and in teachers' reports that sizable proportions of their students are struggling relative to the goals of LDC. Our analysis of LDC classroom artifacts also indicate that some teachers struggled in their implementation efforts, as would be expected given this early stage of implementation.

That some teachers and students struggled is not meant to imply that current standards are unattainable or that college and career ready expectations for students should be reduced—after all, we know that returning to prior standards will not get our children to 21st century success. However, the evidence does suggest that change will not come overnight and that both teachers and students will need support to meet the challenge. The issue is two-fold: (1) How to address the needs and better prepare students and teachers who may not yet be ready to be successful with the challenges of LDC; and (2) how to modify and/or adapt the tools to scaffold teacher and student learning more effectively.

Achievement gap implications. Although we regard findings of the interaction between student characteristics and treatment effects as tentative and subject to further validation, the consistency in results across reading and social studies measures is striking. While the overall

results indicated that LDC was effective for all Kentucky students, the interaction findings indicated that initially higher achieving students benefited more than did initially lower achieving students. Such a finding makes intuitive sense in that lower achieving students have most likely been exposed to the "drill and kill" test preparation curriculum of the past, are least likely to have acquired the prior grade knowledge and skills expected by the Kentucky Core, and are least likely to have been engaged in the deeper conceptual understanding and applications that mark the new standards.

However understandable, the findings thus suggest that, in the absence of additional scaffolding and supports for low-achieving students, LDC is likely to be gap enhancing. On the other hand, study findings of a positive interaction between LDC and students' free and reduced price lunch status offers promise for future inquiry. The results suggest that, controlling for prior achievement and other background characteristics, students who are more economically disadvantaged fare relatively better under LDC than their more advantaged peers.

Strengthening implementation. Although teachers reported implementing all components of both LDC, the findings suggest substantial variation in how they implemented the tool and in the relative time and specific strategies they used in doing so. The study did not achieve strong findings with regard to what aspects of implementation mattered most or what specific strategies were most effective. The findings are suggestive, however, of some factors that might be important for success: District support for LDC was clear across the sample, yet principal or local school support was more variable, suggesting a potential problem point. Teachers found their peers highly collaborative and helpful in implementing the two tools, but time for collaboration and more formal professional development was somewhat limited; investing more heavily in these supports may strengthen implementation.

Concluding thoughts. In summary, our studies reveal that study teachers are enthusiastic about LDC, and that LDC showed important effects on student learning. Even so, study results also suggest areas for improvement. Content teachers who implement LDC likely will be more successful to the extent they have expertise in supporting students' literacy development. Additional supports for struggling students, and training on how to successfully implement LDC with students with special needs could potentially help close achievement gaps.

We leave it to future research to examine the generalizability of these findings in the larger samples of teachers and schools that are now implementing LDC. Cost-effectiveness studies also should be of interest. Future research and development also should continue the quest to identify both the most critical aspects of implementation in improving student learning and key

infrastructure and supports that students and teachers who currently are struggling need to propel their success.

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Appendix A:
LDC and MDC Instruments and Rubrics

Exhibit A1:

Kentucky and Pennsylvania LDC Teacher Log

Thank you for taking the time to complete your teacher log for LDC instruction. This log should take no longer than five (5) minutes to complete.

As a reminder, your logs will track instruction in only one of your LDC classes. Please remember to focus on the class period that was assigned to you when completing this log. For each log you complete, describe what happened in that particular class on that day.

If you have not yet completed module instruction, click "Continue with log." If you have completed module instruction and are returning to upload files, check "Skip log to upload files" below.

- ○ Skip log to upload student work
- ○ Continue with log

Is this your first log for this module?

- ○ Yes
- ○ No

Is this your FINAL LOG for the current LDC module?

- ○ Yes
- ○ No
- ○ Not sure

What are your primary goals for this module?

Content goals	
Reading goals:	
Writing goals:	

How much total class time did students spend on any part of an LDC module today?

0 minutes	< 10 minutes	10-30 minutes	30-50 minutes	>50 minutes
○	○	○	○	○

Why was there no class time devoted to LDC today?

- ☐ I was absent
- ☐ School not in session
- ☐ Need to cover other content
- ☐ Field trip
- ☐ Other _____

Check which aspects of the module students focused on today. (Check all that apply). If you are not sure how to characterize today's lesson, check the aspect that best describes the focus of instruction.

- ☐ Preparing for the Task/Introducing Module
- ☐ Reading Process
- ☐ Transition to Writing
- ☐ Writing Process

Consider the total amount of class time spent on module instruction today. What proportion of time was spent on the following classroom activities? (Total must add up to 100%. If this list does not include certain classroom activities, please list those in the text box under "Other" below).

	0	10	20	30	40	50	60	70	80	90	100
Lecture on subject matter content											
Mini-lesson on _____											
Explicit strategy instruction (e.g., teacher think-aloud, modeling, guided practice about a specific strategy)											
Whole-class discussion											
Small group work											
Pair/share											
Independent reading/writing											
Student presentations											
Other_____											

Preparing for the Task/Introducing Module

How did you introduce the module? (check all that apply)

	Focus of instruction	Touched on briefly	Not today
Overview and/or review of topic	○	○	○
Connect topic to students' existing knowledge	○	○	○
Overview of readings	○	○	○
Review writing prompt	○	○	○
Review success criteria and/or rubric	○	○	○
Other _____	○	○	○

What did students do to prepare for module instruction? (check all that apply)

	Focus of student work	Touched on briefly	Not today
Listened as I explained task	○	○	○
Came up with questions about topic	○	○	○
Made predictions about topic	○	○	○
Came up with questions about writing task	○	○	○
Re-wrote task in their own words	○	○	○
Brainstormed possible answers to prompt	○	○	○
Made predictions about reading	○	○	○
Reviewed exemplars of student work	○	○	○
Completed planning sheet (e.g., graphic organizer)	○	○	○
Discussed important strategies needed to complete task	○	○	○

Reading Process

Which reading skills did students work on today? (check all that apply)

	Focus of student work	Touched on briefly	Not today
Independent reading research	○	○	○
Making predictions/previewing	○	○	○
Summarizing important points	○	○	○
Note-taking/annotation	○	○	○
Identifying/ defining vocabulary	○	○	○
Analyzing text structure (e.g., how part relates to whole)	○	○	○
Interpreting information from graphical text	○	○	○
Distinguishing fact from opinion	○	○	○
Drawing conclusions from textual evidence	○	○	○
Citing textual evidence to support claims	○	○	○
Evaluating strength/weakness of evidence	○	○	○
Comparing arguments in two or more texts	○	○	○
Examining author's perspective/bias	○	○	○
Examining rhetorical devices	○	○	○
Other _____	○	○	○

Did you assess student learning of the skills listed above?

- ○ Yes
- ○ No

If YES, to what extent did you rely on the following strategies to assess student understanding? (check all that apply)

	To a great extent	To some extent	Not at all
Listened as students discussed text with peers	○	○	○
Circulated and reviewed student notes	○	○	○
Reviewed peers' feedback	○	○	○
Collected and reviewed student written responses and/or graphic organizers	○	○	○
Asked students to answer oral questions	○	○	○
Listened to students thinking aloud while reading	○	○	○
Led whole-class discussion	○	○	○
Listened to student questions	○	○	○
Assigned a quiz	○	○	○
Graded student work	○	○	○
Exit slips	○	○	○

If you did discover student misunderstanding about READING, to what extent did you rely on the following strategies to respond? (check all that apply)

	To a great extent	To some extent	Not at all
One-on-one conference to provide feedback	○	○	○
Asked peer to provide feedback	○	○	○
Stopped class and modeled strategy	○	○	○
Wrote specific comments on student work	○	○	○
Scheduled in-class workshop time	○	○	○
Devoted time in lesson for students to use feedback	○	○	○
Grouped students together on a "need" basis for targeted instruction	○	○	○
Offered student a hint or suggestion	○	○	○
Gave student the answer	○	○	○
Gave student more time to try again and self-correct	○	○	○
Graded student work	○	○	○
Re-taught lesson segment	○	○	○
Planned to review skill in future lessons	○	○	○
Other _____	○	○	○

Transition to Writing

How did you help students prepare for the writing task? (check all that apply)

	Focus of instruction	Touched on briefly	Not today
Overview and/or review of topic	○	○	○
Review of readings	○	○	○
Review writing prompt	○	○	○
Review success criteria and/or rubric	○	○	○
Other _____	○	○	○

What did students do to prepare for the writing task? (check all that apply)

	Focus of instruction	Touched on briefly	Not today
Listened as I explained task	○	○	○
Came up with questions about topic	○	○	○
Made predictions about topic	○	○	○
Came up with questions about writing task	○	○	○
Re-wrote task in their own words	○	○	○
Brainstormed possible answers to prompt	○	○	○
Generated thesis statements	○	○	○
Reviewed exemplars of student work	○	○	○
Completed planning sheet (e.g., graphic organizer)	○	○	○
Generated essay outline	○	○	○
Selected relevant quotes from documents	○	○	○
Discussed important strategies needed to complete task	○	○	○

Writing Process

What areas of writing did students work on today? (check all that apply)

	Focus of student work	Touched on briefly	Not today
Generating ideas for writing	○	○	○
Outlining	○	○	○
Writing/text structure	○	○	○
Formulating a thesis statement	○	○	○
Formulating a counter-argument	○	○	○
Writing an introduction	○	○	○
Writing a conclusion	○	○	○
Writing a body paragraph	○	○	○
Using transitional words or phrases	○	○	○
Incorporating quotes/evidence	○	○	○
Style/word choice/syntax	○	○	○
Grammar conventions	○	○	○

Did you review student learning of the skills listed above?

- ○ Yes
- ○ No

If YES, to what extent did you rely on the following strategies to assess student understanding? (check all that apply)

	To a great extent	To some extent	Not at all
Listened as students discussed draft with peers	○	○	○
Asked students to provide feedback to each other	○	○	○
Observed and reviewed student work	○	○	○
Collected and reviewed student writing exercises	○	○	○
Asked students to answer oral questions	○	○	○
Reviewed student rough drafts	○	○	○
Asked certain students to present writing to class	○	○	○
Assigned a quiz	○	○	○
Graded student work	○	○	○
Exit slips	○	○	○

If you did discover student misunderstanding about WRITING, to what extent did you rely on the following strategies to respond? (check all that apply)

	To a great extent	To some extent	Not at all
Organized peer-editing session	○	○	○
Scheduled in-class workshop time	○	○	○
Held one-on-one conference with student	○	○	○
Devoted time in lesson for students to use feedback	○	○	○
Grouped students together on "need" basis for targeted instruction	○	○	○
Modeled skill using my own writing	○	○	○
Demonstrated skill using student's writing	○	○	○
Provided grammar mini-lessons	○	○	○
Wrote specific comments on student work	○	○	○
Had student revisit readings	○	○	○
Offered student a hint or suggestion	○	○	○
Gave student time to try again and self-correct	○	○	○
Corrected student writing	○	○	○
Graded student work	○	○	○
Re-taught lesson segment	○	○	○
Planned to review skill in future lessons	○	○	○
Other _____	○	○	○

You have indicated that this will be the last week of module instruction. If that is the case, we have a few final questions about the particular module you taught.

Module Topic

LDC template (number, type, level)

Writing prompt

How many weeks did you spend teaching this LDC module?

How many days of instruction for each of the following?

Preparation for the task	
Reading process	
Transition to writing	
Writing process	

Please list the approximate start dates of your next two modules.

Module Two	
Module Three	

To understand how you approach LDC instruction in your classroom, we would like you to submit some classroom materials, including your LDC module template, copies of the readings/texts you assigned as part of LDC instruction, three samples of student work, and instructional materials used to support reading and writing instruction. You can attach PDFs or Word files. If you would prefer to send us hard copies, please email Scott Epstein at epstein@cse.ucla.edu. If you would like to upload files later, you can return to the log and click "skip to upload files" on the first page.

Please upload a filled out LDC module template, including the teaching task, skill list, mini-tasks, and instructional strategies for the module. (If you did not use the LDC template, please upload an outline of your LDC instruction).

Browse

Please scan and upload a full set of readings/texts that were assigned to students or that students read as part of module instruction. If your students selected their own reading materials, please include two texts that are representative of what students read.

Browse

Please scan and upload three samples of student work on the template task. Please select one student who performed at a high level on the template task, one student who performed at a medium level, and one student who performed at a low level. Please label the 3 sets of work as high, medium, and low, and if possible remove any student names.

Sample of high student work:

Browse

Sample of medium student work:

Browse

Sample of low student work:

Browse

Please scan and upload instructional materials you used during the module (e.g., worksheets, handouts, graphic organizers, etc.) that would help us better understand what students actually did during classroom instruction. Please include at least one item supporting reading instruction, and one item supporting writing instruction.

At least one example of instructional materials supporting reading:

Browse

At least one example of instructional materials supporting writing:

Browse

Any other planning or instructional materials that would help us understand how LDC was implemented in your classroom:

Browse

ADDITIONAL COMMENTS:

We are very interested in your feedback. Please let us know if you have any questions or concerns about this log. Thank you!

Exhibit A2:

Rubric for LDC Module Implementation Measure

Each dimension is scored on a 5-point scale ranging from "Fully Present or Realized" to "Not Present or Realized."

Fully Present or Realized	Sufficiently Present or Realized	Moderately Present or Realized	Barely Present or Realized	Not Present or Realized
5	4	3	2	1

IMPORTANT: Descriptions are provided for three anchor points in the scale: 5 (Fully Present or Realized), 3 (Moderately Present or Realized), and 1 (Not Present or Realized). Use the intermediate points in the scale (4 and 2) to rate assessment practice that lies between 5 and 3 and 3 and 1.

Dimension 1: *Effective Writing Task*

Dimension 2: *Alignment to the CCSS and Local and State Literacy and Content Standards*

Dimension 3: *Text Alignment*

Dimension 4: *Text Appropriateness*

Dimension 5: *Text Rigor*

Dimension 6: *Fidelity to LDC Module Instruction*

Dimension 7: *Quality Instructional Strategies*

Dimension 8: *Coherence and Clarity of Module*

Dimension 9: *Overall Impression*

Dimension 1: *Effective Writing Task*	
Definition: *Degree to which teaching task makes effective use of the template task's writing mode (i.e., argumentation or explanation); requires sustained writing and effective use of ideas and evidence to substantiate claims; and is feasible for most students to complete (i.e., appropriate for the grade-level and subject matter).*	
Main Sources of Information: *Module Creator Handout (Task)* - Read and evaluate the teaching task, student background/prior knowledge, and summary information. - Evaluate the difficulty or ease students may encounter trying to answer the question. - Compare module teaching task to teaching task template options.	
5. Fully Realized	*The teaching task and performance expectations for the module are explicit and clear, require students to engage in higher-order thinking and writing, and are appropriate for the grade-level and subject matter.*
4.	
3. Moderately Present or Realized	*Clear module teaching task and performance expectations are available, but do not require students to engage in higher-order thinking and writing and/or are not appropriate for the grade-level and subject matter.*
2.	
1. Not Present or Realized	*Minimal evidence of an effort to identify explicit and clear teaching task and performance expectations that provide opportunities for critical thinking and are appropriate for the grade-level and subject matter.*

Dimension 2: *Alignment to the CCSS and Local and State Literacy and Content Standards*	
Definition: *Extent to which module addresses content essential to the discipline, as well as reading comprehension and writing standards informed by local and state standards.*	
Main Sources of Information: *Module Creator Handout (Task)* - Read and evaluate the standards included in the module. - Module should include ELA as well as subject matter CCSS/state standards. - Compare and contrast the standards the module includes with those that could have been included. - Particular attention to content standards (CCSS History/Social Studies, Science, and Technical Subjects); State Standards; Specific Reading, Writing, Speaking/Listening, Language Skills	
5. Fully Realized	*Module specifically addresses content essential to CCSS and local or state standards in science or social studies, as well as reading comprehension and writing. All standards are well aligned to the topic and teaching task.*
4.	
3. Moderately Present or Realized	*Module broadly addresses content essential to CCSS and local or state standards in science or social studies and reading comprehension and writing. Standards are sufficiently aligned to the topic and teaching task.*
2.	
1. Not Present or Realized	*Minimal evidence that module addresses content essential to the discipline and literacy standards. Standards are poorly aligned to the topic and teaching task.*

Dimension 3: *Text Alignment*	
Definition: *Degree to which assigned texts address teaching task content.*	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Read and evaluate texts (hard copies or online). *Student Work* - References in student work.	
5. Fully Realized	*Assigned readings address the disciplinary content in science or social studies and give students the opportunity to gather information needed to complete the task. Readings are well aligned to the topic and teaching task, and provide students with well-balanced perspectives.*
4.	
3. Moderately Present or Realized	*Assigned readings mostly address the disciplinary content in science or social studies and give students some opportunities to gather information needed to complete the task. Readings are sufficiently aligned to the topic and teaching task, and provide students with moderately balanced perspectives.*
2.	
1. Not Present or Realized	*Minimal evidence that assigned readings address the disciplinary content in science or social studies and give students the opportunity to gather information needed to complete the task. Readings are poorly aligned to the topic and teaching task, and do not provide students with well-balanced perspectives.*

Dimension 4: *Text Appropriateness*	
Definition: *Degree to which teaching task includes reading texts that are accessible to most students (i.e., appropriate for the grade-level and subject matter).*	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Read and evaluate texts (hard copies or online). *Student Work* - References in student work. *Anchor Readings* - Read for examples of appropriate reading levels for 8th grade students.	
5. Fully Realized	*Assigned readings are highly accessible and appropriate for most students in 8th grade social studies or science classrooms. Selection of readings addresses the needs of students with a range of literacy skills, including students who are above, at, or below grade level, and English Language Learners.*
4.	
3. Moderately Present or Realized	*Assigned readings are mostly accessible and appropriate for the majority of students in 8th grade social studies or science classrooms. Selection of readings sufficiently addresses the needs of students with a range of literacy skills.*
2.	
1. Not Present or Realized	*Assigned readings are not accessible or appropriate for students in 8th grade social studies or science classrooms. Selection of readings poorly addresses the needs of students with a range of literacy skills.*

Dimension 5: *Text Rigor*	
Definition: Degree to which teaching task includes reading texts that use and develop academic understanding and vocabulary, and offer opportunities for multiple interpretations and higher-order thinking.	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Identify list of selected articles/links. - Read and evaluate texts (hard copies or online). - Consider issues of source credibility. *Student Work* - References in student work.	
5. Fully Realized	*Assigned readings require students to engage in higher-order thinking, and develop a strong academic understanding and vocabulary in social studies or science. Readings afford a deep conceptual and contextual understanding of the teaching task and topic. Selection of readings includes a broad range of credible primary and secondary sources.*
4.	
3. Moderately Present or Realized	*Assigned readings require students to engage in some higher-order thinking, and develop an adequate academic understanding and vocabulary in social studies or science. Readings afford a sufficient conceptual and contextual understanding of the teaching task and topic. Selection of readings includes a moderate range of credible primary and secondary sources.*
2.	
1. Not Present or Realized	*Assigned readings require students to engage in little higher-order thinking, or develop an academic understanding and vocabulary in social studies or science. Readings afford a limited conceptual and contextual understanding of the teaching task and topic. Selection of readings includes few credible primary and secondary sources.*

Dimension 6: *Fidelity to LDC Module Instruction*	
Definition: *Degree to which module instruction, activities, and teaching task address each of the four stages of instructional practice (preparation for the task, reading process, transition to writing, writing process).*	
Main Sources of Information: *Module Creator Handout (Instruction)* *Information Sheet* - Evaluate for distribution of activities and time spent on each of the four stages of instructional practice.	
5. Fully Realized	*The module instruction, activities, and teaching task reflect deliberate attention and fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect demonstrable effort to develop instructional scaffolding within and across each stage of instruction.*
4.	
3. Moderately Present or Realized	*The module instruction, activities, and teaching task reflect moderate attention and fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect sufficient effort to develop instructional scaffolding within and across each stage of instruction.*
2.	
1. Not Present or Realized	*The module instruction, activities, and teaching task reflect poor attention and lack of fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect inadequate effort to develop instructional scaffolding within and across each stage of instruction.*

Dimension 7: *Quality Instructional Strategies*	
Definition: Degree to which the module provides clear instructional strategies aimed at helping students develop literacy skills and successfully complete the teaching task. And the degree to which module instruction and activities scaffold critical thinking and performance in a way that is meaningful within the context of a given field or subject-matter.	
Main Sources of Information: *Module Creator Handout (Instruction)* *Classroom Handouts* *Student Work* - Evaluate extent to which instructional strategies guide student learning in literacy and ability to complete the teaching task. - Evaluate extent to which the module activities scaffold critical thinking and student performance within the context of the subject matter at the core of the teaching task.	
5. Fully Realized	*Module provides clear and targeted instructional strategies and activities that scaffold student learning and promote critical thinking in social studies or science. There is explicit attention to helping students develop an accurate understanding of the topic and teaching task, and literacy skills necessary to successfully complete the writing task.*
4.	
3. Moderately Present or Realized	*Instructional strategies and activities are available to support adequate student learning and critical thinking in social studies or science. There is moderate attention to helping students develop an understanding of the topic and teaching task, and literacy skills necessary to complete the writing task.*
2.	
1. Not Present or Realized	*Limited instructional strategies and activities available to support student learning and critical thinking in social studies or science. Insufficient attention to helping students develop an understanding of the topic and teaching task, or literacy skills necessary to complete the writing task.*

Dimension 8: *Coherence and Clarity of Module*	
Definition: Degree to which there is logical alignment between the teaching task and other module goals with readings, mini-tasks, and instructional strategies.	
Main Sources of Information: *Module Creator Handout* *Classroom Handouts* *Student Work*	
5. Fully Realized	*Strong alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*
4.	
3. Moderately Present or Realized	*Moderate alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*
2.	
1. Not Present or Realized	*Poor alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*

Dimension 9: *Overall Impression*
Definition: *Holistic assessment of LDC Module.*
Main Sources of Information: *Module Creator Handout* *Classroom Handouts* *Student Work*
Main question: *To what extent does this module contribute to student college readiness and development of advanced literacy skills?* 5. Advanced LDC Module Implementation 4. Proficient LDC Module Implementation 3. Adequate LDC Module Implementation 2. Marginal LDC Module Implementation 1. Inadequate LDC Module Implementation

Exhibit A3:
LDC Teacher Survey 2013

[log in from previous]

Before you begin, note that the Literacy Design Collaborative (LDC) Initiative goes by a number of different names.

We use the phrases “LDC framework” or modules to refer to the tools that are part of this initiative.

Some of the questions in the survey make reference to the Common Core State Standards (CCSS). In different states, this could be referred to differently, for example, in the state of Colorado, it is referred to as Colorado Academic Standards.

The LDC Initiative is funded by the Gates Foundation.

You are about to enter the survey. To go back a page, please use

the survey’s red “Back” button, not your browser’s back button.

Your answers will be saved each time you click “Next.”

The survey takes about 30 minutes to complete. You may leave and return multiple times.

If you do return, after entering your login code, you will be placed in the screen you last visited.

Please select the best answer for each question. Some instructions are in *italics*.

TEACHER BACKGROUND INFORMATION

1. What is / are your current position(s)? *Please CHECK ALL that apply.*

- ☐$_a$ Classroom teacher
- ☐$_b$ Reading specialist
- ☐$_c$ Reading coach
- ☐$_d$ Special education teacher
- ☐$_e$ Librarian
- ☐$_f$ Department head
- ☐$_g$ Other *(please specify)* _____[100 characters]_____

2. At which grade level(s) do you teach? *Please CHECK ALL that apply.*

- ☐$_a$ Middle school (6^{th} – 8^{th} grade)
- ☐$_b$ High school (9^{th} – 12^{th} grade)

3. Which content areas do you teach? *Please CHECK ALL that apply.*

- ☐$_a$ English/Language Arts
- ☐$_b$ Science
- ☐$_c$ Social Studies
- ☐$_d$ Reading
- ☐$_e$ Other *(please specify)* _____[100 characters]_____

4. To the nearest year, how long have you …

a) … been a teacher? _____ year(s) [integer, 0-99]

b) … taught in your current school? _____ year(s) [integer, 0-99]

c) … taught in your current district? _____ year(s) [integer, 0-99]

	Yes	No
5. Do you teach ELL students?	❍1	❍0
6. Do you teach special education students?	❍	❍
7. Do you teach students who read or write below grade level?	❍	❍
8. Do you teach students with advanced literacy levels?	❍	❍

PARTICIPATION IN LDC INITIATIVE

9. How would you describe your participation in the LDC initiative?

❍1 Required
❍2 Voluntary
❍3 I have not taught a module in **2012-2013**. [End survey; go to regular close]
❍4 I opted out of participating in **2012-2013** *(please specify a reason for opting out)* _____[1000 characters]_____
[End survey; go to regular close]

10. Is this your first year in the LDC initiative?

❍1 Yes ❍0 No

11. My involvement with the LDC Initiative has included the following activities: *(please CHECK ALL that apply)*

☐a Teaching a teaching task without a full module
☐b Revising LDC modules that I did not develop myself
☐c Developing LDC modules
☐d Teaching LDC modules
☐e Coaching others on how to use LDC modules
☐f Presenting at an LDC professional development session

MODULE DEVELOPMENT

12. How many modules have you **developed** during the **current** school year (**2012-13)**? ____[integer, 0 – 99]___ module(s)
Please enter a 0 if you have not developed any modules during the current school year (2012-13).

13. During the **current** school year (**2012-13)**, I have …

❍1 … often ❍2 … sometimes ❍3 … never [skip if 12=0]

…developed modules with the support of a colleague.

14. How many modules have you **revised** during the **current** school year (**2012-13**)? ____ [integer, 0 – 99] ___ module(s)

*Please include modules you developed in a previous year AND modules others developed. Enter a 0 if you have not revised any modules during the **current** school year (2012-13).*

15. During the **current** school year, I have …

❍1 … often ❍2 … sometimes ❍3 … never [skip if 14=0]

… revised modules with the support of a colleague.

[skip next if Q10 = yes]

16. How many modules did you **teach last** year **(2011-12)**? ____ [integer, 0-99] ____ module(s)
Please enter a 0 if you did not teach any modules last year (2011-12).

17. How many modules in total will you have taught during the **current** school year (**2012-13)**? ____ [integer, 0-99] ____ module(s)

18. During the **current** school year (**2012-13**), I have …

❍1 … often ❍2 … sometimes ❍3 … never [skip if 17=0]

…taught modules with the support of a colleague.

19. Please indicate the frequency with which you are accessing existing modules on online?

❍1 … often ❍2 … sometimes ❍3 … never

SUPPORT FOR USING LDC MODULES

20. Indicate whether the following people visited your classroom when you were teaching a module:
[note: randomize options, letters don't appear]

	Visited	Did not visit
a. District or network LDC project lead	❍1	❍0
b. Principal	❍	❍
c. Instructional coach/department head	❍	❍
d. Teacher colleague	❍	❍

BELIEFS ABOUT TEACHING LITERACY

Q21 is about teaching literacy.

21. Please indicate the degree to which you agree or disagree with the following statements:

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. Teachers from all content areas should help students improve their reading and writing skills.	❍1	❍2	❍3	❍4
b. Science and social studies teachers do not have time to teach reading and writing.	❍	❍	❍	❍
c. Writing assignments can help my students develop a deeper understanding of important concepts.	❍	❍	❍	❍

PURPOSE OF INITIATIVE

22. Please indicate the degree to which you agree or disagree with the statements below:

The LDC framework is effective in …	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. … improving students' literacy skills.	❍1	❍2	❍3	❍4
b. … providing a curricular resource for teachers to address the Common Core State Standards.	❍	❍	❍	❍
c. … encouraging science and social studies teachers to teach literacy skills.	❍	❍	❍	❍
d. … encouraging secondary school teachers to teach literacy skills.	❍	❍	❍	❍
e. … making instruction more engaging for the students.	❍	❍	❍	❍
f. … using formative assessment to identify student strengths and weaknesses to inform instruction.	❍	❍	❍	❍

TEACHER PERCEPTIONS OF TOOL UTILITY

23. Please indicate whether using the modules has helped you in the following ways during module instruction:

During LDC instruction, using the modules has helped me …	Yes	No
a. … find effective strategies for teaching my subject content.	❍1	❍0
b. … learn new ways to include formative assessment in my classes.	❍	❍
c. … develop new ways to teach literacy skills in my content area.	❍	❍
d. … learn detailed information about my students' literacy strengths and weaknesses.	❍	❍
e. … provide students with more detailed feedback about their writing.	❍	❍
f. … implement the Common Core State Standards.	❍	❍
g. … increase the rigor of writing assignments.	❍	❍
h. … better engage students.	❍	❍

24. Please indicate the degree to which you agree or disagree with the statements below.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
LDC modules help me differentiate instruction …				
[skip next if Q5 = no]				
a. … for ELL students.	❍1	❍2	❍3	❍4
[skip next if Q6 = no]				
b. … for special education students.	❍	❍	❍	❍
[skip next if Q7 = no]				
c. … for students who read or write below grade.	❍	❍	❍	❍
[skip next if Q8 = no]				
d. … for students with advanced literacy levels.	❍	❍	❍	❍

25. The modules are flexible enough to fit the needs of all my students.	❍	❍	❍	❍

*Questions 26a-d are about the **<u>most recent</u>** LDC module you taught.*

26. Please indicate the degree to which you agree or disagree with the statements below.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. I knew what skills my students needed in order to complete the teaching task.	❍$_1$	❍$_2$	❍$_3$	❍$_4$
b. I knew the type of mini-tasks to give my students to prepare them to complete the template task.	❍	❍	❍	❍
c. I understood how to use the LDC instructional ladder.	❍	❍	❍	❍
d. Based on the information collected from using the LDC modules, I adjusted my instruction to meet the needs of individual students.	❍	❍	❍	❍

27. Please indicate the degree to which you agree or disagree with the statements below.

a. Using the modules raised my expectations for students' writing.	❍	❍	❍	❍
b. The LDC framework has become an important part of my instructional practice.	❍	❍	❍	❍

28. Select the phrase that best completes the following sentences:

I use module instructional strategies …

❍$_1$ … often ❍$_2$ … sometimes ❍$_3$ … rarely

…during non-LDC instruction.

STUDENT IMPACT

29. Compared to my usual instruction, during the use of the modules, my students …

❍1 …are more engaged. ❍2 …show the same level of engagement. ❍3 …are less engaged.

30. Please indicate the degree to which you agree or disagree with the statements below.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. The modules have resulted in higher quality student writing.	❍1	❍2	❍3	❍4
b. The LDC framework is supporting my students' college-readiness.	❍	❍	❍	❍

*Question 31a-b asks you to reflect back on your **most recent** experience implementing an LDC module during the **current** school year **(2012-13)**.*

31a. When I taught the most recent LDC module, the **majority** of my students improved their understanding of content.

❍1 Yes ❍0 No

31b. When I taught the most recent LDC module, the **majority** of my students improved their literacy skills.

❍1 Yes ❍0 No

TOOL USE [FOI questions]

Q32-37 are about your LDC instruction in the current school year (2012-13).

32. What percent of class time did you spend on each of the following LDC components during your LDC instruction in the current school year **(2012-13)**?

a. Preparation for Task/Introducing the Module [Enter Number]
b. Reading Process [Enter Number]
c. Transition to Writing [Enter Number]
d. Writing Process [Enter Number] [limit the sum of the numbers in this ques to 100]

33. Please indicate the degree of emphasis you placed on each of the following skills in your LDC **reading** instruction:
[note: randomize options, letters don't appear]

	A great deal of emphasis	Some emphasis	Little Emphasis	No Emphasis
a. Independent reading/ research	❍1	❍2	❍3	❍4
b. Making predictions/previewing	❍	❍	❍	❍
c. Summarizing important points	❍	❍	❍	❍
d. Note-taking/ annotation	❍	❍	❍	❍
e. Identifying/ defining vocabulary	❍	❍	❍	❍
f. Analyzing text structure (e.g. how part relates to whole)	❍	❍	❍	❍
g. Interpreting information from graphical text	❍	❍	❍	❍
h. Distinguishing fact from opinion	❍	❍	❍	❍
i. Drawing conclusions from textual evidence	❍	❍	❍	❍
j. Citing textual evidence to support claims	❍	❍	❍	❍
k. Evaluating strength/ weakness of evidence	❍	❍	❍	❍
l. Comparing arguments in two or more texts	❍	❍	❍	❍
m. Examining author's perspective/bias	❍	❍	❍	❍
n. Examining rhetorical devices	❍	❍	❍	❍

34. Please indicate the degree of emphasis you placed on each of the following skills in your LDC **writing** instruction:
[note: randomize options, letters don't appear]

	A great deal of emphasis	Some emphasis	Little emphasis	No emphasis
a. Generating ideas for writing	❍1	❍2	❍3	❍4
b. Outlining	❍	❍	❍	❍
c. Writing/text structure	❍	❍	❍	❍
d. Formulating a thesis statement	❍	❍	❍	❍
e. Formulating a counter-argument	❍	❍	❍	❍
f. Writing an introduction	❍	❍	❍	❍
g. Writing a conclusion	❍	❍	❍	❍
h. Writing a body paragraph	❍	❍	❍	❍
i. Using transitional words or phrases	❍	❍	❍	❍
j. Incorporating quotes/ evidence	❍	❍	❍	❍

35. Please indicate how frequently you use the following strategies to **assess student learning** during your LDC instruction. [note: randomize options, letters don't appear]

		Often	Sometimes	Rarely	Never
a.	Listened as students discussed reading or writing with peers	❍1	❍2	❍3	❍4
b.	Asked students to provide feedback to each other	❍	❍	❍	❍
c.	Circulated and reviewed student notes and work	❍	❍	❍	❍
d.	Collected and reviewed student writing exercises	❍	❍	❍	❍
e.	Asked students to answer oral questions	❍	❍	❍	❍
f.	Reviewed student rough drafts	❍	❍	❍	❍
g.	Asked certain students to present writing to class	❍	❍	❍	❍
h.	Assigned a quiz	❍	❍	❍	❍
i.	Graded student work	❍	❍	❍	❍
j.	Exit slips	❍	❍	❍	❍

36. Please indicate how frequently you use the following strategies to **provide feedback to students** during your LDC instruction. [note: randomize options, letters don't appear]

		Often	Sometimes	Rarely	Never
a.	Held one-on-one conference with student	❍1	❍2	❍3	❍4
b.	Asked peer to provide feedback or organized peer editing session	❍	❍	❍	❍
c.	Stopped class and modeled strategy	❍	❍	❍	❍
d.	Scheduled in-class workshop time	❍	❍	❍	❍
e.	Wrote specific comments on student work	❍	❍	❍	❍
f.	Offered student a hint or suggestion	❍	❍	❍	❍
g.	Gave student more time to try again and self-correct	❍	❍	❍	❍
h.	Gave student the answer	❍	❍	❍	❍
i.	Graded student work	❍	❍	❍	❍
j.	Re-taught lesson segment	❍	❍	❍	❍
k.	Planned to review skill in later lessons	❍	❍	❍	❍
l.	Assigned grammar exercises	❍	❍	❍	❍

37. Please indicate the degree of success your students had in completing the following LDC activities?

	A great deal of success	Some success	Little success	No success
a. The reading mini-tasks built into the instructional ladder	❍1	❍2	❍3	❍4
b. The writing mini-tasks built into the instructional ladder	❍	❍	❍	❍
c. The final writing task	❍	❍	❍	❍

38. In your **most recent** module, indicate yes or no for each of the following questions: [note: randomize options, letters don't appear]

	Yes	No
a. I have used the LDC rubric to assess my students' final writing piece.	❍1	❍0
b. I found the LDC rubric helpful in assessing my students' final writing piece.	❍	❍
c. Using the rubric has helped my students understand the expectations for high quality writing.	❍	❍

POTENTIAL BARRIERS TO TOOL USE

39. Please indicate the degree to which you agree or disagree with the following statements.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. I had sufficient time to prepare to teach modules.	❍1	❍2	❍3	❍4
b. I felt adequately prepared to effectively use modules.	❍	❍	❍	❍
c. It is difficult to find the time to respond to student writing.	❍	❍	❍	❍
d. I am unsure about how best to give productive feedback to student writing.	❍	❍	❍	❍
e. Using the LDC modules takes too much time away from covering required curriculum topics.	❍	❍	❍	❍
f. It is challenging for me to find content-rich reading materials at my students' reading level.	❍	❍	❍	❍
g. It is challenging for me to find the time to develop modules.	❍	❍	❍	❍

SCALING of LDC INITIATIVE

*Q40 is about using the LDC modules next year (**2013-14**).*

.

40. Please indicate the degree to which you agree or disagree with the following statements:

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. I would like to develop modules next year.	❍1	❍2	❍3	❍4
b. I look forward to teaching modules next year.	❍	❍	❍	❍
c. I plan to improve how I teach modules next year.	❍	❍	❍	❍

41. Please indicate the degree to which you agree or disagree with the statements below:

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. My participation in the LDC initiative is worth the time and effort involved.	❍1	❍2	❍3	❍4
b. I see the ideas and practices of the LDC initiative gaining traction in my school.	❍	❍	❍	❍
c. I have noticed an increase in the number of teachers using the LDC modules/tasks in my school since last year.	❍	❍	❍	❍
d. There are other curricular initiatives or programs in the district that address some of the same purposes as LDC.	❍	❍	❍	❍
e. The other curricular initiatives or programs in the district create competing priorities with the LDC initiative.	❍	❍	❍	❍
f. The district has the commitment to sustain the LDC initiative.	❍	❍	❍	❍
g. The district has the funding to sustain the implementation of the LDC initiative.	❍	❍	❍	❍

42. Have you shared any of your LDC modules with a teacher who is not participating in the LDC initiative? ❍1 Yes ❍0 No

SCHOOL LEADERSHIP

Q43 is about the administrators at your school.

43. Please indicate the degree to which you agree or disagree with the following statements.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree	Don't Know
My school administrators …					
a. … have a firm understanding of the LDC framework.	❍1	❍2	❍3	❍4	❍-99
b. … have made formative assessment a priority at my school.	❍	❍	❍	❍	❍
c. … encouraged me to participate in the LDC initiative.	❍	❍	❍	❍	❍
d. … provided me with feedback about my instruction of the module(s).	❍	❍	❍	❍	❍
e. … provided ongoing support for the implementation of the LDC tools.	❍	❍	❍	❍	❍
f. … expressed concerns that teaching modules is taking time away from other instructional priorities.	❍	❍	❍	❍	❍
g. … have attended professional development about the LDC framework.	❍	❍	❍	❍	❍
h. … have communicated how the LDC framework is aligned with other school initiatives	❍	❍	❍	❍	❍
District administrators …					
i. … support the LDC framework.	❍	❍	❍	❍	❍
j. … encourage my participation in the LDC initiative.	❍	❍	❍	❍	❍
k. … provide ongoing support for implementation of the LDC framework.	❍	❍	❍	❍	❍
l. … have a firm understanding of the LDC framework.	❍	❍	❍	❍	❍
m. … have attended professional development about the LDC framework.	❍	❍	❍	❍	❍

ALIGNMENT

44. Please indicate the degree to which you agree or disagree with the following statements.

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. The LDC framework aligns well with my school's curriculum.	❍1	❍2	❍3	❍4
b. The modules help prepare my students for current state assessment(s).	❍	❍	❍	❍
c. The LDC framework aligns with the Common Core State Standards.	❍	❍	❍	❍
d. I see the unique value of the LDC framework to address the Common Core State Standards.	❍	❍	❍	❍
e. The LDC rubric aligns well with my school's expectations for assessing student writing.	❍	❍	❍	❍

COLLABORATION

Q45-46 are about your interactions with your LDC colleagues.

45. Do you and your LDC colleagues have regularly scheduled common planning time to discuss LDC?

❍1 Yes ❍0 No

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
46. I would describe my LDC colleagues as collaborative.	❍1	❍2	❍3	❍4

47. About how often do you have **scheduled meetings** (as opposed to informal discussions) with your LDC initiative colleagues to discuss student work, instructional strategies, or teaching approaches? [skip if Q45=no]

- ❍1 At least once a week
- ❍2 Every other week
- ❍3 Once a month
- ❍4 Once per quarter/trimester/semester
- ❍5 Never

48. About how often do you have **informal discussions** (as opposed to scheduled meetings) with your LDC colleagues to discuss student work, instructional strategies or teaching approaches?

- ❍1 At least once a week
- ❍2 Every other week
- ❍3 Once a month
- ❍4 Once per quarter/trimester/semester
- ❍5 Never

Please indicate the degree to which you agree or disagree with the following statements.

49. Collaboration with my LDC colleagues helps me …

	Agree	Agree Somewhat	Disagree Somewhat	Disagree
a. … more effectively use the LDC framework.	❍1	❍2	❍3	❍4
b. … better support student learning.	❍	❍	❍	❍
c. … develop LDC modules.	❍	❍	❍	❍
d. … teach LDC modules.	❍	❍	❍	❍
e. … revise LDC modules.	❍	❍	❍	❍
f. … use the LDC framework rubric.	❍	❍	❍	❍
g. … use students' products to inform my instruction.	❍	❍	❍	❍
h. …provide helpful feedback to students about their writing.	❍	❍	❍	❍

WORKING WITH EXPERIENCED LDC COLLEAGUES

50. Are there teachers in your school or district who used LDC modules **last** year **(2011-12)**?

❍1 Yes ❍0 No [skip to Q53]

51. Did you work with a colleague more experienced with LDC **this** year (**2012-2013**)?

❍1 Yes ❍0 No [skip to Q53]

52. How much did working with a colleague more experienced with LDC help you to develop and teach modules?

❍$_1$ a great deal
❍$_2$ a fair amount
❍$_3$ some
❍$_4$ not much
❍$_5$ not at all

PROFESSIONAL DEVELOPMENT

53. Have you participated in formal professional development sessions related to **LDC** during the **current** school year (**2012-13)**?

❍$_1$ Yes ❍$_0$ No [skip to Q61]

54. Which PD providers facilitated the LDC professional development you attended this year **(2012-13)**? *Please CHECK ANY that applies*

☐$_a$ State or regional staff
☐$_b$ External partner (e.g., Metametrics, SREB, LDC)
☐$_c$ District or network staff
☐$_d$ School-based staff
☐$_e$ I don't remember who facilitated the PD this year

55. How many formal, scheduled LDC professional development sessions have you attended this year (**2012-13)**? _____[integer, 1-99]_____

56. Please indicate whether you participated in the following **types of LDC professional development sessions**.

	Participated	Did not participate
a. One-on-one classroom visits	❍1	❍0
b. Coaching	❍	❍
c. Webinars	❍	❍
d. Small group meetings	❍	❍
e. School-wide meetings	❍	❍
f. District-wide meetings	❍	❍
g. Cross-district meetings	❍	❍

57. Please indicate whether the LDC professional development sessions you participated in was effective or not effective.

	Effective	Not Effective
a. [fill choice from previous item here]	❍1	❍0
b. [fill choice from previous item here]	❍	❍
c. [fill choice from previous item here, etc., etc.]	❍	❍

58. Please indicate whether the LDC professional development sessions you have participated in contained the following **types of content**:

	PD contained this content	PD did not contain this content
a. Using LDC modules as a way to implement the Common Core State Standards	❍1	❍0
b. Building a teaching task	❍	❍
c. Finding appropriate content materials	❍	❍
d. Designing modules	❍	❍
e. Using the instructional ladder	❍	❍
f. Using mini-tasks to address reading and writing skills	❍	❍
g. Providing students with feedback on their writing	❍	❍
h. Scoring student work with LDC rubric	❍	❍
i. Building modules with Module Creator	❍	❍
j. Differentiating module instruction to meet student needs	❍	❍
k. Implementing modules with special education students	❍	❍
l. Implementing modules with ELL students	❍	❍
m. Implementing modules with students who read or write below grade level	❍	❍
n. Implementing modules with students with advanced literacy levels	❍	❍

Q59 asks about LDC professional development that would support your implementation of the LDC initiative.

	Yes	No
59. Please indicate whether you would like more LDC professional development on …		
a) …using LDC modules as a way to implement the Common Core State Standards		
b) … building a teaching task.	❍1	❍0
c) … finding appropriate content materials.	❍	❍
d) … designing modules.	❍	❍
e) … using the instructional ladder.	❍	❍
f) … using mini-tasks to address reading and writing skills.	❍	❍
g) … providing students with feedback on their writing.	❍	❍
h) … scoring student work with the LDC rubric.	❍	❍
i) … building modules with Module Creator.	❍	❍
j) … differentiating module instruction to meet student needs.	❍	❍
k) … implementing modules with ELL students.	❍	❍
l) … implementing modules with special education students.	❍	❍
m) … implementing modules with students who read or write below grade level.	❍	❍
n) … implementing modules with students with advanced literacy levels.	❍	❍

60. Are you compensated for attending professional development sessions? ❍1 Yes ❍0 No

[limit 1000 characters]

[limit 1000 characters]

61. What additional supports and training would help you use the LDC framework? *Please use the field below to describe.*

62. Surveys are not perfect. Maybe we missed some things that you think are important about the LDC initiative. Below, we invite you to write your assessment and comments about the framework as you have experienced it.

63. What is your race/ethnicity? Please CHECK ONE that apply.

- ☐$_a$ Native American
- ☐$_b$ Asian/Pacific Islander
- ☐$_c$ Black or African American
- ☐$_d$ Hispanic or Latino
- ☐$_e$ White or Caucasian
- ☐$_f$ Multiracial
- ☐$_g$ Other *(please specify)* _____

[Go to "Regular Close"]

= = = = = = = = = = = = = = =

REGULAR CLOSE

Thank you very much for the time and thought you have put into completing this survey.

To ensure anonymity, your responses will be combined with those from teachers of numerous schools.

Your responses will help to inform implementation of the Literacy Design Collaborative.

= = = = = = = = = = = = = = =

DON'T AGREE CLOSE

We are sorry you have chosen not to participate in the survey.

Thank you for visiting *Research for Action*'s *and the National Center for Research on Evaluation, Standards, and Student Testing's* survey on the Literacy Design Collaborative.

= = = = = = = = = = = = = = =

ERROR MESSAGE IF AN ANSWER IS LEFT BLANK:

You have not given an answer for a question on this screen.

Do you want to go back to give an answer or continue with the survey?

❍ I want to go back to answer the question.

❍ I want to continue without answering the question.

Exhibit A4:

Evolution Integrated Learning Assessment

National Center for Research
on Evaluation, Standards, & Student Testing

UCLA | Graduate School of Education & Information Studies

English Language Arts in Life Science

Evolution

STUDENT	
TEACHER	

Assessment Directions

This is a two part assessment. In part 1, you will go over the directions, read the materials, and answer questions. In part 2, you will write an essay on the topic provided.

You will be asked about natural selection in widowbirds and the concept of survival of the fittest. As you read the materials please consider the reproductive advantages for long-tailed widowbirds.

You may take notes directly on the assessment.

The materials include:

1. Reading Passage - Survival of the Fittest
2. Diagram - Natural Selection in Nature
3. Reading Passage - Widowbirds

Underlined terms are defined in a glossary.

Stop at the 

sign at the end of part 1.

1. Reading Passage - Survival of the Fittest

The passage below is about fitness and how the term is used in discussions of evolution.

"Survival of the fittest." This is perhaps the most famous phrase from Darwin's most famous book *On the Origin of Species*. Unfortunately, this phrase is often misunderstood. We often use the word "fitness" to describe someone's physical strength or health. In discussing evolution, fitness is not primarily a measure of strength or health. It has everything to do with an organism's reproductive success. Specifically, how many offspring it has in a lifetime, compared to other individuals in the population.

There are three important elements to an organism's fitness:

1. An individual's fitness is measured relative to the fitness of individuals with different genotypes or phenotypes in the population.

2. Fitness depends on the specific environment in which the organism lives.

3. Fitness is measured by comparing an organism's reproductive success with the reproductive success of other organisms in the population.

To illustrate the concept of fitness, consider the following example.

Fly *A* carries a trait that allows it to survive a long time without food. Fly *B* carries a trait that allows it to survive only a short time without food. If there is a long period of time when there is no food, Fly *A* will be more likely to survive and have a chance to reproduce. Thus, Fly *A* exhibits greater fitness in environments where food shortages occur more frequently.

continue reading

Glossary

allele - different versions of the same gene; for instance, allele "A" produces a tall plant while allele "a" produces a short plant

genotype - the genes that an organism possesses for a particular trait; also, the entire genetic makeup of an organism

offspring - progeny or descendants of a person, animal, or plant

phenotype - appearance or observable characteristics of an organism (e.g., a long tail) resulting from the interaction of its genetic makeup with the environment

trait - a distinguishing characteristic (e.g., eye color) passed from parent to offspring

To further illustrate this point, consider some additional information about these flies:

Fly *A*: produces 40 eggs per week and can survive longer without food.

Fly *B*: produces 60 eggs per week and can't survive very long without food.

Environment 1: frequent food shortages.

Fly *A*: has an expected lifespan of five weeks. Lifetime egg output = 200

Fly *B*: has an expected lifespan of two weeks. Lifetime egg output = 120

Environment 2: no food shortages.

Fly *A*: has an expected lifespan of five weeks. Lifetime egg output = 200

Fly *B*: has an expected lifespan of five weeks. Lifetime egg output = 300

Whichever fly has greater fitness over a lifetime depends on the environment and requires a calculation of reproductive output (not just a measure of survival). For this reason, "survival of the fittest" can be a misleading phrase. It can lead some to believe that survival has to do with health and strength. It becomes clearer if we understand that reproductive success determines whether an organism will ultimately pass on its genes to the next generation. Individuals with alleles that increase their fitness will be more likely to survive and reproduce. This will lead to an increase in those alleles in the population and a decrease in alleles that don't increase fitness.

Adapted from Phelan, J. (2010). What is Life? A Guide to Biology, NY: W.H. Freeman and Company

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the passage you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. **Which of the following best describes the physical characteristic expressed by genes?**

   Ⓐ phenotype

   Ⓑ genotype

   Ⓒ fitness

   Ⓓ reproductive success

2. **Which of the following best describes the ability of an individual to survive and reproduce in its specific environment?**

   Ⓐ genotype

   Ⓑ allele

   Ⓒ fitness

   Ⓓ reproductive output

3. **Which of the following provides the best summary of the passage?**

   Ⓐ Phenotypes and genotypes influence an individual's fitness.

   Ⓑ Fitness for an individual is largely determined by reproductive success and not physical fitness.

   Ⓒ Darwin's famous phrase should be changed so that it doesn't confuse readers.

   Ⓓ Trait variation in fruit flies can enhance reproductive success.

4. What is the main purpose of the passage?

Ⓐ compare and contrast different points of view

Ⓑ discuss results of a study

Ⓒ clarify a misconception or misunderstanding

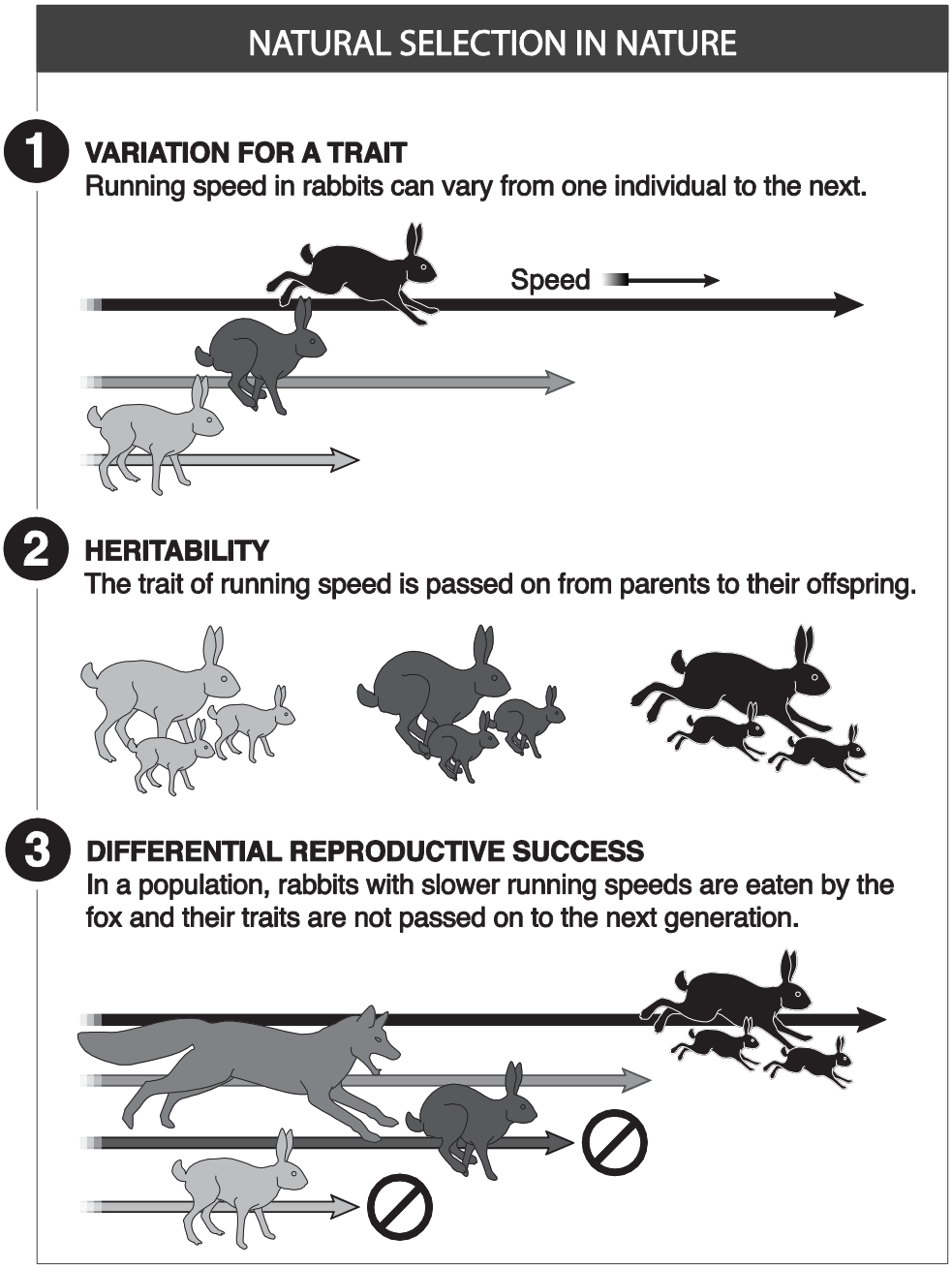
Ⓓ describe a scientific theory

Short Answer

5. In 1-2 sentences, explain why *Fly A* is more fit than *Fly B* in environments in which there are frequent food shortages.

2. Diagram - Natural Selection in Nature

The diagram below illustrates the conditions that must be met for natural selection to occur. Natural selection can be thought of as getting rid of traits that lead to poor reproductive success. If you are a slower-running rabbit, you are more likely to be eaten by a fox. And so the next generation of rabbits will have fewer slow rabbits.



Source: Phelan, J. (2010). What is Life? A Guide to Biology, NY: W.H. Freeman and Company.

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the diagram. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. **Which of the following best describes the process where traits become more or less common in a population?**

   Ⓐ fitness

   Ⓑ reproductive success

   Ⓒ natural selection

   Ⓓ heritability

2. **What is the main idea of the diagram?**

   Ⓐ Trait variation helps determine survival because species with advantageous traits survive to reproduce and pass those traits to offspring.

   Ⓑ Characteristics acquired after birth explain how certain members of a population survive over others.

   Ⓒ Natural selection and reproduction are ways to understand similarities between species.

   Ⓓ Slower running rabbits tend to get eaten by foxes at a higher rate than faster rabbits.

Short Answer

3. **If all the rabbits in a population have the same running speed, would the process of natural selection as shown in the diagram still occur? Explain your answer in 1-2 sentences.**

3. Reading Passage - Widowbirds

The passage below provides a short description of a study investigating female mate choice in a group of birds called widowbirds.

Adult male widowbirds are black and have tails that can be as long as 50 cm. That's up to three times as long as their bodies (see photograph below).

Female widowbirds are brown, with much smaller tails. Female widowbirds make nests in the males' territories and raise two to three young without any assistance from the males.

Researchers decided to conduct an experiment to study mate selection in several groups of male widowbirds. One group of widowbirds had their tails artificially lengthened by gluing additional tail feathers onto their tails. Another group had their tails shortened. This left one group of birds with longer tails and one group of birds with shorter tails.

At the start of the experiment, researchers counted the number of nests (those with eggs or young birds) on the territory of each male. After one month, the researchers compared the number of nests in each territory. The group of males (long or short tail) with the highest number of nests would determine which group was more successful in reproducing.

Results of the study showed that the reproductive success of the males with longer tails was significantly higher than males with shorter tails, although the longer-tailed males were more susceptible to predation and some had difficulty flying.

continue reading

Glossary

artificially - not naturally

predation - when one species attacks and/or kills another species

susceptible - likely to be harmed by something

territory - a defined area of land

The following illustrates the reproductive success over the average lifespan of the different birds:

- Long-tailed widowbirds produce an average of five offspring each year. Because they only live an average of two years (because they are more susceptible to predation and can't fly well), they have an average expected lifetime output of ten offspring.
- Short-tailed widowbirds produce an average of one offspring per year (because fewer females select them) and live an average of six years. Therefore, their average expected lifetime output is six offspring.

So we see that long-tailed widowbirds have greater fitness, even with a shorter life. Hence, reproduction is more important than survival when it comes to the concept of fitness.

Adapted from

Andersson, M. (1982). Female choice selects for extreme tail length in a widowbird. Nature, 299, 818–820.

Linn, Currie. (Photographer). (2010). Long tailed widow bird in natural environment, showing off long tail [Photograph]. Retrieved from http://www.shutterstock.com/pic-23789029/stock-photo-long-tailed-widow-bird-in-natural-environment-showing-off-long-tail.html

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the passage you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. What does the author mean by "more susceptible to predation" (lines 18-19)?

Ⓐ The longer-tailed birds are at greater risk of being attacked by predators.

Ⓑ Predators prefer the short-tailed to the long-tailed birds.

Ⓒ The longer-tailed birds are better able to escape from predators.

Ⓓ The widowbirds have no known predators.

2. According to the passage, what could the researchers conclude based on the results of the study?

Ⓐ Widowbirds with short tails have a greater chance of survival.

Ⓑ Trait variation in species can impact flying.

Ⓒ Reproductive success is related to tail length in male widowbirds.

Ⓓ Female widowbirds have much shorter tails than male widowbirds.

3. What is the main purpose of the passage?

Ⓐ discuss the mating habits of the widowbirds

Ⓑ compare and contrast the tail length of male and female widowbirds

Ⓒ describe the process of artificially lengthening widowbirds' tails for an experimental study

Ⓓ report findings from an experiment on the mating success of widowbirds with different tail lengths

4. What evidence is used in the passage to show that males with longer tails are more successful in reproduction?

Ⓐ A smaller number of males with longer tails were seen being attacked by predators.

Ⓑ There were more eggs in the nests of longer-tailed males.

Ⓒ The shorter-tailed males were seen flying without difficulty.

Ⓓ Female widowbirds were more frequently seen with longer tailed males.

Short Answer

5. How would the result of the study change if short-tailed widowbirds lived an average of 12 years?

End of Part 1

Writing Task

Using evidence from the materials provided and other information you know about "survival of the fittest", write a persuasive essay in which you argue against the following statement:

> *Results presented in the reading passage "Widowbirds" clearly show that the widowbirds with longer tails have lower fitness because they are more susceptible to predation. After all, Darwin explained that evolution is all about survival of the fittest.*

In your persuasive essay, be sure to explain how birds with reduced life spans may actually be considered more "fit" from an evolutionary perspective than those with longer life spans.

In your formal essay, be sure to:

- briefly describe "survival of the fittest" in your own words.
- support your argument with examples from (a) the passages and diagram provided, and (b) general concepts and specific facts you already know about "survival of the fittest" and natural selection.

Your essay will be scored on how well you:

- demonstrate an understanding of "survival of the fittest."
- state and support your claims with evidence.
- present your essay in a logical and well-organized manner.
- use the materials to support your argument.
- use proper punctuation, spelling, and grammar.

Exhibit A5:

Reconstruction Integrated Learning Assessment

National Center for Research
on Evaluation, Standards, & Student Testing

UCLA | Graduate School of Education & Information Studies

English Language Arts in US History

Reconstruction

STUDENT	
TEACHER	

Assessment Directions

This is a two part assessment. In part 1, you will go over the directions, read the materials, and answer questions. In part 2, you will write an essay on the topic provided.

You will be asked about the period called Reconstruction that followed the Civil War. As you read the materials, please consider the how each document speaks to the challenges faced by former slaves during Reconstruction.

You may take notes directly on the assessment.

The materials include:

1. Timeline - Key Events during Reconstruction
2. Reading Passage - Frederick Douglass
3. Reading Passage - South Carolina's Black Codes
4. Reading Passage - KKK

Underlined terms are defined in a glossary.

Stop at the 

sign at the end of part 1.

1. Timeline - Key Events during Reconstruction

Reconstruction refers to the historical period immediately following the Civil War (1865-1877), when the nation faced the dual challenges of rebuilding national unity and addressing the needs of four million freed slaves. The North won the war and controlled Congress during Reconstruction. Most Northerners were Republicans and, in general, supported the rights of freed slaves in the South. During Reconstruction, Republicans in Congress used the U.S. Army to protect freed slaves against violence in the South. When these troops left the South in 1877, Reconstruction effectively ended.

1865: The Civil War ends, and Republican President Abraham Lincoln is assassinated.

13th Amendment outlaws slavery.

Many Southern states create Black Codes to limit rights of former slaves.

1866: The Civil Rights Act of 1866 allows African Americans to own property and to be treated equally in court.

The Ku Klux Klan is founded.

1867: Radical (extreme) Republicans take over the United States government and pass many laws to support the rights of former slaves.

1868: The 14th Amendment grants citizenship to African Americans.

First African American elected to United States Congress.

1870: The 15th Amendment grants African Americans the right to vote.

1871: Congress passes the Ku Klux Klan Act of 1871 in response to reports of widespread violence against African Americans in the South. The act gave the U.S. Army the power to enforce the rights of African Americans.

1877: Reconstruction ends. The government pulls all remaining Northern troops out of the Southern states.

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the timeline you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. Based on the timeline, what was the major tension between the North and the South during Reconstruction?

Ⓐ Northern Republicans and Southern Democrats disagreed about whether African Americans should be elected to Congress.

Ⓑ Southern Democrats supported the Ku Klux Klan, but Northern Democrats wanted it abolished.

Ⓒ Southern Democrats wanted to pass constitutional amendments, but the North opposed them.

Ⓓ Northern Republicans wanted to establish rights for freed slaves, while the South resisted.

2. During Reconstruction, constitutional amendments were passed that guaranteed the following rights to African Americans, EXCEPT the right to:

Ⓐ own property.

Ⓑ citizenship.

Ⓒ be free.

Ⓓ vote.

3. What does the Ku Klux Klan Act of 1871 tell you about the United States during Reconstruction?

Ⓐ The South used military force against the North in the years following the Civil War.

Ⓑ The South was committed to protecting the rights of African Americans.

Ⓒ The South wanted the North's help to enforce the policies of Reconstruction.

Ⓓ The North and the South still did not see eye to eye after the Civil War.

Short Answer

4. In 1-2 sentences, describe how you think life changed for the African Americans in the South after Northern troops withdrew in 1877.

2. Reading Passage - Frederick Douglass

The following excerpt is from a speech delivered by Frederick Douglass in August 1880 at a meeting in Elmira, NY. Douglass escaped from slavery to become a leading advocate of abolitionism before the Civil War. In the years following the Civil War, he was a leading proponent of African American civil rights.

How stands the case with the recently emancipated millions of Negro people in our own country? By law, by the Constitution of the United States, slavery does not exist in our country. By law and the Constitution, the Negro is a man and citizen, and has all the rights and liberties guaranteed to any other type of the human family, living in the United States.

But today, in most of the Southern states, the Fourteenth and Fifteenth Amendments are virtually nullified. The citizenship granted in the Fourteenth Amendment is practically a mockery, and the right to vote, provided in the Fifteenth Amendment, is literally stamped out. The old master class is today triumphant.

The very manner of their Emancipation invited the bitterest hostility of race and class to the freedmen. They were hated because they had been slaves, hated because they were now free, and hated because of those who had freed them. Nothing was to have been expected other than what has happened. The old master class would naturally employ every power and means in their reach to make the great measure of Emancipation unsuccessful. When the Hebrews were emancipated, they were told to take spoil from the Egyptians. When the serfs of Russia were emancipated, they were given three acres of ground upon which they could live and make a living. But not so when our slaves were emancipated. They were sent away empty-handed, without money, without friends and without a foot of land upon which to stand. Old and young, sick and well, were turned loose to the open sky, naked to their enemies.

Adapted from *Life and Times of Frederick Douglass* (p. 610), by F. Douglass, 1882, Hartford, Connecticut: Park Publishing.

Glossary

nullified – of no use or value

virtually – for the most part

spoil – stolen goods

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the passage you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. What did Douglass say about the Fifteenth Amendment?

Ⓐ It granted former slaves the right to vote.

Ⓑ It granted former slaves the right to citizenship.

Ⓒ It was ignored by Southern states by 1880.

Ⓓ It made the master class triumphant.

2. According to Douglass, how does the situation of the newly emancipated slaves in America compare to that of the Russian serfs or the Hebrews? (lines 13-16)

Ⓐ The Russian serfs and Hebrews were sent away after emancipation.

Ⓑ The Russian serfs and Hebrews were given land after emancipation.

Ⓒ The African American slaves were given land after emancipation.

Ⓓ The African American slaves were given nothing after emancipation.

3. To whom is Douglass referring when he talks of the "old master class"?

Ⓐ all Southerners

Ⓑ former slave owners

Ⓒ U.S. Citizens

Ⓓ Republicans

Short Answer

4. In a few sentences, summarize the main points of Douglass' speech.

3. Reading Passage - Southern Carolina's Black Codes

In the years immediately following the Civil War, many Southern states passed "Black Codes," or laws that tried to control former slaves. The excerpt below is from South Carolina's Black Code, passed in December 1865.

An Act to establish and regulate the Domestic Relations of Persons of Color

Contracts for service: All persons of color who make contracts for service or labor, shall be known as servants, and those with whom they contract, shall be known as masters.

Regulations of labor on farms: The hours of labor, except on Sunday, shall be from sunrise to sunset, with a break for breakfast and dinner. Servants shall rise at the dawn in the morning, do the usual and needful work about the premises and begin the farm work by sunrise.

Mechanics, Artisans and Shop-Keepers: No person of color shall pursue or practice the art, trade or business of an artisan, mechanic or shop-keeper, or any other employment (besides that of farming, or that of a servant), until he shall have obtained a license from the Judge of the District Court, which shall be good for one year only.

Vagrancy and Idleness: All of the following people shall be considered vagrants:

- People who do not have some fixed and known place of abode, and some lawful and respectable employment;
- People who lead idle or disorderly lives;
- People who are able to work and do not work;
- People who perform publicly or privately, for fee or reward, any tragedy, comedy, play, or other similar entertainment;
- People who for private gain, give any concert or musical entertainment, of any description; fortune-tellers; beggars;

On conviction, the defendant shall be imprisoned and/or sentenced to hard labor.

The defendant, if sentenced to hard labor, may be hired to any owner of a farm for the term of hard labor to which he was sentenced.

Adapted from Acts of the General Assembly of the State of South Carolina Passed at the Sessions of 1864-65 (Columbia: 1865), pp. 291-304

Glossary

artisan – a worker in a skilled trade

abode – house or home

vagrant – a person without a settled home or regular work who wanders from place to place; beggar

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the passage you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. According to the South Carolina Black Codes, freed slaves could only work as which of the following:

Ⓐ public performer

Ⓑ business owner

Ⓒ artisan

Ⓓ farm laborer

2. How did the Black Codes help the owners of plantations?

Ⓐ The law gave plantation owners licenses to pursue other forms of employment.

Ⓑ The law forced freed slaves to work for their former owners on plantations.

Ⓒ The law made sure that farm labor received breaks for breakfast and dinner.

Ⓓ The law made sure that no vagrants were allowed on their land.

3. The punishment for someone arrested for vagrancy included which of the following:

Ⓐ They might be sent out of the state.

Ⓑ They might have to obtain a license from a district judge.

Ⓒ They might be sent to work on a farm.

Ⓓ They might be prevented from future work.

Short Answer

4. Choose ONE regulation that supports the argument that the authors of the Black Codes wished to reestablish the conditions of slavery. Explain your choice.

4. Reading Passage - KKK

In 1871, Congress held hearings to gather information about widespread violence against African Americans in the South. These hearings resulted in the passage of the Ku Klux Klan Act of 1871, which allowed the President to use federal troops to suppress racial violence. The transcript below comes from the congressional hearings.

[Harriet Hernandez and her husband were whipped by the Ku Klux Klan in South Carolina. Local whites apparently became outraged after Harriet's husband rented some land and she subsequently withdrew from domestic labor. Here she recounts being compelled to 'lie out' in the woods at night to avoid further violence]:

Q: Had [your husband] been afraid for any length of time?

A: He has been afraid ever since last October. He has been lying out. He has not slept in the house ten nights since October.

Q: Is this situation similar to that of other colored people down there to any extent?

A: That is the way they all have to live –men and women both.

Q: What were they afraid of?

A: Of being killed or whipped to death.

Q: What has made them afraid?

A: Because if the men voted [Republican], they took the spite out on the women when they could get at them.

Q: How many colored people have been whipped in that neighborhood?

A: It is all of them, mighty near. I could not name them all…. They have no satisfaction to live like humans, no how.

Source: [KKK Hearings, SC: 586] *Joint Select Committee to Inquire into the Condition of Affairs in the Late Insurrectionary States* [South Carolina], Washington, D. C., 1872

Reading Comprehension Questions

In this part of the assessment, you will answer questions about the content of the passage you read. You may look back at the materials to help you answer the questions.

Multiple Choice

Choose the best answer for each question. Fill in the bubble next to the answer you choose.

1. What word best describes how Harriet and her husband felt in 1871?

Ⓐ sad

Ⓑ hopeful

Ⓒ confused

Ⓓ afraid

2. Which of the following actions by African Americans angered local whites in South Carolina in 1871?

Ⓐ sleeping at home

Ⓑ lying in the woods

Ⓒ voting Republican

Ⓓ working as domestic labor

3. Was Harriet's experience typical for African Americans in South Carolina in 1871?

Ⓐ yes, according to this testimony

Ⓑ no, according to this testimony

Ⓒ maybe, according to this testimony

Ⓓ this testimony does not say

Short Answer

4. a. Based on this testimony, did African Americans feel free to exercise their right to vote in 1871?

.

b. Explain your answer using evidence from the document.

End of Part 1

Writing Task

Even though the Thirteenth Amendment of 1865 officially ended slavery in the United States, former slaves faced many challenges in the following years. Using the documents as evidence, write a formal essay arguing that African Americans were not actually free in the years immediately following the Civil War.

Your essay will be scored on how well you:

- demonstrate an understanding of Reconstruction.
- state and support your claims with evidence.
- present your essay in a logical and well-organized manner.
- use the materials to support your argument.
- use proper punctuation, spelling, and grammar.

CRESST ILA Scoring Rubric for Grade 8 Writing

Overview

The five scoring dimensions are: content understanding, rhetorical structure/quality, reference to text, and use of grammar/conventions. There may be some overlap between some of these dimensions, which is fine. When scoring, keep in mind we are looking at on overall indicator of proficiency on each of these dimensions.

Dimension	Name	Description
A	Content understanding	This is a measure of overall how well the student has demonstrated that they understand the materials and the topic in their essay.
B	Rhetorical structure/quality	*Argument:* Measures how well the elements of an argument are described in the response. For 8th grade writing, arguments should establish a claim, distinguish claims from alternate or opposing claims, and support claims with relevant evidence and logical reasons.
C	Organization	This evaluates the focus, logical progression of ideas, and structure demonstrated by the student's writing.
D	Reference/support with text	This is a measure of how well statements in the essay are supported by references to text details. A text detail is a quotation, paraphrase, or any other reference to information and ideas in the texts provided.
E	Grammar and Conventions	Evaluates the command of standard English conventions demonstrated by the response: proper English usage and control of grammar, formal tone, correct paragraph and sentence structure.

Student ID: _____

Score point	Argument Rubric		Score
Content understanding	The response demonstrates well-developed and thorough understanding of the topic.	4	☐
	The response demonstrates solid understanding of the topic.	3	☐
	The response demonstrates some understanding of the topic.	2	☐
	The response demonstrates little or no understanding of the topic.	1	☐
Rhetorical structure/quality	Important elements of the argument are clearly and thoroughly described and articulated and the response is aligned to the writing prompt.	4	☐
	Elements of the argument are clearly described and the response is aligned to the writing prompt.	3	☐
	There is an attempt to describe some elements of the argument.	2	☐
	Elements of the argument are not described, or the descriptions are unclear.	1	☐
Organization	The essay is well-organized.	4	☐
	The essay is appropriately organized.	3	☐
	The essay is somewhat organized.	2	☐
	The essay has little or no appropriate organization.	1	☐
Reference support with text	The response uses detailed and well chosen references to the text to thoroughly support the argument.	4	☐
	The response uses accurate and detailed references to the text to provide solid support for the argument.	3	☐
	The response uses some accurate and detailed references to the text to provide support for the argument.	2	☐
	The response uses little or no accurate and detailed references to the text to provide support for the argument.	1	☐
Grammar and Conventions	The response demonstrates a well-developed command of standard English conventions.	4	☐
	The response demonstrates an appropriate command of standard English conventions.	3	☐
	The response demonstrates some command of standard English conventions.	2	☐
	The response demonstrates little or no command of standard English conventions.	1	☐

Evolution Short Answer Rubric

"Evolution", v17			
Question ID	Q #	Question Stem & Sample Answer	Scoring Rubric
MSC_SF_160	5	In 1-2 sentences, explain why *Fly A* is more fit than *Fly B* in environments in which there are frequent food shortages? Answer: In environments with frequent food shortages, Fly A is more fit than Fly B because it has a greater lifetime egg output under those conditions. Fitness reflects relative reproductive success, so Fly A is more fit in those circumstances.	BL = Blank 0 = The student gives either an incomplete or incorrect explanation. 1 = The student provides a correct explanation for why Fly A is more fit in environments with frequent food shortages: it (Fly A) has more eggs in its lifetime (greater reproductive success). Because of the stem, it is not necessary to specify that this is about Fly A as compared to Fly B, or that it is only true in an environment with frequent food shortages.
MSC_NSN_161	3	If all the rabbits in a population have the same running speed, would the process of natural selection as shown in the diagram still occur? Explain your answer in 1-2 sentences. Answer: No. Natural selection would not occur as shown in the diagram. If the rabbits all had the same running speed, they would be equally vulnerable to predation. It would not matter which rabbits are eaten by foxes because all rabbits have the same running speed and without variation for a trait, natural selection cannot occur. Regardless which rabbits escape the foxes and reproduce, their offspring would always inherit the same running speed.	BL = Blank 0 = Incorrect response. 1 = The student gives the correct response (no*) but insufficient reasoning. 2 = The student responds correctly and supports their response with reasoning. The response should mention (or clearly imply) reproduction: • No*, because the rabbits that (live and) reproduce would be the same as the rabbits that are eaten. • No*, because the offspring would all inherit the same running speed. *Any accurate description of the lack of natural selection is the same as "No", e.g. "the next generation of rabbits would be the same because…", or "…therefore the offspring wouldn't be faster".

Reconstruction Short Answer Rubric

Reconstruction MS, v3			
Question ID	Q #	Question Stem & Sample Answer	Scoring Rubric
MSO_RC_200	4	In 1-2 sentences, describe how you think life changed for the African Americans in the South after Northern troops withdrew in 1877. Answer: Without the presence of Northern troops to protect their rights, African Americans in the South are denied some of their rights and freedoms and are abused by groups like the KKK.	BL = Blank 0 = The student either gives an incomplete or incorrect response, e.g. the response does not describe a change. 1 = The student responds correctly. A correct response could be a general statement about having fewer rights after reconstruction or at least one example of a challenge they would face (e.g. discrimination, violence) .
MSO_FD_197	4	In a few sentences, summarize the main points of Douglass' speech? Answer: Douglass' main point is that although by law slavery has been outlawed, emancipation has been unsuccessful because the laws (14th and 15th amendment) have largely been ignored. The "Freedmen" faced so much hostility because the old master class did not want emancipation to be successful. Unlike other freed people who were emancipated, African American freedmen received no resources to transition out of slavery (e.g., land, money).	BL = Blank 0 = The student either gives an incomplete or incorrect response, e.g. the response focuses on one main idea 1 = The student responds correctly with at least two main ideas from Douglass' speech.

Exhibit A7:

LDC CRESST Evolution Assessment: Short Teacher Survey

Please answer the following questions about your instruction in the 2012-13 school year. Answers should reflect your instruction for the classroom in which you are administering the enclosed assessments.

1. **What date(s) were the enclosed assessments administered?** _____
2. **How much total time did students spending taking the assessments?** _____ minutes
3. **How many LDC modules have you taught in the 2012-13 school year?** _____
4. **What topics did the LDC modules you taught cover?**

   a. _____
   b. _____
   c. _____
   d. _____
   e. _____

5. **Please indicate the degree of emphasis you placed on *Evolution* as a topic during your 2012-13 instruction in this class, by circling the best response below.**

   No emphasis Slight emphasis Moderate emphasis Sustained emphasis

6. **If there were any problems with the administration of the assessments, or you have any other comments, please use the space below.**

_____

_____

_____

_____

_____

_____

Exhibit A8:

LDC CRESST Reconstruction Assessment: Short Teacher Survey

Please answer the following questions about your instruction in the 2012-13 school year. Answers should reflect your instruction for the classroom in which you are administering the enclosed assessments.

1. **What date(s) were the enclosed assessments administered?** _____
2. **How much total time did students spending taking the assessments?** _____ minutes
3. **How many LDC modules have you taught in the 2012-13 school year?** _____
4. **What topics did the LDC modules you taught cover?**

   a. _____
   b. _____
   c. _____
   d. _____
   e. _____

5. **Please indicate the degree of emphasis you placed on *Reconstruction* as a topic during your 2012-13 instruction in this class, by circling the best response below.**

   No emphasis Slight emphasis Moderate emphasis Sustained emphasis

6. **If there were any problems with the administration of the assessments, or you have any other comments, please use the space below.**

_____

_____

_____

_____

_____

_____

Appendix B:

Summary Report:
Developing an Assignment Measure to Assess Quality of LDC Modules

November 2013

Abby Reisman, Joan Herman, Rebecca Luskin, and Scott Epstein
CRESST/University of California, Los Angeles

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Developing an Assignment Measure of Common Core State Standards Literacy Practice

The National Center for Research on Evaluation, Standards and Student Testing (CRESST) is developing evaluation tools to support the transition to the Common Core State Standards (CCSS). Generously supported by the Bill and Melinda Gates Foundation, the CRESST tools include measures of both teacher practice and student learning. The Assignment Measure tool presented here examines how well 8th grade science and social studies teachers were able to incorporate selected CCSS standards in English Language Arts into classroom curriculum and instruction. The tool specifically measures how teachers implemented the Literacy Design Collaborative (LDC) framework, an intervention designed to help teachers create integrated literacy and content instruction around core writing tasks.

Assignment and artifact collection has been identified as an efficient and economical means of measuring the quality of classroom instruction (e.g., Clare & Aschbacher, 2001; Newmann, Bryk, & Nagaoka, 2002; Storms, Riazantseva, & Gentile, 2000; Matsumura, Slater, Wolf, Crosson, Levison, Peterson, Resnick, Junker, 2006; Martínez, Borko, Stetcher, Luskin, & Kloser, 2012). Classroom assignments shed light on such variables as teacher clarity, cognitive rigor of instruction, and in this case, degree of LDC fidelity of implementation. Careful assessment of assignments can potentially capture instructional quality with a degree of accuracy that approaches actual observation. In addition to shedding light on the nuances of instructional practice, artifact collection and analysis can potentially be leveraged for professional development purposes, to model and improve effective practices. The CRESST Assignment Measure was designed with both of these uses–instructional evaluation and professional development—in mind. Furthermore, the benefit of the Assignment Measure is its transferability: with only minor modifications, the measure can be used to assess to any instruction that involves reading texts and writing about them.

In contrast to previous artifact studies that examine discrete assessment practices or assignments (cf. Martínez, Borko, Stetcher, Luskin, & Kloser, 2012), the CRESST Assignment Measure was designed to capture instruction that occurred within the framework of an LDC "Module," a unit of instruction lasting 2-4 weeks that culminates in a summative writing task. In building an LDC Module, teachers begin with fill-in-the-blank template tasks—or extended writing prompts—that are designed to help them incorporate the literacy demands specified in the Common Core State Standards into units of instruction in literature, history/social studies, or science. Teachers design instructional activities using the LDC framework that is comprised of four "skill clusters:" (1) Preparing for the Task, (2) Reading Process, (3) Transition to Writing, and (4) Writing Process. Each LDC Module includes an instructional ladder of "mini-tasks" that build the requisite skills in both *reading* and *writing* to complete the final writing task. The final product—instructional ladder plus template task—is referred to as an LDC module.

LDC has also designed *Module Creator,* an online platform that walks teachers through the four steps of building a module: What task? What skills? What instruction? What results? This platform is replete with pull-down menus and default settings that teachers are invited to augment and/or revise, depending on their instructional needs. For example, in the Reading Process skills cluster, teachers are invited to add additional skills beyond the ones suggested by LDC: text selection, active reading, essential vocabulary, academic integrity, note-taking. Likewise, if they choose to teach the skill of "active reading," they have the option of adding additional instruction or "mini-tasks" beyond the default option on Module Creator, which simply has students "brainstorm ways to figure out any author's intent" and "share and discuss their answers for each text."

The CRESST Assignment Measure was designed to assess both the clarity and quality of the writing task and the appropriateness and relevance of the activities in the instructional ladder. Despite the fill-in-the-blank format of the final writing task, the process of building an LDC module leaves tremendous room for variation. Teachers are responsible for choosing the topic, selecting appropriate texts, and designing daily instruction around all elements of literacy, from reading comprehension, paragraphing, to all aspects of writing style and mechanics. This potentially wide range in teacher implementation has important implications for the design of fidelity of implementation measures. The breadth of instruction contained in a given LDC Module poses logistical challenges for artifact collection, which will be discussed below.

In the report below, we describe the CRESST Assignment Measure and report findings from a reliability study. In particular, we examine variation and sources of error in ratings, attending to what these results might suggest about teacher implementation of LDC. Lastly, using both the quantitative results from the reliability study, as well as qualitative data from interviews and surveys, we make suggestions for how the Assignment Measure might be used in the future.

CRESST Assignment Measure

CRESST's LDC Assignment Measure was designed to capture the specific demands of integrating content and literacy, as is required in subject area classrooms implementing LDC. Over the past year, CRESST has been involved in revising, piloting, and validating the LDC Assignment Measure, based on findings from last year's pilot. Our original measure consisted of eight dimensions, each targeting a discrete component of the module. Each dimension was scored on a four-point scale. Our current measure has nine dimensions, each scored on a 5-point scale. The revised version of the assignment measure focuses on rigor and content literacy, while also drawing more explicitly on the criteria for "what makes a great teaching task" and "what makes a great module" that are discussed in *The 1.0 Guidebook to LDC* (See Appendix A for complete rubric).

The final measure includes only those areas for which we are able to collect sufficient evidence of classroom practice. The challenge with each of these potential domains of LDC implementation is the availability of information to support their assessment. The final rubric assumes that scorers have the following materials before them: 1) a completed template task (often printed from Module Creator); 2) one sample of supplemental instructional materials in reading instruction and one sample of instructional materials in writing instruction (e.g., graphic organizers, worksheets, lesson plans) that speak to the specificity of instruction; 3) three samples of student work on the template task, marked high, medium, and low; and 4) a short cover sheet where teachers indicate how long they spent teaching the modules and state their goals for content, reading, writing. Below, we make suggestions for additional classroom artifacts that might be collected in future iterations of the Assignment Measure to assist raters in making inferences about classroom instruction.

Each dimension was scored on a five-point scale for scoring to reduce any clustering or bias towards the mean. A score of 1 indicates that a dimension is not present or realized in the assignment measure artifacts; a score of 3 suggests that a dimension is moderately present or realized; and a score of 5 indicates that the dimension is fully realized. The first five dimensions in the revised measure address the question, "what makes a great teaching task?" These dimensions center on the teaching task rather than the module in its entirety. This approach aligns with the steps suggested for building an effective module, as outlined in *The 1.0 Guidebook to LDC* (cf. Crawford, Galiatsos, Lewis, & Ottesen, 2011):

1) *Effective Writing Task* considers the degree to which the teaching task makes effective use of the template task's writing mode (i.e., argumentation or explanation); requires sustained writing and effective use of ideas and evidence to substantiate claims; and is feasible for most students to complete (i.e., appropriate for the grade-level and subject matter). Sources of information for evaluating this dimension include the teaching task template options, the teaching task, and summary information sections of Module Creator.

2) *Alignment to the CCSS and Local and State Literacy and Content Standards* focuses on the extent to which teaching task addresses content essential to the discipline, as well as reading comprehension and writing standards informed by local and state standards. Evidence for assessing this dimension can be found in the CCSS and state standards provided in Module Creator, as well as the literacy and content standards that teachers include in the module.

3) *Text Alignment* is the degree to which the assigned texts address teaching task content. The main sources of information for evaluating this and the following two dimensions are the reading

texts themselves, as well as the task, resources, and links listed in the Module Creator Handout or referenced in the student work.

4) *Text Appropriateness* is the degree to which the teaching task includes reading texts that are accessible to most students (i.e., appropriate for the grade-level and subject matter). Rater materials included sample readings that represented 8th grade Lexile levels. Raters were encouraged to refer to these exemplar texts when assessing text appropriateness.

5) *Text Rigor* is the degree to which the teaching task includes reading texts that use and develop academic understanding and vocabulary, and offer opportunities for multiple interpretations and higher-order thinking.

The remaining four dimensions of the revised assignment measure address the question, "what makes a great module?" The dimensions capture the extent to which teachers engage in high quality instructional strategies, and address the four stages of instructional practice delineated in the LDC *Instructional Ladder*. These dimensions also provide an opportunity to assess the coherence and clarity of the module as a whole:

6) *Fidelity to LDC Module Instruction* is the degree to which module instruction, activities, and the teaching task address each of the four stages of instructional practice (preparation for the task, reading process, transition to writing, writing process). The main sources of information include the instruction section of the Module Creator handout and any information provided about the distribution of activities and time spent on each of the four stages.

7) *Quality Instructional Strategies* considers the degree to which the module provides clear instructional strategies aimed at helping students develop literacy skills and successfully complete the teaching task, and the degree to which module instruction and activities scaffold critical thinking and performance in a way that is meaningful within the context of a given field or subject-matter. In addition to the instruction section of Module Creator and completed teacher logs, evidence for this dimension can be found in classroom handouts and examples of student work.

8) Coherence and Clarity of Module is the degree to which there is logical alignment between the teaching task and other module goals with readings, mini-tasks, and instructional strategies.

All classroom artifacts should be used to assess this and the final dimension, including materials and information listed or uploaded into Module Creator, classroom handouts, and examples of student work.

9) *Overall Impression* is a holistic assessment of LDC Module. This dimension gives raters the opportunity to make an overall assessment of LDC implementation, and determine the extent to which a module contributes to student college readiness and development of advanced literacy skills.

Methods

LDC Modules were collected from 8th grade social studies and science teachers who were part of a larger quasi-experimental study of LDC implementation. We asked that teachers submit data on two modules if possible, preferably in the fall and spring semesters. Most teachers taught at least two modules, but some taught only one. Although timing of module submission varied, in all cases Module 2 reflected instruction that occurred later in the academic year. Each module captured teacher LDC instruction over the course of 2-4 weeks. As part of the larger study, teachers were also asked to complete an online log twice per week during each week of LDC instruction. These online logs were designed on the online survey engine Qualtrics and we requested that teachers submit modules and classroom artifacts online when they completed logging on a given module. In addition to the specific instructional materials listed above, teachers had an opportunity to submit any additional materials that they believed would help us understand their module instructional practice. We followed up with teachers who had completed logging but did not submit their materials. The final sample included 21 social teachers, who submitted 40 social studies modules, and 17 science teachers who submitted 29 science modules.

We used a within-subject design to explore teacher variation in LDC implementation. The design allowed us to investigate variation in LDC implementation over time, as well as between subject areas (science and social studies) and between states (Pennsylvania and Kentucky).

Pilot Study

We piloted the assignment measure and rater training in April 2013 with two expert teachers, including one science and one social studies teacher. The four science and social studies modules used for the pilot session were selected from a pool of completed modules that were submitted to our research team from study participants in the early spring. These modules included all of the classroom materials that teachers were asked to submit, and represented the types of teaching task topics similar to what raters

encountered in the official rating session, including those on climate change, transportation of hazardous materials, the Electoral College, and the American Revolution. Both raters found the dimensions logical and intuitive, and the training in LDC, Module Creator, and the CCSS thorough and useful for their own practice. Their suggestions for how we might clarify the rubric and rater training protocol were minor and almost all were incorporated. We determined that it took approximately 45 – 60 minutes for a teacher to rate a module.

Recruitment and Training

We recruited raters for a week-long scoring session held on June 17-21, 2013. We generated a list of eligible and potentially interested teachers from local district leaders and experts in social studies and science education and we ultimately invited over 90 teachers to apply. Five social studies and four science teachers were selected from a total pool of over 70 applicants. Raters were offered $200 for each day of participation, in addition to breakfast, lunch and parking. The recruitment letter explained:

> UCLA's *Center for Research on Evaluation, Standards, & Student Testing* (CRESST) and the *Gates Foundation* are investigating an instructional intervention aligned to the C*ommon Core State Standards* (CCSS) in 8th grade science and social studies classrooms. We are looking for experienced teachers to review and score instructional materials collected in middle school science and social studies classrooms during the 2012-2013 school year. **Rating sessions will take place from Monday, June 17, 2013 - Friday, June 21, 2013**.
>
> **Job Details:**
> - Raters will received a daily stipend of $200 ($25/hour)
> - Breakfast, lunch, and parking will be provided
> - Sessions will take place at the UCLA campus from 9:00AM-5:00PM
>
> **Job Qualifications:**
> - Experienced teachers who currently or recently taught 8th grade science and social studies
> - May not have been a UC Employee within the last two years
>
> If you are interested in rating instructional materials or would like further information about our study, please fill out and return the attached form April 30, 2013.

Rater training and calibration occupied the first day and a half of the weeklong session. The first morning was devoted to introducing raters to LDC and Module Creator, as well as to familiarizing them with the dimensions of the rubric. During the afternoon of the first day and the morning of the next, social studies and science teachers independently scored two anchor modules in their subject areas. Each group of teachers met with a subject area expert who had also scored the modules to discuss and calibrate

their ratings. The remainder of the week was devoted to rating modules. Each teacher rated approximately 24 modules.

Generalizability Study Design

Generalizability theory, or G theory, is a statistical framework for determining the reliability of measurements under specific conditions. The theory asserts that there are multiple sources of error, rather than a single error term as in classical reliability theory. Each source of potential error is considered a *facet,* and the goal of a G-study is to determine the amount of error caused by each facet and the interaction of facets. We conducted Generalizability studies to investigate the reliability of module ratings, with the goal of separating true teacher variation from other sources of measurement error, for example rater variation or variation in LDC implementation over time (Shavelson & Webb, 1991). We also conducted a decision study, or D study, to estimate how generalizability coefficients would change if different aspects of the study (e.g., number of raters, number of modules) were altered. Therefore, for each set of modules, we estimated two kinds of reliability coefficients: a generalizability coefficient (ρ) reflecting consistency in relative score interpretations (i.e., rank ordering) and a dependability coefficient (ϕ) for absolute interpretations (i.e., judging performance against set criteria or standards). In both cases, we estimated hypothetical scenarios that vary the number of modules collected per teacher and the number of raters. Finally, we conducted exploratory factor analyses to investigate the extent to which one or more dominant factors or traits underlie the correlation patterns observed among ratings on the nine rubric dimensions.

Social studies and science modules were analyzed separately because raters exclusively scored modules in their subject area. A fully crossed design with all raters scoring all modules in a given subject area was not feasible due to time constraints, but most raters scores majority of the teacher artifacts. We analyzed all valid data by using the missing data option in SPSS, which enabled us to omit an observation when there were missing values in the independent effects.

Qualitative Data

In addition to the analyses described above, we conducted 20-30 minute interviews with individual raters during the final two days of week to inquire about their experience with the assignment measure and their initial reactions to teacher implementation of LDC. The nine raters also completed a short survey on Qualtrics that asked them to review their experience over the course of the week. The

survey was comprised of three sections. The first asked raters to "indicate how strongly you agree or disagree with the following statement as it applies to each rubric dimension:"

1) I clearly understood this dimension and the aspect of LDC module instruction that it was intended to capture.
2) The LDC module notebook provides sufficient evidence to judge this aspect of LDC module instruction.
3) I am confident about the ratings I assigned in this dimension.

In the second section, the raters were asked to indicate how useful each of the following components were "as a source of information for judging each dimension:" one-page information form; module creator handout; other planning materials; reading/texts; reading supports; writing supports; samples of student work; other instructional materials. Finally, raters were asked to comment on what knowledge, experiences, or personality characteristics might make someone a good rater of LDC modules.

Results

Table 1 presents mean scores for all social studies and science modules across all dimensions. Several cautions must be considered in reviewing these findings. First, given the limited sample size, we must be careful of making generalizations about social studies or science LDC implementation. It is important to note that different groups of raters scored each set of modules, and thus the scores are incomparable. Moreover, it is conceivable that science raters may have been more lenient in their scoring for any number of reasons, including their lack of experience integrating literacy and content.

However, we see that, in general, science modules received higher ratings across dimensions, with the exception of two dimensions. This may appear counter-intuitive: one would think that social studies teachers would have an easier time integrating writing instruction, given the subject matter. The mean scores may suggest science teachers were better able to integrate subject matter content and literacy within the framework of LDC instruction. Science teachers were most successful at following and elaborating upon the structure of the LDC module. Their modules not only contained the four "skill clusters" –Preparing for the Task, Reading Process, Transition to Writing, and Writing Process—but these skills clusters included mini-tasks that went beyond the default options provided on Module Creator. Science teachers were also able to find texts that aligned with the writing task, but these were not particularly rigorous, in that they did not necessarily promote multiple interpretations or higher-order thinking.

Social studies modules scored higher than science modules on the Effective Writing Task (the linchpin of the module) and Text Rigor (the academic substance of the texts) suggesting that social studies teachers struggled less with integrating writing tasks into their content instruction, and more with

designing instruction and supporting student execution of the task. Of all the dimensions, social studies teachers were most successful at finding texts to align with the writing task. Again, it is possible that social studies raters were more exacting in their ratings, given their experience integrating literacy and content instruction. For the remainder of the report, we present results for social studies and science modules separately.

Table 1: Mean Scores for Social Studies and Science Modules Across Dimensions (Scale 1-5)

Dimensions	Social Studies	Science
1. Effective Writing Task	3.40	3.05
2. Alignment to Literacy and Content Standards	2.42	3.25
3. Text Alignment	3.44	3.52
4. Text Appropriateness	3.24	3.41
5. Text Rigor	3.35	3.05
6. Fidelity to LDC Module Instruction	3.04	3.85
7. Quality Instructional Strategies	2.85	3.09
8. Coherence and Clarity of Module	2.82	3.23
8. Overall Impression	2.73	3.04

Social Studies Modules

Descriptive Statistics by Module and State: Social Studies

Table 2 presents descriptive statistics for social studies by dimension separated by module. A few comparative observations can be made. First, surprisingly, the average rating for the *second* social studies module was lower than the first in almost all dimensions except Overall Impression (D9) and Effective Writing Task (D1), where the improvement from the first to the second module was slight. It is unclear why social studies modules would have, on average, declined over the course of the year, and it is important to consider that ratings could reflect teacher fatigue (and a lack of willingness to upload relevant, supplementary instructional materials). The case for teacher fatigue may be further supported by the consistent means for Overall Impression and Effective Writing Task between Modules 1 and 2; these two dimensions rely less on the presence of extensive artifacts and more on raters' gut sense of the intellectual value and rigor of the instruction. That the means on D1 and D9 remained consistent suggests that module quality may not have varied as much as may appear at first glance.

Table 2: Descriptive Statistics by Dimension and Module for Social Studies Teachers (*N=40*)

	Module 1 (N=19)		*Module 2 (N=21)*	
Dimensions	*M*	*SD*	*M*	*SD*

Effective Writing Task	3.37	1.08	3.39	1.18
Alignment to Literacy and Content Standards	2.54	1.25	2.22	1.02
Text Alignment	3.49	1.07	3.37	1.31
Text Appropriateness	3.32	0.78	3.15	1.11
Text Rigor	3.51	1.09	3.17	1.26
Fidelity to LDC Module Instruction	3.19	1.04	2.80	1.18
Quality Instructional Strategies	2.88	1.05	2.79	0.99
Coherence and Clarity of Module	2.83	1.15	2.77	1.11
Overall Impression	2.70	0.93	2.74	1.02

Tables 3 present descriptive statistics for social studies modules by state.[1] Again, we must be cautious about drawing conclusions from these results, as differences may be a sign of pre-existing differences between teachers. Nonetheless, we see here that scores on social studies modules did not vary tremendously by state. Perhaps the biggest distinction is that teachers in IU13 scored considerably higher on Fidelity to LDC Module Instruction (D6). The higher score on this dimension likely reflects the fact that all teachers from IU13 submitted modules designed on the online LDC platform, Module Creator. Approximately half of Kentucky social studies modules were submitted using an older paper template for LDC or without any template. If it was difficult for raters to identify the four skill clusters –Preparing for the Task, Reading Process, Transition to Writing, and Writing Process—the module could not receive a score of 3 in D6. However it is important to note that a module could earn a 3 on D6 by simply defaulting to mini-task options automatically provided in Module Creator for each skill-cluster. In other words, the average score of 3.35 in D6 for IU13 social studies modules does not necessarily suggest that those teachers elaborated or expanded on the default options provided for instruction. The overall mean across dimensions for IU13 social studies modules (M=3.03) is only marginally higher than that for Kentucky (M=2.99).

Table 3: Descriptive Statistics for Social Studies Modules by Dimension and State (*N=40*)

	IU13 (N=18)		*Kentucky (N=22)*	
Dimensions	*M*	*SD*	*M*	*SD*
Effective Writing Task	3.38	0.95	3.38	1.26
Alignment to Literacy and Content Standards	2.71	0.99	2.10	1.19
Text Alignment	3.36	1.09	3.48	1.28
Text Appropriateness	3.07	0.86	3.36	1.03
Text Rigor	3.02	1.03	3.58	1.25
Fidelity to LDC Module Instruction	3.35	0.64	2.70	1.33
Quality Instructional Strategies	2.80	0.87	2.86	1.13

[1] See Appendix B for comparisons with scores on five LDC modules designed at the district level in Hillsborough, FL.

Coherence and Clarity of Module	2.80	0.85	2.80	1.31
Overall Impression	2.76	0.90	2.68	1.04

Generalizability Study: Social Studies

Table 4 presents the estimated variance components for a teacher by rater by module (t*r*m) generalizability analysis for social studies modules. Again, the goal here is to separate true teacher variation from other sources of measurement error, for example rater variation or variation in LDC implementation over time. This model partitions variance into seven components; each column represents a source of variation in module ratings on each of the rubric dimensions. In this particular G study, if we found high systematic variation between raters that might suggest that the ratings were not reliable. On the other hand, we might expect to find high variation across modules, because teachers may improve at LDC implementation over time. The main effects reflect true variance across teachers (σ^2t) and error variance across raters and modules (σ^2r, σ^2m); a residual term (σ^2trm,e) combines the t*r*m interaction and residual error unexplained in the model. Across the dimensions, the results are quite promising: we see virtually no variation across raters, and high variation between teachers. In particular, it is important to note the high teacher variance captured in D9: Overall Impression, a dimension that asked raters to assess the degree to which the module contributed to student college readiness and development of advanced literacy skills. This suggests that raters were able to assess the overall instructional potential of the modules, separate from the particularities of LDC implementation.

For the three dimensions where we see lower variation between teachers (D1: Effective Writing Task; D3: Text Alignment; and D4: Text Appropriateness) we nonetheless see that a large portion of the variance for those dimensions is captured in the teacher by module interaction effect. The σ^2tm interaction suggests that certain teachers' scores on these dimensions varied between their first and second module. In other words, although we do not see high variation *overall* between first and second modules (σ^2m), it appears that differences between modules were tied to particular teachers. As discussed earlier, this variation may reflect inconsistencies in how teachers assembled and uploaded module materials, or it may reflect *true* variation in teacher implementation of LDC. In either case, this variation suggests that any single module may not accurately represent teacher LDC implementation. Finally, the residual error term (σ^2trm,e) may also reflect systematic rater inconsistency and other sources of error not captured in the design.

Table 4: Generalizability Studies of Social Studies Module Ratings (t*r*m*tr*tm*rm)*

	Percentage of Total Variance (%)						
Dimension	σ2t	σ2r	σ2m	σ2tr	σ2tm	σ2rm	σ2trm,e
Effective Writing Task	5.6	0.0	0.0	11.3	22.2*	6.0	55.0*
Alignment to Standards	42.2*	3.1	1.8	0.0	16.9	2.5	33.5*
Text Alignment	15.1	1.8	0.0	2.3	35.3*	0.0	45.5*

Text Appropriateness	14.6	2.1	0.0	3.2	23.0*	1.3	55.9*
Text Rigor	33.1*	0.0	2.3	0.0	24.5*	0.0	40.1*
Fidelity to LDC Module Instruction	49.4*	0.0	3.7	0.0	22.7*	0.0	24.2*
Quality Instructional Strategies	32.7*	0.0	0.0	12.6	21.8*	0.1	32.9*
Coherence and Clarity of Module	40.2*	0.0	0.0	15.5	12.0	4.5	27.8*
Overall Impression	34.8*	2.6	0.0	7.2	17.1	1.7	36.5*

*Indicates large proportion of variance captured by this facet.

Decision Study: Social Studies

We also conducted decision studies to determine dependability estimates under hypothetical scenarios that varied the number of modules and raters. Dependability estimates provide information about the consistency of absolute performance (in this case, on a given dimension) independent of others' performance, rather than consistency of relative standing. These findings are presented in Table 5. In social studies, with two modules, estimated dependability with 3 raters exceeds .60 for all dimensions except Effective Writing Task, Text Alignment, and Text Appropriateness. The estimates for all three dimensions are slightly improved with 3 modules, but still below .5. These are the same three dimensions for which we saw low teacher variance, which may suggest that the dimensions are simply not effective in discriminating among teachers. On the other hand, considering that the teacher by module variance is quite large for all three of these dimensions, it is possible that the low dependability estimates for these dimensions raises questions about how many modules might be necessary to capture true teacher variation.

Table 5: Social Studies: Decision Studies of Module Ratings by Dimension (t*r*m Design)

	Dependability Coefficients			
	2 Modules		3 Modules	
	Raters (Crossed)		Raters (Crossed)	
Dimension	2	3	2	3
Effective Writing Task	0.149	0.182	0.194	0.237
Alignment to Literacy and Content Standards	0.680*	0.721*	0.754*	0.790*
Text Alignment	0.327	0.362	0.413	0.453
Text Appropriateness	0.339	0.390	0.423	0.480
Text Rigor	0.585	0.622*	0.679*	0.712*
Fidelity to LDC Module Instruction	0.719*	0.741*	0.794*	0.811*
Quality Instructional Strategies	0.562	0.614*	0.632*	0.684*
Coherence and Clarity of Module	0.648*	0.709*	0.701*	0.759*
Overall Impression	0.601*	0.656*	0.672*	0.724*

*Indicates dependability estimates greater than .60.

Factor Analysis: Social Studies

Table 6 presents the principal component solutions extracted from the average teacher scores for each dimension over raters and modules. Overall Impression (D9) was initially excluded to avoid artificial unidimensionality in the data, but later included when we determined that it did not skew the loadings. The result of the factor analysis for social studies module ratings is encouraging: all 9 dimensions load heavily on one factor, and account for 63% of the variance in social studies ratings. This suggests a dominant factor or trait underlying the nine dimensions of LDC implementation measured in the Assignment Measure, and makes the case for the coherence and conceptual validity of the tool. It is interesting to note that two of the dimensions (Alignment to Literacy and Content Standards: D2 and Fidelity to LDC Implementation: D6) load equally well on a second factor. Because both of these dimensions require the rater to evaluate the module according to outside criteria (e.g., standards, LDC framework), it is possible that they point to a trait that is distinct from how the rater might go about evaluating classroom instruction.

Table 6: Principal Component Analysis of Social Studies Modules (N=40)

	Component	
	1	2
D1_mean	.736	-.191
D2_mean	.604	.656
D3_mean	.803	-.415
D4_mean	.827	-.351
D5_mean	.768	-.389
D6_mean	.664	.599
D7_mean	.906	.119
D8_mean	.948	.142
D9_mean	.927	.029

Extraction Method: Principal Component Analysis.

Science Modules

Descriptive Statistics by Module and State: Science

Table 7 presents descriptive statistics for science by dimension separated by module. We found that with the exception of D5: Text Rigor, average ratings improved across all dimensions between Modules 1 and 2. This trend reflects what we would expect as teachers become more experienced in implementing LDC instruction.

Table 7: Descriptive Statistics by Dimension and Module for Science Teachers (*N=29*)

	Module 1 (N=15)		*Module 2 (N=14)*	
Dimensions	*M*	*SD*	*M*	*SD*
Effective Writing Task	3.00	1.20	3.09	1.14
Alignment to Literacy and Content Standards	2.98	1.24	3.45	1.06
Text Alignment	3.46	1.24	3.55	1.14
Text Appropriateness	3.30	1.18	3.53	1.06
Text Rigor	3.06	1.29	3.00	1.20
Fidelity to LDC Module Instruction	3.59	0.94	4.04	0.88
Quality Instructional Strategies	3.04	1.18	3.09	1.08
Coherence and Clarity of Module	3.17	1.22	3.23	1.16
Overall Impression	2.85	1.14	3.19	1.08

Tables 8 present descriptive statistics for science modules by state. Science modules in Kentucky (*M*=3.44) were consistently higher across dimensions than those from IU13 (*M*=3.05). It is important that we refrain from overstating these mean differences – all fall well within the standard deviations. Furthermore, observed differences could be the result of pre-existing differences between teachers. Nonetheless, given the consistency of these differences, it is worth exploring and comparing the professional development offered to IU13 and Kentucky science teachers, to identify whether and/or how Kentucky teachers were able to develop stronger modules.

Table 8: Descriptive Statistics for Science Modules by Dimension and State (*N=29*)

	IU13 (N=14)		*Kentucky (N=15)*	
Dimensions	*M*	*SD*	*M*	*SD*
Effective Writing Task	2.80	1.15	3.27	1.14
Alignment to Literacy and Content Standards	3.18	1.11	3.21	1.24
Text Alignment	3.39	1.10	3.62	1.27
Text Appropriateness	3.10	1.14	3.69	1.04
Text Rigor	2.80	1.08	3.25	1.36
Fidelity to LDC Module Instruction	3.59	0.79	4.00	1.03
Quality Instructional Strategies	2.92	1.00	3.19	1.24
Coherence and Clarity of Module	2.92	1.10	3.46	1.23
Overall Impression	2.76	0.99	3.25	1.19

Generalizability Study: Science

Table 9 presents the estimated variance components for a teacher by rater by module (t*r*m) generalizability analysis for science modules. This model partitions variance into seven components. The main effects reflect true variance across teachers (σ^2t) and error variance across raters and modules (σ^2r, σ^2m); a residual term (σ^2trm,e) combines the t*r*m interaction and residual error unexplained in the model. The results here resemble those found for social studies module ratings, with a few differences.

Although we again see virtually no variance across raters, we do see high variance in the teacher by rater interaction for two of the dimensions: Text Alignment (D3) and Text Rigor (D5). And although we see high variation between teachers for four of the dimensions (D1, D6, D7, D9), the variance components for the remaining dimensions are fairly low.

How do we interpret these results? First, it is important to note once again the high teacher variance captured in D9: Overall Impression, a dimension that asked raters to assess the degree to which the module contributed to student college readiness and development of advanced literacy skills. This suggests that raters were able to assess the overall instructional potential of the modules, separate from the particularities of LDC implementation. On the other hand, the high variance in the rater by teacher interaction (σ^2tr) signals inconsistencies in rater understanding or use of the scoring rubrics with different teachers. That we see high variation for this interaction in two of the dimensions dealing with text selection (D3 and D5), suggests that science raters were less clear—or possibly systematically disagreed—about what constituted a relevant and academically challenging text in science.

As for the five dimensions for which we see low variation between teachers (D2: Alignment to Content and Literacy Standards; D3: Text Alignment; D4: Text Appropriateness; D5: Text Rigor; and D8: Coherence and Clarity), we nonetheless see that a large portion of the variance for those dimensions is captured by the teacher by module interaction effect. The σ^2tm interaction suggests that differences between modules were tied to particular teachers. As discussed earlier, this variation may reflect inconsistencies in how teachers assembled and uploaded module materials, or it may reflect *true* variation in teacher implementation of LDC. In either case, this variation suggests that any single module may not accurately represent teacher LDC implementation. Again, the variance captured by residual error term (σ^2trm,e) remains high for all but one dimension, likely reflecting systematic rater inconsistency and other sources of error not captured in the design.

Table 9: Generalizability Studies of Science Module Ratings (t*r*m*tr*tm*rm)

	Percentage of Total Variance (%)						
Dimension	σ2t	σ2r	σ2m	σ2tr	σ2tm	σ2rm	σ2trm,e
Effective Writing Task	24.8*	0.0	0.0	3.7	6.8	11.3	53.4*
Alignment to Standards	17.6	0.0	3.1	17.6	35.2*	4.0	22.5*
Text Alignment	7.1	0.2	0.0	25.4*	41.2*	2.2	23.9*
Text Appropriateness	9.1	8.0	0.0	18.7	25.8*	0.4	38.1*
Text Rigor	12.6	0.0	0.0	28.7*	40.0*	7.2	11.5
Fidelity to LDC Module Instruction	33.8*	14.0	8.7	2.3	0.0	0.6	40.6*
Quality Instructional Strategies	34.9*	0.0	0.0	15.3	0.0	6.8	43.0*
Coherence and Clarity of Module	15.0	0.0	0.0	6.4	21.0*	7.2	50.4*
Overall Impression	27.9*	0.0	0.0	17.1	4.8	14.2	36.0*

*Indicates large proportion of variance captured by this facet.

Decision Study: Science

We also conducted decision studies to determine dependability estimates under hypothetical scenarios that varied the number of modules and raters. These findings are presented in Table 10. In science, estimated dependability with 2 modules and 3 raters is quite low for five of the nine dimensions, but exceeds .60 in Effective Writing Task, Fidelity to LDC Instruction, Quality Instructional Practices, and Overall Impression. That these four dimensions all deal with the *general* sense of the module, rather than the particularities of text selection, text preparation, and standards alignment, might suggest that science raters could reliably discern teacher overall fidelity of implementation, but were less confident about their interpretation of the specific components of module design. None of the dimensions are substantially improved by adding another module to the model. These findings of the decision studies are considerably less robust than what we saw with social studies, which might be a consequence of the smaller sample size. However, it also may suggest that raters of science modules may need additional training in LDC, and perhaps a better understanding of what the effective integration of literacy instruction and science content looks like.

Table 10: Science: Decision Studies of Module Ratings by Dimension (t*r*m Design)

	Dependability Coefficients			
	2 Modules		3 Modules	
	Raters		Raters (Crossed)	
Dimension	2	3	2	3
Effective Writing Task	0.536	0.616*	0.624	0.698*
Alignment to Literacy and Content Standards	0.338	0.375	0.405	0.450
Text Alignment	0.150	0.174	0.186	0.219
Text Appropriateness	0.202	0.244	0.243	0.294
Text Rigor	0.244	0.278	0.290	0.335
Fidelity to LDC Module Instruction	0.597	0.670*	0.654	0.724*
Quality Instructional Strategies	0.653	0.723*	0.687	0.767*
Coherence and Clarity of Module	0.347	0.402	0.430	0.491
Overall Impression	0.543	0.629*	0.601	0.684*

*Indicates dependability estimates greater than .60.

Factor Analysis: Science

Finally, Table 11 presents the principal component solutions extracted from the average scores for each dimension over raters and modules. Overall Impression (D9) was initially excluded to avoid artificial unidimensionality in the data, but later included when we determined that it did not skew the loadings. The result of the factor analysis for science module ratings is encouraging: all 9 dimensions load heavily on one factor, and account for 67% of the variance in social studies ratings. This suggests a

dominant factor or trait underlying the nine dimensions of LDC implementation measured in the Assignment Measure, and makes the case for the coherence and conceptual validity of the tool.

Table 11: Principal Component Analysis of Science Modules (N=29)

	Component	
	1	2
D1_mean	.706	-.537
D2_mean	.658	-.142
D3_mean	.896	-.194
D4_mean	.833	-.329
D5_mean	.919	-.241
D6_mean	.551	.759
D7_mean	.884	.355
D8_mean	.877	.335
D9_mean	.955	.121
Extraction Method: Principal Component Analysis.		

Qualitative Results

The qualitative data collected from the rater interviews and the rater survey sheds light on how raters experienced the scoring session and suggests ways to potentially improve rater reliability in the future. One key finding that emerges from analysis of qualitative data is the sense that the artifacts collected and assembled in each module notebook were not necessarily sufficient to assess or make inferences about LDC instruction. Both science and social studies teachers found this to be especially true for dimensions 6, 7, and 8 (Fidelity to LDC Implementation, Quality Instructional Strategies, and Coherence and Clarity). When asked to assess the relative strength of each source of information, both social studies and science teachers found the actual Module Creator print-out *not* useful or only somewhat useful for rating most of the dimensions, with the exception of Fidelity to Implementation (D6) and Alignment to Standards (D2), two dimensions that required teachers to consult specific sections of the print-out. But many teachers did not find it particularly useful in rating the text-related dimensions, Instructional Quality, Coherence and Clarity, and the Overall Impression.

By contrast, both groups of raters found the actual readings and texts extremely useful in assessing most of the dimensions of the rubric, especially, not surprisingly, the text-related dimensions. Social studies raters also found the texts useful for rating Quality Instructional Practices, Coherence and Clarity, and Overall Impression. Interestingly, science teachers reported that the texts were *not* useful in making such inferences. Likewise, whereas social studies raters found Reading Supports extremely

useful in rating almost all dimensions, science raters mostly found them useful in rating D6, D7, D8, and D9, but Not Useful for rating D1-D5. At the risk of making too much of this finding, it is possible that science raters were less comfortable drawing inferences about literacy instruction from the assembled artifacts than social studies raters. This finding is supported by our impression from the interviews that science teachers had less experience teaching literacy than social studies teachers.

Raters suggested certain sources of information that would have made scoring easier. First, one rater suggested that in addition to final student work, teachers submit evidence of student progress in the form of revised drafts. Several raters wished they had had more evidence of teacher implementation – lesson plans, scaffolds, and actual readings, for those modules where teachers just listed readings on Module Creator. Raters also wanted much more information about school context, student demographics, and most importantly, the extent of professional development and support that teachers received in implementing LDC. Given the extent to which LDC departs from business-as-usual in content classrooms, raters felt that knowing the extent and quality of teacher training in the approach would have informed their evaluation.

We also asked raters to give their impressions of LDC as an intervention geared to helping teachers integrate literacy and content instruction. The majority of raters indicated support and enthusiasm for the intervention, but highlighted (as mentioned above) what they saw as a tremendous need for professional development and coaching. One rater warned that LDC should not be seen as a "magic bullet." Several raters questioned whether the stronger modules reflected the strength of LDC as an intervention or the instructional skills that the teacher brought to the model. Raters emphasized that the strong modules basically reflected good instruction, and one rater thought that in some modules "LDC gets in the way." Science raters, in particular, highlighted that science teachers will need much more help in teaching reading and writing, beyond the LDC template. At the same time, science raters were quite enthusiastic about the actual topics that they saw in the modules, and several stated that the modules gave them ideas for their own practice. Social studies teachers were less enthusiastic about the actual modules they rated. Several commented on the lack of differentiation and the lack of instructional support that pushed students to consider multiple perspectives and read text critically. Others were frustrated that the rubric did not include a dimension to rate the quality of the actual content delivered in the module. For example, they found instances where student work that was marked 'high' by the teacher included glaring historical inaccuracies.

Discussion

Overall, we are buoyed by the findings discussed above and believe the CRESST Assignment Measure to be a promising assessment tool for gauging teacher success in integrating literacy and content

instruction. In both the social studies and science analyses, we found low rater variance and high teacher (or teacher by module) variation. These findings indicate that raters generally found the dimensions intuitive and aligned with the available sources of information. Moreover, the factor analyses indicate that all dimensions load on a single factor, making the case that the CRESST Assignment Measure effectively measures a coherent trait that might be understood to be LDC implementation, or perhaps more generally, instructional quality in the integration of literacy and content. These findings are especially promising given our limited data set and the myriad logistical challenges of artifact collection.

At the same time, we can identity certain questions that are worthy of further investigation and consideration. First, how much instructional material is required for raters to make informed, reasonable inferences about LDC implementation? Raters would ideally have additional artifacts on which to base their judgments, however requiring teachers to submit additional artifacts raises logistical considerations in terms of efficiency and cost-effectiveness. Nonetheless, if the tool is to be used in future evaluations of LDC instruction, it is worth exploring whether additional samples of classroom instruction (e.g., classroom handouts, actual lesson plans, and samples of all student work on mini-tasks) would increase rater reliability. Second, in both the social studies and science analyses, we saw considerable teacher by module variation. Clearly, a single module is not sufficient to achieve a high dependability estimate; evidence from the decision study suggest that 3 modules may be sufficient in social studies, but perhaps not in science. With teachers struggling to understand how to implement LDC, perhaps it is not surprising that quality varies considerably across modules. If that's the case, it may be unreasonable to expect that we can get a reliable teacher-level score with a small sample size of modules. This, too, needs to be explored if the CRESST Assignment Measure is to be used in further evaluation of LDC instruction.

Third, we found that the results for the science module ratings to be slightly less robust than those for social studies. It is unclear whether this is a result of smaller sample size, or whether science raters, in general, were less experienced and less familiar with instruction that integrates literacy and content. We suspect the latter based on our qualitative data and if so, there are implications not only for rater training, but also for how to support science teachers implementing LDC. It is particularly telling that the less robust findings in the science module analyses tended to cluster around the text-related dimensions (D3, D4, D5). These findings might suggest that science teachers (and raters) need additional support in identifying and evaluating texts that can be used in LDC implementation.

Lastly, there are some indications in both the quantitative and qualitative data that the text-related dimensions might not be sufficiently distinct, or sufficiently discriminating. In future iterations it is worth exploring whether they might be collapsed. We only caution that this not be done prematurely. The three dimensions are designed to capture distinct aspects of module design –the selection of texts that align with the content demands of the template task (D3); teacher attention to grade appropriate reading levels

(D4); and teacher attention to the disciplinary or academic rigor of the reading (D5). Admittedly, at first glance these distinctions may appear subtle. However, we believe that they capture some of the nuance involved in developing effective and *teachable* modules of LDC instruction.

How one chooses to revise the CRESST Assignment Measure no doubt depends on how it will be used. We see potential for the tool both in future evaluations of the program, as well as in professional development. If used for professional development purposes, we believe that more nuanced dimensions (e.g., the text dimensions described above) can be useful in helping teachers hone the skills necessary in designing instruction around texts. We might even suggest adding additional dimensions that assess reading instruction separately from writing instruction. Clearly, such hair-splitting might not be necessary in a large-scale evaluation. In both cases, however, we see great potential for the tool in helping content teachers design quality instruction that integrates Common Core State Standards.

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Appendix A

Each dimension is scored on a 5-point scale ranging from "Fully Present or Realized" to "Not Present or Realized."

Fully Present or Realized	Sufficiently Present or Realized	Moderately Present or Realized	Barely Present or Realized	Not Present or Realized
5	4	3	2	1

IMPORTANT: Descriptions are provided for three anchor points in the scale: 5 (Fully Present or Realized), 3 (Moderately Present or Realized), and 1 (Not Present or Realized). Use the intermediate points in the scale (4 and 2) to rate assessment practice that lies between 5 and 3 and 3 and 1.

Dimension 1: *Effective Writing Task*
Dimension 2: *Alignment to the CCSS and Local and State Literacy and Content Standards*
Dimension 3: *Text Alignment*
Dimension 4: *Text Appropriateness*
Dimension 5: *Text Rigor*
Dimension 6: *Fidelity to LDC Module Instruction*
Dimension 7: *Quality Instructional Strategies*
Dimension 8: *Coherence and Clarity of Module*
Dimension 9: *Overall Impression*

Dimension 1: *Effective Writing Task*	
Definition: *Degree to which teaching task makes effective use of the template task's writing mode (i.e., argumentation or explanation); requires sustained writing and effective use of ideas and evidence to substantiate claims; and is feasible for most students to complete (i.e., appropriate for the grade-level and subject matter).*	
Main Sources of Information: *Module Creator Handout (Task)* - Read and evaluate the teaching task, student background/prior knowledge, and summary information. - Evaluate the difficulty or ease students may encounter trying to answer the question. - Compare module teaching task to teaching task template options.	
5. Fully Realized	*The teaching task and performance expectations for the module are explicit and clear, require students to engage in higher-order thinking and writing, and are appropriate for the grade-level and subject matter.*
4.	
3. Moderately Present or Realized	*Clear module teaching task and performance expectations are available, but do not require students to engage in higher-order thinking and writing and/or are not appropriate for the grade-level and subject matter.*
2.	
1. Not Present or Realized	*Minimal evidence of an effort to identify explicit and clear teaching task and performance expectations that provide opportunities for critical thinking and are appropriate for the grade-level and subject matter.*

Dimension 2: *Alignment to the CCSS and Local and State Literacy and Content Standards*	
Definition: *Extent to which module addresses content essential to the discipline, as well as reading comprehension and writing standards informed by local and state standards.*	
Main Sources of Information: *Module Creator Handout (Task)* - Read and evaluate the standards included in the module. - Module should include ELA as well as subject matter CCSS/state standards. - Compare and contrast the standards the module includes with those that could have been included. - Particular attention to content standards (CCSS History/Social Studies, Science, and Technical Subjects); State Standards; Specific Reading, Writing, Speaking/Listening, Language Skills	
5. Fully Realized	*Module specifically addresses content essential to CCSS and local or state standards in science or social studies, as well as reading comprehension and writing. All standards are well aligned to the topic and teaching task.*
4.	
3. Moderately Present or Realized	*Module broadly addresses content essential to CCSS and local or state standards in science or social studies and reading comprehension and writing. Standards are sufficiently aligned to the topic and teaching task.*
2.	
1. Not Present or Realized	*Minimal evidence that module addresses content essential to the discipline and literacy standards. Standards are poorly aligned to the topic and teaching task.*

Dimension 3: *Text Alignment*	
Definition: *Degree to which assigned texts address teaching task content.*	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Read and evaluate texts (hard copies or online). *Student Work* - References in student work.	
5. Fully Realized	*Assigned readings address the disciplinary content in science or social studies and give students the opportunity to gather information needed to complete the task. Readings are well aligned to the topic and teaching task, and provide students with well-balanced perspectives.*
4.	
3. Moderately Present or Realized	*Assigned readings mostly address the disciplinary content in science or social studies and give students some opportunities to gather information needed to complete the task. Readings are sufficiently aligned to the topic and teaching task, and provide students with moderately balanced perspectives.*
2.	
1. Not Present or Realized	*Minimal evidence that assigned readings address the disciplinary content in science or social studies and give students the opportunity to gather information needed to complete the task. Readings are poorly aligned to the topic and teaching task, and do not provide students with well-balanced perspectives.*

Dimension 4: *Text Appropriateness*	
Definition: *Degree to which teaching task includes reading texts that are accessible to most students (i.e., appropriate for the grade-level and subject matter).*	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Read and evaluate texts (hard copies or online). *Student Work* - References in student work. *Anchor Readings* - Read for examples of appropriate reading levels for 8th grade students.	
5. Fully Realized	*Assigned readings are highly accessible and appropriate for most students in 8th grade social studies or science classrooms. Selection of readings addresses the needs of students with a range of literacy skills, including students who are above, at, or below grade level, and English Language Learners.*
4.	
3. Moderately Present or Realized	*Assigned readings are mostly accessible and appropriate for the majority of students in 8th grade social studies or science classrooms. Selection of readings sufficiently addresses the needs of students with a range of literacy skills.*
2.	
1. Not Present or Realized	*Assigned readings are not accessible or appropriate for students in 8th grade social studies or science classrooms. Selection of readings poorly addresses the needs of students with a range of literacy skills.*

Dimension 5: *Text Rigor*	
Definition: Degree to which teaching task includes reading texts that use and develop academic understanding and vocabulary, and offer opportunities for multiple interpretations and higher-order thinking.	
Main Sources of Information: *Module Creator Handout (Task, Resources, Links)* - Identify list of selected articles/links. - Read and evaluate texts (hard copies or online). - Consider issues of source credibility. *Student Work* - References in student work.	
5. Fully Realized	*Assigned readings require students to engage in higher-order thinking, and develop a strong academic understanding and vocabulary in social studies or science. Readings afford a deep conceptual and contextual understanding of the teaching task and topic. Selection of readings includes a broad range of credible primary and secondary sources.*
4.	
3. Moderately Present or Realized	*Assigned readings require students to engage in some higher-order thinking, and develop an adequate academic understanding and vocabulary in social studies or science. Readings afford a sufficient conceptual and contextual understanding of the teaching task and topic. Selection of readings includes a moderate range of credible primary and secondary sources.*
2.	
1. Not Present or Realized	*Assigned readings require students to engage in little higher-order thinking, or develop an academic understanding and vocabulary in social studies or science. Readings afford a limited conceptual and contextual understanding of the teaching task and topic. Selection of readings includes few credible primary and secondary sources.*

Dimension 6: *Fidelity to LDC Module Instruction*	
Definition: *Degree to which module instruction, activities, and teaching task address each of the four stages of instructional practice (preparation for the task, reading process, transition to writing, writing process).*	
Main Sources of Information: *Module Creator Handout (Instruction)* *Information Sheet* - Evaluate for distribution of activities and time spent on each of the four stages of instructional practice.	
5. Fully Realized	*The module instruction, activities, and teaching task reflect deliberate attention and fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect demonstrable effort to develop instructional scaffolding within and across each stage of instruction.*
4.	
3. Moderately Present or Realized	*The module instruction, activities, and teaching task reflect moderate attention and fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect sufficient effort to develop instructional scaffolding within and across each stage of instruction.*
2.	
1. Not Present or Realized	*The module instruction, activities, and teaching task reflect poor attention and lack of fidelity to the four discrete stages of LDC module instruction. Classroom materials reflect inadequate effort to develop instructional scaffolding within and across each stage of instruction.*

Dimension 7: *Quality Instructional Strategies*	
Definition: Degree to which the module provides clear instructional strategies aimed at helping students develop literacy skills and successfully complete the teaching task. And the degree to which module instruction and activities scaffold critical thinking and performance in a way that is meaningful within the context of a given field or subject-matter.	
Main Sources of Information: *Module Creator Handout (Instruction)* *Classroom Handouts* *Student Work* - Evaluate extent to which instructional strategies guide student learning in literacy and ability to complete the teaching task. - Evaluate extent to which the module activities scaffold critical thinking and student performance within the context of the subject matter at the core of the teaching task.	
5. Fully Realized	*Module provides clear and targeted instructional strategies and activities that scaffold student learning and promote critical thinking in social studies or science. There is explicit attention to helping students develop an accurate understanding of the topic and teaching task, and literacy skills necessary to successfully complete the writing task.*
4.	
3. Moderately Present or Realized	*Instructional strategies and activities are available to support adequate student learning and critical thinking in social studies or science. There is moderate attention to helping students develop an understanding of the topic and teaching task, and literacy skills necessary to complete the writing task.*
2.	
1. Not Present or Realized	*Limited instructional strategies and activities available to support student learning and critical thinking in social studies or science. Insufficient attention to helping students develop an understanding of the topic and teaching task, or literacy skills necessary to complete the writing task.*

Dimension 8: *Coherence and Clarity of Module*	
Definition: Degree to which there is logical alignment between the teaching task and other module goals with readings, mini-tasks, and instructional strategies.	
Main Sources of Information: *Module Creator Handout* *Classroom Handouts* *Student Work*	
5. Fully Realized	*Strong alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*
4.	
3. Moderately Present or Realized	*Moderate alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*
2.	
1. Not Present or Realized	*Poor alignment between the teaching task and goals of the module, including the CCSS and local and state literacy and content standards, with the readings, mini-tasks, student work, and instructional strategies.*

Dimension 9: *Overall Impression*
Definition: *Holistic assessment of LDC Module.*
Main Sources of Information: *Module Creator Handout* *Classroom Handouts* *Student Work*
Main question: *To what extent does this module contribute to student college readiness and development of advanced literacy skills?* 5. Advanced LDC Module Implementation 4. Proficient LDC Module Implementation 3. Adequate LDC Module Implementation 2. Marginal LDC Module Implementation 1. Inadequate LDC Module Implementation

Appendix B: Hillsborough Modules

UCLA CRESST's study is also evaluating district-wide implementation of LDC in 6th grade Advanced Reading classrooms in Hillsborough, FL. The implementation differed significantly from what occurred in IU13 and Kentucky for two reasons. First, the modules were designed by literacy experts at the district level, not by individual classroom teachers. Second, although the modules included template tasks that asked students to write about content (e.g., physical fitness, child labor), developers were not saddled with the additional burden of integrating subject-specific content standards. Nonetheless, comparison between subjects and between states might reveal whether these differences in implementation were evident in module quality as measured by the CRESST Assignment Measure.

We recruited an experienced middle school teacher, certified in social studies and English Language Arts, to rate the Hillsborough modules using the CRESST Assignment Measure. In comparing the ratings, it is important to keep in mind two limitations: (1) because the Hillsborough modules were designed by district leaders and distributed to teachers as mandated curriculum, we were effectively in possession of *all* the instructional materials that constituted instruction of a particular module. Such detailed evidence of module implementation stands in contrast to samples we collected from IU13 and Kentucky; (2) whereas a few of the modules include models of student work, these are not marked high, medium, and low, and in any event, do not reflect an individual teacher's assessment of student achievement.

Table 1A: Average Module Ratings by Subject Area

Dimensions	KY and IU-13: 8th grade Social Studies	KY and IU-13: 8th grade Science	Hillsborough: 6th grade Advanced Reading
1. Effective Writing Task	3.4	3.05	3.75*
2. Alignment to Standards	2.42	3.25	3.13
3. Text Alignment	3.44	3.52	3.88*
4. Text Appropriateness	3.24	3.41	3.38
5. Text Rigor	3.35	3.05	3.25
6. Fidelity to LDC	3.04	3.85	4.00*
7. Quality Instructional Strategies	2.85	3.09	3.75*
8. Coherence and Clarity of Module	2.82	3.23	3.75*
8. Overall Impression	2.73	3.04	3.25*

*Indicates higher means.

Table 1B: Average Module Ratings by State

Dimensions	IU13	KY	FL
1. Effective Writing Task	3.09	3.33	3.75*
2. Alignment to Standards	2.95	2.66	3.13*
3. Text Alignment	3.38	3.55	3.88*
4. Text Appropriateness	3.09	3.53	3.38
5. Text Rigor	2.91	3.42	3.25
6. Fidelity to LDC	3.47	3.35	4.00*
7. Quality Instructional Strategies	2.86	3.03	3.75*
8. Coherence and Clarity of Module	2.82	3.23	3.75*
8. Overall Impression	2.73	3.04	3.25*

*Indicates higher means.

We see in Tables 1A and 1B that Hillsborough modules scored higher on almost all dimensions when compared to the modules collected from IU13 and KY. This finding should not be surprising. The modules were developed by literacy experts and included elaborate lesson plans with carefully scaffolded instruction in reading and writing. However, on three dimensions, the modules from FL were more or less the same as the others. Putting aside the score on Alignment to Standards (D2) in Table 1A, which was difficult to assess since the Hillsborough Modules were not required to address content standards, we see that the means for D4 and D5 were roughly the same across subject area and across states. This finding may suggest two distinct, but related, challenges about LDC implementation in ELA classrooms. First, in choosing topics that appear to have high potential for student engagement, developers may struggle to find "naturally occurring" texts that are appropriate and aligned with students' reading level (e.g., one module included dense articles produced by UNESCO on global child labor practices). Second, and relatedly, in an effort to find readable texts, developers may sacrifice substantive, academic rigor (e.g., many of the readings could be characterized as fluff articles about how to build an exercise routine or the dangers of texting).

Despite the methodological limitations of the above comparison, it has crucial policy implications for any scale-up of LDC implementation. In particular, we see that module quality may be improved if materials are designed and disseminated by instructional experts at the district level. On the other hand, the challenge of selecting subject-specific texts that are both age-level appropriate and academically rigorous may persist even under such conditions. A more conclusive study might compare modules *in the same subject area* designed at the district level and by individual teachers, as a way of investigating the affordances of each approach.

Appendix C:
Descriptive Analyses of Kentucky and Pennsylvania LDC Teacher Surveys

Table C1

Years of Teaching Experience

Type of experience	*n*	Mean	Std Dev	Minimum	Maximum
Kentucky Science					
Years of teaching	12	11.75	8.25	4	32
Years taught in current school	12	6.67	3.09	3	13
Years taught in current district	12	7.25	3.70	3	16
Kentucky Social Studies					
Years of teaching	14	12.00	8.19	3	33
Years taught in current school	14	8.93	7.77	2	30
Years taught in current district	14	9.71	8.17	2	30
Pennsylvania Science					
Years of teaching	7	13.71	11.94	3	36
Years taught in current school	7	12.14	12.46	2	35
Years taught in current district	7	12.57	12.10	3	35
Pennsylvania Social Studies					
Years of teaching	7	8.00	3.70	3	14
Years taught in current school	7	6.43	3.51	2	12
Years taught in current district	7	6.93	3.27	3	12

Table C2

Teaching of Different Student Populations

Student population	*n*	Yes (%)	*n*	No (%)
Kentucky Science (*n* = 12)				
ELL students	7	58.3	5	41.7
Special education students	11	91.7	1	8.3
Students reading or writing below grade level	11	91.7	1	8.3
Students with advanced literacy levels	12	100.0	0	0.0
Kentucky Social Studies (*n* = 14)				
ELL students	6	42.9	8	57.1
Special education students	12	85.7	2	14.3
Students reading or writing below grade level	13	92.9	1	7.1
Students with advanced literacy levels	14	100.0	0	0.0
Pennsylvania Science (*n* = 7)				
ELL students	5	71.4	2	28.6
Special education students	7	100.0	0	0.0
Students reading or writing below grade level	6	85.7	1	14.3
Students with advanced literacy levels	7	100.0	0	0.0
Pennsylvania Social Studies (*n* = 7)				
ELL students	6	85.7	1	14.3
Special education students	6	85.7	1	14.3
Students reading or writing below grade level	7	100.0	0	0.0
Students with advanced literacy levels	7	100.0	0	0.0

Table C3

Type of Participation in the LDC Initiative

	Required		Voluntary	
State and Subject	*n*	*%*	*n*	*%*
Kentucky Science	11	91.7	1	7.7
Kentucky Social Studies	9	64.3	5	35.7
Pennsylvania Science	3	50.0	3	50.0
Pennsylvania Social Studies	5	71.4	2	28.6

Table C4

Modules Developed and Taught

School year	*n*	Mean	Std Dev	Minimum	Maximum
Kentucky Science					
Modules taught in 2011-12	12	0.83	0.835	0	2
Modules developed in 2012-13	12	1.92	0.793	1	4
Modules taught in 2012-13	12	1.58	0.515	1	2
Kentucky Social Studies					
Modules taught in 2011-12	14	1.93	0.997	0	4
Modules developed in 2012-13	13	1.69	0.630	1	3
Modules taught in 2012-13	14	2.36	0.745	2	4
Pennsylvania Science					
Modules taught in 2011-12	6	1.33	0.516	1	2
Modules developed in 2012-13	5	1.80	0.837	1	3
Modules taught in 2012-13	6	2.67	1.862	1	6
Pennsylvania Social Studies					
Modules taught in 2011-12	7	1.57	0.535	1	2
Modules developed in 2012-13	7	1.86	0.378	1	2
Modules taught in 2012-13	7	2.71	0.756	1	3

Table C5

Teacher Attitudes Regarding Literacy Instruction in Content Area Classrooms

Question	*n*	Mean	Std Dev
Kentucky Science			
Teachers from all content areas should help students improve their reading and writing skills.	12	2.92	0.29
Science and social studies teachers do not have time to teach reading and writing.	12	1.17	0.94
Writing assignments can help my students develop a deeper understanding of important concepts.	12	2.67	0.49
Kentucky Social Studies			
Teachers from all content areas should help students improve their reading and writing skills.	14	2.71	0.47
Science and social studies teachers do not have time to teach reading and writing.	14	1.00	0.96
Writing assignments can help my students develop a deeper understanding of important concepts.	14	2.71	0.47
Pennsylvania Science			
Teachers from all content areas should help students improve their reading and writing skills.	6	2.83	0.41
Science and social studies teachers do not have time to teach reading and writing.	6	0.50	0.55
Writing assignments can help my students develop a deeper understanding of important concepts.	6	2.83	0.41
Pennsylvania Social Studies			
Teachers from all content areas should help students improve their reading and writing skills.	7	3.00	0.00
Science and social studies teachers do not have time to teach reading and writing.	7	0.57	0.79
Writing assignments can help my students develop a deeper understanding of important concepts.	7	2.71	0.49

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C6

Percent of Class Time Spent on the Different LDC Components

Components	*n*	Mean	Std Dev	Minimum	Maximum
Kentucky Science					
Prepare for task/introduce module	12	26.67	21.36	10	80
Reading process	12	22.50	8.66	10	40
Transition to writing	12	15.83	9.00	0	30
Writing process	12	35.00	15.08	10	60
Kentucky Social Studies					
Prepare for task/introduce module	14	17.86	14.24	5	60
Reading process	14	24.29	9.78	10	45
Transition to writing	14	20.71	8.52	10	35
Writing process	14	37.14	12.20	15	60
Pennsylvania Science					
Prepare for task/introduce module	6	17.50	2.74	15	20
Reading process	6	29.17	12.42	15	45
Transition to writing	6	20.83	5.85	15	30
Writing process	6	32.50	12.15	15	50
Pennsylvania Social Studies					
Prepare for task/introduce module	7	12.86	6.36	5	25
Reading process	7	32.14	9.51	15	40
Transition to writing	7	19.29	8.86	10	30
Writing process	7	35.71	6.73	25	45

Note. Means represent percents.

Table C7

Degree of Emphasis Placed on Different Reading Strategies during LDC Instruction (Kentucky Science)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Independent reading/ research	12	0.0	8.3	41.7	50.0
Making predictions/ previewing	12	8.3	25.0	50.0	16.7
Summarizing important points	12	0.0	0.0	50.0	50.0
Note-taking/ annotation	12	0.0	0.0	50.0	50.0
Identifying/ defining vocabulary	12	0.0	8.3	66.7	25.0
Analyzing text structure	12	16.7	25.0	41.7	16.7
Interpreting information from graphical text	12	8.3	8.3	50.0	33.3
Distinguishing fact from opinion	12	0.0	16.7	33.3	50.0
Drawing conclusions from textual evidence	12	0.0	0.0	41.7	58.3
Citing textual evidence to support claims	12	0.0	16.7	33.3	50.0
Evaluating strength/ weakness of evidence	12	8.3	16.7	58.3	16.7
Comparing arguments in two or more texts	12	0.0	33.3	25.0	41.7
Examining author's perspective/ bias	12	25.0	50.0	8.3	16.7
Examining rhetorical devices	12	50.0	50.0	0.0	0.0

Table C8

Degree of Emphasis Placed on Different Reading Strategies during LDC Instruction (Kentucky Social Studies)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Independent reading/ research	14	7.1	7.1	57.1	28.6
Making predictions/ previewing	14	7.1	14.3	64.3	14.3
Summarizing important points	14	0.0	7.1	28.6	64.3
Note-taking/ annotation	14	0.0	14.3	42.9	42.9
Identifying/ defining vocabulary	14	0.0	7.1	42.9	50.0
Analyzing text structure	14	0.0	28.6	35.7	35.7
Interpreting information from graphical text	14	0.0	14.3	64.3	21.4
Distinguishing fact from opinion	14	7.1	14.3	28.6	50.0
Drawing conclusions from textual evidence	14	0.0	0.0	21.4	78.6
Citing textual evidence to support claims	14	0.0	0.0	35.7	64.3
Evaluating strength/ weakness of evidence	14	0.0	21.4	42.9	35.7
Comparing arguments in two or more texts	14	0.0	21.4	21.4	57.1
Examining author's perspective/ bias	14	0.0	21.4	50.0	28.6
Examining rhetorical devices	14	21.4	28.6	35.7	14.3

Table C9

Degree of Emphasis Placed on Different Reading Strategies during LDC Instruction (Pennsylvania Science)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Independent reading/ research	6	0.0	0.0	16.7	83.3
Making predictions/ previewing	6	16.7	33.3	16.7	33.3
Summarizing important points	6	0.0	0.0	16.7	83.3
Note-taking/ annotation	6	0.0	0.0	16.7	83.3
Identifying/ defining vocabulary	6	16.7	0.0	50.0	33.3
Analyzing text structure	6	33.3	16.7	16.7	33.3
Interpreting information from graphical text	6	16.7	33.3	33.3	16.7
Distinguishing fact from opinion	6	16.7	0.0	83.3	0.0
Drawing conclusions from textual evidence	6	0.0	0.0	50.0	50.0
Citing textual evidence to support claims	6	16.7	0.0	33.3	50.0
Evaluating strength/ weakness of evidence	6	16.7	16.7	66.7	0.0
Comparing arguments in two or more texts	6	16.7	16.7	33.3	33.3
Examining author's perspective/ bias	6	16.7	33.3	33.3	16.7
Examining rhetorical devices	6	66.7	16.7	16.7	0.0

Table C10

Degree of Emphasis Placed on Different Reading Strategies during LDC Instruction (Pennsylvania Social Studies)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Independent reading/ research	7	0.0	0.0	28.6	71.4
Making predictions/ previewing	7	0.0	14.3	85.7	0.0
Summarizing important points	7	0.0	0.0.	0.0	100.0
Note-taking/ annotation	7	0.0	0.0	28.6	71.4
Identifying/ defining vocabulary	7	0.0	0.0	57.1	42.9
Analyzing text structure	7	0.0	42.9	42.9	14.3
Interpreting information from graphical text	7	0.0	28.6	57.1	14.3
Distinguishing fact from opinion	7	14.3	14.3	42.9	28.6
Drawing conclusions from textual evidence	7	0.0	14.3	28.6	57.1
Citing textual evidence to support claims	7	0.0	28.6	28.6	42.9
Evaluating strength/ weakness of evidence	7	0.0	28.6	57.1	14.3
Comparing arguments in two or more texts	7	0.0	28.6	57.1	14.3
Examining author's perspective/ bias	7	0.0	14.3	71.4	14.3
Examining rhetorical devices	7	14.3	71.4	14.3	0.0

Table C11

Degree of Emphasis Placed on Different Writing Strategies during LDC Instruction (Kentucky Science)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Generating ideas for writing	12	0.0	8.3	50.0	41.7
Outlining	12	0.0	8.3	41.7	50.0
Writing/ text structure	12	0.0	8.3	8.3	83.3
Formulating a thesis statement	12	0.0.	0.0	25.0	75.0
Formulating a counter-argument	12	8.3	8.3	33.3	50.0
Writing an introduction	12	0.0	0.0.	25.0	75.0
Writing a conclusion	12	0.0	8.3	33.3	58.3
Writing a body paragraph	12	0.0	0.0	16.7	83.3
Using transitional words or phrases	12	0.0	33.3	25.0	41.7
Incorporating quotes/ evidence	12	0.0	8.3	25.0	66.7

Table C12

Degree of Emphasis Placed on Different Writing Strategies during LDC Instruction (Kentucky Social Studies)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Generating ideas for writing	14	21.4	28.6	35.7	14.3
Outlining	14	0.0	14.3	35.7	50.0
Writing/ text structure	14	0.0	7.1	50.0	42.9
Formulating a thesis statement	14	0.0	0.0	35.7	64.3
Formulating a counter-argument	14	0.0	0.0	28.6	71.4
Writing an introduction	14	0.0	14.3	42.9	42.9
Writing a conclusion	14	0.0	0.0	21.4	78.6
Writing a body paragraph	14	0.0	7.1	28.6	64.3
Using transitional words or phrases	14	0.0	0.0	14.3	85.7
Incorporating quotes/ evidence	14	0.0	21.4	42.9	35.7

Table C13

Degree of Emphasis Placed on Different Writing Strategies during LDC Instruction (Pennsylvania Science)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Generating ideas for writing	6	16.7	16.7	16.7	50.0
Outlining	6	0.0	0.0	50.0	50.0
Writing/ text structure	6	0.0	16.7	33.3	50.0
Formulating a thesis statement	6	16.7	16.7	50.0	16.7
Formulating a counter-argument	6	50.0	16.7	16.7	16.7
Writing an introduction	6	0.0	16.7	33.3	50.0
Writing a conclusion	6	0.0	16.7	33.3	50.0
Writing a body paragraph	6	0.0	16.7	33.3	50.0
Using transitional words or phrases	6	33.3	0.0	50.0	16.7
Incorporating quotes/ evidence	6	16.7	0.0	16.7	66.7

Table C14

Degree of Emphasis Placed on Different Writing Strategies during LDC Instruction (Pennsylvania Social Studies)

Strategies	*n*	No emphasis (%)	Little emphasis (%)	Some emphasis (%)	A great deal of emphasis (%)
Generating ideas for writing	7	0.0	0.0	71.4	28.6
Outlining	7	0.0	0.0	57.1	42.9
Writing/ text structure	7	0.0	0.0	42.9	57.1
Formulating a thesis statement	7	0.0	0.0	14.3	85.7
Formulating a counter-argument	7	14.3	0.0	71.4	14.3
Writing an introduction	7	0.0	0.0	28.6	71.4
Writing a conclusion	7	0.0	0.0	14.3	85.7
Writing a body paragraph	7	0.0	0.0	14.3	85.7
Using transitional words or phrases	7	14.3	0.0	85.7	0.0
Incorporating quotes/ evidence	7	0.0	14.3	42.9	42.9

Table C15

Frequency of Use of Strategies to Assess Student Understanding (Kentucky Science)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Listened as students discussed reading or writing with peers	12	0.0	0.0	50.0	50.0
Asked students to provide feedback to each other	12	0.0	8.3	50.0	41.7
Circulated and reviewed student notes and work	12	0.0	0.0	16.7	83.3
Collected and reviewed student writing exercises	12	0.0	0.0	58.3	41.7
Asked students to answer oral questions	12	0.0	16.7	25.0	58.3
Reviewed student rough drafts	12	0.0	0.0	33.3	66.7
Asked certain students to present writing to class	12	41.7	33.3	25.0	0.0
Assigned a quiz	12	33.3	41.7	25.0	0.0
Graded student work	12	0.0	8.3	16.7	75.0
Exit slips	12	33.3	16.7	33.3	16.7

Table C16

Frequency of Use of Strategies to Assess Student Understanding (Kentucky Social Studies)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Listened as students discussed reading or writing with peers	14	0.0	21.4	57.1	21.4
Asked students to provide feedback to each other	14	0.0	35.7	42.9	21.4
Circulated and reviewed student notes and work	14	0.0	0.0	42.9	57.1
Collected and reviewed student writing exercises	14	0.0	0.0	42.9	57.1
Asked students to answer oral questions	14	0.0	0.0	35.7	64.3
Reviewed student rough drafts	14	0.0	0.0	28.6	71.4
Asked certain students to present writing to class	14	21.4	42.9	28.6	7.1
Assigned a quiz	14	28.6	57.1	14.3	0.0
Graded student work	14	0.0	7.1	28.6	64.3
Exit slips	14	0.0	21.4	35.7	42.9

Table C17

Frequency of Use of Strategies to Assess Student Understanding (Pennsylvania Science)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Listened as students discussed reading or writing with peers	6	0.0	0.0.	16.7	83.3
Asked students to provide feedback to each other	6	0.0	0.0.	33.3	66.7
Circulated and reviewed student notes and work	6	0.0	16.7	0.0	83.3
Collected and reviewed student writing exercises	6	0.0	16.7	83.3	0.0
Asked students to answer oral questions	6	16.7	0.0	33.3	50.0
Reviewed student rough drafts	6	16.7	0.0	50.0	33.3
Asked certain students to present writing to class	6	33.3	50.0	0.0	16.7
Assigned a quiz	6	100.0	0.0	0.0	0.0
Graded student work	6	0.0	16.7	16.7	66.7
Exit slips	6	50.0	50.0	0.0.	0.0

Table C18

Frequency of Use of Strategies to Assess Student Understanding (Pennsylvania Social Studies)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Listened as students discussed reading or writing with peers	7	0.0	0.0	14.3	85.7
Asked students to provide feedback to each other	7	0.0	0.0	28.6	71.4
Circulated and reviewed student notes and work	7	0.0	0.0	28.6	71.4
Collected and reviewed student writing exercises	7	0.0	14.3	42.9	42.9
Asked students to answer oral questions	7	0.0	0.0	28.6	71.4
Reviewed student rough drafts	7	0.0	0.0	42.9	57.1
Asked certain students to present writing to class	7	28.6	14.3	42.9	14.3
Assigned a quiz	7	57.1	14.3	28.6	0.0
Graded student work	7	0.0	0.0	14.3	85.7
Exit slips	7	0.0	42.9	57.1	0.0

Table C19

Frequency of Use of Strategies to Respond to Misunderstanding (Kentucky Science)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Held one-on-one conference with student	12	8.3	16.7	25.0	50.0
Asked peer to provide feedback or organized peer editing session	12	8.3	16.7	41.7	33.3
Stopped class and modeled strategy	12	0.0	25.0	50.0	25.0
Scheduled in-class workshop time	12	8.3	8.3	33.3	50.0
Wrote specific comments on student work	12	0.0	8.3	25.0	66.7
Offered student a hint or suggestion	12	0.0.	8.3	33.3	58.3
Gave student more time to try again and self-correct	12	0.0	0.0	41.7	58.3
Gave student the answer	12	16.7	58.3	25.0	0.0
Graded student work	12	0.0	8.3	25.0	66.7
Re-taught lesson segment	12	0.0	16.7	75.0	8.3
Planned to review skill in later lessons	12	0.0	50.0	50.0	0.0
Assigned grammar exercises	12	91.7	8.3	0.0	0.0

Table C20

Frequency of Use of Strategies to Respond to Misunderstanding (Kentucky Social Studies)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Held one-on-one conference with student	14	0.0	7.1	35.7	57.1
Asked peer to provide feedback or organized peer editing session	14	0.0	28.6	50.0	21.4
Stopped class and modeled strategy	14	0.0	7.1	85.7	7.1
Scheduled in-class workshop time	14	0.0	7.1	28.6	64.3
Wrote specific comments on student work	14	0.0	0.0	14.3	85.7
Offered student a hint or suggestion	14	0.0	7.1	35.7	57.1
Gave student more time to try again and self-correct	14	0.0	0.0	21.4	78.6
Gave student the answer	14	35.7	50.0	14.3	0.0
Graded student work	14	0.0	7.1	28.6	64.3
Re-taught lesson segment	14	7.1	21.4	71.4	0.0
Planned to review skill in later lessons	14	7.1	7.1	64.3	21.4
Assigned grammar exercises	14	28.6	64.3	7.1	0.0

Table C21

Frequency of Use of Strategies to Respond to Misunderstanding (Pennsylvania Science)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Held one-on-one conference with student	6	16.7	0.0	16.7	66.7
Asked peer to provide feedback or organized peer editing session	6	16.7	0.0	16.7	66.7
Stopped class and modeled strategy	6	16.7	0.0	66.7	16.7
Scheduled in-class workshop time	6	33.3	0.0	33.3	33.3
Wrote specific comments on student work	6	16.7	16.7	33.3	33.3
Offered student a hint or suggestion	6	16.7	0.0	50.0	33.3
Gave student more time to try again and self-correct	6	16.7	0.0	50.0	33.3
Gave student the answer	6	50.0	33.3	16.7	0.0
Graded student work	6	0.0	0.0	33.3	66.7
Re-taught lesson segment	6	16.7	0.0	83.3	0.0
Planned to review skill in later lessons	6	16.7	0.0	83.3	0.0
Assigned grammar exercises	6	100.0	0.0	0.0	0.0

Table C22

Frequency of Use of Strategies to Respond to Misunderstanding (Pennsylvania Social Studies)

Strategies	*n*	Never (%)	Rarely (%)	Sometimes (%)	Often (%)
Held one-on-one conference with student	7	0.0	14.3	14.3	71.4
Asked peer to provide feedback or organized peer editing session	7	0.0	0.0	28.6	71.4
Stopped class and modeled strategy	7	0.0	0.0	57.1	42.9
Scheduled in-class workshop time	7	0.0	14.3	14.3	71.4
Wrote specific comments on student work	7	0.0	0.0	28.6	71.4
Offered student a hint or suggestion	7	0.0	0.0	28.6	71.4
Gave student more time to try again and self-correct	7	0.0	0.0	42.9	57.1
Gave student the answer	7	14.3	85.7	0.0	0.0
Graded student work	7	0.0	0.0	42.9	57.1
Re-taught lesson segment	7	0.0	42.9	57.1	0.0
Planned to review skill in later lessons	7	0.0	14.3	57.1	28.6
Assigned grammar exercises	7	85.7	14.3	0.0	0.0

Table C23

School and District Support for LDC (Kentucky Science)

Question	*n*	Mean	Std Dev
School administrators …			
Have a firm understanding of the LDC framework	9	2.00	1.00
Have made formative assessment a priority at my school	12	2.58	0.52
Encouraged me to participate in the LDC initiative	12	2.17	0.84
Provided me with feedback about my instruction of the module(s)	12	0.75	1.14
Expressed concerns that teaching modules is taking time away from other instructional priorities	9	0.56	0.73
Communicated how the LDC framework is aligned with other school initiatives	10	1.50	0.97
District administrators …			
Support the LDC framework	12	2.50	0.52
Have a firm understanding of the LDC framework	10	1.80	1.23

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C24

School and District Support for LDC (Kentucky Social Studies)

Question	*N*	Mean	Std Dev
School administrators …			
Have a firm understanding of the LDC framework	13	2.31	1.11
Have made formative assessment a priority at my school	14	2.36	0.75
Encouraged me to participate in the LDC initiative	14	2.86	0.36
Provided me with feedback about my instruction of the module(s)	14	1.43	1.09
Expressed concerns that teaching modules is taking time away from other instructional priorities	13	0.54	0.88
Communicated how the LDC framework is aligned with other school initiatives	14	2.07	1.21
District administrators …			
Support the LDC framework	14	2.93	0.27
Have a firm understanding of the LDC framework	14	2.71	0.61

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C25

School and District Support for LDC (Pennsylvania Science)

Question	*n*	Mean	Std Dev
School administrators …			
Have a firm understanding of the LDC framework	5	2.40	0.55
Have made formative assessment a priority at my school	5	2.00	1.41
Encouraged me to participate in the LDC initiative	6	3.00	0.00
Provided me with feedback about my instruction of the module(s)	5	1.00	1.41
Expressed concerns that teaching modules is taking time away from other instructional priorities	5	0.40	0.55
Communicated how the LDC framework is aligned with other school initiatives	5	1.60	1.14
District administrators …			
Support the LDC framework	5	2.60	0.89
Have a firm understanding of the LDC framework	5	2.80	0.45

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C26

School and District Support for LDC (Pennsylvania Social Studies)

Question	*n*	Mean	Std Dev
School administrators …			
Have a firm understanding of the LDC framework	7	2.57	0.54
Have made formative assessment a priority at my school	7	2.29	0.76
Encouraged me to participate in the LDC initiative	7	2.57	0.79
Provided me with feedback about my instruction of the module(s)	7	1.86	1.07
Expressed concerns that teaching modules is taking time away from other instructional priorities	6	1.17	1.33
Communicated how the LDC framework is aligned with other school initiatives	6	2.00	0.63
District administrators …			
Support the LDC framework	6	2.33	0.82
Have a firm understanding of the LDC framework	6	1.83	1.33

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C27

Individuals who Visited Teachers' Classrooms during LDC Module Instruction

Individuals	*n*	Yes (%)	*n*	No (%)
Kentucky Science (*n* = 12)				
District or network LDC project lead	2	16.7	10	83.3
Principal	4	33.3	8	66.7
Instructional coach/department head	1	8.3	11	91.7
Teacher colleague	2	16.7	10	83.3
Kentucky Social Studies (*n* = 14)				
District or network LDC project lead	6	42.9	8	57.1
Principal	7	50.0	7	50.0
Instructional coach/department head	4	28.6	10	71.4
Teacher colleague	6	42.9	8	57.1
Pennsylvania Science (*n* = 6)				
District or network LDC project lead	2	33.3	4	66.7
Principal	2	33.3	4	66.7
Instructional coach/department head	1	16.7	5	83.3
Teacher colleague	2	33.3	4	66.7
Pennsylvania Social Studies (*n* = 7)				
District or network LDC project lead	3	42.9	4	57.1
Principal	6	85.7	1	14.3
Instructional coach/department head	1	14.3	6	85.7
Teacher colleague	5	71.4	2	28.6

Table C28

Teacher Participation in LDC Professional Development in 2012-13 School Year

District/Subject	*n*	Yes (%)	*n*	No (%)
Kentucky Science (*n* = 12)	6	50.0	6	50.0
Kentucky Social Studies (*n* = 14)	12	85.7	2	14.3
Pennsylvania Science (*n* = 6)	3	50.0	3	50.0
Pennsylvania Social Studies (*n* = 7)	6	85.7	1	14.3

Table C29

Number of Professional Development Sessions Attended in 2012-13 School Year

District/Subject	*n*	Mean	Std Dev	Minimum	Maximum
Kentucky Science	6	3.17	1.84	1.00	6.00
Kentucky Social Studies	12	2.83	0.58	2.00	4.00
Pennsylvania Science	3	2.33	0.58	2.00	3.00
Pennsylvania Social Studies	6	2.67	1.37	1.00	5.00

Table C30

Types and Perceived Effectiveness of Professional Development in which Teachers Participated (*n* = 6) (Kentucky Science)

	Participated		If participated, perceived effectiveness			
Type	*n*	Yes (%)	*n*	Yes (%)	*n*	No (%)
One-on-one classroom visits	0	0.0	0	0.0	0	0.0
Coaching	4	66.7	0	0.0	0	0.0
Webinars	0	0.0	0	0.0	0	0.0
Small group meetings	4	66.7	0	0.0	0	0.0
School-wide meetings	4	66.7	0	0.0	0	0.0
District wide-meetings	4	66.7	0	0.0	0	0.0
Cross-district meetings	0	0.0	0	0.0	0	0.0

Note. Only teachers who indicated that they participated in a specific type of PD were asked about the effectiveness.

Table C31

Types and Perceived Effectiveness of Professional Development in which Teachers Participated (n = 12) (Kentucky Social Studies)

	Participated		If participated, perceived effectiveness			
Type	*n*	Yes (%)	*n*	Yes (%)	*n*	No (%)
One-on-one classroom visits	3	25.0	3	100.0	0	0.0
Coaching	5	41.7	1	100.0	0	0.0
Webinars	0	0.0	0	0.0	0	0.0
Small group meetings	11	91.7	3	100.0	0	0.0
School-wide meetings	7	58.3	3	100.0	0	0.0
District wide-meetings	9	75.0	3	100.0	0	0.0
Cross-district meetings	1	8.3	0	0.0	0	0.0

Note. Only teachers who indicated that they participated in a specific type of PD were asked about the effectiveness.

Table C32

Types and Perceived Effectiveness of Professional Development in which Teachers Participated (n = 3) (Pennsylvania Science)

	Participated		If participated, perceived effectiveness			
Type	*n*	Yes (%)	*n*	Yes (%)	*n*	No (%)
One-on-one classroom visits	1	33.3	1	100.0	0	0.0
Coaching	1	33.3	0	0.0	0	0.0
Webinars	3	100.0	1	100.0	0	0.0
Small group meetings	2	66.7	1	100.0	0	0.0
School-wide meetings	0	0.0	0	0.0	0	0.0
District wide-meetings	0	0.0	0	0.0	0	0.0
Cross-district meetings	2	66.7	1	100.0	0	0.0

Note. Only teachers who indicated that they participated in a specific type of PD were asked about the effectiveness.

Table C33

Types and Perceived Effectiveness of Professional Development in which Teachers Participated (n = 6) (Pennsylvania Social Studies)

	Participated		If participated, perceived effectiveness			
Type	*n*	Yes (%)	*n*	Yes (%)	*n*	No (%)
One-on-one classroom visits	3	50.0	3	100.0	0	0.0
Coaching	4	66.7	2	100.0	0	0.0
Webinars	4	66.7	1	50.0	1	50.0
Small group meetings	5	83.3	3	100.0	0	0.0
School-wide meetings	4	66.7	3	100.0	0	0.0
District wide-meetings	2	33.3	1	100.0	0	0.0
Cross-district meetings	4	66.7	3	100.0	0	0.0

Note. Only teachers who indicated that they participated in a specific type of PD were asked about the effectiveness.

Table C34

Content Included in LDC Professional Development Sessions in which Teachers Participated (n = 6) (Kentucky Science)

Question	*n*	Yes (%)	*n*	No (%)
Using LDC as a way to implement CCSS	3	50.0	3	50.0
Building a teaching task	5	83.3	1	16.7
Finding appropriate content materials	2	33.3	4	66.7
Designing modules	5	83.3	1	16.7
Using the instructional ladder	5	83.3	1	16.7
Using mini-tasks to address reading and writing skills	4	66.7	2	33.3
Providing students with feedback on their writing	3	50.0	3	50.0
Scoring student work with LDC rubric	4	66.7	2	33.3
Building modules with Module Creator	6	100.0	0	0.0
Differentiating module instruction to meet student needs	2	33.3	4	66.7
Implementing modules with special education students	0	0.0	6	100.0
Implementing modules with ELL students	0	0.0	6	100.0
Implementing modules with students who read/write below grade level	0	0.0	6	100.0
Implementing modules with students with advanced literacy levels	0	0.0	6	100.0

Table C35

Content Included in LDC Professional Development Sessions in which Teachers Participated (*n* = 12) (Kentucky Social Studies)

Question	*n*	Yes (%)	*n*	No (%)
Using LDC as a way to implement CCSS	10	71.4	2	16.7
Building a teaching task	12	100.0	0	0.0
Finding appropriate content materials	11	91.7	1	8.3
Designing modules	12	100.0	0	0.0
Using the instructional ladder	10	71.4	2	16.7
Using mini-tasks to address reading and writing skills	12	100.0	0	0.0
Providing students with feedback on their writing	6	50.0	6	50.0
Scoring student work with LDC rubric	9	75.0	3	25.0
Building modules with Module Creator	11	91.7	1	8.3
Differentiating module instruction to meet student needs	9	75.0	3	25.0
Implementing modules with special education students	4	33.3	8	66.7
Implementing modules with ELL students	2	16.7	10	71.4
Implementing modules with students who read/write below grade level	5	41.7	7	58.3
Implementing modules with students with advanced literacy levels	5	41.7	7	58.3

Table C36

Content Included in LDC Professional Development Sessions in which Teachers Participated (n = 3) (Pennsylvania Science)

Question	*n*	Yes (%)	*n*	No (%)
Using LDC as a way to implement CCSS	3	100.0	0	0.0
Building a teaching task	3	100.0	0	0.0
Finding appropriate content materials	3	100.0	0	0.0
Designing modules	3	100.0	0	0.0
Using the instructional ladder	2	66.7	1	33.3
Using mini-tasks to address reading and writing skills	3	100.0	0	0.0
Providing students with feedback on their writing	2	66.7	1	33.3
Scoring student work with LDC rubric	2	66.7	1	33.3
Building modules with Module Creator	3	100.0	0	0.0
Differentiating module instruction to meet student needs	3	100.0	0	0.0
Implementing modules with special education students	3	100.0	0	0.0
Implementing modules with ELL students	2	66.7	1	33.3
Implementing modules with students who read/write below grade level	3	100.0	0	0.0
Implementing modules with students with advanced literacy levels	3	100.0	0	0.0

Table C37

Content Included in LDC Professional Development Sessions in which Teachers Participated (n = 6) (Pennsylvania Social Studies)

Question	*n*	Yes (%)	*n*	No (%)
Using LDC as a way to implement CCSS	5	83.3	1	16.7
Building a teaching task	5	83.3	1	16.7
Finding appropriate content materials	5	83.3	1	16.7
Designing modules	6	100.0	0	0.0
Using the instructional ladder	5	83.3	1	16.7
Using mini-tasks to address reading and writing skills	5	83.3	1	16.7
Providing students with feedback on their writing	4	66.7	2	33.3
Scoring student work with LDC rubric	6	100.0	0	0.0
Building modules with Module Creator	6	100.0	0	0.0
Differentiating module instruction to meet student needs	4	66.7	2	33.3
Implementing modules with special education students	3	50.0	3	50.0
Implementing modules with ELL students	2	33.3	4	66.7
Implementing modules with students who read/write below grade level	5	83.3	1	16.7
Implementing modules with students with advanced literacy levels	4	66.7	2	33.3

Table C38

Regularly Scheduled Common Planning Time with Colleagues to Discuss LDC

State/Subject	*n*	Yes (%)	*n*	No (%)
Kentucky Science (n = 12)	7	58.3	5	41.7
Kentucky Social Studies (n = 14)	12	85.7	2	14.3
Pennsylvania Science (n = 6)	1	16.7	5	83.3
Pennsylvania Social Studies (n = 7)	4	57.1	3	42.9

Table C39

Frequency of Formal and Informal Teacher Collaboration around LDC (Kentucky Science)

Frequency	*n*	Scheduled Meetings (%)	*n*	Informal Discussions (%)
At least once a week	3	42.9	4	33.3
Every other week	0	0.0	1	8.3
Once a month	2	28.6	4	33.3
Once per quarter/trimester/semester	2	28.6	3	25.0
Never	0	0.0	0	0.0

Note. Scheduled meetings (n = 7), informal meetings (n = 12)

Table C40

Frequency of Formal and Informal Teacher Collaboration around LDC (Kentucky Social Studies)

Frequency	*n*	Scheduled Meetings (%)	*n*	Informal Discussions (%)
At least once a week	2	16.7	4	28.6
Every other week	2	16.7	3	21.4
Once a month	2	16.7	4	28.6
Once per quarter/trimester/semester	6	50.0	3	21.4
Never	0	0.0	0	0.0

Note. Scheduled meetings (n = 12), informal meetings (n = 14)

Table C41

Frequency of Formal and Informal Teacher Collaboration around LDC (Pennsylvania Science)

Frequency	*n*	Scheduled Meetings (%)	*n*	Informal Discussions (%)
At least once a week	1	100.0	2	33.3
Every other week	0	0.0	1	16.7
Once a month	0	0.0	2	33.3
Once per quarter/trimester/semester	0	0.0	1	16.7
Never	0	0.0	0	0.0

Note. Scheduled meetings (n = 1), informal meetings (n = 6)

Table C42

Frequency of Formal and Informal Teacher Collaboration around LDC (Pennsylvania Social Studies)

Frequency	*n*	Scheduled Meetings (%)	*n*	Informal Discussions (%)
At least once a week	0	0.0	3	42.9
Every other week	0	0.0	3	42.9
Once a month	3	75.0	1	14.3
Once per quarter/trimester/semester	1	25.0	0	0.0
Never	0	0.0	0	0.0

Note. Scheduled meetings (n = 4), informal meetings (n = 7)

Table C43

Perceptions of Teacher Collaboration during LDC Implementation (Kentucky Science)

Question	*n*	Mean	Std Dev
I would describe my LDC colleagues as collaborative	12	2.58	0.79
Collaboration with my LDC colleagues helps me …			
More effectively use the LDC framework	12	2.17	0.84
Better support student learning	12	2.00	1.04
Develop LDC modules	12	2.25	0.75
Teach LDC modules	12	2.00	0.95
Revise LDC modules	12	2.08	1.00
Use the LDC framework rubric	12	1.83	1.12
Use students' products to inform my instruction	12	2.00	0.95
Provide helpful feedback to students about their writing	12	1.75	1.06

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C44

Perceptions of Teacher Collaboration during LDC Implementation (Kentucky Social Studies)

Question	*n*	Mean	Std Dev
I would describe my LDC colleagues as collaborative	14	2.71	
Collaboration with my LDC colleagues helps me …			0.61
More effectively use the LDC framework	14	2.57	0.65
Better support student learning	14	2.57	0.65
Develop LDC modules	14	2.57	0.65
Teach LDC modules	14	2.57	0.65
Revise LDC modules	14	2.50	0.76
Use the LDC framework rubric	14	2.50	0.76
Use students' products to inform my instruction	14	2.50	0.76
Provide helpful feedback to students about their writing	14	2.43	0.85

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C45

Perceptions of Teacher Collaboration during LDC Implementation (Pennsylvania Science)

Question	*n*	Mean	Std Dev
I would describe my LDC colleagues as collaborative	6	2.83	0.41
Collaboration with my LDC colleagues helps me …			
More effectively use the LDC framework	6	2.67	0.52
Better support student learning	6	2.50	0.84
Develop LDC modules	6	2.67	0.52
Teach LDC modules	6	2.67	0.52
Revise LDC modules	6	2.67	0.52
Use the LDC framework rubric	6	2.67	0.52
Use students' products to inform my instruction	6	2.50	0.84
Provide helpful feedback to students about their writing	6	2.00	1.27

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C46

Perceptions of Teacher Collaboration during LDC Implementation (Pennsylvania Social Studies)

Question	*n*	Mean	Std Dev
I would describe my LDC colleagues as collaborative	7	2.57	0.79
Collaboration with my LDC colleagues helps me …			
More effectively use the LDC framework	7	2.57	0.79
Better support student learning	7	2.57	0.79
Develop LDC modules	7	2.57	0.79
Teach LDC modules	7	2.57	0.79
Revise LDC modules	7	2.43	0.79
Use the LDC framework rubric	7	2.57	0.79
Use students' products to inform my instruction	7	2.14	0.90
Provide helpful feedback to students about their writing	7	2.14	0.90

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C47

Teacher Perceptions of Efficacy in Teaching LDC Modules

Question	*n*	Mean	Std Dev
Kentucky Science			
I knew what skills my students needed in order to complete the teaching task	12	2.50	0.52
I knew the type of mini-tasks to give my students to prepare them to complete the template task	12	2.67	0.49
I understood how to use the LDC instructional ladder	12	2.42	0.51
Based on the information collected from using the LDC modules, I adjusted my instruction to meet the needs of individual students	12	2.58	0.67
Kentucky Social Studies			
I knew what skills my students needed in order to complete the teaching task	14	2.29	0.83
I knew the type of mini-tasks to give my students to prepare them to complete the template task	14	2.21	0.80
I understood how to use the LDC instructional ladder	14	2.07	1.07
Based on the information collected from using the LDC modules, I adjusted my instruction to meet the needs of individual students	14	2.07	1.00
Pennsylvania Science			
I knew what skills my students needed in order to complete the teaching task	6	2.50	0.55
I knew the type of mini-tasks to give my students to prepare them to complete the template task	6	2.50	0.55
I understood how to use the LDC instructional ladder	6	2.00	1.10
Based on the information collected from using the LDC modules, I adjusted my instruction to meet the needs of individual students	6	2.50	0.84
Pennsylvania Social Studies			
I knew what skills my students needed in order to complete the teaching task	7	2.86	0.38
I knew the type of mini-tasks to give my students to prepare them to complete the template task	7	2.71	0.76
I understood how to use the LDC instructional ladder	7	2.14	1.07
Based on the information collected from using the LDC modules, I adjusted my instruction to meet the needs of individual students	7	2.43	0.53

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C48

Potential Barriers to Use of LDC Modules (Kentucky Science)

Barriers	*n*	Mean	Std Dev
I had sufficient time to prepare to teach modules	12	1.83	1.12
I felt adequately prepared to effectively use modules	12	2.17	0.72
It is difficult to find the time to respond to student writing	12	2.75	0.45
I am unsure about how best to give productive feedback to student writing	12	1.75	0.97
Using the LDC modules takes too much time away from covering required curriculum topics	12	1.67	0.99
It is challenging for me to find content-rich reading materials at my students' reading level	12	2.50	0.80
It is challenging for me to find the time to develop modules	12	2.50	0.52

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C49

Potential Barriers to Use of LDC Modules (Kentucky Social Studies)

Barriers	*n*	Mean	Std Dev
I had sufficient time to prepare to teach modules	14	2.21	0.80
I felt adequately prepared to effectively use modules	14	2.00	0.96
It is difficult to find the time to respond to student writing	14	2.36	0.84
I am unsure about how best to give productive feedback to student writing	14	1.79	1.12
Using the LDC modules takes too much time away from covering required curriculum topics	14	1.71	0.91
It is challenging for me to find content-rich reading materials at my students' reading level	14	1.21	0.98
It is challenging for me to find the time to develop modules	14	2.07	1.00

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C50

Potential Barriers to Use of LDC Modules (Pennsylvania Science)

Barriers	*n*	Mean	Std Dev
I had sufficient time to prepare to teach modules	6	1.33	1.21
I felt adequately prepared to effectively use modules	6	2.00	0.63
It is difficult to find the time to respond to student writing	6	2.50	0.55
I am unsure about how best to give productive feedback to student writing	6	1.33	0.82
Using the LDC modules takes too much time away from covering required curriculum topics	6	1.67	0.52
It is challenging for me to find content-rich reading materials at my students' reading level	6	2.00	0.89
It is challenging for me to find the time to develop modules	6	2.33	0.82

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C51

Potential Barriers to Use of LDC Modules (Pennsylvania Social Studies)

Barriers	*n*	Mean	Std Dev
I had sufficient time to prepare to teach modules	7	1.86	1.35
I felt adequately prepared to effectively use modules	7	2.14	0.90
It is difficult to find the time to respond to student writing	7	2.00	1.12
I am unsure about how best to give productive feedback to student writing	7	0.71	0.95
Using the LDC modules takes too much time away from covering required curriculum topics	7	1.29	1.11
It is challenging for me to find content-rich reading materials at my students' reading level	7	1.29	1.38
It is challenging for me to find the time to develop modules	7	1.71	0.95

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C52

Teacher Perceptions of Whether LDC Helped Them Meet Instructional Goals (Kentucky Science; *n* = 12)

Question	*N*	Yes (%)	*n*	No (%)
Find effective strategies for teaching my subject content	9	75.0	3	25.0
Learn new ways to include formative assessment in my classes	7	58.3	5	41.7
Develop new ways to teach literacy skills in my content area	10	83.3	2	16.7
Learn detailed information about students' literacy strengths and weaknesses	11	91.7	1	8.3
Provide students with more detailed feedback about their writing	9	75.0	3	25.0
Implement the CCSS	10	83.3	2	16.7
Increase the rigor of writing assessments	11	91.7	1	8.3
Better engage students	5	41.7	7	58.3

Table C53

Teacher Perceptions of Whether LDC Helped Them Meet Instructional Goals (Kentucky Social Studies; *n* = 14)

Question	*n*	Yes (%)	*n*	No (%)
Find effective strategies for teaching my subject content	10	71.4	4	28.6
Learn new ways to include formative assessment in my classes	9	64.3	5	35.7
Develop new ways to teach literacy skills in my content area	11	78.6	3	21.4
Learn detailed information about students' literacy strengths and weaknesses	12	85.7	2	14.3
Provide students with more detailed feedback about their writing	12	85.7	2	14.3
Implement the CCSS	9	64.3	5	35.7
Increase the rigor of writing assessments	14	100.0	0	0.0
Better engage students	7	50.0	7	50.0

Table C54

Teacher Perceptions of Whether LDC Helped Them Meet Instructional Goals (Pennsylvania Science; *n* = 6)

Question	*n*	Yes (%)	*N*	No (%)
Find effective strategies for teaching my subject content	3	50.0	3	50.0
Learn new ways to include formative assessment in my classes	5	83.3	1	16.7
Develop new ways to teach literacy skills in my content area	6	100.0	0	0.0
Learn detailed information about students' literacy strengths and weaknesses	5	83.3	1	16.7
Provide students with more detailed feedback about their writing	4	66.7	2	33.3
Implement the CCSS	6	100.0	0	0.0
Increase the rigor of writing assessments	6	100.0	0	0.0
Better engage students	2	33.3	4	66.7

Table C55

Teacher Perceptions of Whether LDC Helped Them Meet Instructional Goals (Pennsylvania Social Studies; *n* = 7)

Question	*n*	Yes (%)	*n*	No (%)
Find effective strategies for teaching my subject content	4	57.1	3	42.9
Learn new ways to include formative assessment in my classes	5	71.4	2	28.6
Develop new ways to teach literacy skills in my content area	6	85.7	1	14.3
Learn detailed information about students' literacy strengths and weaknesses	5	71.4	2	28.6
Provide students with more detailed feedback about their writing	4	57.1	3	42.9
Implement the CCSS	7	100.0	0	0,0
Increase the rigor of writing assessments	6	85.7	1	14.3
Better engage students	5	71.4	2	28.6

Table C56

Teacher Perceptions of the Effectiveness of LDC (Kentucky Science)

Question	*n*	Mean	Std Dev
Improving students' literacy skills	12	2.25	0.62
Providing a curricular resource for teachers to address the CCSS	12	2.58	0.67
Encouraging science and social studies teachers to teach literacy skills	12	2.42	0.67
Encouraging secondary school teachers to teach literacy skills	12	2.42	0.67
Making instruction more engaging for the students.	12	1.58	0.79
Using formative assessment to identify student strengths and weaknesses to inform instruction	12	1.92	0.79

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C57

Teacher Perceptions of the Effectiveness of LDC (Kentucky Social Studies)

Question	*n*	Mean	Std Dev
Improving students' literacy skills	14	2.07	0.83
Providing a curricular resource for teachers to address the CCSS	14	2.07	0.92
Encouraging science and social studies teachers to teach literacy skills	14	2.21	0.80
Encouraging secondary school teachers to teach literacy skills	14	2.29	0.83
Making instruction more engaging for the students.	14	2.00	0.96
Using formative assessment to identify student strengths and weaknesses to inform instruction	14	2.00	0.96

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C58

Teacher Perceptions of the Effectiveness of LDC (Pennsylvania Science)

Question	*n*	Mean	Std Dev
Improving students' literacy skills	6	2.67	0.52
Providing a curricular resource for teachers to address the CCSS	6	2.33	0.82
Encouraging science and social studies teachers to teach literacy skills	6	2.50	0.55
Encouraging secondary school teachers to teach literacy skills	6	2.50	0.55
Making instruction more engaging for the students.	6	2.17	0.41
Using formative assessment to identify student strengths and weaknesses to inform instruction	6	2.33	0.52

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C59

Teacher Perceptions of the Effectiveness of LDC (Pennsylvania Social Studies)

Question	*n*	Mean	Std Dev
Improving students' literacy skills	7	2.43	0.79
Providing a curricular resource for teachers to address the CCSS	7	2.86	0.38
Encouraging science and social studies teachers to teach literacy skills	7	2.43	0.79
Encouraging secondary school teachers to teach literacy skills	7	2.57	0.79
Making instruction more engaging for the students.	7	2.14	0.69
Using formative assessment to identify student strengths and weaknesses to inform instruction	7	2.57	0.79

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C60

Student Engagement during LDC Module Instruction

Effect on engagement	*n*	LDC teachers (%)
Kentucky Science (*n* = 12)		
More engaged	0	0.0
Same level of engagement	9	75.0
Less engaged	3	25.0
Kentucky Social Studies (*n* = 14)		
More engaged	4	28.6
Same level of engagement	7	50.0
Less engaged	3	21.4
Pennsylvania Science (*n* = 6)		
More engaged	2	33.3
Same level of engagement	4	66.7
Less engaged	0	0.0
Pennsylvania Social Studies (*n* = 7)		
More engaged	2	28.6
Same level of engagement	5	71.4
Less engaged	0	0.0

Table C61

Perceptions of Student Success on LDC Tasks

Strategies	*n*	No success (%)	Little success (%)	Some success (%)	A great deal of success (%)
Kentucky Science					
Reading mini-tasks built into the instructional ladder	12	0.0	0.0	66.7	33.3
Writing mini-tasks built into the instructional ladder	12	0.0	0.0	58.3	41.7
Final writing task	12	0.0	0.0	58.3	41.7
Kentucky Social Studies					
Reading mini-tasks built into the instructional ladder	14	0.0	50.0	42.9	7.1
Writing mini-tasks built into the instructional ladder	14	0.0	28.6	64.3	7.1
Final writing task	14	0.0	35.7	57.1	7.1
Pennsylvania Science					
Reading mini-tasks built into the instructional ladder	6	0.0	0.0	66.7	33.3
Writing mini-tasks built into the instructional ladder	6	0.0.	0.0	66.7	33.3
Final writing task	6	0.0	0.0.	66.7	33.3
Pennsylvania Social Studies					
Reading mini-tasks built into the instructional ladder	7	0.0	14.3	57.1	28.6
Writing mini-tasks built into the instructional ladder	7	0.0	0.0	71.4	28.6
Final writing task	7	0.0	0.0	57.1	42.9

Table C62

Teacher Perceptions on Student Impact of LDC Modules

Student impact	*n*	Mean	Std Dev
Kentucky Science			
Resulted in higher quality student writing	12	2.17	0.577
Supporting my students' college-readiness	12	2.33	0.888
Kentucky Social Studies			
Resulted in higher quality student writing	14	2.14	0.949
Supporting my students' college-readiness	14	2.21	0.699
Pennsylvania Science			
Resulted in higher quality student writing	6	2.17	0.753
Supporting my students' college-readiness	6	2.33	0.516
Pennsylvania Social Studies			
Resulted in higher quality student writing	7	2.14	0.900
Supporting my students' college-readiness	7	2.57	0.535

Note. Scale is 0 = disagree, 1 = disagree somewhat, 2 = agree somewhat, and 3 = agree.

Table C63

Teacher Perceptions on Student Impact during Most Recent LDC Module

Student impact	*n*	Yes (%)	*n*	No (%)
Kentucky Science (*n* = 12)				
Majority of students improved their understanding of content	10	83.3	2	16.7
Majority of students improved their literacy skills	10	83.3	2	16.7
Kentucky Social Studies (*n* = 14)				
Majority of students improved their understanding of content	12	85.7	2	14.3
Majority of students improved their literacy skills	11	78.6	3	21.4
Pennsylvania Science (*n* = 6)				
Majority of students improved their understanding of content	6	100.0	0	0.0
Majority of students improved their literacy skills	5	83.3	1	16.7
Pennsylvania Social Studies (*n* = 7)				
Majority of students improved their understanding of content	7	100.0	0	0.0
Majority of students improved their literacy skills	4	57.1	3	42.9

Appendix D:
Descriptive Analyses of Kentucky and Pennsylvania LDC Logs

Table D1

Average Percent of Time Spent on Different Classroom Activities (Kentucky – Science)

	Module one			Module two			Overall		
Components	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Lecture on subject matter content	7	7.47	5.98	6	8.25	9.96	13	7.83	7.70
Mini-Lessons	7	6.23	2.62	6	3.57	2.34	13	5.00	2.76
Explicit strategy instruction	7	12.61	3.90	6	8.88	4.48	13	10.89	4.44
Whole-class discussion	7	7.94	5.04	6	13.02	9.39	13	10.29	7.51
Small group work	7	9.62	5.67	6	1.67	4.08	13	5.95	6.33
Pair/share	7	3.78	5.25	6	1.63	2.58	13	2.78	4.22
Independent reading/writing	7	40.31	9.97	6	50.58	10.18	13	45.05	11.01
Student presentations	7	3.91	6.63	6	3.60	5.35	13	3.77	5.82
Other	7	8.12	8.53	6	8.81	12.75	13	8.44	10.21

Note. Means represent percents.

Table D2

Average Percent of Time Spent on Different Classroom Activities (Kentucky – Social Studies)

	Module one			Module two			Overall		
Components	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Lecture on subject matter content	11	6.12	4.14	11	9.58	5.81	22	7.85	5.24
Mini-Lessons	11	6.65	4.67	11	5.25	5.75	22	5.95	5.16
Explicit strategy instruction	11	10.40	6.32	11	4.48	4.88	22	7.44	6.29
Whole-class discussion	11	11.37	6.80	11	10.51	7.96	22	10.94	7.24
Small group work	11	11.48	14.17	11	5.16	6.29	22	8.32	11.18
Pair/share	11	6.44	6.85	11	5.19	6.24	22	5.81	6.42
Independent reading/writing	11	48.14	15.28	11	52.40	26.69	22	50.27	21.33
Student presentations	11	1.90	2.99	11	1.67	3.73	22	1.78	3.30
Other	11	5.31	8.30	11	5.76	10.55	22	5.53	9.27

Note. Means represent percents.

Table D3

Average Percent of Time Spent on Different Classroom Activities (Pennsylvania - Science)

	Module one			Module two			Overall		
Components	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Lecture on subject matter content	10	4.84	6.07	8	3.42	3.91	18	4.21	5.13
Mini-Lessons	10	7.16	4.85	8	4.97	3.35	18	6.19	4.28
Explicit strategy instruction	10	7.23	5.41	8	5.21	4.57	18	6.33	5.02
Whole-class discussion	10	7.77	8.48	8	6.55	4.30	18	7.23	6.79
Small group work	10	2.06	3.11	8	5.51	6.77	18	3.59	5.20
Pair/share	10	4.60	6.12	8	7.30	9.87	18	5.80	7.87
Independent reading/writing	10	60.70	19.82	8	60.36	15.92	18	60.55	17.67
Student presentations	10	2.13	6.72	8	0.00	0.00	18	1.18	5.01
Other	10	3.51	6.40	8	6.68	9.63	18	4.92	7.91

Note. Means represent percents.

Table D4

Average Percent of Time Spent on Different Classroom Activities (Pennsylvania – Social Studies)

	Module one			Module two			Overall		
Components	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Lecture on subject matter content	10	5.83	3.71	9	6.44	5.16	19	6.12	4.34
Mini-Lessons	10	8.26	6.50	9	8.90	6.20	19	8.56	6.19
Explicit strategy instruction	10	7.08	5.10	9	7.11	7.07	19	7.10	5.93
Whole-class discussion	10	7.05	3.86	9	8.92	8.57	19	7.94	6.40
Small group work	10	10.31	13.65	9	7.30	8.65	19	8.89	11.35
Pair/share	10	8.90	7.90	9	5.57	4.75	19	7.32	6.65
Independent reading/writing	10	44.55	13.10	9	50.19	21.70	19	47.22	17.42
Student presentations	10	2.07	3.99	9	1.59	4.76	19	1.84	4.25
Other	10	5.96	8.74	9	3.97	6.26	19	5.02	7.52

Note. Means represent percents.

Table D5

Reading Skills Students Worked on the Day of the Log (Kentucky – Science)

	Module one			Module two			Overall		
Skills	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Independent reading/ research	6	0.94	0.80	5	1.80	0.30	11	1.33	0.75
Making predictions/ previewing	6	0.44	0.39	4	0.83	0.88	10	0.60	0.62
Summarizing important points	6	1.72	0.44	5	1.60	0.55	11	1.67	0.47
Note-taking/ annotation	6	1.83	0.41	5	1.80	0.45	11	1.82	0.40
Identifying/ defining vocabulary	6	1.25	0.76	5	1.13	0.51	11	1.20	0.63
Analyzing text structure (e.g., how part relates to whole)	5	0.53	0.77	5	0.80	0.84	10	0.67	0.77
Interpreting information from graphical text	6	0.17	0.41	5	0.60	0.60	11	0.36	0.53
Distinguishing fact from opinion	6	0.00	0.00	5	0.20	0.45	11	0.09	0.30
Drawing conclusions from textual evidence	6	0.67	0.52	5	0.93	0.80	11	0.79	0.64
Citing textual evidence to support claims	6	0.56	0.78	5	0.93	0.92	11	0.73	0.83
Evaluating strength/ weakness of evidence	6	0.06	0.14	5	0.73	0.83	11	0.36	0.64
Comparing arguments in two or more texts	6	0.17	0.41	5	0.87	1.04	11	0.48	0.81
Examining author's perspective/ bias	6	0.17	0.41	5	0.40	0.89	11	0.27	0.65
Examining rhetorical devices	6	0.00	0.00	5	0.00	0.00	11	0.00	0.00
Other	3	0.00	0.00	5	0.00	0.00	8	0.00	0.00

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D6

Reading Skills Students Worked on the Day of the Log (Kentucky – Social Studies)

	Module one			Module two			Overall		
Skills	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Independent reading/ research	10	1.63	0.48	10	1.80	0.42	20	1.72	0.45
Making predictions/ previewing	9	0.97	0.89	7	0.79	0.39	16	0.89	0.70
Summarizing important points	10	1.63	0.46	10	1.75	0.42	20	1.69	0.44
Note-taking/ annotation	11	1.35	0.90	9	1.72	0.44	20	1.52	0.73
Identifying/ defining vocabulary	9	1.13	0.78	8	1.56	0.62	17	1.34	0.72
Analyzing text structure (e.g., how part relates to whole)	9	0.80	0.77	8	1.00	0.76	17	0.89	0.75
Interpreting information from graphical text	11	1.04	0.97	8	1.31	0.80	19	1.15	0.89
Distinguishing fact from opinion	9	0.94	0.81	7	0.79	0.91	16	0.88	0.83
Drawing conclusions from textual evidence	10	1.54	0.69	8	1.63	0.44	18	1.58	0.58
Citing textual evidence to support claims	9	1.23	0.86	8	1.63	0.44	17	1.42	0.70
Evaluating strength/ weakness of evidence	10	1.20	0.79	7	0.71	0.70	17	1.00	0.77
Comparing arguments in two or more texts	9	0.89	0.93	8	1.00	0.93	17	0.94	0.90
Examining author's perspective/ bias	10	1.12	0.99	8	0.94	0.94	18	1.04	0.95
Examining rhetorical devices	8	0.61	0.70	6	0.50	0.84	14	0.56	0.73
Other	1	0.00	.	1	1.00	.	2	0.50	0.71

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D7

Reading Skills Students Worked on the Day of the Log (Pennsylvania – Science)

	Module one			Module two			Overall		
Skills	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Independent reading/ research	10	1.80	0.32	7	2.00	0.00	17	1.88	0.26
Making predictions/ previewing	10	0.52	0.52	7	0.55	0.74	17	0.53	0.60
Summarizing important points	10	1.45	0.65	7	1.14	0.63	17	1.32	0.64
Note-taking/ annotation	9	1.57	0.58	7	1.81	0.24	16	1.68	0.47
Identifying/ defining vocabulary	10	1.35	0.70	7	1.05	0.88	17	1.23	0.77
Analyzing text structure (e.g., how part relates to whole)	9	1.00	0.77	7	0.50	0.76	16	0.78	0.78
Interpreting information from graphical text	9	0.59	0.80	6	0.50	0.84	15	0.56	0.78
Distinguishing fact from opinion	9	0.59	0.76	7	0.93	0.93	16	0.74	0.83
Drawing conclusions from textual evidence	9	1.02	0.77	7	1.36	0.48	16	1.17	0.66
Citing textual evidence to support claims	9	0.70	0.77	7	1.19	0.84	16	0.92	0.81
Evaluating strength/ weakness of evidence	9	0.59	0.66	7	1.00	1.00	16	0.77	0.82
Comparing arguments in two or more texts	9	0.48	0.71	6	0.33	0.82	15	0.42	0.73
Examining author's perspective/ bias	9	0.39	0.70	6	0.50	0.84	15	0.43	0.73
Examining rhetorical devices	9	0.06	0.17	6	0.00	0.00	15	0.03	0.13
Other	6	0.00	0.00	6	0.00	0.00	12	0.00	0.00

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D8

Reading Skills Students Worked on the Day of the Log (Pennsylvania – Social Studies)

	Module one			Module two			Overall		
Skills	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*N*	Mean	Std Dev
Independent reading/ research	10	1.87	0.32	9	1.75	0.43	19	1.81	0.37
Making predictions/ previewing	9	0.50	0.67	9	0.57	0.71	18	0.54	0.67
Summarizing important points	9	1.70	0.42	9	1.21	0.60	18	1.46	0.56
Note-taking/ annotation	10	1.77	0.48	9	1.43	0.68	19	1.61	0.59
Identifying/ defining vocabulary	9	0.85	0.48	9	0.77	0.66	18	0.81	0.56
Analyzing text structure (e.g., how part relates to whole)	9	0.60	0.81	9	0.72	0.67	18	0.66	0.72
Interpreting information from graphical text	9	0.43	0.49	9	0.56	0.53	18	0.49	0.50
Distinguishing fact from opinion	9	0.48	0.40	9	0.78	0.67	18	0.63	0.56
Drawing conclusions from textual evidence	9	1.16	0.73	9	1.06	0.53	18	1.11	0.62
Citing textual evidence to support claims	10	0.95	0.80	9	1.08	0.73	19	1.01	0.75
Evaluating strength/ weakness of evidence	9	0.99	0.42	9	1.02	0.68	18	1.00	0.55
Comparing arguments in two or more texts	9	0.33	0.43	9	0.38	0.47	18	0.36	0.44
Examining author's perspective/ bias	9	0.50	0.44	9	0.50	0.50	18	0.50	0.46
Examining rhetorical devices	9	0.19	0.38	9	0.33	0.50	18	0.26	0.44
Other	5	0.00	0.00	5	0.00	0.00	10	0.00	0.00

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D9

Extent Teachers Relied on Different Strategies to Assess Student Understanding during the Reading Component (Kentucky – Science)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed text with peers	4	1.13	0.85	3	0.00	0.00	7	0.64	0.85
Circulated and reviewed student notes	4	1.25	0.50	3	1.17	0.76	7	1.21	0.57
Reviewed peers' feedback	3	0.00	0.00	2	0.00	0.00	5	0.00	0.00
Collected and reviewed student written responses and/or graphic organizers	3	0.00	0.00	2	1.00	1.41	5	0.40	0.89
Asked students to answer oral questions	3	1.33	0.76	2	0.50	0.71	5	1.00	0.79
Listened to students thinking aloud while reading	3	0.83	1.04	2	1.00	1.41	5	0.90	1.02
Led whole-class discussion	4	1.00	0.41	2	0.50	0.71	6	0.83	0.52
Listened to student questions	4	1.00	0.00	2	1.00	0.00	6	1.00	0.00
Assigned a quiz	3	0.00	0.00	2	0.00	0.00	5	0.00	0.00
Graded student work	3	0.00	0.00	2	0.50	0.71	5	0.20	0.45
Exit slips	3	0.00	0.00	2	0.00	0.00	5	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D10

Extent Teachers Relied on Different Strategies to Assess Student Understanding during the Reading Component (Kentucky – Social Studies)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed text with peers	9	1.25	0.39	6	1.42	0.66	15	1.32	0.50
Circulated and reviewed student notes	10	1.58	0.44	7	1.50	0.65	17	1.55	0.52
Reviewed peers' feedback	7	0.23	0.41	6	0.50	0.84	13	0.35	0.63
Collected and reviewed student written responses and/or graphic organizers	8	1.12	0.79	7	1.07	0.73	15	1.10	0.74
Asked students to answer oral questions	11	1.51	0.50	6	1.50	0.55	17	1.51	0.50
Listened to students thinking aloud while reading	8	1.05	0.69	6	1.08	0.80	14	1.06	0.71
Led whole-class discussion	10	1.32	0.64	6	1.58	0.80	16	1.42	0.69
Listened to student questions	9	1.41	0.47	6	1.67	0.41	15	1.51	0.45
Assigned a quiz	7	0.00	0.00	6	0.00	0.00	13	0.00	0.00
Graded student work	7	0.40	0.50	7	0.36	0.75	14	0.38	0.61
Exit slips	8	0.28	0.70	6	0.67	0.82	14	0.44	0.75

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D11

Extent Teachers Relied on Different Strategies to Assess Student Understanding during the Reading Component (Pennsylvania – Science)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed text with peers	8	0.71	0.57	6	1.03	0.69	14	0.85	0.62
Circulated and reviewed student notes	8	1.65	0.44	6	1.61	0.49	14	1.63	0.44
Reviewed peers' feedback	8	0.35	0.52	5	0.00	0.00	13	0.22	0.43
Collected and reviewed student written responses and/or graphic organizers	8	0.25	0.46	6	0.50	0.84	14	0.36	0.63
Asked students to answer oral questions	8	0.96	0.53	6	0.97	0.73	14	0.96	0.60
Listened to students thinking aloud while reading	8	0.81	0.70	6	1.00	0.89	14	0.89	0.76
Led whole-class discussion	8	0.42	0.38	6	1.22	0.75	14	0.76	0.68
Listened to student questions	8	0.90	0.77	6	1.39	0.71	14	1.11	0.76
Assigned a quiz	8	0.00	0.00	5	0.00	0.00	13	0.00	0.00
Graded student work	8	0.00	0.00	6	0.50	0.84	14	0.21	0.58
Exit slips	8	0.21	0.40	5	0.00	0.00	13	0.13	0.32

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D12

Extent Teachers Relied on Different Strategies to Assess Student Understanding during the Reading Component (Pennsylvania – Social Studies)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed text with peers	9	1.39	0.75	8	1.33	0.89	17	1.36	0.79
Circulated and reviewed student notes	10	1.57	0.50	8	1.72	0.70	18	1.63	0.58
Reviewed peers' feedback	9	0.56	0.47	8	0.70	0.88	17	0.62	0.67
Collected and reviewed student written responses and/or graphic organizers	8	0.88	0.78	8	1.07	0.85	16	0.97	0.79
Asked students to answer oral questions	10	1.62	0.46	8	1.51	0.72	18	1.57	0.57
Listened to students thinking aloud while reading	9	1.06	0.92	8	1.04	0.95	17	1.05	0.90
Led whole-class discussion	9	1.17	0.71	8	0.91	0.65	17	1.04	0.67
Listened to student questions	9	1.50	0.44	8	1.38	0.44	17	1.44	0.43
Assigned a quiz	9	0.00	0.00	8	0.03	0.09	17	0.01	0.06
Graded student work	9	0.22	0.37	8	0.53	0.74	17	0.37	0.58
Exit slips	9	0.37	0.73	8	0.25	0.71	17	0.31	0.70

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D13

Strategies Used when Discovered Student Misunderstandings about Reading (Kentucky – Science)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
One-on-one conference to provide feedback	2	0.50	0.71	3	1.00	1.00	5	0.80	0.84
Asked peer to provide feedback	2	0.00	0.00	2	0.00	0.00	4	0.00	0.00
Stopped class and modeled strategy	3	1.17	0.29	3	0.67	0.58	6	0.92	0.49
Wrote specific comments on student work	2	0.00	0.00	2	1.00	1.41	4	0.50	1.00
Scheduled in-class workshop time	2	0.00	0.00	2	1.00	1.41	4	0.50	1.00
Devoted time in lesson for students to use feedback	3	0.50	0.50	2	0.50	0.71	5	0.50	0.50
Grouped students together on a "need" basis for targeted instruction	2	0.00	0.00	2	1.00	0.00	4	0.50	0.58
Offered student a hint or suggestion	3	0.50	0.50	3	1.00	0.00	6	0.75	0.42
Gave student the answer	3	0.67	1.15	2	0.50	0.71	5	0.60	0.89
Gave student more time to try again and self-correct	2	1.00	0.00	2	1.00	0.00	4	1.00	0.00
Graded student work	2	0.00	0.00	2	0.50	0.71	4	0.25	0.50
Re-taught lesson segment	2	0.00	0.00	2	0.50	0.71	4	0.25	0.50
Planned to review skill in future lessons	2	0.50	0.71	2	0.50	0.71	4	0.50	0.58
Other	2	0.00	0.00	2	0.00	0.00	4	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent

Table D14

Strategies Used when Discovered Student Misunderstandings about Reading (Kentucky – Social Studies)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
One-on-one conference to provide feedback	10	1.19	0.75	7	1.21	0.57	17	1.20	0.66
Asked peer to provide feedback	9	0.73	0.83	7	0.79	0.57	16	0.76	0.71
Stopped class and modeled strategy	10	0.85	0.58	7	0.79	0.57	17	0.82	0.56
Wrote specific comments on student work	8	0.29	0.42	6	0.83	0.75	14	0.52	0.63
Scheduled in-class workshop time	8	0.38	0.74	6	0.33	0.82	14	0.36	0.74
Devoted time in lesson for students to use feedback	8	0.60	0.68	6	0.67	0.82	14	0.63	0.71
Grouped students together on a "need" basis for targeted instruction	9	0.53	0.71	6	0.25	0.61	15	0.42	0.67
Offered student a hint or suggestion	11	1.27	0.52	6	1.25	0.42	17	1.26	0.47
Gave student the answer	8	0.40	0.77	6	0.50	0.84	14	0.44	0.77
Gave student more time to try again and self-correct	10	0.90	0.57	6	0.92	0.80	16	0.91	0.64
Graded student work	8	0.38	0.52	6	0.17	0.41	14	0.29	0.47
Re-taught lesson segment	8	0.44	0.50	6	0.33	0.52	14	0.39	0.49
Planned to review skill in future lessons	8	0.70	0.70	7	1.07	0.61	15	0.87	0.66
Other	2	0.50	0.71	1	0.00	.	3	0.33	0.58

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent

Table D15

Strategies Used when Discovered Student Misunderstandings about Reading (Pennsylvania – Science)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
One-on-one conference to provide feedback	8	1.21	0.81	6	1.33	0.52	14	1.26	0.68
Asked peer to provide feedback	8	0.42	0.38	5	0.57	0.43	13	0.47	0.39
Stopped class and modeled strategy	8	0.88	0.61	6	0.89	0.69	14	0.88	0.62
Wrote specific comments on student work	8	0.10	0.20	4	0.00	0.00	12	0.07	0.17
Scheduled in-class workshop time	8	0.42	0.64	6	0.75	0.88	14	0.56	0.74
Devoted time in lesson for students to use feedback	8	0.35	0.59	6	0.67	1.03	14	0.49	0.79
Grouped students together on a "need" basis for targeted instruction	8	0.21	0.40	5	0.20	0.45	13	0.21	0.40
Offered student a hint or suggestion	8	0.63	0.44	6	0.94	0.65	14	0.76	0.54
Gave student the answer	8	0.13	0.23	5	0.40	0.55	13	0.23	0.39
Gave student more time to try again and self-correct	8	0.81	0.26	6	0.83	0.98	14	0.82	0.64
Graded student work	8	0.00	0.00	6	0.42	0.80	14	0.18	0.54
Re-taught lesson segment	8	0.15	0.27	6	0.42	0.80	14	0.26	0.55
Planned to review skill in future lessons	8	0.60	0.45	5	0.40	0.55	13	0.53	0.48
Other	6	0.00	0.00	4	0.00	0.00	10	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent

Table D16

Strategies Used when Discovered Student Misunderstandings about Reading (Pennsylvania – Social Studies)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
One-on-one conference to provide feedback	10	1.23	0.79	9	1.54	0.59	19	1.38	0.70
Asked peer to provide feedback	9	0.69	0.46	9	1.06	0.73	18	0.88	0.62
Stopped class and modeled strategy	9	0.99	0.52	9	0.89	0.65	18	0.94	0.57
Wrote specific comments on student work	9	0.69	0.61	9	0.26	0.43	18	0.47	0.56
Scheduled in-class workshop time	9	0.80	0.96	9	0.59	0.86	18	0.69	0.89
Devoted time in lesson for students to use feedback	9	0.72	0.87	9	1.01	0.66	18	0.87	0.77
Grouped students together on a "need" basis for targeted instruction	9	0.78	0.90	9	0.57	0.77	18	0.68	0.82
Offered student a hint or suggestion	10	1.34	0.63	9	1.54	0.49	19	1.43	0.56
Gave student the answer	9	0.30	0.42	9	0.14	0.33	18	0.22	0.38
Gave student more time to try again and self-correct	9	1.07	0.52	9	0.93	0.55	18	1.00	0.52
Graded student work	9	0.19	0.34	9	0.31	0.43	18	0.25	0.38
Re-taught lesson segment	9	0.28	0.44	9	0.35	0.49	18	0.31	0.45
Planned to review skill in future lessons	9	0.78	0.73	9	0.50	0.71	18	0.64	0.71
Other	5	0.40	0.89	6	0.33	0.82	11	0.36	0.81

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent

Table D17

Areas of Writing Students Worked on the Day of the Log (Kentucky – Science)

Areas	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Generating ideas for writing	7	0.55	0.74	5	0.70	0.67	12	0.61	0.68
Outlining	6	0.22	0.40	5	1.10	0.74	11	0.62	0.72
Writing/text structure	7	1.44	0.74	6	1.17	0.98	13	1.31	0.84
Formulating a thesis statement	6	0.85	0.72	5	1.60	0.89	11	1.19	0.86
Formulating a counter-argument	6	0.00	0.00	5	1.00	1.00	11	0.45	0.82
Writing an introduction	7	1.45	0.61	5	1.60	0.65	12	1.51	0.60
Writing a conclusion	7	1.48	0.71	5	1.30	0.76	12	1.40	0.70
Writing a body paragraph	7	1.44	0.55	5	1.40	0.65	12	1.42	0.57
Using transitional words or phrases	6	0.86	0.82	5	1.10	0.89	11	0.97	0.82
Incorporating quotes/evidence	7	1.14	0.72	5	1.40	0.65	12	1.25	0.67
Style/ word choice/ syntax	6	0.83	0.77	5	1.10	0.89	11	0.95	0.80
Grammar conventions	6	0.85	0.78	5	1.00	0.94	11	0.92	0.81

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D18

Areas of Writing Students Worked on the Day of the Log (Kentucky – Social Studies)

	Module one			Module two			Overall		
Areas	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Generating ideas for writing	9	1.03	0.54	8	0.95	0.80	17	0.99	0.65
Outlining	8	1.00	0.64	8	0.91	0.86	16	0.95	0.74
Writing/text structure	10	1.41	0.53	9	1.29	0.81	19	1.35	0.66
Formulating a thesis statement	9	1.22	0.55	8	1.16	0.79	17	1.19	0.66
Formulating a counter-argument	9	0.78	0.72	8	0.78	0.90	17	0.78	0.79
Writing an introduction	11	1.57	0.48	10	1.58	0.75	21	1.57	0.60
Writing a conclusion	11	1.46	0.62	10	1.64	0.52	21	1.55	0.56
Writing a body paragraph	11	1.43	0.60	10	1.65	0.52	21	1.54	0.56
Using transitional words or phrases	8	0.97	0.69	8	1.61	0.46	16	1.29	0.66
Incorporating quotes/evidence	11	1.39	0.63	9	1.52	0.66	20	1.45	0.63
Style/ word choice/ syntax	9	1.08	0.47	9	1.43	0.66	18	1.25	0.58
Grammar conventions	9	0.98	0.41	9	1.14	0.69	18	1.06	0.56

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D19

Areas of Writing Students Worked on the Day of the Log (Pennsylvania - Science)

	Module one			Module two			Overall		
Areas	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Generating ideas for writing	9	0.87	0.77	7	0.57	0.79	16	0.74	0.77
Outlining	9	0.69	0.77	7	0.40	0.73	16	0.57	0.74
Writing/text structure	9	1.16	0.78	7	1.71	0.39	16	1.40	0.68
Formulating a thesis statement	8	0.60	0.73	7	0.86	0.90	15	0.72	0.80
Formulating a counter-argument	9	0.78	0.84	5	0.10	0.22	14	0.54	0.75
Writing an introduction	10	1.11	0.76	7	1.64	0.75	17	1.33	0.78
Writing a conclusion	10	1.17	0.70	6	1.42	0.80	16	1.26	0.72
Writing a body paragraph	10	1.21	0.66	7	1.64	0.75	17	1.39	0.71
Using transitional words or phrases	9	1.10	0.71	7	1.36	0.85	16	1.21	0.76
Incorporating quotes/evidence	9	1.32	0.70	7	1.39	0.70	16	1.35	0.68
Style/ word choice/ syntax	9	0.84	0.67	7	1.29	0.81	16	1.03	0.75
Grammar conventions	9	0.89	0.61	7	1.21	0.81	16	1.03	0.70

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D20

Areas of Writing Students Worked on the Day of the Log (Pennsylvania – Social Studies)

	Module one			Module two			Overall		
Areas	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Generating ideas for writing	10	0.66	0.54	7	0.45	0.53	17	0.58	0.53
Outlining	10	0.59	0.47	7	0.67	0.43	17	0.62	0.44
Writing/text structure	10	1.14	0.87	7	0.95	0.82	17	1.06	0.83
Formulating a thesis statement	10	0.84	0.66	7	0.67	0.75	17	0.77	0.68
Formulating a counter-argument	10	0.54	0.69	7	0.00	0.00	17	0.32	0.58
Writing an introduction	10	0.97	0.80	7	1.29	0.71	17	1.10	0.75
Writing a conclusion	10	0.86	0.91	7	1.00	0.51	17	0.92	0.76
Writing a body paragraph	10	1.27	0.76	7	1.31	0.53	17	1.29	0.66
Using transitional words or phrases	10	1.03	0.82	7	1.14	0.61	17	1.08	0.72
Incorporating quotes/evidence	10	1.31	0.62	7	1.07	0.73	17	1.21	0.66
Style/ word choice/ syntax	10	1.07	0.64	7	0.74	0.71	17	0.93	0.67
Grammar conventions	10	1.19	0.65	7	0.79	0.66	17	1.02	0.67

Note. Scale is 0=not today, 1=touched on briefly, 2=focus of instruction.

Table D21

Extent Teachers Relied on Different Strategies to Assess Student Understanding during Writing Component (Kentucky – Science)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed draft with peers	5	0.80	0.84	5	0.40	0.55	10	0.60	0.70
Asked students to provide feedback to each other	5	1.00	0.94	5	0.40	0.89	10	0.70	0.92
Observed and reviewed student work	5	1.67	0.58	6	1.75	0.42	11	1.71	0.47
Collected and reviewed student writing exercises	5	0.93	1.01	5	0.40	0.89	10	0.67	0.94
Asked students to answer oral questions	5	1.00	0.75	5	0.90	0.74	10	0.95	0.70
Reviewed student rough drafts	6	1.33	0.76	6	0.67	0.82	12	1.00	0.83
Asked certain students to present writing to class	5	0.00	0.00	5	0.10	0.22	10	0.05	0.16
Assigned a quiz	5	0.00	0.00	5	0.00	0.00	10	0.00	0.00
Graded student work	5	0.40	0.55	5	0.00	0.00	10	0.20	0.42
Exit slips	5	0.00	0.00	5	0.00	0.00	10	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D22

Extent Teachers Relied on Different Strategies to Assess Student Understanding during Writing Component (Kentucky – Social Studies)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed draft with peers	8	0.77	0.78	7	1.02	0.88	15	0.89	0.81
Asked students to provide feedback to each other	10	1.18	0.67	8	1.15	0.77	18	1.16	0.69
Observed and reviewed student work	10	1.58	0.40	9	1.72	0.44	19	1.65	0.42
Collected and reviewed student writing exercises	9	1.06	0.85	7	1.19	0.84	16	1.11	0.82
Asked students to answer oral questions	8	0.78	0.41	7	1.00	0.51	15	0.88	0.46
Reviewed student rough drafts	9	1.69	0.66	9	1.26	0.43	18	1.48	0.59
Asked certain students to present writing to class	8	0.47	0.76	7	0.24	0.42	15	0.36	0.62
Assigned a quiz	8	0.25	0.71	7	0.00	0.00	15	0.13	0.52
Graded student work	7	0.29	0.39	8	0.35	0.69	15	0.32	0.55
Exit slips	7	0.00	0.00	7	0.00	0.00	14	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D23

Extent Teachers Relied on Different Strategies to Assess Student Understanding during Writing Component (Pennsylvania - Science)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed draft with peers	7	1.13	0.74	6	1.08	0.66	13	1.11	0.68
Asked students to provide feedback to each other	7	1.00	0.82	6	0.50	0.55	13	0.77	0.73
Observed and reviewed student work	7	1.65	0.46	6	1.42	0.80	13	1.54	0.62
Collected and reviewed student writing exercises	7	0.47	0.62	6	0.25	0.42	13	0.37	0.53
Asked students to answer oral questions	7	0.89	0.64	6	0.92	0.80	13	0.90	0.69
Reviewed student rough drafts	7	1.01	0.52	6	1.08	0.92	13	1.04	0.70
Asked certain students to present writing to class	7	0.00	0.00	6	0.33	0.82	13	0.15	0.55
Assigned a quiz	7	0.00	0.00	5	0.00	0.00	12	0.00	0.00
Graded student work	7	0.00	0.00	5	0.30	0.45	12	0.13	0.31
Exit slips	7	0.00	0.00	5	0.00	0.00	12	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D24

Extent Teachers Relied on Different Strategies to Assess Student Understanding during Writing Component (Pennsylvania – Social Studies)

Strategies	Module one			Module two			Overall		
	n	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Listened as students discussed draft with peers	10	1.13	0.74	7	0.86	0.75	17	1.02	0.73
Asked students to provide feedback to each other	10	1.13	0.74	7	0.52	0.69	17	0.88	0.76
Observed and reviewed student work	10	1.48	0.67	7	1.31	0.65	17	1.41	0.65
Collected and reviewed student writing exercises	10	0.67	0.77	7	0.57	0.45	17	0.63	0.64
Asked students to answer oral questions	10	1.00	0.68	7	0.81	0.24	17	0.92	0.54
Reviewed student rough drafts	10	1.22	0.75	7	1.05	0.77	17	1.15	0.74
Asked certain students to present writing to class	10	0.28	0.35	7	0.29	0.49	17	0.28	0.40
Assigned a quiz	10	0.00	0.00	7	0.00	0.00	17	0.00	0.00
Graded student work	10	0.33	0.72	7	0.29	0.49	17	0.31	0.62
Exit slips	10	0.20	0.63	7	0.00	0.00	17	0.12	0.49

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D25

Strategies Used when Discovered Student Misunderstandings about Writing (Kentucky - Science)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Organized peer-editing session	4	0.50	0.58	4	0.25	0.50	8	0.38	0.52
Scheduled in-class workshop time	4	0.25	0.50	4	0.38	0.75	8	0.31	0.59
Held one-on-one conference with student	4	1.21	0.63	5	1.00	0.61	9	1.09	0.59
Devoted time in lesson for students to use feedback	4	0.25	0.50	4	1.13	0.85	8	0.69	0.80
Grouped students together on "need" basis for targeted instruction	4	0.00	0.00	4	0.50	1.00	8	0.25	0.71
Modeled skill using my own writing	4	0.42	0.50	4	1.00	0.82	8	0.71	0.70
Demonstrated skill using student's writing	4	0.25	0.50	4	0.38	0.48	8	0.31	0.46
Provided grammar mini-lessons	4	0.00	0.00	4	0.00	0.00	8	0.00	0.00
Wrote specific comments on student work	4	1.17	1.00	4	0.75	0.96	8	0.96	0.93
Had student revisit readings	5	1.07	0.92	4	0.88	0.25	9	0.98	0.68
Offered student a hint or suggestion	5	1.30	0.67	4	1.13	0.63	9	1.22	0.62
Gave student time to try again and self-correct	4	1.46	0.42	4	1.38	0.75	8	1.42	0.56
Corrected student writing	4	0.58	0.50	4	0.63	0.48	8	0.60	0.45
Graded student work	4	0.50	0.58	4	0.38	0.75	8	0.44	0.62
Re-taught lesson segment	4	0.13	0.25	4	0.25	0.50	8	0.19	0.37
Planned to review skill in future lessons	4	0.33	0.47	4	0.00	0.00	8	0.17	0.36
Other	3	0.33	0.58	4	0.00	0.00	7	0.14	0.38

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D26

Strategies Used when Discovered Student Misunderstandings about Writing (Kentucky - Social Studies)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Organized peer-editing session	9	0.86	0.65	7	0.88	0.66	16	0.87	0.63
Scheduled in-class workshop time	11	1.27	0.66	7	0.86	0.75	18	1.11	0.71
Held one-on-one conference with student	10	1.40	0.62	9	1.28	0.79	19	1.34	0.69
Devoted time in lesson for students to use feedback	8	0.58	0.62	7	1.14	0.86	15	0.84	0.77
Grouped students together on "need" basis for targeted instruction	9	0.65	0.73	8	0.90	0.68	17	0.76	0.70
Modeled skill using my own writing	8	0.64	0.62	7	0.76	0.65	15	0.69	0.62
Demonstrated skill using student's writing	10	0.82	0.88	7	0.69	0.78	17	0.76	0.82
Provided grammar mini-lessons	8	0.32	0.51	7	0.31	0.41	15	0.32	0.45
Wrote specific comments on student work	9	1.20	0.54	7	1.30	0.55	16	1.24	0.53
Had student revisit readings	10	1.08	0.55	7	1.29	0.50	17	1.16	0.53
Offered student a hint or suggestion	10	1.13	0.62	9	1.35	0.44	19	1.24	0.54
Gave student time to try again and self-correct	10	1.21	0.60	9	1.57	0.39	19	1.38	0.53
Corrected student writing	10	1.18	0.71	8	1.21	0.85	18	1.19	0.75
Graded student work	8	0.36	0.37	7	0.21	0.28	15	0.29	0.33
Re-taught lesson segment	8	0.34	0.31	8	0.35	0.44	16	0.35	0.37
Planned to review skill in future lessons	8	0.30	0.38	8	0.75	0.58	16	0.53	0.53
Other	5	0.00	0.00	2	0.00	0.00	7	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D27

Strategies Used when Discovered Student Misunderstandings about Writing (Pennsylvania - Science)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Organized peer-editing session	8	0.48	0.51	7	0.64	0.94	15	0.55	0.72
Scheduled in-class workshop time	7	0.86	0.82	7	0.57	0.98	14	0.72	0.88
Held one-on-one conference with student	8	1.23	0.60	7	1.50	0.50	15	1.36	0.55
Devoted time in lesson for students to use feedback	7	0.87	0.50	7	0.86	0.75	14	0.86	0.61
Grouped students together on "need" basis for targeted instruction	7	0.19	0.33	7	0.50	0.76	14	0.34	0.59
Modeled skill using my own writing	8	0.71	0.57	7	0.71	0.70	15	0.71	0.61
Demonstrated skill using student's writing	7	0.65	0.61	7	0.43	0.61	14	0.54	0.59
Provided grammar mini-lessons	7	0.30	0.40	6	0.58	0.92	13	0.43	0.67
Wrote specific comments on student work	7	0.41	0.46	7	0.43	0.61	14	0.42	0.52
Had student revisit readings	8	0.84	0.35	7	1.00	0.82	15	0.92	0.60
Offered student a hint or suggestion	8	1.09	0.27	7	0.93	0.73	15	1.02	0.52
Gave student time to try again and self-correct	8	1.06	0.18	7	0.79	0.81	15	0.93	0.56
Corrected student writing	7	0.31	0.37	7	0.50	0.65	14	0.40	0.51
Graded student work	7	0.14	0.38	7	0.14	0.38	14	0.14	0.36
Re-taught lesson segment	7	0.36	0.46	7	0.00	0.00	14	0.18	0.37
Planned to review skill in future lessons	7	0.50	0.65	7	0.21	0.39	14	0.36	0.53
Other	5	0.50	0.87	3	0.00	0.00	8	0.31	0.70

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Table D28

Strategies Used when Discovered Student Misunderstandings about Writing (Pennsylvania - Social Studies)

	Module one			Module two			Overall		
Strategies	*n*	Mean	Std Dev	*n*	Mean	Std Dev	*n*	Mean	Std Dev
Organized peer-editing session	10	1.14	0.68	7	0.62	0.52	17	0.93	0.66
Scheduled in-class workshop time	9	0.87	0.79	7	0.81	0.74	16	0.85	0.75
Held one-on-one conference with student	10	1.38	0.57	7	1.43	0.40	17	1.40	0.49
Devoted time in lesson for students to use feedback	10	0.78	0.72	7	0.67	0.62	17	0.73	0.66
Grouped students together on "need" basis for targeted instruction	10	0.63	0.76	7	0.24	0.42	17	0.47	0.66
Modeled skill using my own writing	10	0.47	0.48	7	0.57	0.61	17	0.51	0.52
Demonstrated skill using student's writing	10	0.75	0.51	7	0.57	0.61	17	0.67	0.54
Provided grammar mini-lessons	10	0.26	0.29	7	0.14	0.24	17	0.21	0.27
Wrote specific comments on student work	10	0.87	0.72	7	0.83	0.65	17	0.85	0.67
Had student revisit readings	10	0.88	0.79	7	0.79	0.58	17	0.84	0.69
Offered student a hint or suggestion	10	1.27	0.65	7	1.02	0.48	17	1.17	0.58
Gave student time to try again and self-correct	10	1.23	0.61	7	0.93	0.64	17	1.10	0.62
Corrected student writing	10	0.93	0.68	7	0.40	0.41	17	0.72	0.63
Graded student work	10	0.27	0.64	7	0.24	0.42	17	0.25	0.55
Re-taught lesson segment	10	0.38	0.40	7	0.07	0.19	17	0.25	0.36
Planned to review skill in future lessons	10	0.85	0.82	7	0.24	0.30	17	0.60	0.71
Other	7	0.00	0.00	6	0.00	0.00	13	0.00	0.00

Note. Scale is 0=not at all, 1=to some extent, 2=to a great extent.

Appendix E: Kentucky Matching and HLM Student Effect Estimates Tables

Table E1

Prior Achievement and Demographic Characteristics of Eligible and Matched LDC Treatment and Comparison Groups for KPREP Reading Outcome Analysis

Student Characteristics	Eligible Sample		Matched Sample	
	LDC (n=2,529)	Comparison (n=43,333)	LDC (n=2,215)	Comparison (n=13,934)
Prior Achievement	0.167	-0.010	0.143	0.133
Female (%)	49.1	49.2	49.8	49.9
White (%)	90.5	82.0	91.9	91.8
Hispanic (%)	2.6	3.5	2.4	2.2
Black (%)	2.6	11.1	2.3	4.3
Asian (%)	1.8	1.1	1.0	0.4
English language learner (%)	0.4	1.4	0.4	0.3
Special education (%)	10.4	11.4	8.6	8.2
Free/reduced price lunch (%)	46.5	57.6	46.0	55.6

Table E2

Prior Achievement and Demographic Characteristics of Eligible and Matched LDC Treatment and Comparison Groups for KPREP Social Studies Outcome Analysis

Student Characteristics	Eligible Sample		Matched Sample	
	LDC (n=2,529)	Comparison (n=43,333)	LDC (n=2,236)	Comparison (n=17,726)
Prior Achievement	0.176	-0.010	0.169	0.150
Female (%)	49.1	49.2	48.7	48.7
White (%)	90.5	82.0	92.2	92.2
Hispanic (%)	2.6	3.5	2.1	2.1
Black (%)	2.6	11.1	2.5	4.0
Asian (%)	1.8	1.1	0.7	0.7
English language learner (%)	0.4	1.4	0.3	0.3
Special education (%)	10.4	11.4	9.8	8.7
Free/reduced price lunch (%)	46.5	57.6	46.6	46.6

Table E3

Prior Achievement and Demographic Characteristics of Eligible and Matched LDC Treatment and Comparison Groups for KPREP Writing Outcome Analysis

	Eligible Sample		Matched Sample	
Student Characteristics	LDC (n=2,529)	Comparison (n=43,333)	LDC (n=2,252)	Comparison (n=11,720)
Prior Achievement	0.161	-0.009	0.138	0.145
Female (%)	49.1	49.2	49.0	49.2
White (%)	90.5	82.0	92.0	91.7
Hispanic (%)	2.6	3.5	2.3	1.5
Black (%)	2.6	11.1	2.5	4.6
Asian (%)	1.8	1.1	0.9	0.9
English language learner (%)	0.4	1.4	0.3	0.3
Special education (%)	10.4	11.4	10.2	8.7
Free/reduced price lunch (%)	46.5	57.6	48.0	48.3

Table E4

2012-13 LDC Student Effect Estimates on K-PREP Reading

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	0.146 (0.010)*	0.148 (0.016)*
White	0.045 (0.030)	0.041 (0.042)
Hispanic	0.130 (0.043)*	0.127 (0.059)*
Black	0.080 (0.037)*	0.081 (0.054)
Asian	0.122 (0.094)	0.119 (0.143)
English language learner	0.001 (0.096)	-0.054 (0.140)
Title I	-0.061 (0.020)*	-0.059 (0.028)*
Special education	-0.113 (0.025)*	-0.109 (0.035)*
Free/reduced price lunch	-0.107 (0.012)*	-0.106 (0.017)*
Prior achievement	0.687 (0.008)*	0.691 (0.012)*
Level 2 Variables		
LDC treatment	0.081 (0.024)*	0.061 (0.018)*
Teacher effectiveness	0.279 (0.216)	0.233 (0.214)
Missing teacher effectiveness	-0.029 (0.018)	-0.015 (0.012)
School effectiveness	0.481 (0.142)*	0.241 (0.103)*

Note. *significant at p =.05

Table E5

2012-13 LDC Student Effect Estimates on K-PREP Reading, Including Interactions with Prior Teacher Effectiveness and Student Characteristics

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	0.147 (0.011)*	0.149 (0.017)*
White	0.046 (0.029)	0.042 (0.042)
Hispanic	0.130 (0.042)*	0.128 (0.059)*
Black	0.080 (0.037)*	0.082 (0.054)
Asian	0.121 (0.093)*	0.118 (0.143)
English Language Learner	0.001 (0.095)	-0.055 (0.140)
Title I	-0.068 (0.020)*	-0.066 (0.027)*
Special education	-0.095 (0.027)*	-0.087 (0.039)*
Free/reduced price lunch	-0.113 (0.013)*	-0.115 (0.018)*
Prior achievement	0.683 (0.009)*	0.686 (0.013)*
Level 2 Variables		
LDC Treatment	0.074 (0.031)*	0.058 (0.023)*
Teacher Effectiveness	0.396 (0.231)	0.317 (0.227)
School Effectiveness	0.467 (0.143)*	0.239 (0.102)*
LDC treatment by Teacher Effectiveness	-0.169 (0.513)	-0.181 (0.202)
LDC treatment by Student Characteristics Interactions		
Female	-0.006 (0.018)	-0.004 (0.017)
Special education	-0.181 (0.045)*	-0.110 (0.034)*
Free/reduced price lunch	0.078 (0.022)*	0.053 (0.017)*
Prior achievement	0.049 (0.014)*	0.034 (0.011)*

Note. *significant at p =.05

Table E6

2012-13 LDC Student Effect Estimates on Social Studies K-PREP Scores

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	-0.109 (0.008)*	-0.108 (0.013)*
White	-0.039 (0.030)	-0.051 (0.044)
Hispanic	-0.044(0.051)	-0.055(0.072)
Black	-0.035 (0.035)	-0.048 (0.050)
Asian	-0.010 (0.134)	-0.081 (0.167)
English language learner	0.144 (0.079)	0.158 (0.109)
Title I	-0.001 (0.027)	0.039 (0.034)
Special education	-0.152 (0.025)*	-0.144 (0.032)*
Free/reduced price lunch	-0.099 (0.012)*	-0.100 (0.017)*
Prior achievement	0.680 (0.012)*	0.684 (0.022)*
Level 2 Variables		
LDC treatment	-0.028 (0.025)	-0.002 (0.016)
Teacher effectiveness	0.066 (0.241)	0.302 (0.085)*
Missing teacher effectiveness	-0.034 (0.022)	-0.028 (0.014)
School effectiveness	0.332 (0.113)*	0.112 (0.081)

Note. *significant at p =.05

Table E7

2012-13 LDC Student Effect Estimates on Social Studies K-PREP Scores, Including Interactions with Prior Teacher Effectiveness and Student Characteristics

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	-0.110 (0.009)*	-0.109 (0.014)*
White	-0.040 (0.031)	-0.052 (0.043)
Hispanic	-0.044 (0.051)	-0.056 (0.072)
Black	-0.035 (0.035)	-0.049 (0.050)
Asian	-0.012 (0.134)	-0.080 (0.168)
English language learner	0.144 (0.080)	0.155 (0.110)
Title I	-0.009 (0.026)	0.023 (0.032)
Special education	-0.152 (0.027)*	-0.141 (0.035)*
Free/reduced price lunch	-0.105 (0.013)*	-0.106 (0.019)*
Prior achievement	0.675 (0.013)*	0.677 (0.023)*
Level 2 Variables		
LDC treatment	-0.084 (0.031)*	-0.026 (0.023)
Teacher effectiveness	0.062 (0.243)	0.316 (0.084)*
School effectiveness	0.339 (0.116)*	0.130 (0.081)
LDC treatment by teacher Effectiveness	-0.155 (0.254)	-0.288 (0.082)*
LDC treatment by Student Characteristics Interactions		
Gender	0.016 (0.018)	0.013 (0.016)
Special education	0.011 (0.046)	-0.007 (0.037)
Free/reduced price lunch	0.073 (0.025)*	0.039 (0.019)*
Prior achievement	0.075 (0.016)*	0.050 (0.017)*

Note. *significant at p =.05

Table E8

2012-13 LDC Student Effect Estimates on Writing K-PREP Scores

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	0.428 (0.013)*	0.492 (0.024)*
White	0.050 (0.044)	0.055 (0.071)
Hispanic	0.153 (0.060)*	0.117 (0.089)
Black	0.089 (0.049)	-0.028 (0.079)
Asian	0.245 (0.098)*	0.459 (0.221)*
English language learner	-0.133 (0.130)	-0.171 (0.136)
Title I	0.066 (0.048)	0.002 (0.072)
Special education	-0.424 (0.023)*	-0.436 (0.036)*
Free/reduced price lunch	-0.197 (0.013)*	-0.149 (0.027)*
Prior achievement	0.428 (0.007)*	0.428 (0.012)*
Level 2 Variables		
LDC treatment	0.021 (0.045)	0.014 (0.029)
Teacher effectiveness	0.459 (0.145)*	0.286 (0.111)*
Missing teacher effectiveness	-0.072 (0.029)*	-0.051 (0.029)
School effectiveness	0.948 (0.247)*	0.210 (0.143)

Note. *significant at p =.05

Table E9

2012-13 LDC Student Effect Estimates on Writing K-PREP Scores, Including Interactions with Prior Teacher Effectiveness and Student Characteristics

Fixed Effect	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
Level 1 Variables		
Female	0.428 (0.014)*	0.498 (0.027)*
White	0.050 (0.044)	0.056 (0.071)
Hispanic	0.153 (0.060)*	0.118 (0.089)
Black	0.089 (0.049)	-0.026 (0.079)
Asian	0.245 (0.098)*	0.462 (0.218)*
English language learner	-0.133 (0.130)	-0.173 (0.135)
Title I	0.065 (0.049)	-0.019 (0.072)
Special education	-0.427 (0.025)*	-0.443 (0.040)*
Free/reduced price lunch	-0.199 (0.013)*	-0.150 (0.031)*
Prior achievement	0.427 (0.008)*	0.425 (0.013)*
Level 2 Variables		
LDC treatment	0.023 (0.053)	0.030 (0.042)
Teacher effectiveness	0.537 (0.156)*	0.362 (0.124)*
School effectiveness	0.934 (0.253)*	0.242 (0.145)
LDC treatment by teacher effectiveness	0.054 (0.291)	0.004 (0.120)
LDC Treatment by Student Characteristics Interactions		
Female	-0.003 (0.028)	-0.032 (0.031)
Special education	0.036 (0.060)	0.031 (0.047)
Free/reduced price lunch	0.020 (0.032)	-0.002 (0.027)
Prior achievement	0.011 (0.017)	0.016 (0.016)

Note.*significant at p =.05

Appendix F:
Regression Analyses of LDC Effects in Pennsylvania

As noted in the body of the report, access to individual data on students' performance on the Pennsylvania state assessment was restricted to pre-post data for the study year for LDC students in our sample and for students in comparable districts within the local region. Our analyses thus were severely constrained by the limitations of available data and are subject to numerous validity threats. The analyses used Coarsened Exact Matching (CEM) to compose the best available comparison group from the available data and applied available controls to the extent possible, but our results should be considered highly tentative and any inferences subject to further study.

Teacher and student sample. As described in the body of the report, the LDC teacher sample for Pennsylvania included eight teachers new to LDC as well as 16 teachers with at least one prior year of LDC experience. Given the small number of teachers and students, we decided to include all 24 eighth-grade social studies and science teachers in the regression analysis to maximize sample size. In contrast to the Kentucky approach, available data did not enable the analyses to control for prior teacher effectiveness.

The eligible LDC student sample for the analysis includes all students (a) who were enrolled in an eighth-grade social studies or science class taught by one of the 24 teachers, and (b) for whom prior and current achievement scores were available. This sample includes 1404 students, as described in Chapter 2 of this report. As noted there, these students are roughly similar to all students statewide in the proportion of White students but show differences in representation of various minority groups. Notably the representation of Hispanic students is higher in the LDC sample and the proportion of economically disadvantaged students somewhat lower. Relative to student achievement variables, the LDC student sample performed slightly higher than students statewide in the prior year, as described in Chapter 2 (statewide means were not available for the outcome year).

Standardized student scaled scores in Grade 8 reading for the 2012–2013 school year served as the outcome of interest. Prior scores in seventh grade in reading and math for the 2011–2012 school year were used as matching variables and as covariates in regression analyses. Available student demographic variables served as additional matching and regression covariates.

Available data included the six LDC districts with a total of 1446 with valid data at the two time points of interest, and two control districts with a total of only 738 students with valid data at the two time points. Coarsened Exact Matching, based only on individual-level variables,

enabled a match of 1335 LDC students to 719 control students. The demographic and achievement data for these two groups, as seen in Table F1 below, show their close similarity.

Table F1

Pennsylvania Treatment and Control Group Characteristics, Based on Coarsened Exact Matching (n=*1335 LDC Students, 719 Control Students)*

Characteristic	LDC	Control
White (%)	65.0	65.0
Hispanic (%)	23.4	23.1
Black (%)	4.9	6.9
Asian (%)	2.3	2.9
English language learner (%)	3.0	3.1
Free/reduced price lunch eligible (%)	31.6	31.6
Special education (%)	9.4	9.4
Mean seventh-grade math Z score	.060	.047
Mean seventh-grade reading Z score	.058	.030
Mean eighth-grade reading Z score	.054	.011

Regression analysis was used to investigate potential treatment effects on student outcomes. Due to available data, the analysis was limited to the individual level and could not take into account school or district effects. The same individual covariates and interaction variables from the Kentucky analyses were used for the Pennsylvania analysis. Results, shown in Table F2, reveal no treatment effect, nor treatment interaction effect. It is interesting, however, to see that the treatment/prior achievement interaction was significant at the .1 level and was consistent with the Kentucky finding. Regression results also indicate that prior achievement was positively related to reading performance and that English language learner status and special education status were associated with lower performance.

Table F2

Pennsylvania Regression Analysis of LDC Effect on State Reading Scores, CEM Matched Data

Level 2 variable	Model coefficient (*SE*)
LDC treatment	0.026 (0.03)
LDC treatment by student characteristics interactions	
Free/reduced price lunch eligible	-0.011 (0.06)
Prior achievement	0.049 (0.03)
Student characteristics and prior achievement scores	
Grade 7 reading Z score	0.546 (0.03)***
Grade 7 math Z score	0.237 (0.02)***
White	0.048 (0.06)
Hispanic	0.012 (0.07)
Black	0.090 (0.08)
Asian	0.164 (0.10)
Special education	-0.309 (0.04)***
Free/reduced price lunch eligible	-0.144 (0.05)**
English language learner	-0.264 (0.07)***

**p = .01. ***p = .001.