Literacy Instruction in the Content Areas

Getting to the Core of Middle and High School Improvement
A report by Rafael Heller and Cynthia Greenleaf
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Advancing the Adolescent Literacy Agenda

- Expanding adolescent literacy reform to the advanced literacies of the academic content areas
- Providing content area literacy learning for all students, including those who struggle
- Challenges of discipline specific literacies
- Policy implications
Expanding Adolescent Literacy Reform to the Content Areas
If students are to be truly prepared for college, work, and citizenship, they cannot settle for a modest level of proficiency in reading and writing.

The nation must reach for high level literacy skills.
## Adjusting our Sights

<table>
<thead>
<tr>
<th>National Assessment of Educational Progress, 2005</th>
<th>4th grade</th>
<th>8th grade</th>
<th>12th grade</th>
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<tr>
<td>Advanced</td>
<td>8%</td>
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Inasmuch as the academic content areas comprise the heart of the secondary school curriculum, content area literacy instruction must be a cornerstone of any movement to build the kinds of thriving, intellectually vibrant secondary schools that young people deserve and on which the nation’s social and economic health will depend.
### Adjusting our Sights

#### PISA Standings

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<td>469</td>
<td>Slovak Republic</td>
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<tr>
<td>442</td>
<td>Russian Federation</td>
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</table>

Average international performance of fifteen year olds in reading literacy.
Adjusting our Sights

• Only 30% of high school students graduate as proficient readers who are college-ready (Greene & Forster, 2003)
• Less than 50% of youth who take the ACT are prepared for the demands of college reading (ACT, 2006)
• 35 - 40% of high school graduates do not have the sophisticated reading and writing skills that employers seek (Achieve, Inc., 2005; Kaestle et al., 2001; National Commission on Writing, 2004)
The Literacy Gap

• Ethnic and racial minority students and children who live in poverty continue to score disproportionately in the \textit{below basic} category.
Academic Literacy Learning for All Students
Sources of the Literacy Gap: Opportunity to Learn

• Recent studies indicate that schools and districts are responding to NCLB imperatives by reducing instructional time for social studies, history, and science, particularly for low scoring students (Center for Education Policy, 2006).
Sources of the Literacy Gap: Restricted Opportunity to Learn

• Differences in track assignments and instruction contribute significantly to the literacy achievement gap in middle and high schools (Gamoran & Kelly, 2003).

• Not surprisingly, research evidence shows that students’ academic achievement is closely related to the rigor of the curriculum (Barton, 2003).
Opportunity for Content Area Literacy Learning: a Matter of Equity

If students do not have the opportunity to learn subject area knowledge, concepts and vocabulary, their capacity to read a broader range of texts will be further diminished.
Addressing the Literacy Gap

• Struggling readers need and deserve high quality interventions to build their skills
• At the same time, struggling readers need and deserve the skillful support of content area teachers to engage with academic literacy tasks
• Can we provide both?
Remediation First?

- We don’t have world enough and time
- Background knowledge and vocabulary matter
- Skills taught in isolation from application often do not transfer
- In many schools, remedial programs are dead ends
- There is no way to side step motivation issues for adolescents

- We CAN, so we MUST, do both
An Example: Strategic Literacy Initiative’s Program of Work

- Reading Apprenticeship
- Academic Literacy
- Mentoring in Discipline-Based Literacy Across the Academic Curriculum

= accelerated literacy proficiency
Dixon High School, Central Valley

Academic Literacy course at 9th grade

On site professional development

Content area literacy across the curriculum
Establishing a Vision of High Quality Content Literacy Instruction

• 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
Establishing a Vision of High Quality Content Literacy Instruction

• What are these students learning about chemistry?
• What are these students learning about reading and writing in science?
At the secondary level, the responsibility for teaching reading and writing often seems to belong to no one in particular.

– Presumed and assigned
– Resigned
– Taught?
Findings from SLI’s Studies of Middle and High School Literacy

- Underperforming students hold powerful misconceptions of reading and learning that do not serve them well
  - “Good readers read fast and know what all the words mean.”
  - Some people can just read the paragraph and know what it means. I can’t do that. I’m just not a reader.”
- Many high school students are profoundly inexperienced with advanced academic reading and literacy tasks
Findings from SLI’s Studies of Middle and High School Literacy

- Secondary students have abundant experience with low level literacy tasks that do not engage them in disciplinary reading and reasoning.
  - “I know the teacher will go over it and tell us what it means, so I don’t have to read it.”
  - “I don’t know if they care, but no one reads the textbook. You just look for the answer to the questions at the end of the section. You can slide by without them knowing.”
Findings from SLI’s Studies of Middle and High School Literacy

- With support, underachieving students can and do read complex texts and tackle comprehension problems successfully.
- Mentoring these students in the reading and reasoning processes of the discipline can change their beliefs about learning and increase their engagement in school.
- These changes are frequently accompanied by improved test scores, course grades, and more advanced course taking.
Professional Development Results in Increased Literacy Instruction

- More frequent opportunities for supported reading experiences in class
- Explicit teaching of problem solving with a wide range of discipline-based texts
- Abundant and explicit coaching in effective, discipline-based, strategic thinking processes
Professional Development Results in Increased Literacy Instruction

- Collaborative, inquiry-oriented learning environment
- Fostering of student engagement in worthy, discipline-based tasks
The Challenges of Discipline
Specific Literacies
Content Area Literacy: Challenge and Opportunity

Much as every academic discipline has its own distinct ways of looking at and communicating about the world, every academic subject area presents students with its own distinct challenges.
Challenges of Literacy in the Academic Disciplines

- Presentation of ideas through varied symbolic means
- Broad range of characteristic text types
- Specialized uses of language
- Densely packed ideas
- Different ways of thinking, reading, writing, speaking in different disciplines
Some 5,000 species of amphibians inhabit the world, mostly frogs, toads and salamanders, and they seem to be dying at unprecedented rates. This situation has caused alarm because amphibians are widely regarded as uniquely sensitive indicators of the planet’s health. Much of the damage to amphibians comes from habitat destruction, particularly the draining of wetlands, but what has scientists worried are the declines and apparent extinctions in areas far removed from obvious human intrusion, such as the cloud forest at Monteverde, Costa Rica, where the golden toad, once abundant, has not been seen since 1989.

Do reports such as these indicate a worldwide amphibian crisis? Not necessarily, according to Joseph Pechmann of Florida International University, whose work suggests that reported declines and extinctions in near-pristine environments could simply be natural year-to-year variations: a drought, for instance, that affects egg laying and larvae survival. Because of such fluctuations,
How do you read a science illustration?

What are the meaningful text signals and conventions?

Ex.: Here, what does an arrow mean?

**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.
Academic Disciplines Use Words in Specialized Ways

Define the following terms:

1. Gravity
   Seriousness

2. Magnetism
   Having charisma

3. Light
   Not weighing much

4. Heat
   What gangsters pack

The idea isn't for us to test each other, Peter.

What do you mean?
Academic Writing Compacts
Ideas Densely for Efficiency

- \([H_3O^+] \times [HO^-] = 10^{-14} \text{ (mol/L)}^2\)

- The first 600 million years of our planet’s history have been erased from its surface. Between the time it was formed about 4.6 billion years ago and the formation of the oldest known sedimentary rocks, which are about 4 billion years old, the Earth changed from a hot, dry little rock to a world with an ocean and an atmosphere – a planet that was primed for the origin of life.
Academic Disciplines Have 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 Intellectual Traditions

- Proof in algebra or geometry
- Document analysis in history
- Hypothesis generation and inquiry design in science
- Thematic and symbolic analysis in literature
An astronomer, a physicist, and a mathematician (it is said) were holidaying in Scotland. Glancing from a train window, they observed a black sheep in the middle of a field.

“How interesting,” observed the astronomer. “Scottish sheep are black!”

To which the physicist replied, “No, no! Some Scottish sheep are black!”

The mathematician gazed heavenward in supplication. And then intoned, “In Scotland there exists at least one field, containing at least one sheep, at least one side of which is black.”
A Call for Developing Students’ Content Area Literacies

Traditionally, academic content areas have not defined literacy instruction as one of their core concerns.

If students are to succeed in the content areas, teachers will need to demystify the reading and writing that go on there.
Content Area Teachers have “Expert Blind Spots”

• Secondary teachers underestimate the literacy demands of their subject areas.

• Content area teachers are largely unaware of their own specialized literacy expertise.

• To support the content literacy learning of their students, teachers need to learn to see past their “expert blind spots”
Key Considerations for Education Leaders and Policymakers

Some heavy lifting…
Some Policy Challenges

- All students need access to rich and challenging content learning, and low achieving students need additional strategic instructional support.
- Pressures for content coverage and high stakes tests perpetuate learning that does not meet post-secondary needs.
- High quality professional development for teachers in discipline-specific literacy instruction is sorely needed but hard to come by.
- School structure and infrastructure do not provide needed support (time, materials, incentives).
1. Make the roles and responsibilities of content area teachers clear and consistent.

Content area teachers need to be assured that they will not be held responsible for teaching basic reading skills to middle and high school students.

Yet content area teachers should clearly understand that they do have the responsibility to provide instruction in the kinds of reading and writing that are specific to their academic disciplines.
2. Engage every academic discipline in defining its essential literacy skills.

Improving the teaching of biology, American history, or any other discipline requires identifying the things students need to learn in order to develop the high-level skills that will allow them to pursue postsecondary studies in a discipline or professional field.
3. Provide initial and ongoing PD in content area literacy.

Content area teachers should know what is distinct about the reading, writing, and reasoning processes of their discipline and how to give students frequent and supported opportunities to read, write, and think in these ways.

The best teachers of discipline-based literacy practices are themselves able to read, write, and think like scientists, historians, mathematicians, or specialists in other fields.
Ways to Strengthen Initial and Ongoing Professional Development

- Mandatory courses for secondary certification that prepare teachers adequately to teach reading and writing in the disciplines
- Refining and improving on literacy coaching models to ensure that coaches have a solid grasp of disciplinary approaches to reading, writing, and reasoning
Ways to Strengthen Initial and Ongoing Professional Development

• Authentic discipline-based reading and writing tasks to build teachers’ insight and expertise
• Experiential demonstrations of effective teaching approaches to build teachers’ repertoires
• Analysis of samples of students’ content area literacy work to build teachers’ ability to respond to diverse learner needs
• Time and opportunity to talk and work with other teachers to build professionalism
4. Provide incentives and tools for content area literacy instruction.

Standards documents that address the specific reading and writing skills in each academic content area

Assessments and exams that require high level literacy performance (open-ended writing and analytic reading items)
4. Provide incentives and tools for content area literacy instruction.

- Adjustments to class sizes, teaching loads, and schedules to make room for reading and writing instruction
- Access to more and better reading materials in classroom and school libraries
- Content-aligned instructional materials that address the needs of English learners and struggling readers
The Aim of Adolescent Literacy Reform: Closing the Literacy Gap

Whatever their background, and whatever success or struggles they have experienced so far, adolescents are capable of serious, disciplined, academic work.

To provide them with opportunities to master high-level academic content is the only real fulfillment of the promise of America’s public schools.