

Designing Professional Development and Classroom Learning

to Increase Student Agency,
Literacy Achievement, and
Learning

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readingapprenticeship.org



Plan for Today

Background, context,
rationale

Design principles for PD

Experiential taste of PD
approach

Studies of PD Impact



Strategic Literacy Initiative at WestEd, USA



A program of research and development focusing on improving academic literacy across subject areas

Mission: To work with communities of educators to support the development of high level academic literacy skills among diverse populations of students, especially academically underperforming youth

Strategic Literacy Initiative Program of Research and Development



How can we provide diverse students with the means to participate successfully in the complex literacy practices they encounter in school and beyond?

Strategic Literacy Initiative Program of Research and Development



Reading Apprenticeship
Instructional Framework

Inquiry-Based Professional
Development Model

Ongoing R&D in discipline-
specific literacy instruction

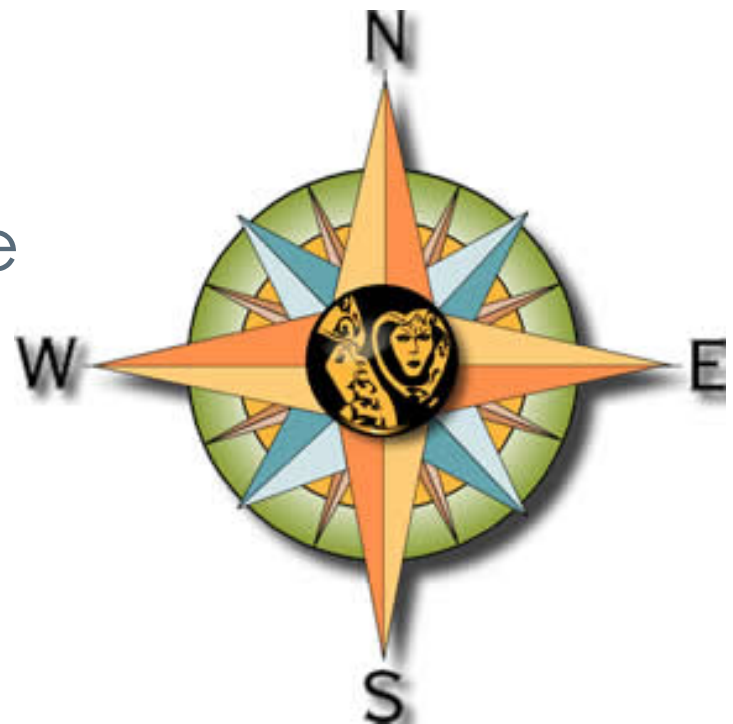
Ongoing studies to refine and
improve program impact for
teachers and students

- NSF, IES
- Investing in Innovation (RAISE, iRAISE)
- Reading for Understanding (READI)
- SEED (RAWC)

Raising Our Sights

The nation must reach for high level literacy skills (Heller & Greenleaf, 2007).

As they move up the grade levels, students are expected to read specialized texts and to perform discipline specific tasks with little instruction about how to do so (Lee & Spratley, 2010).



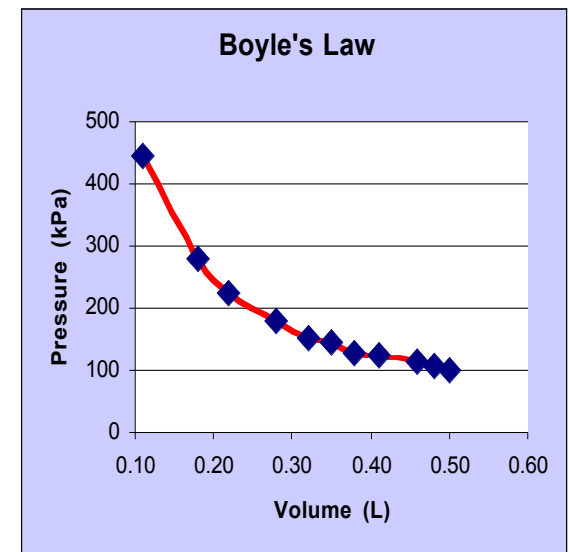
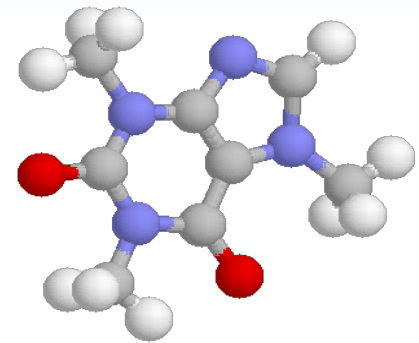
Academic Disciplines Participate in Distinct Literacy “Practices”

Specialized ways of reading, writing, speaking and reasoning that are specific to an intellectual discipline

- Particular reasons to read and write
- Conventional forms of text & means of representation

Valued reasoning processes

- Traditions of argumentation: What counts as a good question, evidence, problem, or solution



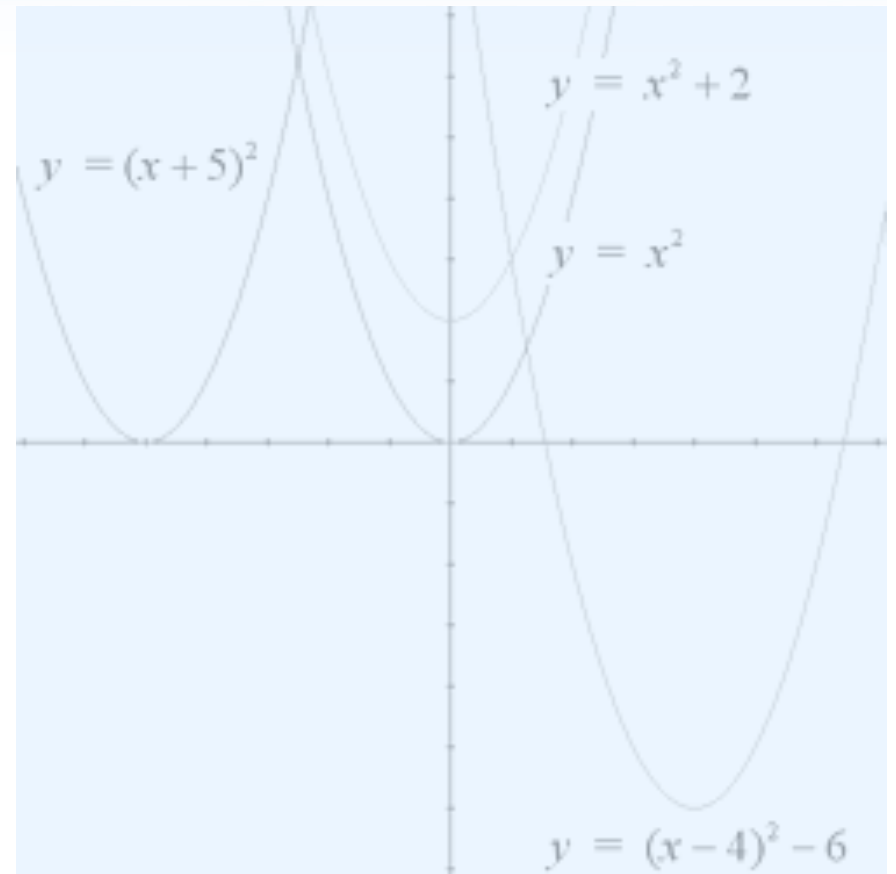
Distinct Literacy Practices Support Discipline-Based Tasks

Proof in algebra or geometry

Document analysis in history

Hypothesis generation and inquiry design in science

Thematic and symbolic analysis in literature



Preparing Students for Advanced Literacies

Many of our secondary students are **profoundly** inexperienced and unprepared to engage in academic literacies, but they are not beginning readers.



Practices Common to Secondary Subject Area Teaching (ACT 2006, 2009, 2012)

Teaching as Telling

Teaching around the text

Doing the intellectual work for students

Lecture & PowerPoints

Explanations & interpretations

Demonstrations

Putting students in passive modes

Students receive information

Students copy, recite, remember


Assigning and hoping for the best



Structural Challenges: Findings from Studies of Secondary Teaching

- Teachers often misread students' literacy performances as evidence of inability (Hull & Rose, 1989; Greenleaf, Hull, & Reilly, 1994).
- Teachers “teach around the text” and resort to “telling” students what texts say and mean (Greenleaf & Heller, 2004; Schoenbach & Greenleaf, 1999).
- Teachers do not have the resources they need to support diverse learner needs (Heller & Greenleaf, 2007)
- Students have increasingly limited opportunities to read and gain advanced literacy proficiencies.

To Advance Literacy Development, What Should Students Be Doing with Academic Texts?



Grappling, inquiring, raising
questions
Making meaning
Building knowledge
Identifying and solving
problems
Using evidence
Constructing and critiquing
arguments

Transforming the Learning Culture of the Secondary, Subject Area Classroom



Students ask text-based questions

Students interpret texts, negotiate multiple interpretations

Teacher frames reading as collaborative inquiry

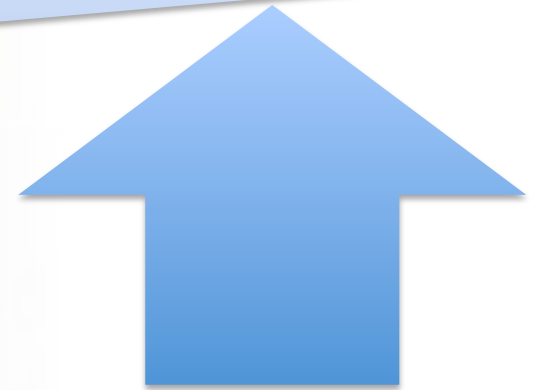
Teacher and students foreground the process of figuring things out

Teacher asks text questions and tests comprehension

Teacher interprets texts, has right interpretations

Teacher frames reading as fact extraction

Teacher and students foreground knowing content and having correct answers



Discipline-Based Literacy Apprenticeships for Students and Teachers

- High level, advanced literacies are discipline-shaped inquiry engagements with texts
- For students to acquire these literacies, they must be engaged in discipline-based literacies and metacognitive inquiry as a mode of learning
 - (meta-affective, meta-linguistic, meta-discursive)

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 - (meta-affective, meta-linguistic, meta-discursive)
- For subject area teachers to create such learning environments, they must themselves be engaged in metacognitive inquiry
 - (into their disciplines, texts, reading and discourse processes, student learning, their own teaching)

Building Capacity for the Responsive Teaching of Subject Area Literacy

Developing knowledge
about literacy and learning

Developing beliefs, values,
and commitments

Developing instructional
repertoire

Developing professional
identity



Preparing Secondary Subject Area Teachers

My students can't, don't, won't read

I don't know how to teach reading

I have too much to cover to add anything else

Besides, it's not my job



Subject Area Teachers Feel Unprepared

- don't have training to be “reading teachers”
- don't have time to “stop and teach reading” in addition to their subject areas (Jacobs, 1999; Jacobs & Wade, 1981)
- are not necessarily members of disciplinary discourses (Draper, 2008)
- don't know how to help students who struggle with their classroom materials (Dupuis, 1984)

Subject Area Teachers Have Untapped Knowledge and Expertise

- may not be cognizant of the literacy demands of their subject areas (Heller & Greenleaf, 2007; Draper, 2008)
- are largely unaware of their own specialized literacy expertise (Greenleaf & Schoenbach, 2004; Greenleaf & Katz, 2004).
- need support to see past their “expert blind spots” (Braunger, et al., 2006; Nathan & Petrosino, 2003)

Design Principles in Professional Development: Inquiry-Based PD

- Connections to teachers' experience, disciplinary commitments, and expertise
- Practice “making thinking visible” with varied subject area texts and investigations
- Collaborative, metacognitive learning experiences embedded in content that models target classroom practices
- Opportunities to explore student reading and thinking in the context of content learning



Reading Process Inquiries



The primary question was not what do we know, but how do we know it.

∞ Aristotle ∞

Turning insights into assets for instruction

Reading Process Analysis with a Science Diagram

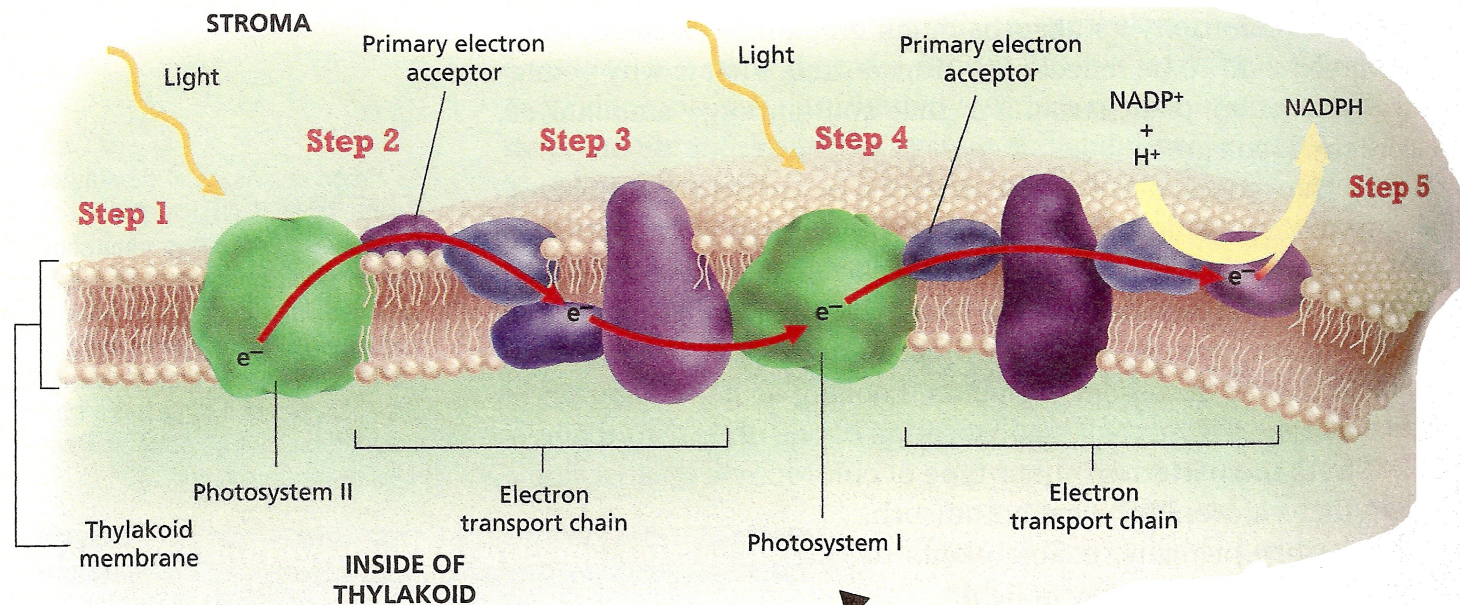
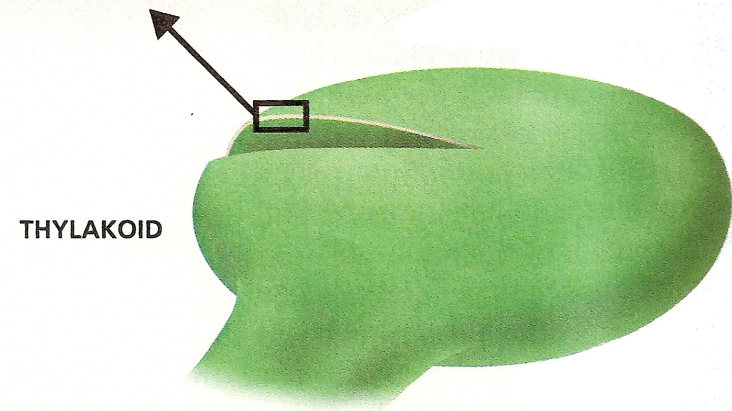


FIGURE 6-5

The light reactions take place in the thylakoid membrane and involve several steps. Step 1: Light excites electrons in chlorophyll *a* molecules of photosystem II. Step 2: These electrons move to a primary electron acceptor. Step 3: The electrons are then transferred along a series of molecules called an electron transport chain. Step 4: Light excites electrons in chlorophyll *a* molecules of photosystem I. As these electrons move to another primary electron acceptor, they are replaced by electrons from photosystem II. Step 5: The electrons from photosystem I are transferred along a second electron transport chain. At the end of this chain, they combine with $NADP^+$ and H^+ to make NADPH.



Reading Process Analyses

What did you do to make sense of this text?

What got in the way of your reading?

What problems did you solve?

What problems, if any, remain?

Microbial mats composed of giant sulfur bacteria are observed throughout the benthos along continental margins. These communities serve to oxidize dissolved sulfides to sulfate, and are typically associated with the recent exposure of sulfide-rich sediments. Such mats are also ubiquitous in areas of hydrocarbon seepage, where they are thought to consume sulfide generated in underlying sediment. Despite the high abundance of dissolved methane in hydrocarbon seeps, few studies have considered the importance of methanotrophy in mat communities. To assess the importance of methanotrophs in microbial mats from hydrocarbon seeps, an approach involving lipid biomarkers, stable isotopes and enrichment culturing was applied. Microbial mat samples were collected from benthic surfaces at two hydrocarbon seeps located in the Coal Oil Point seep field, offshore from Goleta, California. Both samples display a high abundance of 16:1 fatty acids, including two isomers specific to type I methanotrophic bacteria, 16:1(ω 8) and 16:1(ω 6). Depleted values of $\delta^{13}\text{C}$ found in 16:1 fatty acids suggests methane assimilation into biomass, whereas three separate investigations of sulfide-oxidizing bacteria yield fractionation factors too small to account for these values. On the basis of these observations and experiments, an isotope mass balance was applied to fatty acids present in the microbial mat samples which indicates methanotrophs contribute up to 46% of total fatty acids. These results implicate methanotrophy as an important function for microbial mats in seep areas, despite the visual appearance of these mats as being composed of giant sulfur bacteria.

Reading Process Analyses

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Designing Literacy Inquiries

Capturing the Reading Process (Graves, 1989)

Think-Aloud with Disciplinary Texts (Pressley, 2002)

Open-ended Problem-Solving, Strategic

Close Readings (Haas & Flower, 1988)

What do I know? How do I know it?

Discipline-Based Interpretive Strategies/Heuristics

Rules of notice, significance, coherence, configuration
(Rabinowitz, 1989);

Sourcing, contextualizing, corroboration (Wineburg, 1989)

Text and Task Analysis (Hillocks 1995; McKeown, et al., 1997)

Assumed knowledge, language and text features, audience,
purpose, function

Teacher Learning Goals: Reading Process Analyses

- Experiencing the struggle to comprehend: complexity of literacy tasks, empathy, collegial support
- Building awareness of strategic problem-solving: identifying a repertoire and reservoir for teaching
- Fostering ownership: identifying and embracing discipline-specific literacy practices

Inquiries into Student Literacy Performance



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∞ Aristotle ∞

Turning insights into assets for instruction

Chemical Reactivity: Acids and Bases

INTRODUCTION

Many of the substances you come into contact with every day have acidic or basic properties. Examples are the foods you eat, the beverages you drink, the cleaning products you use around the house, and so forth. One of the properties of acids is that they generally taste sour; bases usually taste bitter. Another of the properties of acids and bases is that they can cause color changes in certain dyes. These dyes are called indicators. They indicate whether a substance is an acid or a base, depending on what color change it produces in the dye.

A fundamental property of acids and bases is that an acid and a base always react to “neutralize” one another. That is, the products of the reaction do not have acidic or basic properties (or they are substantially reduced compared to the reactant acid and base). One excellent way to tell whether an acid-base reaction has occurred is to use an indicator in the reaction mixture. Look to see whether the final color of the indicator suggests that the solution has substantially reduced acidic and basic properties.

One of the products of acid-base reactions is always water, a very stable compound. Indeed, another way of looking at reactions of acids with bases is as water-forming reactions. The *driving force* for the reactions is the formation of water, and essentially any acid will react with any base. Thus, once you learn to recognize acids and bases, you can predict the reactions they will undergo, including the products formed. Most of the reactions you carry out every day, or in these explorations, are done in aqueous solution, so you usually can't detect the formation of more water, because there is so much already there.

Inquiries into Student Literacy Performance in Introduction to Chemistry

- Underperforming high school, Title 1
- ~ Half of the class scored below 10th percentile on standardized reading tests
- Only two students scored above 25th percentile
- Introduction to Chemistry, midway through the academic year

Inquiries into Student Literacy Performance in the Subject Area Classroom

Discussion Protocol:

Evidence/Interpretation Notetaker

Viewing and discussion roles:

- 1-What do you notice about students' reading and talk about reading?
- 2-What do you notice about the instructional supports for student reading and talk?

EVIDENCE I saw/heard/read ...	INTERPRETATION I wondered/I concluded/ I thought...
Take notes on what you observe in this space	Put your conclusions, questions, and conjectures over here

Navigate to the following link and click on the
Intro to Chemistry video to proceed

[http://readingapprenticeship.org/
research-impact/videos/classroom/](http://readingapprenticeship.org/research-impact/videos/classroom/)

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Inquiries with Curriculum-Embedded Reading Assessments

Read and annotate text

Respond to process questions

- Summarize in your own words
- What was happening in your mind as you read this piece?
- What did you do that helped you understand the reading?
- What questions or problems do you still have with this piece?
- How difficult would you say this was to understand?

Respond to teacher-made content comprehension questions



abolitionist

Date _____

A Letter from Frederick Douglass

agreed w/ amend. 15

did she work with Susan P. Anthony?

This is a letter from Frederick Douglass to Josephine Sophie White Griffing, an anti-slavery activist and the secretary of the National Women's Suffrage Association. He is responding to her request that he speak at a Washington meeting in support of women's suffrage.

September 27, 1868

2 years before amend. 15 was ratified

women's right to vote

My dear Friend:

?
he can't go speak

I am impelled by no lack of generosity in refusing to come to Washington

to speak in behalf of woman's suffrage. The right of woman to vote is as

woman's suffrage

sacred in my judgment as that of man, and I am quite willing at any time to

he will always support this right

hold up both my hands in favor of this right. It does not however follow

that I can come to Washington or go elsewhere to deliver lectures upon

talk to people

this special subject. I am now devoting myself to a cause not more sacred,

certainly more urgent because it is life and death to the long-enslaved

now devoted to Negro suffrage instead of just woman or men's suffrage

people of this country; and this is: Negro suffrage. While the Negro is

mobbed, beaten, shot, stabbed, hanged, burnt and is the target of all that is

malignant in the North and all that is murderous in the South his claims

may be preferred by me without exposing in any wise myself to the

whose?
not trying to be mean to women?

imputation of narrowness or meanness towards the cause of woman. As

you very well know, woman has a thousand ways to attach herself to the

governing power of the land and already exerts an honorable influence on

big & honorable

the course of legislation. She is the victim of abuses, to be sure, but it

I thought only men could be a part of legislative

cannot be pretended I think that her cause is as urgent as that of ours. I

never suspected you of sympathizing with Miss Anthony and Mrs. Stanton

woman's suffrage is as urgent as Negro's

in this course. Their principle is: that no negro shall be enfranchised while

able to vote?

woman is not. Now, considering that white men have been enfranchised

not have their rights?

always, and colored men have not, the conduct of these white women,

whose husbands, fathers and brothers are voters, does not seem generous.

treated well

Very truly yours,

Fred Douglass

1. In your own words, write a short (1-2 sentences) summary of this piece.

This piece was about the 15th amendment which would allow black and other men of different races to vote, but not women. It gave different viewpoints about who wanted it and who didn't.

2. What kinds of things were happening in your mind as you read this?

I was kind of thinking that it's crap that women weren't allowed to vote. I was also thinking about what I already knew about this subject.

3. What did you do that helped you to understand the reading?

I summarized and put things into my own words on paper and in my head. I also asked questions.

4. What questions or problems do you still have with this piece?

There are still a few words I don't know.

Inquiries into Students' Literacy Performances in the Professional Learning Community

[http://readingapprenticeship.org/
research-impact/videos/professional-
development/](http://readingapprenticeship.org/research-impact/videos/professional-development/)

Goals: Inquiries into Students' Literacy Performances

- Developing teachers' insights into teaching and student learning through case inquiry and assessment protocols
- Recognizing students' strengths and resources: disrupting deficit views
- Identifying instructional needs and taking responsibility
- But, to see task demands and student assets and resources teachers must:
 - do the work themselves and
 - use evidence/Interpretation protocols

Inquiry-Based Professional Development Results in Teacher Learning

- Teachers transform and enrich their conceptions of reading, reading processes, and texts – often becoming stronger academic readers themselves!
- Teachers shift their thinking about student reading resources, capacity, and difficulty
- Teachers develop a professional identity that embraces their discipline-based literacy expertise
- Teachers develop a language and classroom routines for mentoring students in reading and thinking processes

Inquiry-Based Professional Development Results in Teacher Learning

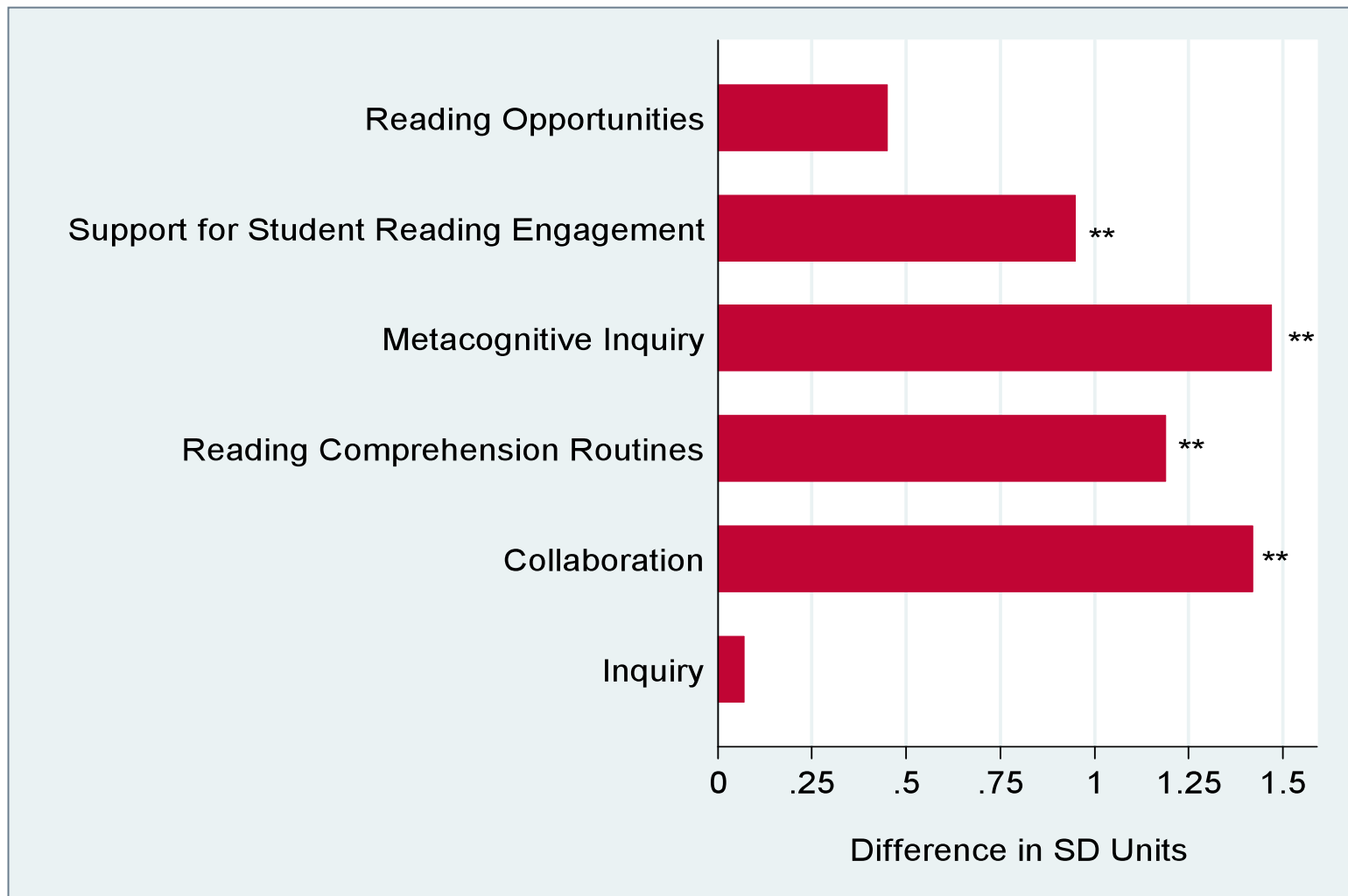
- Teachers gain experience with a repertoire of teaching strategies
- Teachers become facilitators of subject area learning and literacy mentors to students
- Teachers adaptively generate a variety of ways to integrate comprehension instruction into content area teaching, even “on the fly”
- Teachers positively impact student reading achievement

Inquiry-Based Professional Development Transforms Subject Area Teaching

Teacher Surveys, Teaching Assignments, and Teacher Interviews show large and significant differences in instruction for the intervention group, compared to controls

- Increased teacher support for reading engagement
- Less lecture
- More collaborative group work
- More discussion of science or history readings
- More metacognitive inquiry
- More modeling and guided practice in comprehension routines and strategies
- Differentiation to support all learners

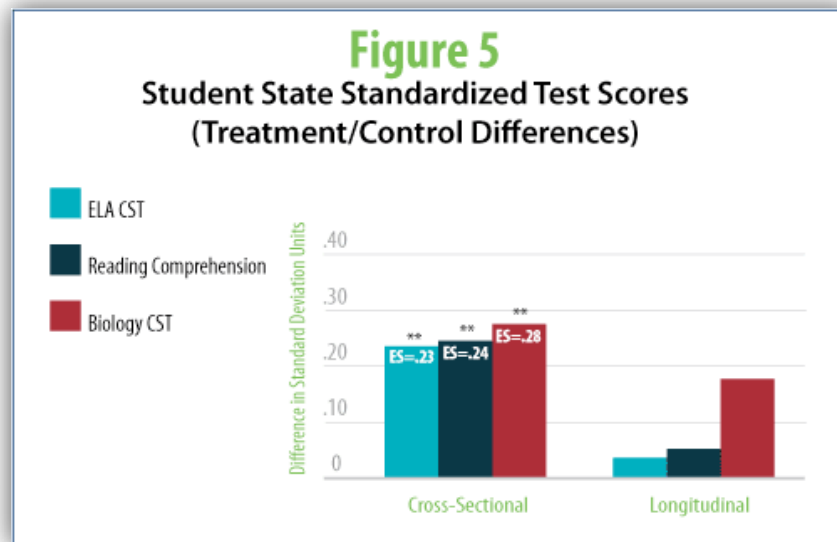
Teacher Interviews: Intervention/ Control Differences, NSF Study



Inquiry-Based Professional Development Advances Student Achievement

National Science Foundation Study: Integrating Reading Apprenticeship and Science Instruction in High School Biology

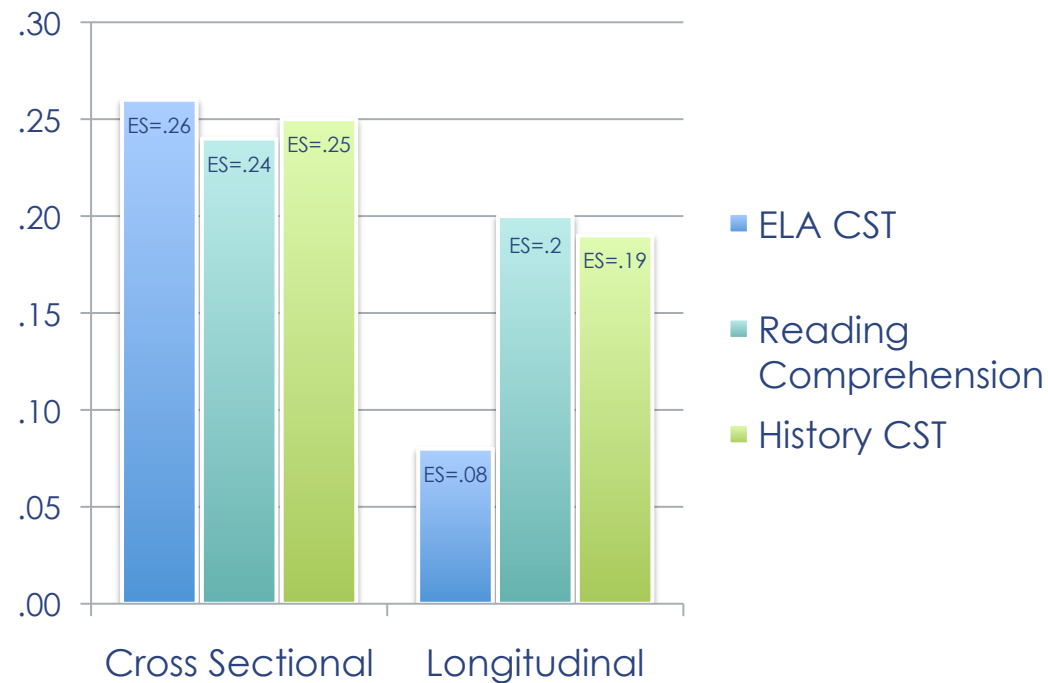
This research study tested the impact of Reading Apprenticeship teacher professional development on teacher knowledge and skills, instructional practices, and on student achievement in science and reading.



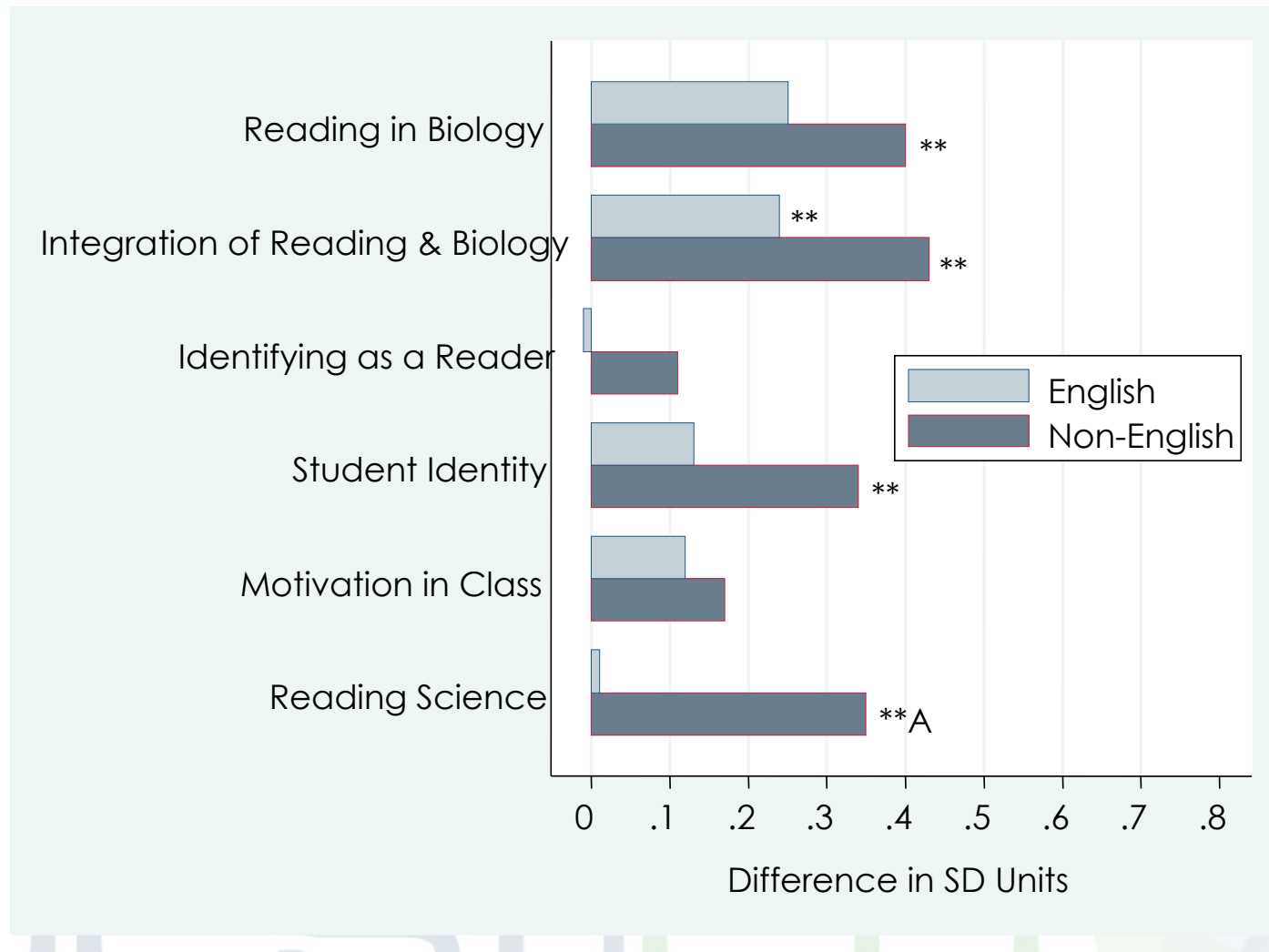
Students in Reading Apprenticeship classrooms performed better on state standardized tests in biology *and English language arts and reading comprehension*. An analysis of scores by demographic group found statistically significant increases in test scores for white, Latino, and English learner students in the intervention classes.

Inquiry-Based Professional Development Advances Student Achievement

Institute of Education Sciences Study: Reading Apprenticeship Professional Development in High School U.S. History



Inquiry-Based Professional Development Builds Student Identity and Motivation



Conclusion: *Professional Development Design Matters*

How we use teachers' limited time matters.

- We can design professional development to build core capacities for the insightful teaching of discipline-specific literacy
 - knowledge, beliefs, insight, repertoire, professional judgment, and professional identity
- Inquiry into reading processes, the demands of texts, and student reading helps teachers develop generative knowledge that can transform classroom practice

Resources on readingapprenticeship.org

Videos of Classrooms and Professional Development
Assessment tools

Publications

Greenleaf, C. & Schoenbach, R. "Building capacity for the responsive teaching of reading in the academic disciplines: Strategic inquiry designs for middle and high school teachers' professional development." In D. S. Strickland & M. L. Kamil, (Eds.) (2004), *Improving Reading Achievement through Professional Development*, Christopher-Gordon Publishers, Inc., pp. 97 – 127.

<http://readingapprenticeship.org/articles/building-capacity-for-the-responsive-teaching-of-reading-in-the-academic-disciplines/>

Thank you

readingapprenticeship.org

