Proceedings of the
Content Area Literacy Conference 2010

July 7-8, 2010

Teachers College
Columbia University
Programs in Reading Specialist,
Social Studies Education, and
Science Education

525 West 120th Street
New York, NY 10027

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Sponsored jointly by
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and Carnegie Corporation of New York
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*Ann Rivet*

## Conference Presentations

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Acknowledgments

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We recognize and gratefully acknowledge the hard work, dedication, and vision of the faculty team at Teachers College for turning the idea for this conference into a reality: Dolores Perin, Margaret S. Crocco, and Jessica Riccio.

We deeply appreciate the work of Alison Villanueva, a doctoral student at Teachers College, who expertly coordinated and managed the conference logistics.

We would like to thank Yuna Lyons for assistance in editing this document.

We also warmly thank the Teachers College alumni, now teachers in science and social studies classrooms, who participated in a Teacher Panel at the conference: in alphabetical order, Danielle Fliller, Allison Murray, Patrick Sprinkle, Suzie Tozier, and Kyle Wenz.

The project team created the summaries of conference presentations contained in this document, and the speakers checked these summaries, but any errors that may have inadvertently occurred are those of the project team.

Introduction

We created this document for teachers who attended the Content Area Literacy Conference as well as secondary science and social studies teachers who are eager to learn ways to integrate literacy strategies into their instruction. The document begins with the agenda, and then provides a summary of each presentation in the conference, along with PowerPoint slides.
# Conference Agenda

**Day 1 – July 7, 2010**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>General Welcome, Teachers College Faculty, Dr. Dolores Perin</td>
</tr>
<tr>
<td>8:45</td>
<td>Remarks by Teachers College President, Dr. Susan Fuhrman, and Provost Dr. Thomas James</td>
</tr>
<tr>
<td>9:15</td>
<td>Andrés Henríquez, Program Officer at Carnegie Corporation of New York, <em>Literacy for College and Career Readiness: A Philanthropic Journey</em></td>
</tr>
<tr>
<td>10:05</td>
<td>Introduction to First Keynote Speaker by Beth Fertig, National Public Radio Education Reporter and Author of <em>why cant u teach me 2 read?</em></td>
</tr>
<tr>
<td>10:10</td>
<td>Dr. Carol D. Lee, Professor at Northwestern University, <em>Text Types, Strategies, and Disciplinary Tasks: Fundamentals of Teaching Reading Comprehension in the Content Areas</em></td>
</tr>
<tr>
<td>11:30</td>
<td>Literacy Inventory Activity</td>
</tr>
<tr>
<td>12 Noon</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Raffle Prizes</td>
</tr>
<tr>
<td>1:05</td>
<td>Breakout Activity</td>
</tr>
<tr>
<td>2:05</td>
<td>Introduction to Second Keynote Speaker by Dr. Esther Friedman, Director, SES-NYCLA, New York City Department of Education, Division of School Support</td>
</tr>
<tr>
<td>2:10</td>
<td>Dr. Timothy Shanahan, Professor at University of Illinois at Chicago, <em>What It Means to Teach Disciplinary Literacy</em></td>
</tr>
<tr>
<td>3:20</td>
<td>Wrap-up</td>
</tr>
</tbody>
</table>
Day 2 – July 8, 2010

8:15 AM  Raffle Prizes
8:30    Welcome and Overview of Day’s Proceedings, Dr. Dolores Perin
8:35    New York City Social Studies and Science Teacher Panel
9:10    Breakout Groups
10:35   Introduction to Third Keynote Speaker, Professor A. Lin Goodwin, Associate Dean of Teacher Education, Teachers College, Columbia University
10:40   Dr. Elizabeth Moje, Professor at University of Michigan, “But My English Teacher Said...”: Supporting Students in Learning How to Read and Write in the Natural and Social Sciences
12 Noon  Lunch
1:00 PM  Raffle Prizes
1:05    Dr. Michael Kieffer, Assistant Professor of Language and Education, Teachers College, Columbia University, Academic Language Instruction for English Language Learners: Teaching the Building Blocks for Reading and Writing in the Disciplines
2:00    Dr. Thomas Bailey, George and Abby O’Neill Professor of Economics and Education, Director of Community College Research Center and National Postsecondary Research Center, Teachers College, Columbia University, Remarks
2:40    Concluding Remarks by Dr. Dolores Perin; Collection of CEU Mailing Information
3:00    End of Conference
Conference Synopsis

Ann Rivet

One of the greatest challenges facing secondary education in the United States is students’ limited proficiency in literacy. Not only is this problem seen in measures of literacy competency, but it also influences how secondary education students learn and what they understand in content domains such as science and social studies. Several years ago, recognizing this challenge, a cross-disciplinary group of faculty at Teachers College, Columbia University, with support from Carnegie Corporation of New York, developed a two-course model to prepare preservice social studies and science teachers to address adolescent literacy in their classrooms (Perin, Crocco, Marri, Riccio, Rivet, & Chase, 2009). The courses aimed to increase new teachers’ awareness of the role of literacy in content learning, and prepare them with a set of specific strategies they could use in everyday classroom instruction to address the literacy challenges facing their students. The course work has now been incorporated in Teachers College’s preservice preparation for science and social studies teachers, and is now required for entering students. The success we have had with this course work led us to expand the reach of the work to help inform and support practicing, inservice teachers. Thus, the idea for the Content-Area Literacy Conference at Teachers College, Columbia University was born.

With the support of the Provost’s Investment Fund at Teachers College, Columbia University and Carnegie Corporation of New York, we convened a two-day conference for secondary teachers and other practitioners in science and social studies education. The conference focused directly on challenges that many adolescents face in trying to complete the reading and writing they need to do in order to learn in their disciplines, and strategies that teachers can use to help their students improve their disciplinary literacy skills. In a series of presentations, national experts in literacy shared their research and recommendations, and opportunities were provided for teachers to learn best practices not only from the speakers, but from each other.

The conference was opened by Dr. Susan Fuhrman, President of Teachers College, Columbia University, and Dr. Thomas James, Provost and Dean of the College. Andrés Henríquez, program officer at Carnegie Corporation of New York, then gave a welcoming presentation and set the context for the conference topic. He described the history of the Corporation’s efforts to support research, practice, and policy in the area of adolescent literacy, and provided examples of reports, programs, and tools developed with the goal of having all secondary education students become proficient at reading and writing in the content areas.

Three keynote speakers presented in the conference. The first was Dr. Carol D. Lee of Northwestern University. Dr. Lee talked about how content area instruction requires that students be able to comprehend and evaluate information from a variety of discipline-specific texts in order to engage in the kind of problem-solving that is valued in such courses. Her presentation offers a framework for teaching students, particularly struggling readers, to engage in content-focused reasoning from texts. This framework differs from existing traditional standards in that it addresses the demands of reading in literature, history, and science by focusing on differences in the kinds of texts students are expected to understand, the generic as well as discipline-specific strategies they need to employ, and the kinds of discipline-specific tasks in which they are expected to engage to be college-ready. She also offered tools that teachers can use to evaluate the demands of content area texts in order to know how to prepare students for such readings and to match the demands of content area texts with students’ reading skills and level of content knowledge.

After Dr. Lee’s presentation, the participants completed a brief literacy inventory activity in which they articulated the challenges around literacy they face in their content-area classrooms. The survey is appended to these proceedings for the benefit of teachers who wish to reflect on their perceptions of aspects of reading and writing instruction. The participants then worked in small subject-specific teams to complete a graphic organizer representing the group’s ideas of both the challenges and possible literacy strategies in their science or social studies classrooms, and shared their results with the larger group.

Dr. Timothy Shanahan of the University of Illinois at Chicago gave the second keynote talk. Dr. Shanahan’s presentation examined what is meant by the term “disciplinary literacy,” distinguishing it from “content area literacy” in terms of purposes, research base, and recommendations for instruction. He sketched out a developmental continuum showing where disciplinary literacy enters the picture and how it connects to other, and usually earlier, developing aspects of literacy learning. He provided specific examples of what students need to learn in order to read math, science, literature, and history in truly disciplinary ways.

The next part of the conference featured a panel of five current New York City middle and high school science and social studies teachers. These teachers were
graduates of Teachers College, Columbia University, and had completed the content area literacy described above in fulfillment of their preparation program. Each teacher spoke about the role of literacy in his or her own classroom and described one specific reading or writing strategy that he or she had integrated into the disciplinary instruction. The teachers addressed questions from the audience regarding the challenges of combining content and literacy instruction, and the benefits of such approaches to their pedagogy in the disciplines.

In a second breakout activity, attendees moved into small groups. The groups were asked to address a specific scenario regarding literacy practices in social studies and science classrooms that had been identified during the first breakout session. The groups reported out to the audience their proposed strategies for addressing challenges and their reasons for doing so.

The third keynote talk was given by Dr. Elizabeth Moje of the University of Michigan. Dr. Moje used her research in Detroit high school history classrooms to illustrate some key disciplinary differences and similarities in the production and use of written texts. Also based on research, she described methods for making students aware of those differences while supporting their developing writing and reading proficiency. Dr. Moje also discussed challenges that teachers face in teaching literacy practices and concepts within and across disciplines. She provided specific examples of strategies used in both social studies and science classrooms to address some of these challenges.

Conference attendees were also fortunate in being addressed by Dr. Michael Keiffer of Teachers College, Columbia University, who presented research he had conducted on skills and experiences concerning content area reading and writing of English language learners. He emphasized that to succeed academically, secondary students must learn to read and write in each content area. Just as with native speakers of English, this requires teaching the specialized strategies and practices that scientists, historians, and social scientists use to read and write texts in their disciplines. However, for many students, especially English language learners, applying these reading and writing strategies requires that they learn the underlying academic language skills that are the building blocks for disciplinary literacy. Dr. Keiffer highlighted information and strategies that teachers can employ to equip students to become active, strategic readers and writers of science and social studies texts.

Dr. Thomas Bailey, also of Teachers College, Columbia University, presented concluding remarks. He spoke about the gap between what students need to know in order to complete secondary school and what they need to know to be college-ready. Dr. Bailey emphasized that many students, particularly those with weaker academic backgrounds, may not know where they are in the pipeline to college. He argued for the need to more clearly articulate the meaning of “college-ready” and need for school leaders, teachers, and students to better understand the expectations for basic academic skills that will be required at the college level.

References
Literacy for College and Career Readiness: A Philanthropic Journey

Andrés Henríquez
Program Officer, Urban Education, National Program Carnegie Corporation of New York

Thank you so much. You’re going to hear a lot from the other speakers about the work on adolescent literacy and the difficulties that young people have with reading. So, I’m going to spare you all the gory details, although I will have some. I thought the best thing to do this morning was to take you on a journey, from my perspective, of how does one put this issue of adolescent literacy on the nation’s agenda. As a philanthropic organization, how do you make the strategic choice to address this issue and what leverage do you have to actually accomplish it?

* [Slide – About Carnegie Corporation of New York]¹

Just so everyone’s on the same page, there is a Carnegie Foundation, but we are Carnegie Corporation of New York. Carnegie Corporation was started in 1911 by Andrew Carnegie “to promote the advancement and diffusion of knowledge and understanding.” We make grants to promote work both nationally and internationally, but we’re really best known for launching over 2,500 libraries in different countries. And I’m very happy and proud to add that next year we’ll be celebrating our centennial.

* [Slide – Teaching the new basic skills]

So, over 10 years ago, two economists, Richard Murnane and Frank Levy, were talking about the U.S. high school diploma and how it used to be a ticket to the middle class, but was no longer so. And that the skills required for a decent income have changed radically, and that the skills taught in most U.S. schools have not. This was published in 1996, and they were talking about 15 years before then, so they were referring to the Eighties.

* [Slide – Even more urgent two years ago]

Basically the situation is even more urgent now. Two years ago, David Brooks talked about this same issue in an editorial, sometime in February. He talked about how the percentage of young Americans completing colleges has been stagnant for a generation. As well-educated boomers retire, the quality of the U.S. workforce is likely to decline.

¹ The slides used in this presentation follow this summary.
This shows our high school completion rates in comparison to the rest of the countries in the world. Again, not bad—just that many other countries are doing much better, particularly in the last 10 years or so.

For college-level graduation rates, we went from 2nd to 15th in less than 10 years, so it’s cause for alarm.

We want to try and maintain our competitiveness, and how do we do that? At the Corporation, we believe we need to graduate a lot more kids out of high school and make them college-ready. We want to raise the achievement level of all of our young people. To do that, we need to build the culture about what it means to be college-ready, both the habits of mind and the actual skills that young people need to get out of high school.

Let’s back up a little bit—I would say even to go from ninth grade to tenth grade, and then to graduate from high school. And if we can get them out of high school, how can we prepare them so that they are taking fewer developmental education courses in community colleges?

We started looking at this issue of literacy and started to focus on high schools, especially small schools here in New York City. Many small schools were started in New York City, but also nationally. One of the things that we found was that 70% of the young people coming into these small schools were three to four years behind in reading. We thought, “Oh, this is interesting, we happened to have picked the eight sites around the country where 70% of the kids coming in were three to four years behind in reading.” Well, we lifted the rug a little bit and saw that this was not an issue that was particular to these eight sites; it was actually happening across the country.

It was exacerbated by poverty, so it was happening in urban areas, but it was also happening in rural areas. It was happening in the suburbs, and it’s happening even in wealthy districts like Westchester. You have less of it in wealthy districts, but it still exists.

This shows the trends in average reading scale scores from 1971 to 2004. If you were a doctor, you’d say that this patient is dead. Right? That’s what our reading scores have been like over the last 30 years or so. It hasn’t gone up in particular for ages 13 and 17—that’s our eighth graders and twelfth graders.

See that rise between 2000 and 2004? I will attribute that to two things: the Reading Excellence Act and Reading First, which was part of the No Child Left Behind Act. We put a huge amount of resources into both of those things to begin to teach the skills that our young children really needed. That actually made a difference within that time period.

This slide shows both 2003 and 2007 NAEP [scores] for grade 8 reading. I started to ask experts around the country, “What’s going on here? Is this normal in these eight cities?” Just look at the NAEP scores—the white is 2003, the red is 2007—but not much has changed. Here are the 2009 scores, but not much has changed. The bulk of our young people are in the “basic” or “below basic” categories. Not many are in the “advanced” category, so we have a problem.

So, I had a mandate. I came to Carnegie Corporation in 2001. They had a new president and were trying to figure out what to do. For 30 years, Carnegie had focused primarily on early childhood education, but they wanted to develop the program so that developmentally, we went up the grades. So I needed to think broadly.

So, I called a lot of people, many who are in this room, and I picked their brains about what it is that I should know about this issue. There were some reports that I could read, but they really had the tools that I needed to learn.

I learned about how students are not making progress on “reading to learn” and that there’s something called the “fourth grade slump” that was developed by noted reading scholar Jeanne Chall. In 1963, we funded her work to look around the country and to figure out why young people, especially third and fourth graders, were not reading. I also learned how reading expectations increase for young people as they leave elementary school and go on to middle school and high school.

What happens when young people don’t “read to learn”? I think you know a lot of these things: decreased self-esteem, remediation in community colleges, and how they make up a large percentage of unemployed Americans aged 25 to 65. This was really good evidence for our board. They asked, “We want to work in schools, but why is adolescent literacy going to make a difference later?” It turns out that a whole lot of people who are already working need to be remediated as well. So, we’re not just doing this in fourth grade, we’re trying to do it in middle schools as well. And even states are investing millions of dollars remediating their workers for basic skills like reading and writing.

There are other challenges in middle school. There’s a shift from using narrative to expository text. There’s the problem of content area teachers who don’t see themselves as content area literacy experts. There was also an assumption in middle school and high school
that “all kids know how to read,” but many teachers have known that this problem has been going on for years.

The parent engagement piece is pretty important in this list. People ask me a lot why aren’t parents engaged in this and I always ask them, “Well, have you ever seen a teenager sitting on LeBron James’ lap reading a book?” It’s very easy to motivate the hearts and minds of parents and our society around little kids. It’s very different with the teenagers. I was even advised to not call my program “adolescent literacy” because so many people don’t like the term adolescence. It’s not very appealing to a wider audience.

* [Slide – Advancing literacy chart]

So we needed to figure out how to engage the country in this issue. I saw it as these three “buckets” that we needed to look at: research, practice, and policy. We needed research because there was not enough research in this country on literacy for adolescents. There are also all kinds of issues around English Language Learners—how they are coming into middle school and high school and are basically struggling to learn both a new language as well as the academic language within different content areas.

There’s a whole body of work that we’ve done around practice, which I’ll talk about later.

And then there’s policy—that we really needed to move the federal, state, and even local governments to make sure that they were going to provide the resources, but also that they understood that this was critical to the success of their communities. That if Indianapolis ever wanted to see their city grow again, they needed to have an educated workforce that could do high-level kinds of activities like reading, writing, and mathematics, the foundation for which is literacy.

* [Slide – Council on Adolescent Literacy]

A lot of infrastructure support came from this group—my Council on Adolescent Literacy. After a couple of years, we did a report with the RAND Corporation that helped us to think about “How should I tackle this problem?” One of the first ideas was to put together a think tank, so we have Carol Lee and Michael Kieffer, and Catherine Snow who chaired the program. We have practitioners, people who worked at the state level, economists, a principal who won a national principal-of-the-year award—really, a variety of folks.

* [Slide – Carnegie Corporation’s advancing literacy program]

This is the group that helped me to frame the work and also helped me to drive the work. Out of this collaboration came many initiatives. We funded a number of states to begin focusing on literacy for grades 4-12, not just K-3. We funded the National Center for Family Literacy to encourage parent engagement. This is one of the things that wasn’t successful—the advice was good, but no action came from it. We developed tools for English Language Learners, a number of technology things, which I’ll describe later.

* [Slide – A focus on reading and writing for practitioners]

You’re probably familiar with these reports Reading Next and Writing Next. They are some of the bestselling reports we created. Reading Next was done with Catherine Snow and Gina Biancarosa at the University of Oregon. It described 15 key elements of effective adolescent literacy programs. It also called for planned variation in how these elements were implemented to find out if some elements, or a mix of elements, worked better than others.

Writing Next was written by Dolores Perin and Steve Graham. It has spurred an enormous amount of activity on the writing side, which is just as important as reading for developing literacy.

* [Slide – Literacy support for ELLs]

We’ve also developed a number of things for English Language Learners. The guides are important because they were enormously helpful for organizations and communities that didn’t really understand the issue but who really wanted to grapple with this work. The Corporation probably supported upwards of 30 research reports on adolescent literacy.

* [Slide – Attention to policymakers]

We also helped to fund preservice initiatives, which tried to move literacy departments and teachers of other content areas, like science and social studies, to collaborate so that literacy could be embedded within the content areas. Who knew that five years later, we would have common standards, including ones for science and social studies? So this was enormously important.

* [Slide – CAST strategy tutor]

We wanted to create tools that would allow kids to be more strategic readers when they are on the
Internet. So we funded a group called CAST, the Center for Applied and Specialized Technology, to build something called a strategy tutor. The tutor allows you to go into a website and to begin crafting the kinds of strategic questions that will help readers think about what they are reading.

* [Slide – UDL Editions]

The group has actually gone on to create something called UDL editions, which you can Google. They did three to four volumes of work on free content that really enhance these texts and allow young people to understand them. More importantly, they are currently working with Google to make this big. So, if that goes well, I'll be very proud of this work.

* [Slide – Logitech digital pen]

This is some of the work we did for English Language Learners as we were trying to figure out how to collect information faster from students. This digital pen was developed with Johns Hopkins University. It has a camera so that you can look at the ways in which a classroom is set up, and it can record the length of time and the language a kid is speaking.

* [Slide – Digitized paper]

This is digitized paper so that information can be coded very quickly. The paper records the ways in which the kids read their texts out loud, so it actually records fluency levels. They are actually marketing this tool now.

* [Slide – Time to Act]

_Time to Act_ is our last hurrah, if you will. This was a report that the Council put together and it basically highlights all of the work that we've done over the last eight years or so. You can download that at Carnegie.org/literacy site.

* [Slide – Challenges remain]

There are challenges that remain. How do we scale up this work? I think engineering this at the classroom level is probably going to be one of the most difficult things that we do. We have some very good examples of teachers doing really good things at some schools. But we need to do this in more schools and districts, in states and in the country.

We desperately need formative assessments. What's causing the student to struggle? Is it the content? Is it the reading skills? There are a whole lot of factors to separate. Then there are these stubbornly stagnant eighth grade NAEP scores. I say eighth grade instead of twelfth because in eighth grade, we are testing and engaging those kids who are still there, who haven't dropped out. We have to move that eighth grade NAEP score because it's really important to show that we are making some progress.

There are other issues. I made a few mistakes, like I didn't include librarians who are an important group that we need to engage in this issue of adolescent literacy. People also criticized us for not focusing on digital literacy and 21st century literacy skills. But if you're going to make an impact, you have to be focused. This is fundamentally about reading and writing—basic skills that are so important for everything else.

* [Slide – Outcomes]

I think we did pretty well in terms of outcomes. A number of states, probably half, worked on developing fourth through twelfth grade literacy plans that coordinate with their K through 3 work. There's also a lot more public and private funding for this issue, so that's terrific.

The Common Core is another work we are proud of. This is the English Language Arts Common Core—which as of July 4th was adopted by 25 states; and I believe Georgia will be adopting this week. It not only included ELA as a pre-K through 3 issue, but they described it as a kindergarten through twelfth grade effort and that we especially needed to focus on literacy in middle school and high school. As I said previously, they also figured out how to engage science and social studies in the standards work.

Lastly, the Elementary and Secondary Education Act—if it gets reauthorized, they have something called the Literacy Education for All, Results for the Nation Act or LEARN Act that is looking to put a significant amount of money, probably $2.3 billion dollars, into literacy that will encompass K through 12. Forty percent of that would go to middle schools and high schools. That is significant, if it happens, and would be a feather in all of our caps.
Literacy for College and Career Readiness: A Philanthropic Journey

Andrés Henríquez
Carnegie Corporation of New York

Teachers College, Columbia University
July 7, 2010

About Carnegie Corporation of New York

• Foundation started in 1911 by Andrew Carnegie to “to promote the advancement and diffusion of knowledge and understanding”
• CCNY makes grants to promote international peace and to advance education and knowledge
• Well known for launching over 2,500
• We’re celebrating our 100th anniversary in 1911!
• http://www.carnegie.org
Teaching the New Basic Skills Urgent Over Ten Years Ago...

“Fifteen years ago, a U.S. High School diploma was a ticket to the middle class. No longer. The skills required to earn a decent income have changed radically. The skills taught in most U.S. Schools have not.”

- Richard Murnane and Frank Levy (1996)

Even More Urgent Two Years Ago

That quality work force was the single biggest reason the U.S. emerged as the economic superpower of the 20th century. Generation after generation, American workers were better educated, more industrious and more innovative than the ones that came before.

That progress stopped about 30 years ago. The percentage of young Americans completing college has been stagnant for a generation. As well-educated boomers retire over the next decades, the quality of the American work force is likely to decline.

-David Brooks, New York Times 2.15.08
Jobs Go Begging As Gap is Exposed in Worker Skills
NYT: July 2, 2010

“Plenty of people applying for jobs the problem is the kind of skilled workers needed and the ranks of the unemployed”

“Manufacturers…are looking to hire people who can operate sophisticated computerized machinery, follow complex blueprints and demonstrate higher math proficiency than was previously required…”

How the demand for skills has changed
Economy-wide measures of routine and non-routine task input (US)

(Levy and Murnane)
Context – Impact of Globalization

- Impact of Globalization of Labor Markets
  - Decline in number and wages of routine jobs
  - Productivity increasingly tied to educational attainment
  - Earnings premium for a college degree continues in 20 countries including the US
Globalization Impact on Educational Attainment

- US was the first country to provide universal secondary education

- Rapid change in the provision of secondary education in the past 30 and especially in the past 10 years in many countries

- US stagnant
High school completion rates
Percentage of graduates to the population at the typical age of graduation

College-level graduation rates
Percentage of tertiary type A graduates to the population at the typical age of graduation

1. Net graduation rate is calculated by summing the graduation rates by single year of age in 2005.

OECD Programme for International Student Assessment
College Knowledge and Skills

- In order for our nation to remain competitive:
  - Our nation will need to raise achievement levels of our young people substantially and improve their knowledge and skills in order to be well prepared to enter and complete college

- A Surge in College Readiness:
  - College readiness includes the culture of schools, habits of mind and attitudes that will encourage young people to be geared toward college going

- The challenge is significant:
  - Many young people entering high school are not yet prepared academically for the rigor of high school work

Trends in average reading scale scores 1971 - 2004
### NAEP 2003/2007 Grade 8 Reading

<table>
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<th>&lt;Basic</th>
<th>Basic</th>
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<td>40/37</td>
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### Mandate

- Bring a new program into place “think broadly”
- Phase out Early Childhood work
- Implement a program that would work with both high school reform and teacher education
- Integrate technology in whatever ways possible
- Worked well with my background
Learning from Experts

- We have the tools to teach children how to read but we have not made progress on teaching kids how to “read to learn”
- “4th Grade Slump” noted reading scholar, Jeanne Chall, concerned with dip after fourth grade
- Reading expectations increase for young people in amount and complexity each year

What Happens When Individuals Do Not “Read to Learn”

- Limited learning in other areas (science, history, mathematics)
- Decreased self-esteem and motivation
- Limited potential for higher education
- Remediation in community colleges increases chances of dropping out
- Limited vocational options and job opportunities
  - 50% of companies find that workers have deficits in reading and writing
- 70% of unemployed Americans, aged 25 to 65, read at the two lowest literacy levels (NCES, 2007)
What else is going on in Middle and High Schools?

- Young people shifting to new environments
- Shift from expository text in the fourth grade
- Funding for literacy is clustered in Pre-K through 3rd grades
- Content area teachers don’t see themselves as literacy instructors
- Students lose interest and motivation in reading and in school and are less likely to read for pleasure
- Assumption among teachers that kids already know “how to read”
- Research is inconclusive about which structure of middle school (6-8 vs. K-8) works best
- Parent engagement drops off substantially
- Preparing young people for high-level complex text is not a priority in schools
Carnegie Corporation’s Advancing Literacy Program

• Funded a number of states to begin to develop K-12 literacy plans
• Have worked with National Center for Family Literacy and others to encourage parent engagement and adolescent literacy
• Encourage development of tools for English language learners
• Technology tools for reading on the Internet
• Developed the infrastructure for the adolescent literacy field by supporting young scholars and preservice institutions
A Focus on Reading and Writing for Practitioners

- Reading Next and Writing Next: Two reports that have shaped policy and practice in adolescent reading and writing

Literacy Support for English Language Learners

- Double the Work & Measures of Change
Attention to Policymakers at State, Federal Level

- **Reading to Achieve**: A governor’s guide to adolescent literacy (Berman & Biancarosa)

Tools for School Leaders
School Boards and Academic Institutions

- The Next Chapter: A School Board Guide to Improving Adolescent Literacy

Adolescent Literacy Predoctoral Fellowships
Adolescent Literacy
Preservice Initiative

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Doing research on the web? Reading an assignment online? Get more out of it by becoming a more strategic reader.

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Select your teacher
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Pen Docking Station: To store recorded data on the computer.

Camera: To record data as the user writes on the digital paper.

Ink Pen: To write observations on the digital paper.
Challenges Remain

- Engineering of how to do this at scale
- Formative assessments
- Stubbornly stagnant 8th grade NAEP

Other issues:
- Librarians have felt silenced in the process
- Some attention to technology but not “digital literacy” or “21st century” skills

Outcomes

- A significant number of states have worked to put adolescent literacy as a focus
- Increased funding for the issue from both public and private resources
- Common Core Standards Initiative
  - 48 States to adopt “fewer, clearer, higher” common standards in English Language Arts. Standards include literacy for grades 4-12 and content area literacy in science and social studies.
- Elementary Secondary Education Act (ESEA)
  - Literacy Education for All, Results for the Nation (LEARN)
  - Targets Pre-K -12 Literacy
Advancing Literacy Site

www.carnegie.org/literacy

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Text Types, Strategies, and Disciplinary Tasks: Fundamentals of Teaching Reading Comprehension in the Content Areas

Dr. Carol D. Lee
Professor of Education and Social Policy
Northwestern University

The slides from this presentation are available from the author upon request. Dr. Lee may be reached at cdlee@northwestern.edu

Good morning.

I always like to start by talking a little bit about my own history. I’ve always seen my identity as a classroom teacher. I started teaching in 1966 in high school in Chicago, Illinois. I also taught in the [New York] City College system, so I have a sense of working with adults, many of whom have struggled in their K-12 experiences. Then in 1974, I left my job at the City College system to start an African-centered school in Chicago where we were teaching young children. We were primarily high school teachers and had no kids, but we were dedicated to the idea that we could develop an institution to meet the needs of African-American kids in particular, in Chicago. We had taken the time to organize these wonderful culturally-centered activities for very young children that involved using scissors, but we didn’t realize that 3- or 4-year-old kids didn’t know how to use scissors. So that began a really important orientation for me about teaching, which was to engage in collective study to figure out how to accomplish the goals that we had. Over the course of these close to 40 years now, we’ve graduated many students who are now doing wonderful things as adults, so I’m very confident that the model that we built worked.

We also decided 10 years ago, with the advent of the Charter school movement, that we would get into the charter school business, and so we now have three charter schools spanning a 10-year period in Chicago—two elementary and one high school.

Also, I want to thank Andrés [Henríquez]. Andrés has really done a magnificent yeoman’s job of bringing the challenges of adolescent literacy to the table, including a significant influence in policy. And finally to Dolores [Perin] and the wonderful work being done here at Teachers College, I think this is quite a transformation in higher education to have specific supports for the development of reading specialists in our schools.

So with that, I’ll go on to my talk. One of the things that was really clear in Andrés’s presentation is that when you looked at those NAEP scores, National Assessment of Educational Progress, they were relatively flat over the course of decades. When we began to do the breakdown in terms of levels of proficiency, with Andrés going from 2004 to 2007 scores, [they] suggested that very few of our kids are really able to deal with complicated skills.

This chart is from 1999, and I like to use it in part because the picture looks exactly the same today. That is, if you begin to break down these scores around issues of ethnicity—at the top, “making generalizations” are the easiest, the most basic skills on the National Assessment, and “learning from specialized materials” represents the most advanced kinds of reading strategies—what you find is that for the basic-level skills, there are no significant differences at all by ethnicity and race. But as the skills become more complicated coming down [the list], for example, “understanding complicated information,” that’s where you begin to see this big disaggregation predicted by race and ethnicity.

But what’s most interesting to me is the fact that when you get to the most challenging tasks, most of our kids, irrespective of socioeconomic status or ethnicity, are not able to read in these complicated ways.

For me, it’s very important because we have tended to position the challenge of teaching complex reading comprehension skills as something that a particular group of kids have problems with—it’s the poor kids, the colored kids, the English Language Learner kids—but the rest of us are OK. And I think that’s been one of the challenges in terms of dealing with the buy-in to the kind of structural changes that we need to make to address this problem.

Before I go onto some of the technical aspects of reading in the content areas, I think it’s really important to say that this is not rocket science. We act as if this is some tremendous problem to deal with, but countries all over the world face the challenge of educating their citizens. But the way in which other countries address the issues or the challenges of teaching complex learning across a diverse array of learners is one, by heavy investment in the preparation of teachers; two, by creating working conditions in which teaching is a highly valued profession and not just factory work; and three, by organizing the working conditions of teachers such that teachers are engaged in a constant study of their own practice.

Also, it’s important to have a consistent set of relationships between your standards, your curriculum,
and your assessments. That’s why one of the efforts—the Common Core Standards—is a very important move in the right direction. One of the challenges that Andrés mentioned is that we ask, for example, that middle and high school teachers pay close attention to helping kids become better readers across content areas. But we have absolutely no assessments that you can easily use in order to assess and figure out where kids are. And the scores that you get on the general standardized achievement tests are not sufficient to help you make decisions about teaching.

When you look at the standardized achievement test, what you inevitably find is that the kids who are poor readers are the kids who have difficulty making inferences. When trying to support these students, the default mode has been to focus on some kind of decontextualized attention to inferences, as though kids can’t make inferences. But everyone makes inferences. You can’t speak a language or communicate with other people without understanding how to make inferences. In fact, babies who can’t even fully speak a language make inferences all the time. Inferences are just reading between the lines. If you look at the investments that people make in making movies and advertisements, they put a lot of money with the expectation that the average Joe Blow can understand the complexity of the movies, or what’s on the television, or what’s in the advertisement. The issue is not that the kids can’t make inferences, it’s that making inferences requires a very specific type of knowledge.

I can remember years ago, I was on NPR in Chicago, and it was somewhere around the holidays, and it was about a Jewish program. They were making reference to something and everybody started laughing. And I’m listening because I didn’t get the joke. It wasn’t because I couldn’t read or think. It was because I didn’t have the knowledge upon which the inferences were made. I think that to address this problem, we’re going to have to make a huge shift in how we think about the problem of reading. The first is to understand that reading is not a zero sum game.

One of the things I love to do is to give a very highly educated people, such as yourselves and myself, a page from a statistics book, just a single page on defining regression. I have this wonderful experience of these very smart people who are just wrestling trying to figure out what the devil is this thing talking about. And it’s not because they can’t read. It’s because there’s a body of knowledge that they don’t have—that’s implied in the text, that’s not made explicit—and that’s why they struggle.

Another piece that I want to talk about briefly is that we often assume that low scores mean that the kids are having a problem with fluency. For the vast majority of the kids—certainly in cities like Chicago where we are with high accountability, and I’m almost certain the same is true in New York City—to get to high school means that most of them have some basic fluency. It doesn’t mean that you don’t have kids who don’t have fluency needs. But in fact, especially at that age, that’s the simplest thing to fix. You can buy them programs like Reading 180, and you can help them get to fluency really easily. It’s really not a challenge. The challenge is learning how to read in these different content areas.

There’s another little piece that I want to add. For those of you working in schools, particularly in high schools, you know how central the challenge is of the social and emotional demands of learning to do something that’s hard. When kids are in elementary school and to some degree when they are in middle school, if they are not connecting with what you’re doing, they may zone out, but they show up because there’s no where else to go. When they get to high school, they not only can zone out, they can not show up. So they’ll show up for your class because they like you, but they’ll skip his class all the time. Why? Because at that point, we’re not dealing with children, we’re dealing with young adults. And that’s why there’s this whole challenge of working with high school kids. You can’t make them do much of anything. As a teacher, you know that one of the fundamental tasks that you have is to get inside the heart and the head of those kids so that they are willing to take that risk with you. So, in addition to all the technical stuff that I’m going to talk about in terms of helping kids become better readers, you need a strong set of relationships with kids and an understanding of what makes the task that you’re trying to engage them with difficult for them—some of which is technical, but some of which is that kids have a lot of other things that they’re dealing with in their lives.

In some work that I had done some years ago at a high school in Chicago, I had this young lady, a young sophomore in my English class. She was just resistant all the time and acting up. I kept her after class one day and I said, “I just want to know why you’re so mad…I haven’t done anything to you, and I’d like to know why are you mad at me.” She said, “I’m not mad at you, I’m mad at my mom.” It turned out she herself was a mother. Her mother didn’t get off work until late at night. So when she left school, she had to get her own baby, then she had to get her younger brothers and sisters. She had to fix dinner for all of these kids. Then she said her baby was “bad,” and wouldn’t go to sleep and would act up, et cetera. She couldn’t get her homework done, which is what she wanted to do, and so she just came to school mad. That opened up a whole other set of issues and that is, it wasn’t that she didn’t want to do the work, it’s not that she wasn’t capable of doing the
work, it was that she was wrestling with a whole set of issues in her life.

And it’s not special to them, right? You have stuff when you go to school. You had a fight with your husband, your kid acted out, you’re mother got sick. All kinds of stuff go on in life, and one of the challenges we have is when life knocks you down, you’ve got to figure out how to get back up. Well, that’s part of what we’re teaching because the reading itself will also knock them down. I really want to put it on the table—to say it is the handmaiden of the technical work. Just because you think you have built a great engine with your anticipation guides, your KWLs, your word walls, and all of these things, that just because you build the technology, don’t assume that kids are just going to get on the train.

So the first big shift is the idea that reading is in relationship to what you know about the text; it is not an absolute skill. The second is that the demands of academic reading change over time. In your folder, there’s a handout taken from the Time to Act report that Andrés talked about. It’s an example of three texts from different science textbooks. They all happen to be about plants without seeds—one at the elementary school, one at the middle school, and one at the high school level. It’s interesting to consider what changes—what are the differences in the demands of what an elementary kid is supposed to do with that science text versus what a high school student is able to do?—because the text changes over time and what we expect those kids to do with those texts will change over time.

A lot of work has been done for reading like the lexile and the lexile site, which you can just Google. In the site, you can enter in a topic and a grade level, and it will give you a whole slew of things that kids can read about that topic that are at a particular lexile level. Lexile levels are closely equivalent to grade equivalence. You can also take texts that you are going to be teaching and type a little bit of it in or cut and paste it in a lexile site, and it will give you a lexile level. You can also go into your word processing program and take something you’re going to have kids read, a paragraph or two, put it into the lexile site, and get a readability formula. Those readability formulas can be very helpful because one of the practical challenges that you have is that kids get better by having lots of opportunities to read. If you’re going to try to teach content area only through textbooks, you’re not going to make better readers. So whatever your content area may be, one of the challenges is trying to select a lot of different kinds of text about the topics that you’re trying to teach—to give kids lots of opportunities to read and to synthesize information across different types of texts.

You can get the readability formula on any of these texts so that you won’t give something that’s at a twelfth grade readability level to a kid who’s got a sixth grade reading score. But the problem is that readability formulas can be confusing. Not confusing, they can hide certain things that are really important. So you can take, for example, a Hemingway story and do a readability formula and it will come up with fifth and sixth grade. That does not mean that a fifth or sixth grader can understand Hemingway. So, you’ve got to deal with both the readability, which mostly has to do with how long are the sentences and how simple are the words, but also other dimensions of the text, some of which I’m going to talk about in a minute.

As a consequence of this, we need to be able to teach both generic strategies and strategies that are specific to the content areas, as well as knowledge in those domains, and what I’m calling “dispositions of inquiry,” which I’ll talk about in a minute.

So we know that in terms of reading comprehension, fluency is a big predictor. If you’ve got kids with general reading achievement scores or standardized scores that show them at the second, third or fourth grade level, they probably have problems with fluency. You should be able to organize supports in the context of the school, particularly with your reading specialists, and work to address the problem of the fluency with kids. Prior knowledge also counts a great deal. Vocabulary matters. The ability to have the opportunity to read a lot. This whole issue of monitoring comprehension.

One of the things we’ve learned over decades of research is that kids who are poor readers have come to think, at least in the context of schooling, that reading is saying words, but that it’s not about making sense. That’s interesting because it’s specific to school. The same kids that are struggling to read the science textbooks and history books that you assign, when they leave that building, they’re reading instructions for video games, they’re reading magazines about rap stars, and they are in no way confused that reading from the Source or from Vibe is about saying the words. They know it’s supposed to make sense. But they don’t think school is supposed to make sense. You’ve got to organize instruction so that kids are engaged in trying to make sense while they are reading. The problem is that reading is internal. You can tell them to read the first paragraph of whatever you assigned, and in the absence of your having routines that force the kids to make visible what they’re doing to try to make sense, when they get to the end of the paragraph and you get these blank faces, you have no idea why. And the default explanation is that the kid is not trying, he’s resistant or he’s being bad or something. But we have no idea why the kid does not get the paragraph that we’ve asked
him to read. Therefore, organizing activities in which the kid is making visible his thinking—“Where is it that I don’t understand? What predictions am I making? What questions do I have? What sense am I making?”—is forcing the kid on one level to make an effort to make sense and at the same time makes visible to you the path of what’s going on in that kid’s head.

We know that different kinds of knowledge influence comprehension: prior knowledge of topics—the regression example that I had mentioned before—and vocabulary. I’m going to talk a good deal about sentence structure here. We typically think that sentence structure or syntax is part of the grammar that the English teacher is supposed to teach. However, in high school, students are commonly expected to read sentences that are long and complicated, and we often then don’t give them tools for being able to deconstruct those long sentences.

Issues of text structure are very important. Text structure, especially for expository text, has to do with the logic of the organization of ideas. So sometimes, a text is about a cause and an effect, or a problem and a solution, or about the parts that make up the whole, or about finding the idea. Most of the time, although not always, there will be signals in the text that will signal to the reader the kinds of relationships between ideas that they can expect. We need to help kids to be able to identify what those signals are. Using of graphic organizers, for example, can be very useful in helping kids to organize ideas. The importance of text structure is that it gives you—once you start reading with the sense of what you are expecting—an organization of ideas that you’re reading to fill in. It’s like organizing a little file cabinet and reading to fill in the content of those folders. There are two tricky parts to that. One is, while the text may start off talking about cause and effect, it’s not unlikely that somewhere later on it’s going to switch on to give you a different text structure like a problem and solution. So you can’t assume that the clues for text structure that you see at the beginning are going to hold constant across the text. You have to be sensitive to that.

The last thing that’s really important about this whole notion of the range of kind of knowledge that influences kids’ capacity to understand different kinds of text is to know that one kind of knowledge can compensate for the other. So a kid who may be poor in strategies can compensate if he’s reading about something he knows a lot about. Conversely, you can be very high on strategies and not know a lot of topic knowledge, but your strategies can help to compensate. So what you are really trying to do is help kids develop different toolkits—a toolkit for vocabulary, a toolkit for knowing what to do with long sentences, a toolkit that helps them to predict how the ideas in this text are going to be organized. What you are trying to do as you organize instruction from day to day is teaching them to be flexible.

One of the biggest challenges in the teaching of reading comprehension, particularly in the middle and the high school level, is that it’s not a simple, straightforward “if you just do this and this and this, in this order,” you know, make predictions, ask questions that you’ll just get it. It doesn’t work like that. Reading comprehension is like putting together a jigsaw puzzle. The complexity of the text in a sentence is what determines whether you have a lot of different pieces or a few pieces. It’s like tinkering and figuring things out, and you have to have a disposition for it. If you’re going to help kids become better readers, you’ve got to teach them the disposition that uncertainty is a good thing. That’s something we particularly don’t do. Kids, particularly those who have been struggling for a long time in middle schools and in high schools and who have a history of failing in schools, have learned typically that it’s a game of right and wrong. The arbiter of right and wrong is the teacher, and to not know is bad. That’s how they’ve been operating, which means you can’t deal with any type of task that involves complexity unless you’re willing to deal with uncertainty; unless you can handle not being right; unless you can figure out that there are some things that you can try to get better at.

All these things that I have down here [on the slide] as generic comprehension strategies, such as monitoring comprehension, have to be translated into activities that are routine—that happen day in and day out in your classroom.

The example that I often use around the power of routines is what might not seem as such a complex activity. When I was growing up, I had two brothers who were much younger than I. My mother was a single parent for much of that time and we had to clean the kitchen. Cleaning the kitchen meant we had to wash the dishes, dry the dishes, put them up, clean the sink, put out the garbage, and sweep the floor. And I hated it. Sometimes in the summer I would start in the morning and by lunch those dishes were still there, and my mother said, “It doesn’t matter because you’re not leaving ‘til it’s done.” The issue was that the routine that she imposed upon me internalized—as much as I resisted it. It internalized certain strategies that are just a part of who I am. And what I’m arguing is that all these generic strategies have to be turned into activities that they do every day, following: “Does it make sense or does it not make sense? When does stuff break down for me?” Knowing that they have something that they can do when they can’t figure it out.
There’s a great video I have of a guy who works with some kids in an after-school athletic club. There’s someone trying to hurdle. It’s a girl. She keeps knocking over a hurdle, but he stops her and the first thing he says is “You are a hurdler.” That’s the first thing he does; he positions her as competent. Very important around the social-emotional dimensions that I’m talking about. Because the kids who are struggling, as long as we keep positioning them as struggling—nobody healthy wants to be in that kind of position—and as long as we position them that way, they’re going to resist us.

But then he tells her, “You’re taking too many steps before you get ready to jump.” So, he’s first positioning her as competent and then second, he is giving her the tools for how to get better. What tools should you give students? Posing questions, drawing on what you know, activating prior knowledge, building on prior knowledge, making and testing predictions, making connections, et cetera.

So what makes texts difficult? If you’re having kids just reading textbooks—and by the way, they’re not going to get better by just reading textbooks. Textbooks are very hard to read, and one of the reasons is because states require these readability formulas on these texts and so there’s a lot of information that the textbooks presume that is not stated. For kids who don’t have lots of prior knowledge, it makes textbooks even harder to learn from.

You cannot prepare a kid to read a text if you don’t have tools for anticipating what could be difficult about that text for this kid. One issue is inferencing—reading between the lines. Where are statements made in the text where something is implied, but not directly stated? If the inference is local to the individual sentence, it’s simpler to help the kid figure it out, versus those where you have to put stuff together from the beginning, middle, and end to get what the inference may be. A lot of times when the inferences have to be made across paragraphs and sections, that’s harder than if the inferences are just local. And those relationships between ideas may involve a causal, a temporal, a problem-solution, et cetera text structure.

Then there’s this issue of what we call conceptual density. This stuff comes from the work of Art Graesser and folks forming Coh-metrix at the University of Memphis. Conceptual density is simply how many ideas are there in the text. If you were to go back and look through those three different science textbooks, the number of ideas in the texts for little kids is quite different than the number of ideas in the texts for the high school students. There are also questions of “What are the relationships between those ideas?” and “Must those relationships be inferred or are they stated?”

One other issue about this notion about conceptual density, particularly in your content area texts, relates to the main idea. There are words that capture the main idea or concepts that are going to be discussed. Sometimes, the author will use the same word over and over again to refer to the same idea, but sometimes the author will use different words, which makes it harder. One way for you to get at this is to take the text and to create an outline. When you create the outline, you’ll see all the big ideas and the relationships between those ideas. Then you can go back to the text and look at the language itself. Are there complex sentence structures, complex words? Are the ideas that I’ve got, are they stated [or do] the kids have to figure them out?

In content areas, often one of your biggest challenges is that you are trying to teach kids content through reading with kids who don’t read well, which means you’ve got a problem to start with. So, one of the things that you always want to do before you assign reading is to build prior knowledge. In science, that may mean doing the experiment before you start reading in the textbook. In history, it might mean looking at data sets, looking at political cartoons, looking at videos as a way to build up lots of knowledge and potential interest in the topic before you ask the kids to read in order to understand the topic. Because as soon as you ask kids to read about a topic for which they have very little prior knowledge, when they themselves are struggling readers and are often slightly disengaged from school, you are not going to get buy-in.

Another source of difficulty in expository text can involve issues of visualization—in math and science particularly. You’ve got graphs and charts and diagrams, and they play a very important role. You need to deconstruct what you need to do as a reader in order to make sense of those visualizations.

So overall, issues of conceptual density—how many ideas are there; what are the relationships between those ideas; are those relationships stated or must they be inferred; are the big ideas stated with the same words or are they stated with different words; issues of vocabulary; visualization; et cetera—these are pretty straightforward. I’ll illustrate syntax in a minute.

I’m going to switch over and talk about what this means for specific demands in science. Science involves reading many different kinds of text: textbooks, research reports, journal articles, et cetera. One of the wonderful things about the Internet today is that you can do a search on any topic. There are so many sites with all kinds of reading at every level you can imagine, on any topic that you might be teaching in science or in history. So it’s not like you have to go out and buy new sets of books—although it would be magnificent to
have classroom libraries in your science classroom or history classroom.

See, this is the interesting thing about science textbooks, or textbooks in general. We ask kids to read textbooks, but we don’t teach them how to read textbooks. Textbooks are a particular genre and they’re organized with very clear signals. There may be abstracts that start the chapter to give you some idea of what to expect in it. Kids need to learn how to turn those section headings into questions. If they’re going to turn those section headings into questions, remember you have to have them do something while they are reading, trying to answer those questions rather than asking them later.

Cindy Greenleaf and Ruth Schoenbach do some wonderful work in something called Reading Apprenticeship at WestEd. They had an article some years ago in the Harvard Educational Review. In it, there was a kid—I can’t remember if she was an eighth grader or a high school student—who was describing what she thought history reading was about. She said that you read the red and the purple sections, and you go to the end to get to the questions, and then you go back and you match. You look for some word in the questions, and you find that word in the text and you copy that down. And you go to the next section, and just keep doing that over and over again. That was her concept of what it meant to do reading in history.

One other comment I want to make is that reading with meaning does not happen fast when the text is challenging. That’s a big dilemma with assessments because your assessment, your great Regents exams, are based on timed readings. But reading in the real world, even in the work context that Andrés [Henríquez] was talking about is not based on how fast you can read where understanding is very consequential. But, so be it. That simply means that helping kids pay attention to all these different features of text is a slow process. You have to have the patience for it. And I realize that you are struggling because you have these pacing charts and you have content that you need to cover, but if you get kids into the routine early on with every text and you give them different kinds of text, in time it will speed up.

There’s also a lot of mathematical tables and figures. It’s interesting because sometimes we think that if there’s a mathematical figure or table in a science text, it means that the truth is in it. But it doesn’t always mean that. Sometimes there’s information in the mathematical text that actually is standing in tension or in contradiction with what is stated in the text.

So, here’s an example of a graph from a piece of science text. I think I took these from the New York Regents exam. This one says, “The contents of the small intestine have a basic pH. When the gastric protein enters the small intestine, the activity of this enzyme will most likely…” So you got to understand how to read the chart; you got to know what these axes mean; you got to know what the data points mean. And I’m assuming—because I don’t know what gastric proteins or intestinal proteins are—but I assume that the answer was increase and decrease based on the chart. Science people, what is it?

[Audience member: It’s [answer] three.]

Oh, oh really? Well, I have a PhD! How did the rest of you who weren’t science people feel about it? The point really for me was that, to understand the question, I needed both understanding of how to read the graph, but also conceptual knowledge, which I didn’t have. It wasn’t a simple question of can I read or can I not read, in terms of my ability to decode this text. Again, here’s this idea that reading comprehension is in relation to what you know.

Levin and Mayer talk about these types of [scientific] illustrations and suggest that there are a number of functions that they serve. This can be very useful, because when you’re looking at these kinds of illustrations and graphics in texts that you ask them to read, particularly in science, it’s important that you ask yourself, “What function is this particular graphic serving?” Sometimes it’s there to concentrate all the big ideas that are expressed in a whole lot of words in a simple diagram. Sometimes it’s to show the structural relationship between things.

This was another [Regents exam question] that I looked at and couldn’t figure out either. “In the diagram below, what do the arrows most likely illustrate? One, the pathway of food within the digestive tract; [two,] the distribution of indigestible material by a pulsating blood vessel; [three,] the route blood takes as it is distributed into sinuses of an open circulatory system; and, [four] the movement of hemoglobin throughout a closed circulatory system.” Science people, what is it?

[Audience: Three]

Three. The route blood takes. So, how do you know that’s what it is? “The route blood takes in the open circulatory system.” So how do you know it’s three?

[Audience member says something about prior knowledge.]

Prior knowledge—what prior knowledge did you have? And I’m not evaluating because I have no idea what the answer is. You need to have some sense of what the whole thing represents, both the outer thing, which I presume is some organism, and the representation of the internal something of this animal. There are different kinds of prior knowledge that you need to use in order to answer a question like this.
I think that one of the overarching points is again that what you have to create in your classrooms is routines about the effort to make sense. You have to be able to assess ahead of time, "What are the various kinds of knowledge that the kids are going to have to bring into play, if they are going to be able to engage with the text around the particular task that you have given them?" That is the fundamental point to take away from all this because so much of what happens in terms of efforts to support content area teachers in teaching reading is about simple checklists, graphic organizers and things like KWL. I've seen people do the silliest things in the world with KWL and I've seen kids in classrooms:

"What do you know?"
"Nothing."
"What did you want to learn?"
"Nothing."

Instead, it is about creating routines that engage kids in having to make an effort to make sense of text. You have to anticipate before you assign the text—What are the kinds of things in that text that are going to be challenging? What kind of knowledge do you need to bring to bear?—and you want to bring that knowledge to bear before you ask them to read the text.

This was just another example that I struggled with as well. In science, there's obviously the specialized vocabulary with Greek and Latin roots. We know a lot about that, but what is also interesting in science is that you have simple words that are used in unusual ways. That can also be confusing because kids bring in an everyday set of assumptions to words that are being defined in fundamentally different ways. There's another interesting feature that I find about vocabulary in science, and that has to do with taxonomies. So much of reading in science and conceptual knowledge is about ways in which living systems are categorized. Particularly, organisms are categorized by labels that have to do with functional relationships between the structures of the organism. So a mammal or the kingdom of animalia—you can't pick it up and say, "Here’s the kingdom of animalia" because it just isn’t. It’s an idea, and it’s a very different way of thinking that’s not a part of everyday syntax.

There’s also syntax in scientific text—often, use of things like embedded clauses. It’s very important to know that in scientific text, the way that the sentence is organized will often define words that you don’t know. Here’s an example of the role of syntax or grammar. The ability to deconstruct this sentence "These masticators consume flesh at the feeding site..." is based on knowledge of grammar. It’s very important to understand that speakers of any national language have a deep intuitive understanding of grammar. English Language Learners have a deep understanding of grammar. What’s important, however, is that sometimes the parts—the subject, the predicate, the object—may come in a different order, but all natural languages have ways of telling: this is what I’m talking about, this is what he did, and this is what happened to him.

Those of you who are of a certain age may remember sentence diagramming. It’s not a bad thing. It’s a way of deconstructing sentences that are very, very long. And one advantage of this attention to the explicitness of language sentence structures, let’s say in science, is seen in this sentence here where it talks about “but appeared to hydrolyze.” Appeared is a very important word in terms of the science, in terms of the examination of the claims being made about this natural observation, because appear means you’re not sure it happened or not.

Now, this is an example from Darwin’s Origin of Species. I use this again as an example of how very simple words can carry very important meaning and we need to teach kids to pay attention. So, these words like that and this have very important meaning and are difficult because they carry ideas forward. And if you don’t understand the ideas that are being carried forward by words like what and that, you’re going to have difficulty understanding the text. In the case of Darwin’s Origin of Species, who we is matters a lot. This is when Darwin is giving this debate before the Royal Society. Also tendency and increased variability have very specialized meaning in the context of the argument that Darwin is trying to make about evolution.

In reading in science, one of the points that I’m trying to make about reading in the content areas is that if you’re helping kids to read in a complex way, it’s important to understand that particular kinds of questions are important in the different disciplines. So, in reading in science, you want kids to be able to read in a critical way, even if they are reading from something like Nature or Science magazine or something in the New York Times. You want them to read with a critical eye about the way in which evidence was collected and the way in which data are used to support claims. That’s the point. That reading in the content areas in complex ways is not about simple regurgitation—"This is what it said"—but about being able to raise questions about that reading.

Kids should also be able to point out potential sources of bias. So for example, people who are reading now about the oil spill, or about issues about global warming. It’s very important to keep in mind the issues of potential bias, of who is producing this report.

In history, one of the challenges that we have in teaching history is that often classes are organized to socialize kids to think that history is about an
unquestioned set of facts, as opposed to a kind of
detective investigation about who is trying to make
sense about a set of historical issues from the past.
So there’s a whole issue, for example, in looking at
the Civil War and the role of Lincoln, and Lincoln being
positioned as the great emancipator. Well, if you read
Lerone Bennett’s *Forced into Glory*, he takes a very
different position on Lincoln. So, how would you go
about trying to understand the different perspectives?
That involves looking across multiple kinds of
documents, not just reading in textbooks, but reading
in primary source documents; learning how to pose
questions, what kind of questions are going to valued
by historical investigations; looking for a variety of
relevant texts; trying to figure out what texts are going
to be appropriate to what questions you are asking.

Those of you who are working in the area of history
might want to check out Sam Wineburg’s website at
Stanford University, which you can just Google. One
of the great things about this site—called *Historical
Thinking Matters*—is that he has a set of videos. One
involves historians taking an epic in history and looking
at different kinds of primary source documents and
looking at the way in which historians ask themselves
questions to deconstruct the significance or reliability of
the source for the question that they are investigating.
There are resources for teachers, including the sources
of the text and under what circumstances the text was
created.

One of the interesting things that I try to use from
here is Abraham Lincoln’s “House Divided” speech. It
took me a long while to realize that this was a political
speech—Lincoln wanted to run for office. And though
I absolutely agree with everything he said, it’s quite
interesting that historians would say that you should
evaluate the claims in the text about Douglas and
others by understanding that he was trying to run
for a political office against Douglas. And how do
you weigh what he said? Lots of ways. For the claims
Lincoln made about what’s happening at the moment,
the historian would look at a lot of different sources
in order to find out, are these claims accurate or are
they not accurate? Also, the opening of this [speech]
provides a good example of text structure—when he
says, “If we could first know where we are and whither
we are tending, we could then better judge what to do
and how to do it.” This is a very difficult text to read.
It’s like a twelfth grade readability level. But in terms of
clues and text structure, he’s telling you exactly what
to look for. That is, he’s going to tell you where are we
right now, and then he’s going to talk about where he
thinks we’re going, and then he’s going to tell us what
we ought to do, and it helps a whole lot to know that as
you’re beginning to read, you can take that information
and place it in those bins.

This is from the opening of the *Declaration of
Independence*. So one would assume that any twelfth
grader ought to know what it is when they see this,
but also be able to understand it. The opening of the
*Declaration of Independence*, the whole first paragraph,
is one sentence. That’s why the grammar pieces are
important, to be able to deconstruct the parts of the
sentence. The words that make it difficult are not long
or complex, but simple words like *when* and *which*
and *among*, et cetera. Words like *station* have very
special meaning in the context of the particular kind of
document that this is.

I’ll just say very briefly that the reading of literature
involves understanding the elements of the story: who,
what, when, where, and why. What readers most need
in the study of literature is having knowledge of kinds
of stories and understanding something about what
makes human beings tick.

There are particular problems in the study of literature
that involve going beyond the plot and characters. They
have to do with points in the text when a literal
statement is not intended to be accepted as literal. So,
when there are these disruptions, for example in William
Faulkner’s *A Rose for Emily*, there’s a place where there
are roses on the bed. Literary readers know that you
are supposed to pay attention to these roses. There
are actually strategies that you can easily teach kids to
know that you should pay attention to it. When it’s in
the title, it’s supposed to draw a lot of attention. They’re
just roses on a bed, so he must have had some reason
for you to pay all that attention. The author wants you
to add additional meanings to the rose. So there are
actually roses on that bed, but he means you to think
of them not just as flowers on the bed, but as flowers
*plus*. It means something else.

Other times, the author will make statements in the
story where the author intends you to reject the literal.
So for example, in Jonathan Swift’s *A Modest Proposal*,
he says that the problem with famine in Ireland can
be easily solved if you just eat all these babies you are
having. If Hitler had written it, you might assume that
it was intended to be literal. But because you assume
that Jonathan Swift does not hold those values, in
fact, what he intends you to do is to reject the literal.
But again, the point is that there are structured ways
of being able to teach these issues in the context of
literature that can give kids strategies.

One of the things that I talk about in my book,
*Cultural Literacy and Learning*, is that literature teachers
typically have not been taught that there are strategies
that you can actually teach to help kids detect when
something is symbolic, when something is ironic, when something is satirical. What we have typically done as literature teachers is we give kids these texts, we expect them to do all these fancy things with them, but we never tell them how.

So I’m going to close by saying, besides the generic skills, discipline-specific ones include:

- Building prior knowledge
- Building specialized vocabulary
- Helping kids learn to deconstruct complex sentences
- Teaching them how to detect text structures in order to predict main ideas
- Learning how to map graphic representations
- Posing discipline-specific relevant questions, etcetera.

The order in which you should think about this work is build the prior knowledge of what you want them to think about before you start asking them to learn about it from the reading of text.

And finally, despite all the wonderful things that Carnegie has put out, the fact of the matter is, you can’t go pick up or buy a teacher’s guide. It’s not out there. What you need to do is not out there. You have to construct support in the context of your [school] building to be able to do that. I think you do that by creating groups. If in high school, I think it should be at the level of departments. Science departments need to be meeting, thinking about all the kinds of ideas that we want kids to engage in our biology and physics classes. What is the range of kinds of readings that could invite kids in? How do we figure out the sources of difficulty of these texts? How will we differentiate those we would use for struggling readers versus those that are for advanced readers? How do we understand that? How do we create the kind of routines that make kids engaged and active in trying to make sense of text? This is something that you have to create from the ground up, and I think you can do it. They do it in other places like Lesson Study in Japan.

For me, as someone who’s been teaching since 1966, I never as a teacher opened a book, a textbook, and just went through it. It would bore me to tears. I wouldn’t have stayed in the profession that long. To me, what is exciting is to look at teaching as a professional practice of inquiry, which is what parenting is about, right? You can read Dr. Spock or anybody else you want, and it’s not going to give you a recipe book for your kids. Well, you don’t have a recipe book for those 150 kids that you are teaching in high school, but you want to create a context of collective study about that.
What It Means to Teach Disciplinary Literacy

Dr. Timothy Shanahan
Professor of Urban Education
Director of the Center for Literacy
University of Illinois at Chicago

Thank you very much. I am very, very happy to be here. To get to talk about this topic at this college is a real turn-on for me because one of my great intellectual heroes in this field of reading was a woman by the name of Ruth Strang who used to teach here. She was probably the first person who kept this whole notion alive in the 1940s and 1950s, and to come here and talk about it is like, wow, I’m walking on holy ground.

* [Slide – Silhouette of “disciplinary literacy”]*1

Well, what am I going to talk about today? You know, I’ve been using the term disciplinary literacy for the last few years and I felt very comfortable about it. I’ve been talking about it in classes, talking about it with teachers around the country. I have never, ever gotten this image in my head, but a few weeks ago, I was talking some place with a woman who is very big in public policy, and she told me this was the picture that it was giving her. This isn’t exactly what I had in mind, I’ve got to tell you. The notion of disciplinary literacy that we’re talking about is the notion of the disciplines of math and science and history and literature—those kinds of disciplines.

* [Slide – Some adolescent literacy statistics]

This is the depressing slide. I could put up some more numbers, but they all say the same thing; we’ve got to change what we are doing. The fact is our teens are in trouble. If we go back to when I left high school—I’m a high school dropout, I really am. I left high school for the same reasons some of your kids are leaving high school. I didn’t like it very much. But if you dropped out of high school in those days, you could still get a good-paying job.

There was a question earlier about what kinds of jobs people need more literacy now. Obviously, all of the college-educated jobs. But also health care. Home-care aides is one of the top 10 growing jobs in the country. Certainly anything in manufacturing. Trucking. Transportation. For trucking, you don’t have to have real high literacy. You have to have literacy at an eighth or ninth grade level, which a lot of your kids don’t have. Food handling. All of these have turned into high literacy jobs. They used to be the kinds of things we did when I got out of high school. I worked tool and dye. I was a turret-lathe operator and you didn’t need to read or write to do that kind of work. Today, you still have turret-lathe operators, probably quite a few in New York. Unfortunately, to do those jobs, you have to be able to read on a computer screen. You have to be able to do a certain amount of math. A lot of kids can’t get those jobs anymore.

I also saw that article from the New York Times. It’s amazing—here we are in this incredible recession, certainly the worst economic times of my young life, and there are jobs going begging because they can’t find people who can actually read well enough to do that kind of work. That’s crazy. If you look at the unemployment rate right now, for folks with a college education, unemployment is 4%. That’s the historical average for unemployment in the United States—4%. We’re in a huge recession, but it’s only having a modest impact on the educated community. What is it for high-school dropouts? About 15%—depression levels. There’s a whole segment of our population, whose skill levels are no longer going to allow them to economically participate, unless we change what we’ve been doing.

When I went to school, most reading instruction or reading programs ended in fifth grade or in eighth grade. You certainly didn’t do it in high school, unless you went to a really special high school. We get used to the notion that we would teach literacy up to a point, and kids who were good at it would thrive with that, and if you weren’t so good at it, you could work in a factory or do something else. It wasn’t really a problem.

That’s not true anymore because the types of jobs that exist these days in factories and farms are reasonably high-education jobs. We’ve actually got to change what we’ve been doing in the past. The notion that reading ought to be part of the high school curriculum is absolutely great. Not because our kids are in such a mess, but because the situation has changed so much. That’s absolutely critical.

* [Slide – Instructional responses to adolescent literacy: Elementary school] Now there are many different notions of what we should do. One idea is that if you want to raise the reading achievement of older kids, just do what you do with the younger kids. You saw the numbers—the scores have been going up in the primary grades. What have they been doing? It varies with states and school districts, but includes like adding reading to the curriculum, using reading coaches, and monitoring learning with assessments. People think we should start doing these things with our 14-year-olds, but the fact is it doesn’t work in quite the same way with

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1 The slides used in this presentation follow this summary.
our older kids. Frankly, if you try to do exactly what we’ve been doing with the little kids, just moving it up the grades, we probably won’t see the same boost in achievement because it’s different. So I’m not a big fan of that first idea.

* [Slide – Instructional responses to adolescent literacy: Remedial reading grade 9]

This is another popular approach and maybe some of your schools have tried this way. If you have a reading problem, you set up a remedial program for those kids and the rest of us can go on with our lives. I’ve even written one of those intervention programs, so I’m not entirely against the notion that we need to do this kind of work at these levels. I saw it in Chicago. We had a system that tests all the kids in eighth grade. Anyone who fell below, I think, the 25% percentile had to take a reading class in ninth grade. And if you look at the reading achievement in our schools, it wasn’t moving for those kids; it wasn’t moving on average. The problem with reading is certainly partly remedial. We do have kids who are so low in their skills that they really do need some specialized, separate kind of instruction. But that isn’t really why we’re here, because the kids having problems aren’t just those kids at the bottom.

One of the statistics that I think is really important is the National Assessment: 75% of our adolescents are actually hitting the standards. They are reading on the basic level, the proficient level or the advanced level. A big chunk of those kids go on to college and more than 40% of those kids, when they get to college, have to take remedial classes because they can’t read well enough. I’m not talking about the failure kids—the 25% at the bottom that wouldn’t even consider college or that no college would consider. I’m talking about your kids. They are going to be the ones going to college and having a 42% chance of needing remediation. And if they go to a community college, it’s almost 60%. So this isn’t something that is just over on the left side of the bell curve. Our literacy issues are really about the whole distribution of kids. And yes, some of them need remedial help, but that won’t fix the overall problem.

* [Slide – Instructional approaches to adolescent literacy: Content area reading]

Historically, the idea that the person in my role is supposed to be arguing for is what’s usually referred to as content area reading or content area literacy. Historically, Teachers College played an incredible role in the creation of this basic concept. Since the 1920s, the people in the reading community have been talking about “all teachers are teachers of reading.” But the problem is that it’s extremely insensitive to teachers who really identify with their own content area. I can’t think of anything else more insulting to somebody who has said, “I really want to know science and I’m good at science, and science is really my cultural thing” and they start studying that and they really focus on that, and they spend years doing that, and someone else comes along and says, “But yeah, I want you to do something else instead. You’re not a science teacher, you’re a reading teacher.” That’s very insensitive.

In fact, this whole content reading idea has largely been about cross-disciplinary training. That is, looking for strategies, procedures, and instructional approaches that, frankly, you can use for anything. The idea is that “I’m a reading teacher and I will teach you how to teach vocabulary whether you’re a math teacher, or a science teacher, or a history teacher. It won’t matter because vocabulary is really important, and you guys should be doing it in your science classes and history classes.” This has been the major thrust, and I’m here to argue against this. There is a place for content area reading instruction—and I’ll try to put it into perspective on where it belongs—but I really want to contrast this approach with what I think is going to make more sense, and that is certainly a better way to go.

* [Slide – Instructional approaches to adolescent literacy: Disciplinary area reading]

These days when you hear disciplinary literacy, you might think, “Oh, but that’s just a new term for content area reading. I took a content area reading class but now they call it disciplinary literacy.” It is not the same thing. It’s really important to see distinctions in this because whether 20 years from now we’re calling it content area reading or disciplinary literacy, in some sense it doesn’t really matter. But what that construct will actually be is going to depend on your understanding of these things. Disciplinary literacy refers to specialized ways of knowing and communicating in the disciplines. Our interest isn’t in “Oh, isn’t that cool that science people use vocabulary and so do literature people.” Our interest here is “What is special about science reading? What is special about history reading? What makes it unique that you’d really want someone who knows that field to teach it?” And once you know what those specialized routines are, you can start to teach them to kids and invite them into the discipline.

* [Slide – Comparing content area reading and disciplinary literacy: Source]

I’d like to spend the next several minutes comparing content area reading and disciplinary literacy. Some of this will be theoretical and research-oriented, and some of it will be very practical and instructional in its focus. I’m not trying to drive content area reading away, because you’ll see that it certainly does contribute something of value, but I’m really trying to make a place for these new ideas about disciplinary literacy.

First, we can compare the source of their information. Content area reading, as I’ve said, started in the 1920s
and was advocated by reading specialists. Disciplinary literacy didn’t really kick in until the 1990s, through a pretty wide range of scholars. Some of them are actually in the reading field, but a lot of them are in other fields like linguistics or psychology, so they are coming at this in a very different way.

* [Slide – Sources of content area reading]

The rhetoric of content area reading has been good, but the fundamental idea has been that the reading experts—someone like Tim Shanahan—are the ones who should be telling science people what they ought to be doing. I think this is one of the reasons why it has failed. If you visit enough schools, you’ll see that content area reading is not widely taught in our high schools and middle schools. Often teachers have taken it on for very brief amounts of time and then backed away. It wasn’t that they were uncooperative, they often tried to make this stuff work, but the people who were telling them had no idea what it was like in a science classroom or a history classroom and how this stuff wasn’t making sense.

Are there any English teachers in the room? Terrific, welcome. I can tell you something about English teachers. If they are any good, if this group that raised their hands is as good as I suspect that they are, what I can tell you is that these folks have spent four or more years doing everything they could to avoid taking a math class. I always see English teachers going “He knows us!” You know, these are terrific folks and I bet they’re very good English teachers. The question is, why would you want them to teach kids how to read algebra given that they’ve done everything they can do to avoid taking algebra? It doesn’t make sense. It’s funny, but there’s too much truth to this. The fact is, we have come at this in a socially crass way. “I will tell you guys what you should be doing in your science classroom, even though I don’t really know what your goals are, what your kids’ learning problems are, what the issues are that you’re trying to address. But I know how to do KWL and I’ll show you.”

Try using KWL in the science class. With the little kids, it works beautifully. But you start talking about phylum with a group of 15-year-old kids, “What do you know about phylum?”

“Nothing.”

“OK, well, let’s go to the W. What do you want to know about phylum?”

[Laughter]

That’s usually the last time the teacher teaches KWL. Because it works really well with subjects that people have a lot of knowledge about, but when you start to move up these grades, what you’re learning in history and science isn’t life experience. It’s abstract and new, so we’ve got to come at it in a different way.

With a lot of these approaches, the research basically asks, “If you teach this group to use this strategy and you don’t teach this group, what happens? What you generally find is that this group does a little better, so it does help. A lot of the techniques the content area reading people told you about actually have a very substantial research base. The reason why folks aren’t using them isn’t because they can’t work. It’s because they don’t necessarily make sense to them in the circumstances that they’re in.

Some of it is cultural; some of it is just practical. On the cultural end, imagine that you’re back in school and decide to be a math teacher. You may be unsure at first, but as you move through that program, you decide, “I really want to be a math teacher. In fact, I really want to be a lot like math teachers. I’m going to try to look like math teachers and act like math teachers.” You want to affiliate—the same way if you were taking anthropology or psychology. And you see that the math professor is telling you this stuff and the reading guy is saying to use KWL. “I want to be like the math people. I want to affiliate. I’m going to do what they’re doing, not what this other group is telling me.” So teachers make those kinds of choices.

Of course, kids make choices too. They look at some of these strategies and they say, “Yeah, I could use this SQ3R. But when I read that chapter, it’s going to take me an extra hour and a half, so I’m not going to use it.”

“Yeah, but studies show that it works and that you could end up with higher comprehension.”

“I’m sixteen years old, and higher comprehension isn’t my goal. I just want to get it done. And I certainly want to cooperate with the teacher who said to read it and I read it. The fact that I didn’t understand it isn’t going to stand in my way.”

* [Slide – Sources of disciplinary literacy]

The disciplinary literacy sources are a little different. There are really two sets of studies that I think we can pay attention to. One approach has been comparisons of the experts and novices. You get, say, a group of historians and you have them read and think aloud. You’ll also have a group of novice readers. They might be high school students or maybe even college students. It’s not that they can’t read. It’s not that they can’t decode. But they don’t know how to read history. You have them read and think aloud, and then you make a comparison. What are the two groups doing that’s different? We have studies like that on poetry, on physics reading, on history, and so on.

There’s another group, the functional linguists, who actually look at the texts and see how these novices and experts use language differently. They’re finding a huge difference in the grammar and how they use words and so on. Both of these projects are running
simultaneously. When people are talking about
disciplinary literacy, they’re usually pulling studies out
of these kind of backgrounds.

* [Slide – History reading (Wineburg)]
The example I brought was history reading—Sam
Wineburg’s work at Stanford. Sam did one of these
expert reader studies that was very influential and has
been replicated by a number of researchers. What he
found is that, when it came to history reading, if you
had kids reading a history text, they generally saw the
text as factual and the purpose was to set the facts
out there. When a historian read the same text, they
saw it as an argument, and you had to pay attention to
where the author was coming from. Author perspective
mattered a lot, whereas the kids didn’t even seem to
notice that there was an author.

This example—contextualizing—is a little tougher.
When historians started to read something, they would
try to put it into its historical context. “Yeah, so-and-so
did this, but what were things like in the time that he
did that? What kind of choice was that?” Whereas the
kids don’t have that kind of background knowledge.
They may want to contextualize it, but if you don’t know
what was going on during the American Civil War, it’s
awfully tough to bring that knowledge to bear.

Another one was corroboration. This was a very
interesting one—that historians start to compare it
with other texts. “Yeah, it says this, but so-and-so says
something else on this topic.” But kids often didn’t have
anything to corroborate or compare with. This was the
only text they were going to read on this topic.

So, you find these very big differences in what people
do mentally when they read. What we’d like to do is
Teach kids how to do some of those things. There have
actually been studies to see if you can teach teenagers
those strategies or approaches that historians use. And
guess what? You can, and they do better as a result of
that kind of instruction.

* [Slide – Comparing content area reading
and disciplinary literacy: Nature of skills]

What other differences exist between content area
reading and disciplinary literacy? Another one is the
nature of the skills. For content area reading, the idea
was that we need to find a set of highly generalizable
skills and strategies that would put you in good stead
no matter what you read. Versus this notion of “No,
reading is disciplinary, and you really have to approach
it in very different ways across the different instructional
areas.”

* [Slide – Content area reading]

If you go into most content area reading texts, they
are full of strategies and techniques—the Frayer model,
how to brainstorm, QAR, three-level guides, and so
on. They will also have examples. There will be a math
chapter with examples of using several strategies
with math text. Then there will be several examples
in the literature chapter. The notion is that these are
all highly generalizable and you can use them across
everything.

* [Slide – Disciplinary reading]

In disciplinary literacy, the notion is “No, no—
things that work in reading history aren’t going to help
you very much if you’re trying to read math. Things that
help you in reading math aren’t going to help you very
much if you’re trying to read science.” I have a couple
of examples here—one general and one specific. One
relates to considering the learning demands of the
subject matter. I want to compare history with science
and literature, and I want to compare them not in
terms of how people read specifically, but how they
use information in their fields—essentially, what role
should textbooks play? When we talk, not to science
educators but to scientists, what we find is the notion
that textbooks are pretty essential to the doing of
science. They actually help to consolidate a base
view of science and allow you to pull together what’s
known now so that science can move forward. They’re
used to build the knowledge base that kids have to
have. It’s an educational issue, but for scientists, it’s a
very practical issue of how do you communicate as a
scientific community.

Some of you may know the book Scientific Revolutions
by Thomas Kuhn. It’s one of the most influential books
of the twentieth century. There’s an appendix about
science textbooks and their importance in science
being a disciplinary field. He wasn’t an educator, that
wasn’t his focus. He wasn’t thinking, “Should we use
hands-on or should we use textbooks?” His notion
was “If you’re going to operate as a science, you better
have textbooks.” He didn’t think most of our science
textbooks were very good, but he thought they played
an extremely important role.

When we talk to scientists about critical literacy and
having kids challenge the textbooks, the scientists look
at us like we’re nuts. “Why are you doing that? That’s
not what we do in science. Kids have to see textbooks as
factual information and they have to start learning it.”

That’s really different from history. When we talk to
historians about textbooks, textbooks are antithetical
to the whole history project. They’re dopy. They don’t
make any sense. You are going to take a field that is
based on multiple perspectives, all these different
individual views, and you’re going to put it all in one
book as one perspective and kids are going to learn that
perspective. How is that history? That’s anti-history. So,
we have one field saying we absolutely need science
books to do science, and the other group saying history
books are dopy, they don’t make any sense.
And in literature, I would argue, they are largely irrelevant. Teachers can either choose to use them or not. What matters is the literary quality of the stories and poetry and drama that’s encased in the textbooks. If you have a textbook where they go through and cut up the literature and leave out parts, you probably won’t find too many literature people saying, “Oh, that’s a good thing.” On the other hand, if you have a textbook that is largely an anthology, it’s really pretty irrelevant whether you went out and bought all single copies of the stories or whether you actually had it in a textbook.

* [Slide – Increasing specialization of literacy]

This pyramid, which shows the increasing specialization of literacy, conceptualizes what I’m trying to get at here. At the lowest level, when we’re talking about basic literacy, we’re talking about skills and abilities in reading and writing that you have to use in almost everything—whether you’re talking about decoding skills, like knowing sounding out words; whether you’re talking about simple punctuation, like periods and commas; whether you’re talking fluency, like being able to actually read a set of words so that they sound like a sentence and not just a list of words; or knowing that you’re supposed to understand the text. I think of my oldest daughter when she was a little girl. She was learning to read, and she had gone to the library and gotten a whole stack of books. I had told her to read on her own for a bit and after a little while, I came over and asked, “How is it going?”

She said, “Great, I’m on page 37.”

I said, “That’s terrific. What was it about?”

She said, “I don’t know. I do the best that I can.”

A little kid is perfectly happy with that. It’s like a performance; it doesn’t matter if you get it. But somewhere they start to learn in those early years that you are supposed to get it. It’s supposed to make sense. It’s a very basic level, but you expect kids to learn that. And if our kids are on track, if they are learning everything the way we want them to, by third or fourth grade, kids know a lot of these basic things that I’m talking about.

Intermediate literacy skills are not quite as generalizable. They’re not as widely used as the basic literacy ones, but they’re still highly used. You are still learning vocabulary. It might not all be from oral language, but more from written language, and you start to learn some less common words. You learn some less common punctuation. You start to read more complicated sentences. You certainly learn, I would argue, a lot of the reading strategies that people push: summarizing, asking good questions, how to monitor your learning—all these generalizable skills. You tend to learn these largely between fourth and sixth grade, fourth and eighth grade, sometime in the middle there. These are things that work pretty well with any type of text you’re reading.

But eventually, perhaps in middle school and certainly in high school, you’d like to see your kids use the skills at the top of the pyramid. You want them to know how to read a science book versus a literature book. Again, I remember one of my daughters when she was in ninth grade biology. She was doing really well in the labs, in the discussions, in the classroom participation, and all the exams, yet she was getting Ds and Fs on all the exams. The teacher didn’t understand why she was doing poorly. He even used her to help other kids. So I asked her, “What’s going on with these quizzes?”

She said, “I don’t know. I do the best that I can.”

I found out that my daughter—who’s an engineer now—was reading the biology book for gist. That works great if you’re reading a story. It’s lousy if you’re reading a biology chapter that might have 200 terms in it. The teacher had never thought to show her how to read a science text. Nobody had ever thought to show her. And knowing these disciplinary things, like knowing how to read biology, is great, but it won’t necessarily help you read in other classes.

* [Slide – Chemistry note-taking]

This note-taking strategy for chemistry is a very specific example of what I’m talking about. Cindy [Shanahan] and I developed this as a result of working with a group of chemists. We had asked these chemists to evaluate high school chemistry textbooks and to look at the kinds of strategies that content area reading classes pushed. They were really funny. We asked these chemists, for example, “Would it be reasonable in a high school chemistry class to teach kids how to summarize text from their chemistry book?”

They said, “Yeah you can do that—for a day.”

Summarization is hard to learn; that’s not a one-day project. They did ask, “Why couldn’t English teachers teach that?”

We were a little concerned because summarization is pretty important. We couldn’t get these chemists to buy in because they were focused on the science part of it. But one of the things Cindy had done is think-alouds with these chemists, and as we talked to them, one of the things that became clear is that when they read chemistry, they looked for particular pieces of information. They told us, for example, that whenever they read about chemistry, they’re always going to be talking about some kind of substance. There will always be some chemical, and those substances have particular properties. And the properties of those substances will allow them to engage in various kinds of processes, like evaporation or whatever. And in fact, various substances will interact in particular ways.
We asked the chemists and the chemistry teachers, “Could you use this in the chemistry classroom?” And their response was, “Well, of course you could use it—that’s just the structure of chemistry. If you were doing that, you’d be working on chemistry. This is not about teaching reading, this is about teaching chemistry.” And the teacher said, “Gee, if you put on atomic expression, you’d have everything they put on the exams.” So that’s where that last column came from—to guide kids in their study. Now this is a terrific tool and we had teachers using them in classrooms and in inner cities, but you can’t use this in a history class. You can’t use it in a math class. You can’t even use it in all science classes because it is specialized. That’s the point. Teachers would use something specialized because it allows them to be part of the scientific community. In this case, they were doing legitimate things that real chemists would do. They were thinking like chemists as a result of this kind of activity.

The third thing that differs between content area reading and disciplinary literacy is their focus. Content area reading has largely been about teaching kids study skills. Can we come up with a set of skills that would apply to reading a book in any area? It certainly has value. Whereas the focus in disciplinary literacy is much more about how do people make meaning in a discipline and communicate that meaning, and how you would bring kids into that community.

Again, the content area reading focus is largely about learning from texts. The idea is not to read like a chemist, but really, how do you study books? That’s the reason why you get such generalizable strategies. You’ll see in the content area reading class, “Oh, I teach teachers how to use exit notes,” but how many of you have ever used exit notes? A perfectly reasonable idea, but nothing particularly disciplinary about it. It allows you to meet your audience better, but it doesn’t actually help you think like a chemist or approach that text in any particularly useful way. So again, I’m not trying to push these things out. I just think it’s a real different thing.

In disciplinary literacy, the focus is on these specialized problems. I would even argue that the disciplines are culturally different. They’re not just different classes, there are cultural differences. How comfortable would you be taking a group of 14-year-olds and just dumping them in Europe or Asia? And everyday moving them from one country to another without teaching them any of the languages, giving them any preparation, just letting them go and seeing how well they do? Well, that’s what we do when we put kids in ninth grade in high school. We dump them into a science class—at the country of science—where teachers use language in certain ways, and approach text in certain ways, and think about text in certain ways. And at the end of 42 minutes, they walk down the hall into a math class where they talk completely differently. Nobody even acknowledges it for the kids. Nobody explains to them the differences.

I brought a math example. Cindy [Shanahan] and I have been working with chemists and mathematicians and historians. You always think of math people being like science people. Not at all. The fact is that math people are really different. One of the things they told us is that you read text for truth—that the truth is in the text. I’m really interested in author awareness and I’ve done a certain amount of research on that. When you talk to the math people, how important is author awareness? They said, “There’s an author? Why do you care whether there is an author? The truth is in the text. You read the text!”

“How do you read it?”

“You read it over and over again. You read it closely. You weigh every article. An ‘a’ matters. It changes the meaning.”

They place heavy emphasis on error detection. Cindy gave us a task one night with the math group. It was a one-page science article on pollution from a news magazine, and it had some math in the middle of it. I skimmed it in about two or three minutes and was ready for the discussion. Twenty minutes later, Cindy stopped us because the math people were still reading. They would still be reading if she hadn’t stopped them because one of the things they told us is that if there’s math, there’s got to be error, and they were looking for the error. Precision of understanding is essential. Close reading, intense reading, lots of reading with repetition is absolutely characteristic of the math people.

Chemistry I’ve told you a little bit about. I just want to highlight a couple of things. One of the things that we found when we talked to these chemists was the critical importance of close connections among all the
text and the graphic elements like tables and charts. I made the mistake of using the term *ancillaries* the way that publishers talk about them. In this case, they said, “What do you mean ancillary?”

“Well, you know, the graphs, the pictures, the charts.”

“Those aren’t ancillary in a science book, those are absolutely co-equal. What are you talking about?”

If you look in a content area reading book, they’ll describe what a table is. But they won’t tell you how to read one or to use them in the way they use them in chemistry class. Tables, or other graphic elements, are really alternative representations of constructs, and being able to move among those or to translate them is really important. “You saw that picture, can you create a graph based on that picture? You made that graph, can you turn that into a formula? You’ve got that formula, can you write a paragraph explaining what the process is that was summarizing?” They told us that kids didn’t really understand the text if they couldn’t do things like that. We went and looked at all the content area reading textbooks on our bookshelves and guess what? Those strategies don’t come up at all in any of those books. They’re not taught; they’re not described. And the reason is because they are specialized. You wouldn’t use them in that way in a history class or in a literature class.

* [Slide – Comparing content area reading and disciplinary literacy: Students]

Next, content area reading and disciplinary literacy differ in terms of the students they focus on. Content area reading has more of a remedial focus, but the disciplinary literacy projects are really going at the entire distribution. Or, they’re certainly going toward the higher end of the distribution; they’re not aimed at the lowest kids. I don’t have the evidence, but I suspect that teaching these things to some of our low-performing kids, like the chemistry summarization table, will allow the kids into chemistry a lot more effectively than teaching them general summarization. It also helps at the high ends. If you think of the chemistry example, the kinds of skills in that are the kinds of things that the kids in the middle often can’t do. They can read the chemistry and get some general understanding of it, but they don’t get the kind of understanding that the chemists are going for.

* [Slide – Content area reading]

The strategies that are taught in content area reading work, but they tend to work for the lowest kids. If you look at the research, you’ll see that teaching kids to summarize helps them do better. Except if you actually look to see who in this group did better, it’s the kids with low skills, the kids who weren’t paying attention. For the kids who are sort of getting it, but not really accomplishing what you were aiming for, those strategies don’t help very much. They’re already paying attention. They’re already trying to think about it.

* [Slide – Disciplinary reading]

In disciplinary literacy, the notion is that if we teach kids how to think when they move into these different cultures, they’re going to find that a lot more supportive and do better.

* [Slide – Character change chart]

Here is an example that came out of my own desperation as a parent. One of my daughters had an assignment to do in honors English. At about nine o’clock at night, she came to me and said “Dad, I need a little help with my homework.”

Now, I don’t know about your household, but I don’t like homework questions at nine o’clock at night. I tend to push for those earlier. I said, “You know, honey, it’s kind of late. Why didn’t you bring this to me at 7:00?”

She said, “No, you don’t really have to do anything, dad. This is really easy. We have to write a thematic essay in class tomorrow about a short story. Tonight we have to read it so that tomorrow, we’ll be ready to write this essay in class. And so we have to think about what the theme was, and I’d like you to just check to see if I got the theme right.”

I said, “Honey, I can’t possibly do that; I haven’t read the story.”

She said, “Dad, it doesn’t matter. You just have to tell me if it sounds good.”

She came up with a strategy and her theme was something like “different people do a lot of different things.”

I said, “Honey, that is *not* the theme.”

She said, “How do you know? You haven’t read it.”

It’s now 20 after 9 and I’m reading this story as quickly as I possibly can. Now, I do have a PhD and I’ve been teaching this stuff for over 30 years, so I pull the theme out immediately. At about 9:30, my voice is getting kind of loud and at some point in desperation I said, “So, honey, what does your teacher teach you about figuring out the theme?”

She looked me right in the eye and said, “Dad, that’s just it. They don’t teach you that. They tell you what a
theme is, and I know what a theme is. Then they give you a story to read and you’re supposed to figure out what the theme is. And you get it wrong, and then they tell you the theme so that you’ll get it right the next time. But the next story has a different theme.”

In other words, it’s the same method that my teachers taught by as well. Fortunately, I had been taking a class at that time in fiction writing. The teacher had taught us how to put the theme into the story, and so I taught her how to use it to pull it back out. And it worked! One of the things our teacher told us was that stories are not just events, they are important events. You have to pay attention to the changes the characters go through because that’s going to give you the clue. It’s important to focus on that change.

* [Slide – Comparing content area reading and disciplinary literacy: Texts]

Another difference that you sometimes see in content area reading and disciplinary literacy is in the text. I checked this one because it still rattles my brain a little bit and I wanted to make sure I wasn’t giving you misinformation.

* [Slide – Content area reading]

A number of the big content area texts still push the idea that if you really want to teach kids to read in science and math, you should have novels and short stories and poems for them to read—because we all know that content area reading is really about literature. It is not. The content area reading people are often doing things like telling math teachers they should have the kids writing poetry about math.

* [Slide – Disciplinary literacy]

The disciplinary literacy person says, “Are you nuts? It’s hard enough trying to teach kids how to read geometry.” Content area reading texts often promote reading of plays, short stories, and novels and so on; have thematic units with integrated curriculum; or focus on non-disciplinary use of disciplinary information. In contrast, for disciplinary literacy, there is the notion of language differing across disciplines. Now, we do get into some trouble on this. A lot of the texts that we use, things that textbook companies put out, are often not very good for teaching disciplinary literacy. We saw this when working with our chemists. I told you we had them look at high school chemistry books. At one point, we were looking at these and one of the chemists said, “I see why the kids are having so much trouble with this. It’s that they can’t tell the difference. The kids are having difficulty separating the chemistry from the crap!” And before I could even say anything or think of what to say, he turned to one of the teachers and said, “I guess this other stuff is here to motivate the kids. Does that work?”

Many textbooks are filled with well-intentioned but extraneous information—whether it’s telling them a clever story at the beginning of a history chapter, or whether it’s putting two pages about the environment at the beginning of some chemistry chapter in order to motivate kids. But the teacher doesn’t really want to deal with this—it’s not about chemistry. And kids don’t want to deal with it because it’s kind of a loopy notion of motivation. We try to make textbooks friendly, and at times we’d probably be better off making them more like the discipline so that they’d actually represent what they’re supposed to.

* [Slide – History reading (Schleppergrell)]

Again, I told you the two major sources of information for disciplinary literacy. One of them is expert comparisons; the other one is language analyses. So again, just to give you a flavor based on Schleppergrell’s work. In history texts, time constructs are very important. Notions of causation are very important. What you’ll see is that the word choices and the grammar have a lot of attributions to agency. “Lincoln did this, and he did this for this reason, and it had this outcome.” There’s the notion of cause and effect, but it’s a very human kind of cause and effect. The texts tend to present judgments and interpretations, and you’ll see that kind of language.

* [Slide – Science reading]

But look at science reading. Texts are more technical and abstract. They suppress agency and try to do away with those simple notions of causation. “This process goes on, and this causes this,” but there’s no intention to it. It’s a whole different game so the language choices are very different.

* [Slide – Comparing content area reading and disciplinary literacy: Role of graphics]

The last difference is the role of graphics. In content area reading, they have either been ignored or taught very generally. The notion here is that they ought to be more specific to the discipline.

* [Slide – Content area reading]

In content area reading, graphics are adjuncts. There’s no difference across the disciplines in the interpretive skills needed for pictures, tables, and charts.

* [Slide – Disciplinary literacy]

In analyzing science books, we are finding many differences in how those graphics work in terms of their relationship with the other information in the text. In some cases, they are descriptive; they are almost a definition or a picture of what the text is talking about. Sometimes, they are sequential; they show steps in a process. Sometimes they are relational, or hierarchical, or even causal, but there’s absolutely no guidance on how to intelligently use those graphics in the text. Kids
are just supposed to figure that out and that’s really what the issue is.

* [Slide – An important outcome of this work]

Cynthia [Shanahan] and I worked on this and it’s something that we care about. You’ve been hearing about the Common Core standards for the English Language Arts. Their actual title is the Common Core Standards for the English Language Arts and Literacy in History/Social Studies and Science. It isn’t just about general literacy. There are very specific ones.

* [Slide – Literacy in history/social studies – Key ideas/details]

These are the history literacy standards. In the past, we have always talked about this as something you should do because it would benefit kids, and because this is the nature of how literacy works in these fields. These days, I could argue, you ought to teach this because increasingly it’s becoming the standards of your schools. These are not just tools to teach kids other things in your content area, these are skills we want kids to know how to do. That is critically important.

* [Slide – www.shanahanonliteracy.com]
What It Means to Teach Disciplinary Literacy

Timothy Shanahan
University of Illinois at Chicago
www.shanahanonliteracy.com

Disciplinary literacy?
Some Adolescent Literacy Statistics

- Performance of the nation’s 12th-graders in reading has declined in comparison to 1992 (NAEP, 2005)
- 60% of 12th graders read at basic or below basic (NAEP, 2005)
- 42% of college students take remedial classes (U.S., Dept of Education, 2007)

Instructional responses to adolescent literacy: Elementary School Continued

- Adolescent literacy as an extension of primary grade literacy
- Adding reading to the curriculum
- With a reading textbook
- Monitoring of learning with DIBELS-style assessments
- Often with supervision and support from elementary reading coaches, etc.
Instructional responses to adolescent literacy: Remedial Reading Grade 9

- Adolescent literacy as a remedial program
- Administer a large-scale reading assessment to identify laggards
- Require that they trade an elective for an intervention class (buy an intervention)

Instructional approaches to adolescent literacy: Content Area Reading

- Content area literacy emphasis
- “All teachers are teachers of reading”
- Teachers receive cross-disciplinary training in how to teach reading using content area instructional materials
- Championed since 1940s by Reading Community
Instructional approaches to adolescent literacy: **Disciplinary Area Reading**

- Not just a hip new name for “content area reading”
- Disciplinary reading refers to the specialized ways of knowing and communicating in the different disciplines
- The idea is that students need to be taught these specialized routines

### Comparing Content Area Reading and Disciplinary Literacy

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<th>Disciplinary Literacy</th>
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<td>Reading experts since 1920s</td>
<td>Wider range of experts since 1990s</td>
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Sources of Content Area Reading

- In 1920s, the idea of “every teacher a teacher of reading” first raised
- Rhetoric is good, but fundamental idea is that reading experts know the necessary reading skills and that those should be taught across the curriculum
- Leads to the development of lots of general approaches: SQ3R, KWL, three-level guides, etc.
- Research focuses on effectiveness of these instructional routines

Sources of Disciplinary Literacy

- Studies that compare expert readers with novices (Bazerman, 1998; Geisler, 1994; Wineburg, 1998, etc.)
- Functional linguistics analyses of the unique practices in creating, disseminating, evaluating knowledge (Fang, 2004; Halliday, 1998; Schleppegrell, 2004, etc.)
History Reading (Wineburg)

- Sourcing: considering the author and author perspective
- Contextualizing: placing the document/info within its historical period and place
- Corroboration: evaluating information across sources

Comparing Content Area Reading and Disciplinary Literacy

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Content Area Reading

- Generalizable skills and activities that can be used in all or most reading:
  - KWL Summarization
  - SQ3R Previewing
  - Word maps Brainstorming
  - Frayer model Notetaking
  - 3-level guides QAR
  - DR-TA I-Charts
  - Morphological analysis
  - Reciprocal teaching

Disciplinary Reading

- Specialized skills and activities
- Idea is to consider the learning demands of a subject matter
- Example: textbook use
  - Science - Essential
  - History - Antithetical
  - Literature - Irrelevant
Increasing Specialization of Literacy

- Disciplinary Literacy
- Intermediate Literacy
- Basic Literacy

Chemistry Note-taking

<table>
<thead>
<tr>
<th>Substances</th>
<th>Properties</th>
<th>Processes</th>
<th>Interactions</th>
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Content Area Reading

- The focus is on learning from text
- The idea is not to read like a chemist, but to know how to study books (including chemistry books)
- Emphasis on literacy learning tools:
  - Exit notes
  - Advanced organizers
  - Response journals
  - Dictionary
  - Internet Readability analysis
Disciplinary Reading

• The focus is on the specialized problems of a subject area
• Disciplines represent cultural differences in how information is used, the nature of language, demands for precision, etc.

Math Reading

• Goal: arrive at “truth”
• Importance of “close reading” an intensive consideration of every word in the text
• Rereading a major strategy
• Heavy emphasis on error detection
• Precision of understanding essential
Chemistry Reading

- Text provides knowledge that allows prediction of how the world works
- Full understanding needed of experiments or processes
- Close connections among prose, graphs, charts, formulas (alternative representations of constructs an essential aspect of chemistry text)
- Major reading strategies include corroboration and transformation

History Reading

- History is interpretative, and authors and sourcing are central in interpretation (consideration of bias and perspective)
- Often seems narrative without purpose and argument without explicit claims (need to see history as argument based on partial evidence; narratives are more than facts)
- Single texts are problematic (no corroboration)
Comparing Content Area Reading and Disciplinary Literacy

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Content Area Reading

- Content area reading is promoted for all students
- But the strategies that are taught tend to work with younger and lower level readers – with no evident benefits for average and higher readers
- Teachers often won’t use approaches that don’t have a wider impact
Disciplinary Reading

- Effectiveness has not yet been tested
- However, the nature of the activities that have been developed so far suggest a wider range of learning benefits

Character Change Chart

<table>
<thead>
<tr>
<th>What is main character like at the beginning of the story?</th>
<th>What is the main character like at the end of the story? How has he or she changed?</th>
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Crisis
Given this character change, what do you think the author wanted you to learn? ______
__________________________________________________________________________
__________________________________________________________________________

__________________________________________________________________________
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<td><strong>Texts</strong></td>
<td>Often encourages use of literary text</td>
<td>Only focuses on disciplinary text</td>
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Content Area Reading

- Often promotes reading of plays, short stories, novels, poems for math, science, and history
- Thematic units and integrated curriculum (focused on the non-disciplinary use of disciplinary information)
**Disciplinary Literacy**

- Language differs across disciplines, so it is critical that readers confront the language of their discipline
- The Friendly Textbook Dilemma

**History Reading (Schleppegrell)**

- Text constructs time and causation
- Attributes agency (readers need to focus on the reasons for actions and the outcomes of those actions—cause/effect)
- Presents judgment and interpretation (argument)
- Often lack clear connections

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Science Reading (Schleppegrell)

- Technical, abstract, dense, tightly knit language (that contrasts with interactive, interpersonal style of other texts or ordinary language)
- Nominalization (turning processes into nouns)
- Suppresses agency (readers need to focus on causation not intention)

Comparing Content Area Reading and Disciplinary Literacy

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<th>Content Area Reading</th>
<th>Disciplinary Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Reading experts since 1920s</td>
<td>Wider range of experts since 1990s</td>
</tr>
<tr>
<td>Nature of skills</td>
<td>Generalizable</td>
<td>Specialized</td>
</tr>
<tr>
<td>Focus</td>
<td>Use of reading and writing to study/learn information</td>
<td>How literacy is used to make meaning within a discipline</td>
</tr>
<tr>
<td>Students</td>
<td>Remedial</td>
<td>Whole distribution</td>
</tr>
<tr>
<td>Texts</td>
<td>Often encourages use of literary text</td>
<td>Only focuses on disciplinary text</td>
</tr>
<tr>
<td>Role of graphics</td>
<td>Ignored or taught generally</td>
<td>Specific to the discipline</td>
</tr>
</tbody>
</table>
Content Area Reading

- Graphics as adjuncts
- Interpretive skills are general for pictures, tables, charts, etc.
- No differences across disciplines

Disciplinary Literacy

- Need for translation skills in sciences
- Pictures differ in their role (describing/defining nouns, verbs (processes), relationships)
- Difference between technical drawing and other photos or drawings?
- Is the information: Descriptive? Sequential? Relational/hierarchical? Causal?
An important outcome of this work

COMMON CORE STATE STANDARDS FOR
- English Language Arts and
- Literacy in History/Social Studies & Science

Literacy in History/Social Studies (6-8, 9-10, 11-12) – Key Ideas/Details

Cite specific textual evidence to support analysis of primary and secondary sources.
Determine the main ideas or information of a primary or secondary source; summarize the source, basing the summary on information in the text rather than on prior knowledge or opinions.
Identify key steps in a text’s description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).

Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
Determine the main ideas or information of a primary or secondary source; summarize how key events or ideas develop over the course of the text.
Analyze in detail a series of events described in a text and the causes that link the events; distinguish whether earlier events caused later ones or simply preceded them.

Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
Determine the main ideas or information of a primary or secondary source; provide a summary that makes clear the relationships between the key details and ideas.
Analyze how ideas and beliefs emerge, develop, and influence events, based on evidence in the text.
Literacy in History/Social Studies (6-8, 9-10, 11-12) – Craft & Structure

Determine the meaning of words and phrases in a text, including vocabulary specific to domains related to history/social studies.
Identify how a history/social studies text presents information (e.g., sequentially, comparatively, causally).
Identify aspects of a text that reveal an author’s point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).

Determine the meaning of words and phrases in a text, including the vocabulary describing political, economic, or social aspects of history.
Explain how an author chooses to structure information or an explanation in a text to emphasize key points or advance a point of view.
Compare the point of view of two or more authors by comparing how they treat the same or similar historical topics, including which details they include and emphasize in their respective accounts.

Interpret the meaning of words and phrases in a text, including how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10 and No. 51).
Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
Evaluate authors’ differing points of view on the same historical event or issue by assessing the authors’ claims, evidence, and reasoning.

Literacy in History/Social Studies (6-8, 9-10, 11-12) – Integration

Integrate graphical information (e.g., pictures, videos, maps, time lines) with other information in a print or digital text.
Distinguish among fact, opinion, and reasoned judgment in a historical account.
Analyze the relationship between a primary and secondary source on the same topic.

Integrate quantitative or technical information presented in maps, time lines, and videos with other information in a print or digital text.
Assess the extent to which the evidence in a text supports the author’s claims.
Compare and contrast treatments of the same topic in several primary and secondary sources.

Synthesize ideas and data presented graphically and determine their relationship to the rest of a print or digital text, noting discrepancies between the graphics and other information in the text.
Evaluate an author’s premises, claims, and evidence by corroborating or challenging them with other sources of information.
Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
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What It Means to Teach Disciplinary Literacy

Timothy Shanahan
University of Illinois at Chicago
www.shanahanonliteracy.com
"But My English Teacher Said…": Supporting Students in How to Read and Write in the Natural and Social Sciences

Dr. Elizabeth Moje
Arthur F. Thurnau Professor of Literacy, Language, and Culture in Educational Studies
University of Michigan

I’m honored to be here and I appreciate the opportunity to talk to you about my work. I am a history and a science teacher—a biology teacher by trade. That’s what I did when I started teaching high school. It was in the process of trying to teach kids history and biology that I came to realize that teaching history and biology is teaching literacy.

I think it was Patrick [from the teacher panel—previous session] who talked about the Regents tests being a literacy test. They are, but it’s not so much that they test literacy, but that the content areas are made up of language. We can’t produce knowledge and communicate that knowledge if we don’t have language, and language is both oral and written. So we have to give kids access to both oral and written language in those disciplinary areas if they are going to learn deeply. That’s the premise from which I’m working.

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So the idea of content area reading or disciplinary literacy, whatever you want to call it, is all about giving children access to content and to the processes. Somebody on the panel said it’s about both content and processes, and that’s what I’m going to get at in today’s talk. That’s our opening premise.

Another premise is that it’s really hard for kids to move across the subject areas at school and to be taught different ways of doing things, but in ways that don’t make the differences explicit or clear. We need to teach them not just that “this is how we do it in mathematics,” but “we do it this way because we are trying to achieve certain goals.” There are certain purposes for doing math in this way.

The title of my work, “But my English teacher said…” is this idea of students saying, “But my English teacher said we’re not supposed to do x. We should start with the topic sentence. We shouldn’t start with the topic sentence. We shouldn’t use big words. We should use big words.” They learn different ways of doing things in different classes, and they don’t know how to make sense of why you would do it one way in one kind of writing, or why you might interpret something in one way in one kind of reading, and do it differently in a different content area.

The other piece that I really want us to think about is the idea that disciplinary literacy is not about making little historians, or little scientists, or little mathematicians. It’s about helping kids translate from their everyday language and ways of reading, writing, and communicating to the disciplines and back again. In a lot of our work in science, we started to become pretty concerned because we were teaching students how to write strong scientific explanations, but this language would not fly in other parts of their lives. If a student started telling her mother that her hypothesis was wrong, and if the student started to list the pieces of data that made her hypothesis wrong, it wouldn’t go over very well. So we did some work in how to make this explicit—that this type of talk or writing is very useful in this setting because we’re trying to achieve a certain purpose. So I would consider this overall work to be about navigation, translation, and social justice.

I’m going to provide my perspective on disciplinary literacy and will review some of the practices and practical strategies that I use in my work.

What is disciplinary literacy? It’s the perspective that we want to make available to our students the tools of knowledge production and critique. They have to be uncovered, taught, and practiced. That’s what gives kids access to power. That’s what allows them to critique things they read in the paper. I once read an article in *Time* magazine that said there was a link between breast cancer and taking antibiotics, that is, that taking antibiotics led to breast cancer—a causal claim. Students have to be taught to read the language of science versus the language of media, which allows them to be more critical readers.

There is a difference between subject areas and disciplines. You’ll see a lot of talk about disciplinary literacy, but we aren’t teaching the disciplines. We are teaching subject areas that are shaped by the disciplines. It’s important to think in terms of subject areas. They are subcomponents of the disciplines, but they are also shaped by the institution of schooling.
itself, especially regarding time. You only have certain amounts of time to engage kids in certain kinds of practices. So, while it might be ideal to engage kids in science that allows them to discover or explain some type of phenomenon, in reality, you don’t have time to do all of that. Sometimes you have to give them texts as the means of giving them access to the phenomenon. It’s not quite the same as going off and working in the lab, or, if you’re a historian, going off to the archives and digging deep into primary sources. We’re not pushing you to do that in your classroom. We recognize that the subject areas are unique.

* [Slide – Discipline-specific literacy teaching practices/strategies #1]

But one of the things that we do need to think about in disciplinary literacy, and in trying to help kids understand how the disciplines shape knowledge production and representation, is we need to think about a number of questions: What do they do in the disciplines? What is valued? What matters to disciplinarians?

* [Slide – Discipline-specific literacy teaching practices/strategies #2]

We put these questions to a group. We organized a conference at the University of Michigan with members of different research disciplines—a mathematician, a chemist, a historian, and a literary critic—to address these questions and to think about how language works in their disciplines. And once we got answers, we also wondered: what does that mean for how we should teach kids in the subject areas of secondary schools?

These are some questions that I use when working with preservice teachers:

What is the function of language? How does it work in your particular area? And how, then, would you translate that into working with your students? How do you use language on a daily basis? Every member of the discipline reads and writes on a daily basis. You can’t get away from it—even in science, where there was a real eschewing of text and print was taboo because we didn’t want kids to learn science by reading. But that’s not representative of what happens in the discipline. Scientists don’t walk into labs and start pouring liquids into various test tubes. Instead, they read to see what other people have learned about these phenomena before they engage in these practices.

Some other interesting questions include: Are there words or phrases that are demanded by or that are taboo in your discipline? What are things that I can put in a narrative that I wouldn’t put in a scientific text? What would I put into an historical account that I wouldn’t put into a mathematical representation? Those kinds of things are really valuable questions to ask ourselves to really start to get at: what does it mean to engage in disciplinary literacy? A lot of studies get at how members of the discipline read, but they don’t necessarily get at how language is used in everyday practice in the disciplines. So, these kinds of questions might be useful to you.

* [Slide – History practice vs. math practice]

When asked these kinds of questions, our historian and mathematician produced lists that looked like this. Now one of the first things that historians do is that they “frame historical problems.” By contrast, the mathematicians “ask the ‘natural questions’ in a given mathematical context.” Giving kids access to that way of thinking and these kinds of questions is useful. How can we engage kids in literacy learning and in content learning that are actually framed by what happens in the disciplines?

Look at the second history example, “Locate and use residues or evidence from the past.” Very different from the science one, “Explore and experiment with the context.” We are trying to explore what those differences are.

This third history example is very popular. Tim Shanahan mentioned “sourcing, corroborating, and contextualizing” from Sam Wineburg’s work. It’s become a popular way of thinking about historical literacy, but it has become the “lingo.” We need to go deeper. We need to really understand how that is different from the math example like “represent the context” and “examine the representation.”

I wanted to put this third one up because I had a really interesting debate with our mathematician. I asked, “So what does that mean—Examine the representation?”

He said, “Representations are things like images, symbols.”

And I said, “But print is a representation.”

He said, “No, it’s not.”

“But print is a symbolic system that represents some concept.”

The rest of our dinner was spent arguing that one point. I offer that just to show how differently we think across disciplinary boundaries. It’s really important to help students see that there are different understandings of words like representation or symbol that might confuse them as they travel from class to class.

* [Slide – Why disciplinary literacy?]

One big complaint I have is that middle and high schools are sliced up into disciplinary divisions whether we want to admit it or not. I was just critiqued for a piece I wrote about disciplinary literacy, and the critic said that high school teachers don’t really care about their subject areas, they just care about the kids. That’s interesting, so English teachers don’t really care
about the English? That’s so different from my own experience.

So the disciplines are sliced up and it masks the role that disciplinary practices play. It also reifies them. I was recently talking to a student and she said, “I just love chemistry. I love chemistry because it’s all right there. In English it’s all hidden meanings. You gotta find the hidden meaning; I never find the right hidden meaning! In chemistry, you can just look at the Periodic Table.”

And I thought, “Does she think it was in the ground? That they just dusted it off?”

This is an example of reification. This is how chemistry works and this is how English works, and you can’t cross those boundaries. I think it actually contributes to reification if we don’t attend to those differences. So, kids are challenged. How do we help kids make sense of this incoherent everyday experience where they move from one class to the next? They’re supposed to do this and this in one class and something else in another class. I don’t know how to make sense of that.

*Slide – Access and opportunity*

Then, it’s also about access and opportunity. By giving explicit attention, we can give greater access to more young people, even our most struggling readers. Even if they are sitting in the classroom and struggling with the text, by engaging in the kind of discussion, writing, and reading practices that I’m going to suggest to you, that’s giving kids who struggle access to the ability to critique and to ask questions of content. It enhances subject matter learning, certainly. It will help more kids to “be prepared for college and career success.” And, I think that it actually builds skills for all of us to be better educated citizens and to be able to make critical decisions.

*Slide – What is the relationship between disciplinary and generic literacy?*

Tim [Shanahan] cast it as content reading versus disciplinary literacy. I’m going to talk about it as disciplinary literacy versus generic literacy. I’m going to argue, based on the work in cognitive science that helped us understand how good readers read and why poor readers struggle, that there are six key generic literacy skills or strategies that readers use. And when good readers read, they engage in these things and they engage in them automatically: predicting, previewing, questioning, monitoring, visualizing, and summarizing. If you try to teach these strategies to kids who use these already, it can be annoying because they are already doing it. It’s a skill if you do it automatically; it’s a strategy if you have to employ it when your comprehension breaks down. That’s a really important distinction. We shouldn’t lose sight of these things because they are very valuable. Even though we talk about disciplinary literacy, we all do these things. It’s just that we do them differently in different disciplines because there are different purposes for reading.

So, most strategy instruction attempts to develop these strategies and skills in readers. It makes the argument that most strategy instruction can be done in generic ways. I’ll teach a student how to predict and she’ll do that in her science class and then carry it into her social studies class, and then into her math class. Never mind that most of the kids that I work with see any strategy or skills taught in a particular class as “that teacher’s stuff.” “Well, no, I would never do that in that class because that’s Ms. Smith’s stuff.” Putting that aside, the generic skills also won’t necessarily work, because you’d be predicting for the wrong reasons or predicting in the wrong ways.

*Slide – Discipline-specific literacy teaching practices/strategies*

As an example, previewing like a historian versus previewing like a biologist. A historian would never read a piece from start to finish without knowing who the author was. Now there are some primary sources that don’t have an author identified, but that would be the burning question: Who is this person? Who wrote this text? They would want to know when it was written and what the context of the writing was. It won’t make any sense to them if they don’t have the answers to those questions. Or, they’re always striving to answer these questions.

For a biologist, I’ve actually heard people say, “I don’t care who wrote it.” That’s a little false because we usually do care about who wrote it. If you look at a piece of text by an author, you know you might trust them more or less based on a talk you heard them give. But in general, the scientist doesn’t care about the author in the same way that the historian does. The historian assumes bias and a point of view. The scientist assumes objectivity, so the author doesn’t matter to them as much. But what they really want to know is “What is it I am studying?” because that’s going to frame what they take away from the piece.

Also, the scientists in Tim [Shanahan]’s study attended very carefully to graphic representations. They were always thinking about the phenomena and looked carefully at the graphic representations because they helped them to understand the prose more fully. A historian may never see representations that are graphic or pictorial. They might or they might not, so it’s not as critical to them.

*Slide – History previewing example: A Nation of Immigrants*

So, let me give you an example of how you can use previewing in your history class. If I told you we’re going to do a unit on immigration, and we’re going to read A
Nation of Immigrants. So, what do you think the book is going to be about?
[Audience response]
It’s almost like a KWL. We’re saying what do you know. But, we’re also trying to figure out, from a historical perspective, what this book is about.
Now, what would happen if I told you that the book was written in 1961? How does that shape your predictions? Is it still about the U.S.?
[Audience response.]
OK, so you’re assuming that it’s probably talking about the Industrial Revolution. That’s a very nice historical prediction. It uses what you know about U.S. history to make a prediction about the text.
How would your perceptions change if I told you the author was John F. Kennedy? Is it still about the Industrial Revolution?
[Audience response.]
It could be about Irish immigration. Knowing who the author is helps us to know the context. Now, we’re pretty sure it’s about the U.S. It was actually published in 1961. It may be speaking into the beginning of the Civil Rights movement, and it may be drawing on Irish immigration as a way to think about new waves of immigration. So there are a lot of possibilities here. This is both really good work to help kids to set a purpose for reading, to get something in their head, but it’s also really good historical prediction-making or previewing. It’s really pulling out what’s salient in historical work. So you see how those content reading strategies that are thought of as “not so cool” can be articulated to the content areas in very particular ways to be useful.
The problem is that in the content reading work that we’ve done in the past, the work of articulation has been left to the kids. And sometimes, the kind of previewing questions that we asked were a little random instead of particular to the discipline. A historian wants to know who the author is, what is the time period, the context, this particular person’s purpose for writing because it’s all about understanding bias and point of view. If you know that as a history teacher, you can redesign the content area reading strategies so that they do the work of history. You don’t need to change a lot and you also teach content in this process.
Now, in some cases, if you use someone like John F. Kennedy, they may not know who you are talking about. But they do know particular people very well. You can use certain kinds of texts to give kids access to this kind of information. Don’t use obscure authors, but you can use something that kids have access to, in terms of their own knowledge, and then they start reading and building knowledge.
And that’s one of the pieces that I want to push today, that you need to build necessary knowledge. Kids cannot engage in these strategic practices—there’s a lot of research on this—if they don’t have the knowledge. You can’t make an inference if you don’t know something about the thing or set of things that you are trying to infer from. You can’t do much with a set of words in those pieces of text, if you don’t know what the words mean. So you have to build the knowledge, and you can do that in ways that are disciplinary in orientation and that aren’t limited to lecturing.
By the way, I’m speaking from experience here. As a young teacher I wanted my kids to do all sort of cool things like a simulation of the Continental Congress. We tried to do all these things and they couldn’t actually engage because they didn’t know enough to read the text, to prepare to be representatives of the different colonies. So we had to figure out how we were going to build that knowledge. And frankly, I lectured. I was a good lecturer, but I didn’t actually teach them to read those texts really well. It was when I started taking classes in literacy that I learned that I could give them access to these texts in ways that both build the knowledge and their reading skills simultaneously.
[Slide – Differences across content areas: The persuasive essay]
So I want to show you, in terms of writing, some of the differences in writing across the content areas. [The slide contrasts a letter to the editor, an essay or poem for English class, and a social science essay.] This actually comes out of work in which we scored one thousand samples of practice writing from the state tests in social studies and English. We found all sorts of interesting things, like the state tests ask students to write a social sciences essay as a letter to the editor, even though it’s crossing genres. But that’s what inspired us to think about what are these differences.
I want to mention there’s always slippage across these categories. Sometimes a letter to the editor is written to the editor like a social sciences essay. But often, it’s just one’s opinion—“This is what I think. I have no data to support it.” There are no rules or rhetorical conventions that say you have to use data or use logical reasoning. An essay or poem for English class would emphasize personal experience, a narrativization of experience or illustrative imagery. In contrast, a social science essay takes a distanced stance. You have to actually back off from your opinion and you’re supposed to argue from the data. We were trying to teach kids the social science essay, and they struggled mightily because they didn’t know how to use the data. Also, the test was set up in a way that led them struggle. We started looking at the rubric and it was contributing to the problem because it was telling kids to use one piece of evidence. No social science piece would use
just one piece of evidence, but they were doing exactly they were told.

This is where we got into issues of “what my English teacher told me” because the English teacher was trying to teach them how to make a logical, reasoned argument, but not necessarily data-based. The social sciences teacher was trying to show them how to take data and actually show how the data might contradict, but try to come to a synthesis or an argument based on data. And the kids really didn’t know how to navigate that. They didn’t know how to use which convention.

* [Slide – Student writing in English class]

Here’s an example. A young man wrote this poem about Detroit for his English class. What you’ll see here is that it’s a very powerful argument, but it’s written in a particular way.

[Reads the poem about Detroit]

This is a pretty powerful poem, and certainly makes a kind of argument.

* [Slide – Student writing in social studies]

This other example is not the same student, but a student writing in social studies for the statewide test. You’ll see the exact same themes come out in this young man’s writing, but he doesn’t write an effective essay. What’s interesting about this is that he does everything he’s supposed to do, except he doesn’t use any data. He uses a core democratic value, which our students are required to do. They have to use at least one core democratic value, even though they work in relationship to one another—for example, my liberty ends when your good is compromised—but they’re not encouraged to think about that. They are only asked to use one core democratic value. He does all of these things, but he doesn’t know how to do it in a social scientific way. You can tell that the same kinds of issues are running through his texts. So, one of the things that we’ve learned, as they write social sciences essays, is that whether because they’ve been taught so explicitly how to write narratives and to write from personal experience, or because they are 14, 15, or 16 years old and they care deeply—they’re at a developmental place where these are deep emotional issues—they really struggle with this more objective, distanced writing, and it really hurts them on the state test. Question?

[Audience member: Can you rewind back to the slide “Differences across content areas: the persuasive essay”? English writing requires evidence just like social studies. Images in a poem or the diction in a poem may constitute data or evidence, even if teachers don’t talk about it explicitly. If students are making an argument about the book, they have to use evidence. Are we talking at cross purposes? They’re doing the same thing.]

We are and we aren’t. You still are making an argument. Well, not always. A personal experience essay is not always argument-based. I was just talking with a teacher last week, and he was talking about a kid in AP. He was sure the student didn’t pass the AP—the document-based writing section. He said, “[Student name] can write a poem beautifully, but he can’t write an essay. When you’re writing an essay in English, you are using evidence. It’s typically more text-based or more personal experience-based evidence. It doesn’t require the same kinds of standards for warrant—empirical, data-based work. So that’s the difference and that’s what we need to give kids access to.

In something like this, what they’ll get for their state writing exams is a series of data tables. And remember they’re told to use one piece of evidence. So what they do—this is a good example. This question asks them whether they should engage in community service. So, they look at the data tables, and all the kids who were interviewed say that they shouldn’t engage in community service. So they get this overwhelmingly distinct data point that matches their point of view. They then get all sorts of other data that show that when kids engage in community service, the benefits to the kids, the school, and the community are high. And the kids ignore it. They don’t realize that in a sense, they are being set up. These essay prompts are set up to test whether they can ignore their own personal experience—great thing to do to 14- and 15-year olds, because they’re so good at it. Kids look for that one piece of data and use it. Instead, we need to help students to understand that you have to account for all these other data that are out there.

It’s very much like their English essay, but different. Here’s an example of an English class essay on dress codes. They’re given no empirical data and they’re asked: Should their schools require uniforms? They can come up with all these reasons why they should and why they shouldn’t, and in the end they can pick what is most compelling to them as long as it’s a solid argument. But when you’re faced with data that actually contradict what is most compelling to you, you can’t pick what is most compelling and make a solid argument. Do you see the difference? That’s what they are struggling with, because they think it’s OK as long as they use that one piece of data to land on what they believe. Yet the whole point of doing empirical data-based work is that sometimes what you believe gets challenged. That’s what we’re trying to help them understand. That’s what the natural and social sciences are trying to get to—does this really fit with my belief system?

* [Two slides – What to do about disciplinary literacy; The work to be done]
OK, now I want to get to what to do about disciplinary literacy—the kind of work that needs to be done. Basically, we want to engage people in disciplinary reading and disciplinary writing, so reading like a historian, mathematician, scientist or literary critic.

* [Slide – Disciplinary reading]

What do we do in disciplinary reading? I’m going to argue that as teachers, we need to engage in a set of practices. One is drawing from the knowledge that kids have and developing necessary knowledge. The second is talking about text. There’s just not enough of that in our middle and high school classrooms. We don’t talk about texts, with texts in front of kids’ eyes. That’s absolutely critical. A third is synthesizing across text. We don’t come back around very well. We read one thing and then we go on to the next thing. That’s what makes synthesizing across data, empirical data, and even more logical argument data very difficult for kids. It also requires teachers taking on texts and really thinking about which texts are best to use. We can’t just rely on a textbook. You saw Tim’s account of how people in the different disciplines think of textbooks. In science, yes, we use texts but not the ones in our classrooms. So we have to think about “What do I do with the texts that I have?” and “Where can I find other kinds of texts?”

* [Slide – Disciplinary reading and writing; six core literacy teaching practices]

The six core literacy teaching practices that we should engage in are:

1. Purpose setting and problem framing. Right from the start, we always set a purpose.
2. We then engage in whole group knowledge solicitation and development. Building knowledge is particularly important for our struggling readers.
3. Engaging in text-based discussions using multiple text types.
4. Questioning and modeling our thinking with the text.
5. Visualizing and providing visual representations. We hear a lot about using visualization as a strategy, but it’s often not used strategically. We’re going to read this thing, close your eyes, and try to visualize it. Visualize an atom. Visualize a cell. Visualize democracy. Well, I can’t see them, how am I going to visualize this? So, we need to provide visual representations.
6. Summarizing and synthesizing with text. Get texts of all kinds in front of kids. If there’s one thing that you do differently in your classrooms or if you’re working with other teachers, put words in front of kids.

Someone in the audience [during an earlier session] had the great idea of using complex language in discussions—instead of burdensome, they used the word onerous. Put it on the board. Teachers talk and talk, but the words they use are never seen. Examples include per capita. What does it mean? What does it look like? How do you spell that? A lot of our students hear words, but never see them. Make words visible by simply writing them on the board. If you can use document readers, project a piece of text, read it together, and point to the words. That’s going to help your struggling readers and you’ll be doing disciplinary work at the same time.

This kind of literacy work recognizes that any of the work that you are going to do is disciplinary in orientation. Let me show you a couple of examples.

* [Slide – Necessary knowledge]

Necessary knowledge. Now I have to give you a little background. I was teaching a unit on immigration in a global issues class to eleventh graders. I taught three periods a day, and we only had two weeks to do the unit. So we were constrained by time, which means I can relate to these issues of time.

We developed the unit on immigration because I work in a predominantly Latino community. Immigration is a big issue and it was two weeks before May 1st, which is the annual protest march against immigration law in the United States. The unit was on immigration as a concept or an issue, but we thought that the kids should have a deeper understanding of immigration law in this nation and any patterns that one might be able to see in immigration. So, we developed the unit on the history of immigration law with lots of writing and reading embedded in it, and one of the sources of reading was the laws themselves.

One of our first activities was to give each group a different immigration law and have them draw it—so thinking about that visualizing process and have them put the words into an image. That’s really easy to do with the Chinese Exclusion Act. The Alien and Sedition Acts was do-able, but it’s really hard to do with the Emergency Quota Act of 1921, which reads that “the immigration quotas will be based on the allowance of 3% of any alien resident in the United States in 1910.” How do you draw that? So we went to that group and we said, “So what do you think that means?”

“Three percent of the aliens that lived here in 1910 could come into the country.”

“OK, but what does that mean?”

And they had no clue. There’s a subtext. You have to know something. This is the necessary knowledge piece, about who was coming into the country in 1921 and 1910 and prior to that.
I was co-teaching with one of my student teachers and we looked at each other and thought, “Uh-oh, now what do we do?” How do we engage them in building that necessary knowledge which they should have had because they had U.S. history? But how do we do that without lecturing, without telling them that there were suddenly a whole lot of Italians coming into the country? We quickly ran to the one computer in the room. We found the Bureau of Immigration statistics—we made sure we were using a credible source—and popped up the immigration statistics. We asked the kids to take a look at those statistics and think about what was happening in the country in 1921 that might have constituted an emergency.

*[Slide – Table of foreign-born residents by country of origin]*

By the way, before we even got to this, we asked them “Well, why 1910?” because not one of them had thought to ask that question. So there’s the practice of modeling questioning. “Why even 1910, why not 1920?” And they had some good ideas. They said, “Well, the census of 1920 probably couldn’t be calculated so quickly in those days, so maybe they didn’t know and they went back to the numbers they had in 1910.” That’s not bad critical thinking, although it happened to be wrong.

We wanted to push them a little more and we asked, “So, what’s the emergency?” And of course, they had no idea. It allows us to put these data up and we asked, “What do you see happening?” You see, in 1920, the numbers of German and Italian immigrants look pretty comparable. But in 1910, Italy had a much smaller number than Germany. So, German immigration is on the decline in 1921 and Italian immigration on the rise.

What’s really interesting is that this helped the group who had the immigration law of 1924 because in 1924, the law only allowed 3% of immigrants in 1910, but they dropped it another percentage point to 2% and went back to 1890 to calculate how many immigrants to allow. So, when you start to put those two laws together, you can very quickly see the subtext of that law, and understand it in a much more critical way. The whole point of the unit was to analyze the patterns of race and racism that played into immigration law throughout history because, of course, the kids we were working with saw current immigration practice as highly racist. This gave them a very different understanding of how they felt as Mexican-American and Puerto Rican immigrants coming into the country and feeling oppressed, indeed legitimately, as many of them would argue. So it was a way for them to think about how they can work against it and also understand that it isn’t about them only.

*[Slide – Table of immigration statistics 1920-1926]*

There was one little problem with this, however. This was another chart that we gave them, to help them see what happened. Once the immigration law of 1924 was put into practice, notice how immigration drops from 222,000 in 1921 to 6,000. And of course, it wasn’t just Italians, it was all sorts of Eastern Europeans. There was one problem. Our kids didn’t know who Italians were and why were they being discriminated against. But this is a very subtle kind of necessary knowledge. We thought, maybe we shouldn’t be doing this, but we decided to show them some visual images.

*[Slide – Pictures of immigrants]*

We started showing them pictures from Ellis Island of German immigrants, English immigrants, Italian immigrants, Romanian immigrants, and immediately it was like a light bulb went off. They immediately understood why Italians and Eastern Europeans were being discriminated against. It had everything to do with skin color and poverty, and it really shifted the way that they were thinking about that very simple piece of text. That’s what I mean by disciplinary literacy. That’s the kind of work that I think is really valuable, because it gets kids to dig deep and to synthesize across texts.

*[Slide – Emphasis on text talking about text]*

I want to get this point about talking about text. One of the things that we feel is really critical is tearing texts apart. This is really important. We have a lot of struggling readers. Seventy percent of the kids in the classrooms that I work in read at a fourth or fifth grade level. They are about four to five grade levels below their grade. They can read, they can decode. They don’t need that kind of work. They need work with vocabulary and conceptual understanding and the knowledge-building piece. So we did a lot of talking about text. The first thing we did was to read Emma Lazarus’s poem that’s on the base of the Statue of Liberty: “Give me your tired, your poor, your huddled masses, yearning to breathe free....”

We took it apart and we gave groups of kids different stanzas and asked them to try to say in their own words what the stanzas meant. Very difficult. This is kind of arcane language. You have to understand the context in which she was writing, so it’s complex work. We put dictionaries at every table and went through every single stanza. The first stanza says “like the new colossus.” Well, it doesn’t make much sense if you don’t know what the old colossus looked like straddling the waterway in Greece. We then asked them, “Now, why would the Statue of Liberty be like the old Colossus? What’s the comparison? How are these similar?” So we were giving a visual image and defining the terms, and really working through every detail. It took a lot of time, but it paid off in unbelievable ways.
At the end of the unit, we were looking at the Immigration Law of 1903, which says that “No stupid people, no paupers, no insane people, no people of low moral turpitude should be allowed into the country.” We put it up side by side with Lazarus’s poem. And we asked first of all, “What is a pauper?” We asked them to look it up in their different dictionaries. What were the shared words found in the definitions? Poor was a word that got circled a lot. “Where else have we seen that?” It popped up conveniently in Lazarus’s poem. Well, it turns out that Lazarus wrote that poem in response to that law. It puts a very different spin on that poem, which is now used to promote the notion of the American Dream and that everyone can come here and have the same opportunity. It represents an interesting use of that piece of text and it gives them a much more critical understanding of the text. So that was the kind of talking about texts that we did.

Now, I’m just going to walk you through the rest of the slides, because I’m going to make them available to you. One of the things you have to do as a teacher is to know the texts from which you teach. We were ready to put up Lazarus’s poem and the Law of 1903 side by side because we had read and analyzed them and knew the background of those texts. It involved a lot of work; it’s not easy to do.

You’ve also talked about lack of time—and my sense of it is that you’re talking about the classroom and in the moment, but there’s also your personal time. This is really time-consuming work, so I would suggest starting small. Start with a unit and build a collection of texts. The good news is that there are tons of texts out there. It’s a little more difficult with science. You have to be very careful with what you pull off the Internet because you can get stuff that is wrong. Ultimately, it’s a good activity to engage kids in, to have them try to look for texts and have them use the strategies to think about the kinds of information presented in different texts.

But before you do that, I suggest that you do some work analyzing the text. You have to be ready and know what the kids might stumble over. So with the immigration laws, the Emergency Quota Act, we were ready to teach them what the word alien meant in that context and words like per capita, words that they might not know. We weren’t ready for the lack of knowledge that they brought about the larger concept, so we had to do that on our toes. But if you spend time analyzing the text, you’ll have a better sense of what kids might struggle with and be prepared to engage them in both literacy work and disciplinary work.

* [Slide – Text analysis: Coh-Metrix]

I want to suggest to you a text analysis tool called Coh-Metrix. It’s produced by Art Graesser and Danielle McNamara. It will actually analyze text for you in a very different way from the typical K-12 level readability index, which is not always very accurate. Coh-Metrix offers lexile scoring, but it also offers other measures. It can tell you about the logical cohesion of the text, or it can tell you how much narrativity is there. It’s not difficult to input the text; you just type it in. It will spit out 63 indicators of complexity of the text. The problem is reading those. They’re working on making it more user-friendly and giving teachers information on the five most critical indicators of complexity. So you may want to take a look at that in the future.

* [Slide – Text analysis: Analysis of relationship b/t text and reader]

These are all the kinds of analyses you need to do if you are going to be prepared to engage kids in disciplinary literacy. When you plan to use a text, you need to think “What are my adolescent readers going to know about this?” and really question the necessary knowledge-building that you have to do. You also need to consider the cultural, racial, ethnic or gender connections that you might be able to make or that might be assumed in the text that they won’t necessarily be able to make. Like, how the kids didn’t understand why Italians were being discriminated against. If they don’t get that cultural connection, then it’s meaningless to them.

* [Slide – Synthesis journal]

The rest of the slides show different techniques that you can use. I have a number of different kinds of strategies for synthesizing across texts. This is a synthesis journal. These are again content area reading strategies, but using them in a way that makes sense for a content area. Historians have to look across texts, so the synthesis journal asks kids what was happening in this primary source, in this one, and this one, and then what is the synthesis. You can actually constrain how much space they have to write, so that they have to write an abbreviated version.

* [Slide – Summarizing and synthesizing from texts: Questions into paragraphs]

Questions into paragraphs is another one that I use in the science classroom. I like this because it really gets at what are my sources, though not necessarily primary sources. When I do research, I have particular driving questions and questions that support that driving question. My research, whether it’s a literature review or about an experiment, is about taking all of those sources and putting them together. I can summarize across questions, and then I can summarize across sources, and ultimately I can summarize across questions and sources and end up with a product. This is actually a strategy designed for struggling readers or
writers who don’t know where to start one paragraph and where to stop one paragraph and start another.

* [Slide – Explanation rubric for evaluation: How to write a good science explanation]

I also give a lot of different ideas about rubrics for writing in science, for example, how to write scientific explanations. Students who have gone through this curriculum have better science scores on the MEAP—that’s our state test—than students who don’t participate. I have a process here of how to engage students in that kind of science writing and a list of challenges involved in that kind of instruction.
“But My English Teacher Said . . .”
Supporting Students in Learning How to Read and Write in the Natural and Social Sciences

Elizabeth Birr Moje
Teachers College Content Area Literacy Conference
July 8, 2010

... Or ...
HELPING YOUTH NAVIGATE FROM EVERYDAY TO DISCIPLINARY LITERACY PRACTICES
A Prior Question

WHAT IS DISCIPLINARY LITERACY?

What is Disciplinary Literacy?

- Disciplinary literacy perspectives argue that the tools of knowledge production and critique, whether rooted in the disciplines or in everyday life, should be uncovered, taught, and practiced.
- Disciplines v. subject areas
Discipline-Specific Literacy Teaching Practices/Strategies

- How do members of the discipline use language on a daily basis?
- What kinds of texts do they turn to or produce as part of their work?
- How are interactions with members of the discipline shaped (or governed by) texts?
- Who are the primary audiences for written work in your discipline?

Discipline-Specific Literacy Teaching Practices/Strategies

- What are the standards for warrant demanded by those audiences?
- Are there words or phrases that are demanded by or taboo in your discipline?
- Are there writing styles that are demanded by or taboo in your discipline?
- What is unique about your discipline in terms of reading, writing, speaking, and listening?
**Question 1**

**WHY DISCIPLINARY LITERACY MATTERS?**
Why Disciplinary Literacy?

- Disciplinary slicing of middle school, high school, and university into subject-areas leads to:
  - Masking of the role that disciplinary practices play in knowledge production
  - Reification of disciplinary differences
  - Challenges to coherence for the learner

Access and Opportunity

- Explicit attention to navigation across multiple discourse communities provides greater access to more young people
- In the service of enhancing subject-matter learning (i.e., to develop deep subject-matter proficiency)
- Builds critical literacy skills for an educated citizenry
What is the relationship between disciplinary and generic literacy?

- Key “Generic” Literacy Skills/Strategies
  - Predicting
  - Previewing
  - Questioning
  - Monitoring
  - Visualizing
  - Summarizing
- Most “strategy instruction” attempts to develop these strategies/skills in readers

Discipline-Specific Literacy Teaching Practices/Strategies

- Previewing like a historian
  - Who is the author?
  - When was this written?
  - What is the context?

- Previewing like a biologist
  - What is the problem/phenomenon I’m studying?
  - What do I know about this phenomenon?
  - What do I predict/hypothesize about the phenomenon?
History Previewing Example: A Nation of Immigrants

- If I told you to that we were reading a chapter from the book, A Nation of Immigrants, what do you expect it would be about?
  - If I told you that the book was written in 1961, how would that change your predictions?
    - If I told you that the author was John F. Kennedy, how would that change your predictions?

Differences across Content Areas: The Persuasive Essay

<table>
<thead>
<tr>
<th>Letter to the Editor</th>
<th>Essay or Poem for English Class</th>
<th>Social Science Essay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal opinion or personal experience; may include argumentation; clear stance; language used to indicate personal opinion</td>
<td>Personal opinion or experiences AND logical reasoning or illustrative imagery; language used to argue a point or to convey images and experiences</td>
<td>Distanced stance, evidence to support stance, logical reasoning to tie evidence to claim; language used to convey distance and objectivity</td>
</tr>
</tbody>
</table>
Student writing in English class

Detroit
Motor city of the world
Automaker and designer
A player of cars and casinos
A city of violence
They tell me you’re the #1 murder city
For I have seen your people and streets,
They tell me you are feared and violent
And I have seen the results of that with
My friends who have passed away.
For the people who want to show me the
Good side, I’ll show them my reality.
The view that only people who live here see and hear.
Gang violence, gunshots, drug dealing, rapists
Prostitutes, crackheads, bums, thieves, burned houses,
And dirty streets.
All of this hides under those beautiful buildings
In Downtown.
Under the unknown places of the camera hides
This terrible everyday alienation we have to go through.
Underneath the streets of Detroit hides its people
And underneath those people
Their solidarity toward society.

State Social Studies Writing Rubric

- State a claim.
- Use at least one piece of data from the data provided.
- Use a core democratic value to support your argument.
- Use at least one idea or principle from one of the social studies (economics, history, civics, etc.) to support your argument.
Student writing in Social Studies

I think middle school students should be required to participate in a community service program because it makes them more responsible and teaches them what work really is.

Another reason I think this is because it will help them to be successful and not to die as a teen gang member. Some people have thrown away their lives in gangs this community service program will help prevent that by keeping students away from gangs and away from drugs.

The Core Democratic Value that I choose is Common good, I chose this value because it states that we should protect and provide safety for our community as well as for anyone who lives here. Also because the community service program reduces the gang killings and increases the safety around us. Community service are when students help around their community and to help older neighbors cut the lawn, rake the leaves, or shovel the snow.

I have learned that gangs are no good they bring nothing but trouble. All gangs are just about which gang is better the only things they do are fight, steal and cause trouble. Here in Detroit there have been a lot of teens being killed because they were involved in gangs.

Question 2
WHAT TO DO ABOUT DISCIPLINARY LITERACY?
The Work to Be Done

- Disciplinary Reading
- Reading like an X
- Disciplinary Writing
- Writing like an X

Disciplinary Reading

- Drawing from and developing “necessary knowledge”
- Talking about texts
- Synthesizing across texts (or “coming back around”)
- Teachers taking on texts
Disciplinary Reading and Writing

- Six core literacy teaching practices (Moje & Speyer, 2008; Moje, 2010)
  - Purpose Setting/Problem Framing
  - Whole-Group Knowledge Elicitation and Development
  - Text-Based Discussions using Multiple Text Types
  - Questioning and Modeling Thinking with Texts
  - Visualizing and Visual Representations
  - Summarizing and Synthesizing with Texts
    - GET TEXTS OF ALL KINDS IN FRONT OF KIDS!
- Recognizes that texts, and the reading and writing practices associated with those texts, differ by discipline/subject area

Drawing from and Developing . . .

NECESSARY KNOWLEDGE
### Foreign-Born Residents by Country of Origin, 1890-1920

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>1890</th>
<th>1910</th>
<th>1920</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>1,251,402</td>
<td>1,221,283</td>
<td>1,135,489</td>
</tr>
<tr>
<td>Ireland</td>
<td>1,871,509</td>
<td>1,352,251</td>
<td>1,037,234</td>
</tr>
<tr>
<td>Germany</td>
<td>2,784,894</td>
<td>2,311,237</td>
<td>1,686,108</td>
</tr>
<tr>
<td>Italy</td>
<td>1,887</td>
<td>1,343,125</td>
<td>1,610,113</td>
</tr>
<tr>
<td>Romania</td>
<td>NA</td>
<td>937,884</td>
<td>1,139,979</td>
</tr>
<tr>
<td>Poland</td>
<td>48,557</td>
<td>65,923</td>
<td>102,823</td>
</tr>
</tbody>
</table>

### Immigration Statistics, 1920-1926

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Entering U.S.</th>
<th>Great Britain</th>
<th>Eastern Europe</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>430,001</td>
<td>38,471</td>
<td>3,913</td>
<td>95,145</td>
</tr>
<tr>
<td>1921</td>
<td>805,228</td>
<td>51,142</td>
<td>32,793</td>
<td>222,260</td>
</tr>
<tr>
<td>1922</td>
<td>309,556</td>
<td>25,153</td>
<td>12,244</td>
<td>40,319</td>
</tr>
<tr>
<td>1923</td>
<td>522,919</td>
<td>45,759</td>
<td>16,082</td>
<td>46,674</td>
</tr>
<tr>
<td>1924</td>
<td>706,896</td>
<td>59,490</td>
<td>13,173</td>
<td>56,246</td>
</tr>
<tr>
<td>1925</td>
<td>294,314</td>
<td>27,172</td>
<td>1,566</td>
<td>6,203</td>
</tr>
<tr>
<td></td>
<td>304,488</td>
<td>25,528</td>
<td>1,596</td>
<td>8,253</td>
</tr>
</tbody>
</table>
Emphasis on TEXT
TALKING ABOUT TEXTS
Text Analysis

Analysis of Nature of the Text:
- Structure and tone of this text?
  - Syntactic (i.e., sentence structure, organization) complexity
  - Semantic complexity
  - Cohesion
- Organization and flow of ideas
- Density of ideas
- Key ideas or concepts
- Key words or technical terms
- Density of vocabulary
- Texts within text?
- Role of images, charts, or graphs

Coh-Metrix (Graesser & McNamara)

Text Analysis

Analysis of Relationship between Text and Reader:
- Assumed knowledge
- Challenges to an adult reader with relatively deep knowledge of this subject
- Challenges to adolescent readers of this text
- Necessary scaffolding
  - Scaffolding necessary for STRUGGLING readers?
- Cultural, racial/ethnic, or gendered connections
Text Analysis

Analyzing and Planning for Relationships Across Texts:

- How would you select other texts to accompany this one?
- What connections might you imagine students making across texts?
- What connections would you try to help students see across the texts?

Helping youth read across texts

SYNTHESIZING ACROSS TEXTS
### Synthesis Journals

- Primary Source 1
- Primary Source 2
- Primary Source 3
- Primary Source 4

Analysis across texts (i.e., a history)

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### Summarizing From and Synthesizing Across Texts: Questions Into Paragraphs

**Driving Question:** What affects the quality of air in my community?

**Learning Set Question:** Is material X a pollutant?

<table>
<thead>
<tr>
<th>Sub-Questions</th>
<th>Source 1</th>
<th>Source 2</th>
<th>Source 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the sources of this material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What are the effects of this material in the air?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How much of this material is typically found in air?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUMMARY:**

### EXPLANATION RUBRIC FOR EVALUATION

How to write a good scientific explanation:
1. Make a claim about the problem.
2. Provide evidence for the claim.
3. Provide reasoning that links the evidence to the claim.
4. Use precise and accurate scientific language.
5. Write clearly so that anyone interested in science, anywhere, can understand the explanation.

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes a claim about the problem.</td>
<td>Does not make a claim, or makes an inaccurate claim.</td>
<td>Makes a claim that reveals partial understanding. The claim may include both accurate and inaccurate details, or it may omit important details.</td>
<td>Makes an accurate claim.</td>
</tr>
<tr>
<td>Provides evidence for the claim.</td>
<td>Does not provide evidence, or provides inaccurate evidence for the claim.</td>
<td>Provides some accurate evidence for the claim, but not sufficient. (May include some inaccurate evidence for the claim.)</td>
<td>Provides accurate evidence and sufficient evidence for the claim.</td>
</tr>
<tr>
<td>Provides reasoning that links the evidence to the claim.</td>
<td>Does not provide reasoning, or provides rationale that does not link the evidence to the claim.</td>
<td>Provides some reasoning that links the evidence to the claim, but the rationale is not sufficient. (May include rationale that does not link the evidence to the claim.)</td>
<td>Provides sufficient reasoning that links the evidence to the claim. (May use linking words like because, so, therefore to make the connections.)</td>
</tr>
<tr>
<td>Uses precise and accurate scientific language.</td>
<td>Does not use scientific language, or uses scientific language incorrectly.</td>
<td>Uses some scientific language correctly, but some may be incorrect (or imprecise).</td>
<td>Uses precise and accurate scientific language.</td>
</tr>
</tbody>
</table>

**Figure 13.1**: Explanation rubric: general.

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### Disciplinary Writing

- Exposure to and opportunities to write multiple genres and registers
- Learning to write the valued genres and register of the discipline . . . really well
Scientific Explanation Writing: An Iterative Practice

- Examination of explanations written by others
- Classroom-based, whole-group generation of rubric using models (i.e., comes from the students; see next slide)
- Engagement in scientific investigations
- Writing to explain one’s own investigations
- Peer review (e.g., poster displays, museum walks)
- Revision of explanations
- New investigations, new explanations, more peer review
- And the cycle continues . . .

To Address the Dilemmas . . .

TEACHING PRACTICES
Teaching Practices: Task Analysis

- What does the task assume about youth and/or ask them to do as thinkers?
- What do youth need to know to meet the task demands?
- What kind of text does the task ask youth to produce?
- What do we need to do instructionally to scaffold young people’s thinking before they even begin to write?

A Few More Teaching Practices

- Writing multiple versions
- Teaching students to “go to” or abstract the larger issue
- Explicitly critiquing the rubric with and for students
Reifying Practices

For more information...

www.umich.edu/~moje
Academic Language Instruction for English Language Learners: Teaching the Building Blocks for Reading and Writing in the Disciplines

Dr. Michael Kieffer

Assistant Professor of Language and Education
Teachers College, Columbia University.

* [Slide – Today’s talk]

Thanks so much. It’s a huge honor to be here. Today, I’m going to talk about the underlying language knowledge that is important to do this work of reading and writing in the disciplines. I’m going to start by talking about what may be particularly challenging for some English Language Learners in relation to reading and writing in the disciplines. I’ll discuss some of the common pitfalls when we try to give students access to content. Then, I’ll talk about the process of deciding what to teach, given that the English language is enormous and includes large domains of academic language. Then, I’ll talk about some principles and examples, given that there’s a huge range of instructional approaches and strategies that you can use to help you to think about ways to be more thoughtful about this instruction.

* [Slide – What is the topic of this passage? Passage in Serbo-Croatian]

So, I’ll start with a quiz. What’s the topic of this passage? I don’t know if we have any proficient Serbo-Croatian speakers in the audience. This is written in the Cyrillic alphabet; this is what’s used in Serbia. To answer this question would be quite challenging if we don’t know what sounds that these letters make. This is what faces some English Language Learners, but the truth is only a few students are really in this kind of position when they encounter English text. Also, we might think of a more discipline-specific task that would be posed to students, like “Explain the process that is described here in this science text,” instead of just explaining the topic.

* [Slide – How about this one? Cirkulatorni Sistem]

Most students encounter texts that look more like this. There may be a number of words that they recognize. Students pick up vocabulary fairly quickly, words like blood and animal. But that’s still not enough to explain the process going on in the text. At the same time, this goes beyond just the knowledge of individual words. The sentence structure, the grammar or the ways that words are put together will also cause difficulties.

* [Slide – A few more ugly stats...4th and 8th grade NAEP reading scores]

So yesterday, we saw a number of different ugly statistics.

* [Slide – A few more ugly stats...8th grade NAEP reading in NYC]

I’ll give you just a couple more—ones that are a little more local. These were the most recently released NAEP reading scores from New York City. What we find is a pattern similar to what Andrés [Henríquez] pointed out. We see the fourth grade reading scores have improved quite a bit since 2002. This is a pretty substantial improvement. In 2002, the average New York City student was performing close to where students were in most other major urban districts like Washington, D.C., and Los Angeles. By 2009, the fourth graders were close to where students were performing nationally, including students in the suburbs. But, when we look at our eighth grade scores, we still have the flat line—very little progress made over the last seven years.

We also see some really large achievement gaps that are quite persistent on the basis of race and ethnicity. There’s also a similar pattern when we look at
English Language Learners compared to native English speakers. Our Hispanic students are doing a bit worse than they were doing in the past. These achievement gaps by race and ethnicity represent, in many ways, underlying gaps in opportunities to learn.

* [Slide – New challenges for all students in reading science and social studies texts]

You’ve heard a lot about this idea in the past two days—that differentiated purposes for reading require different discipline-specific strategies and skills. Science and social studies texts require all kinds of specific types of knowledge: complex concepts, knowledge about the world, ways of making meaning, and discipline-specific uses of language. Elizabeth Moje made the point that underlying this is necessary knowledge—that there is general and specialized prior knowledge that always plays into the reading process. So, those are the new challenges that all students face as they move from classroom to classroom and into the secondary grades.

* [Slide – Challenges in reading disciplinary texts that may be particularly difficult for English Language Learners #1]

What are some of the challenges that may be particularly difficult for English language learners? Notice that may is underlined, in bold, and in italics. Any time we make any generalizations, we need to remember that the group that we call English Language Learners is hugely diverse—diverse in their first language background and in their prior educational experiences. So they will also be diverse in the kinds of challenges and struggles that they face as well as the resources they bring.

At the same time, our populations of native English speakers, many of whom have had similar educational experiences and maybe have similar SES backgrounds, will be hugely diverse and may share similar challenges with English Language Learners. For English Language Learners, the challenges may be somewhat more hidden. We may not necessarily recognize the particular language demands in English that they don’t have command of yet.

For instance, many of the interdisciplinary thinking strategies we’ve been talking about require not just knowledge of the world and the concepts, but also of language—usually most of the language in the text in order to comprehend it and think about it in a strategic and deep way. So, in the case of vocabulary, students need to know artery in science and industrial in social studies, but also words such as consists and establish. These are words that may not jump out as science words or social studies words, or as highly important words, but these words end up playing a very important role in building meaning of sentences and texts.

Another challenge that may be particular to English Language Learners is that academic vocabulary and grammar play the role of building blocks. These are the units of ideas that we manipulate when we are thinking strategically about text. Elizabeth Moje mentioned the concepts that students need to work with when they are working strategically, but students also need to work with language units. So, for instance, if we ask them this question, “What is suggested about the author by his use of the phrase ‘the War of Northern Aggression’?” we see that this question is quite loaded. To answer it, we need to do strategic thinking about the author and the Civil War, but you also have to unpack this language. What does aggression mean in a general way? What does it mean that the north—a region—could be aggressive? We might talk of two people fighting and a young man being aggressive in that argument, but now we have to think about a whole group of people or region being aggressive. So, it’s quite complex linguistically. And then if we think about the structure of the question itself, we see that it is somewhat convoluted as well.

* [Slide – Challenges in reading disciplinary texts that may be particularly difficult for English Language Learners #2]

Another point that I’d like to make is that discipline-specific language is built on the foundation of general academic language. When we talk about discipline-specific strategies and generic strategies, the same holds for language. For discipline-specific words like photosynthesis, if we look at the definition of this word, we see things like: “The process in green plants and certain other organisms by which carbohydrates are synthesized from carbon dioxide and water using light as an energy source.” Not a particularly helpful definition. What we see is that this idea of photosynthesis is built from more general, basic academic terms—words like process and synthesize. These words cut across disciplines. They can be taught in different contexts and then can be used to build up the “big ideas” like photosynthesis.

* [Slide – Pitfalls in content teaching for English Language Learners #1]

With these sorts of challenges in mind, what are some pitfalls that we often run into? One is decontextualizing vocabulary instruction. We do things like ask students to copy definitions of the word and write a sentence for each. The definition can be something complex like “An elastic tubular channel, such as an artery, a vein, or a capillary, through which the blood circulates.” I don’t think that’s particularly helpful. And students may write a sentence like “I don’t really like blood vessels very much.”
Another pitfall is generic strategy instruction. Dr. Moje made an important point that we need these generic strategies and we need to teach them in discipline-specific ways. But we also need to think about how these general strategies can be used not just to teach students how to think better, but to get them to unpack what they are having difficulty with.

So, for instance, students might see a sentence like this: Krvotok ovjeka sastoji of srca and blood sudova. And the teacher says, “OK, now turn to your partner and summarize what you just read.” It’s not that I need to teach you how to summarize better or to think better about the sentence. However, by teaching and engaging students in using these strategies, students might realize, “Oh, I actually don’t know what this word means” or “Oh, I don’t understand this sentence structure here.” So, we can think about generic strategy instruction as a really important way to get students to monitor their comprehension, and also as a way to get teachers to think about where comprehension is breaking down and what language knowledge students are lacking that could help them better understand.

Many of our adolescents—this is true for second language learners and for all students—make inferences all the time. If you watch sixth graders use sarcasm and make fun of each other, you know they are able to understand that words used in certain ways imply certain meanings. But the challenge, of course, is that when we ask students to make inferences and they don’t understand the baseline language of the text, that’s when their inferences break down.

This is another pitfall in content teaching. There’s a bit of this in the ESL literature. We want to give students opportunities to use and engage in language and literacy, so we use poetry in the science class. Of course, acrostic poems are something that scientists don’t do very often, nor do medical students or nursing students. So, it’s clearly not a very authentic type of literacy practice in science.

The other point that I want to make—and I think it is true when we talk about literacy in the content areas, but it’s particularly true when we talk about English Language Learners—is that we end up using what I call the IKEA instructional approach. I don’t know if any of you have recently bought something there, but IKEA has this big challenge because they sell furniture all over the world and have to explain to people how to put it together. And instead of translating their instructions into 35 languages, they do this instead.

This is pretty complicated content that they’re trying to explain, like this idea that I need this kind of screwdriver, I need to work with someone else, and I need to put a rug underneath here. I think that well-intentioned teachers think this is what we need to do to give English Language Learners access to the curriculum. We need to give them a lot of pictures. We need to avoid text as much as possible. We need to have students act things out. The problem is that when we then ask students to explain the process that they did, I might say, “I put the thing on the thing, and then I jammed the thing next to the thing.” I wouldn’t have any language to describe what I had done or the skills to explain to anyone else what I was trying to do.
and that they shift based on the context. Many come up in the context of the text.

There are various things that I’ve circled here. The words in bold are the ones that the textbook maker thought were very important—words like wavelength, trough, and crest. These are the technical science words, which are more or less defined in the text. A crest is the high point of a wave. If we have a picture next to it, we can have them quite clearly labeled. Both crest and trough are quite concrete ideas. But then we’ve got all these other academic words like pattern, cause, and influence, and ability, approaches, and depends—all of which underlie these bigger concepts. Then we have words like open, which has a very specific meaning in this case. Similarly, point can have various meanings. English Language Learners learn very quickly that you point to certain things—it’s a physical action—so to understand that a trough is a low point is a new meaning of the word.

* [Slide – Which words to teach?]

One way to think about which words to teach is to use the idea of a building metaphor. You’ve got “brick” words that are key content words cutting across content areas. Words like observation, hypothesis, and decade; words that come up quite often and frequently. You have these “mortar” words that you might not necessarily notice as being challenging—which students might know but other students may not—which connect words—words like however, analyze, and compare. These are the in-between words by which we put concepts together in many cases. You have these “capstone” words or big idea words like photosynthesis, Industrial Revolution, scientific method, and romantic poetry that are built up from the foundation of these other academic words.

And then you have what I call “window dressing” words. These are words that are rare and exotic, like cravat or flapper. They’re fun sometimes, but they generally have low utility. What we see is that teachers pick them out because they are kind of interesting, but they don’t appear that often in other types of text. It doesn’t mean that they are not worth teaching occasionally or engaging with. But it means that we do need to think both about what are the words that are the most important to teach to understand this text and this concept, and also what are the words that students can take with them and use in a variety of other contexts. And given the time constraints that people have talked about, we need to prioritize our instruction around the words that are most essential.

* [Slide – Deciding what to teach: Morphology]

The other point that I’d like to make is about morphology and the structure of words. Morphology is this idea that within words, there is an underlying structure of meaningful units. That if we have words like complexity, regulation, and circulatory, that they can be broken down into roots, suffixes, and prefixes.

Research has shown that this is quite important. For English Language Learners and a reasonable number of native English speakers, particularly those who struggle with reading, this skill is quite important, but doesn’t necessarily come naturally or automatically based on exposure to language. These words often appear much more frequently in written text rather than in oral language, and students might not be exposed to them that often. Ultimately, what’s most important about gaining awareness of how words are formed is that you are then better equipped to be a better word learner. For example, if you come across the word complexity and already know something about the word complex, you can very quickly learn that new word.

This is quite important because we know that students need to learn a huge number of words every year—researchers estimate about 3,000 words a year—and teachers simply cannot teach them all. So, ultimately, we need to equip students with the strategies that they can use to acquire words on their own effectively.

* [Slide – Deciding what to teach: Academic grammar and discourse]

In addition, we need to go beyond the word level to think about academic grammar, and to think about the ways that the grammar is structured by the larger discourse. This passage is from an eighth grade level science text. You see that a number of different pieces are going on. This comes in large part from the work of Mary Schleppegrell and others. Here, we have an abstract concept as the actor in the sentence. In narrative text, which most students learn how to read quite well, the actors are usually characters doing things. Then suddenly, with expository text, especially in the sciences and social studies, we’ve got things like curiosity doing something. “For many, curiosity stopped there.” But what is curiosity and how can it do something? And when we teach grammar, we teach students that a noun is a person, place or thing, and we say curiosity is a noun. But it is not a person, place or thing, but an abstract idea.

There are also more complex subjects like “the dream of space travel” and “the first practical steps.” We also see passive voice, which can be quite challenging for students. We see this throughout science texts—an authoritative or detached voice that comes out in particular ways. We also see text organization that is shifting and complex. I think these are challenges for all students, but particularly for English Language Learners, especially if they haven’t had many opportunities to read rich texts in the content areas.
Teachers College Content Area
Literacy Conference 2010

* [Slide – How to teach academic vocabulary and morphology: Some principles and practices from a research-based approach]

So, to give you a few principles and some examples of how to use these ideas in teaching, I’m going to focus on academic vocabulary and talk a little bit about morphology. It’s not that I think that all of academic language is summed up in vocabulary, but it’s something we know a bit about through research.

* [Slide – San Diego Unified School District and Harvard Language Diversity and Literacy Development Research Group]

To give you a brief snapshot of the research base, this work came out of a close, long-term partnership between a research group I worked in at Harvard as a graduate student and the teachers and administrators in the San Diego Unified School District. We were interested in looking for the sources of difficulties for struggling adolescent readers from many diverse backgrounds, particularly for struggling adolescent readers from many diverse backgrounds, particularly the large population of English Language Learners in San Diego. We were interested in designing interventions that could be used on a large scale, with adaptation and the active participation of teachers, and to build the district’s capacity to improve outcomes.

* [Slide – ALIAS]

So we put together a curriculum—an academic language and vocabulary curriculum—that was implemented by sixth grade humanities teachers in classrooms that were about 60-70% second language learners. Many of the students were once designated as English Language Learners, but had reached that level of proficiency so that they were no longer designated as such, but they were still in the process of learning that academic language.

* [Slide – Research evaluations]

So in terms of research, we conducted two studies. One was a mixed-methods study where we collected a lot of assessment data, interviewed a lot of teachers, conducted extensive observations, and so on. That was in seven schools. This past year, we completed a randomized, controlled trial that looked at the results when we scaled it up. We were interested in what does it look like when we implement it in 14 middle schools.

* [Slide – Summary of research findings]

Briefly, in both studies, there was evidence of meaningful impacts on vocabulary, word analysis skills, and reading comprehension for both English Language Learners and native English speakers. The approach was particularly effective for students with lower vocabulary levels. This was more of an intervention for students who were struggling or had limited vocabulary skills, regardless of whether they were English Language Learners or not. We had greater impacts on some of the skills that we tested for [vocabulary and word analysis] and on writing performance for students who were more struggling. We also found through interviews with teachers and through our observations that we had pretty good fidelity in terms of implementation, even when it was scaled up to 14 schools.

* [Slide – Principles for academic vocabulary instruction]

I’ll talk really quickly about the principles. We started with high-utility academic words. We chose words from the texts that were conceptually rich, but words that we knew would appear in other places. To do that, we started with the Academic Word List, which is based on an empirical study that looked at what words appear often across disciplines but rarely in narrative texts and rarely in oral languages. These are words like consist, analyze, method that are important to teach because they appear frequently in all of these contexts.

We targeted depth of knowledge. We focused on a smaller number of words with the idea that if we teach these words deeply, students will be able to understand them and use them in many contexts. We taught words directly, but also taught word-learning strategies. Morphology played a key role in this—this idea that we can target a small number of words, but teach them in their many forms and teach many related words.

For our design, we had this instruction anchored in text and had multiple, planned exposures.

* [Slide – ALIAS elements]

Of course, whenever you’re thinking about instruction and curriculum, you want to think about engaging students. Working with middle school students, you want to make sure there are opportunities for word play and time for talking about topics that are engaging and interesting. You want to increase the overall amount of time that students have to use language. One thing we noticed in our observations was how limited the time was that most students had to talk—that a given student would go from class to class and rarely say anything beyond a word or two.

* [Slide – One systematic approach but not a magical sequence]

I’ll refer you to my website, which has some description of the justification behind each of these specific activities. It’s a systematic approach over a nine-day cycle. We introduced the words and built them up over time, but it’s not really a magic sequence. It doesn’t have to be done in this order or within this time frame, and with this level of intensity.

As researchers, we have an obligation to describe the active ingredients—the most important pieces in this type of program. But to teachers, we can say, “Well, here’s a set of tools, a set of activities that you can use
to teach words in a deep way. How can you mix and match them in an effective sequence?"

* [Slide – Gradual release of responsibility]

I’m going to say just a couple more pieces. One, this program included strategy instruction taught with a gradual release of responsibility. We started with more teacher-directed instruction with a lot more teacher guidance about what the words mean. And over time, we built towards the students having responsibility for the words. So the ultimate goal is that students are using the words in their writing authentically and effectively, with a precision of understanding for their meanings.

* [Slide – Building up knowledge of a word]

The other idea or the other metaphor that guided this work over time is that we would build up knowledge. You can see the details here. We started with the idea of introducing words, and what they look like and sound like. We introduced the words first through read-alouds of the expository texts we had selected. The second day, we built upon what students already know about the meanings. One thing we know is that students often know something about these academic words, but they may not know it in a deep way. So we activated their knowledge and combined it with a dictionary definition that was well selected and understandable.

On the third day, we focused more on the meaning of the word in the article and how to use it to talk about the article. All of these articles had current event topics that students were very interested in discussing, so we taught them how to use these words to think more critically about the topic. We then tried to move toward other meanings of the words and using the words in other ways. We had two days in which we focused explicitly on the word parts within the words, and how the forms of the words changed the ways in which the words were used—so this connection between word forms and the structure.

On the seventh day, we focused on the meaning of these words to talk about other topics in other contexts. And how to use these words to really bridge into not just students’ personal experiences, but also their experiences in their classes. The culminating experience was then being able to use these words precisely in extended writing.

All right, so with that, I will open it up to questions. I’ll refer you to my website (http://www.tc.columbia.edu/faculty/index.htm?facid=mk3157) for more information about the specifics of the approach and the research behind it. Thank you.
Today’s Talk

- What makes reading & writing in the disciplines challenging for ELLs?
- Common pitfalls in content teaching for ELLs
- Deciding what to teach: Essential elements of academic language
- How to teach academic vocabulary & word structure: Some principles & examples from current research
What is the topic of this passage?

Explain the process that is described here.

**Крвни Систем**

Крвни систем свих кичмењака је затвореног типа – састоји се од затвореног система судова по којима циркулише крв. Циркулација крви се остварује захваљујући раду срца. Срце лежи у посебном делу целома – перикарду који је обложен делом перитонеума и испуњен течношћу. Крвни судови који доводе крв у срце су вене, док су одводни крвни судови артерије. Артерије и вене се гранају по целом телу на мање судове, образујући на крају мрежу најситнијих капилара, који спајају артерије и вене и затварају круг крвне циркулације. Кроз зидове капилара се врши размена гасова и пролаз хранљивих материја и продуката метаболизма. Извесна количина течности остаје у ткивима и враћа се лимфним судовима у вене.

---

**How about this one?**

**Cirkulatorni Sistem**

Cirkulatorni ili kardiovaskularni sistem je sistem organa koji služi za cirkuliranje krvi kod većine životinja. Krvotok čovjeka sastoji se od srca i krvnih sudova. Neki krvni sudovi idu od srca prema periferiji i zovemo ih arterije, dok druge žile idu s periferije tijela prema srcu, a zovemo ih vene.
Try this one.

Cirkulatorni Sistem

Cirkulatorni or kardiovaskularni sistem is the sistem of organa that use to cirkuliranje blood most animal. Krvotok čovjeka sastoji of srca and blood sudova. Some blood sudova go from srca prema periferiji and called arterije, dok druge žile go from periferije tijela prema srca, and called vene.

A Few More Ugly Stats…

Fourth Grade NAEP Reading Scores

Eighth Grade NAEP Reading Scores
New challenges for all students in reading science & social studies texts in secondary classrooms

• Differentiated purposes for reading require different discipline-specific strategies and skills.
• Science and social studies texts require new, discipline-specific knowledge about complex concepts, text types, ways of making meaning, discipline-specific uses of language, etc.
• Reading to learn new information relies on general and specialized prior knowledge.
  (e.g., Moje, 2007; Lee & Spratley, 2010; Shanahan & Shanahan, 2008)
Challenges in reading disciplinary texts that *may* be particularly difficult for an English Language Learner

- Applying disciplinary thinking strategies requires knowledge of most of the language in the text.
  - *Artery & Industrial*, but also *Consists & Establish*
- Academic vocabulary and grammar form the building blocks that readers manipulate when they are thinking strategically about text.
  - What is suggested about the author by his use of the phrase “the War of Northern *Aggression*”? (Sourcing)

Challenges in reading disciplinary texts that *may* be particularly difficult for an English Language Learner

- Discipline-specific language is built on the foundation of general academic language.
  - Photosynthesis: The *process* in green plants and *certain* other organisms by which carbohydrates are *synthesized* from carbon dioxide and water using light as an *energy* *source*. 
Pitfalls in Content Teaching for ELLs

Decontextualized Vocabulary Instruction

• *Copy these definitions and write a sentence with each word:*
  - Blood Vessel: An elastic tubular channel, such as an artery, a vein, or a capillary, through which the blood circulates.
  - Capillary: One of the tiny blood vessels that connect the arterioles and the venules.

Pitfalls in Content Teaching for ELLs

General Strategy Instruction

• *Let’s read this sentence together:*
  - Krvotok čovjeka sastoji of srca and blood sudova.

  *Ok, now, turn to your partner and summarize what you just read.*
  *Ok, great, now, ask a question about what you just read.*
Pitfalls in Content Teaching for ELLs

Giant
Long
Antarctica
Cold
Icy
Erode
Really slick

Typical Responses to the Challenges of Disciplinary Text for ELLs

- The IKEA Instructional Approach
Deciding *What* to Teach:
Academic Vocabulary

*Waves*

Ocean waves at a beach occur as a repeating pattern of wave crests and troughs. A **crest** is the high point of a wave, and a **trough** is the low point. The height of a wave is the distance between the wave crest and trough. The wind is the most common cause of ocean waves. The height of the wave is influenced by the strength of the wind, how long the wind blows, and how much open water the wind blows over.

The distance between two wave crests is called the **wavelength** of a wave. The ability of a wave to disturb the ocean bottom as it approaches a beach depends on its wavelength. A passing wave can “reach” down about half its wavelength. That means a wavelength of 10 meters can only disturb the ocean bottom if it is five meters deep or less.
Which words to teach?

| Brick words | Key content words  
<table>
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<td>Observations, Hypothesis, Decade</td>
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| Mortar words | Connecting words & multi-use academic verbs  
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<td>However, Analyze, Compare</td>
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| Capstone words | Big academic concepts built upon brick words  
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<td>Experiment, Scientific Method, Industrial Revolution, Romantic Poetry</td>
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| Window dressing | Rare and exotic words with low utility  
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<td>Supercilious, cravat, flapper</td>
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Adapted from Kinsella, 2003; Zwiers, 2009

Deciding *What* to Teach: Morphology

Morphology: The structure of complex words as combinations of smaller, meaningful units

- Complexity
- Regulation
- Circulatory

Deciding *What* to Teach: Academic Grammar & Discourse

**Dreams of Space**

Humans have always looked into the sky and wondered about what lies beyond the Earth. For many, curiosity stopped there. Others dreamed of journeying into space, exploring the Moon, landing on Mars, or traveling to the stars. The dream of space travel and exploration turned to reality in the 20th century. The first practical steps were taken in the first quarter of the century as rockets were developed to blast away from Earth. In 1961, the first person reached space. By the end of the century, thousands of spacecraft and hundreds of space travelers had been launched into space.

(Schleppegrell, 2007; Snow & Uccelli, 2009)
How to Teach Academic Vocabulary and Morphology: Some Principles and Examples from a Research-based Approach

Seven-year Collaborative Partnership to:
- Identify Sources of Difficulties for Struggling Adolescent Readers from Diverse Backgrounds
- Design Interventions that are Effective and Usable on a Large Scale
- Build Capacity to Improve Outcomes
Nonie Lesaux (Principal Investigator)
Research Evaluations

- Quasi-experimental, mixed-methods study of the program’s effectiveness and ease of implementation involving 21 classrooms in 7 middle schools (Lesaux, Kieffer, Faller, & Kelley, 2010; Kieffer & Lesaux, under review)
- Randomized controlled trial involving 50 classrooms in 14 middle schools
Summary of Research Findings

- In both studies, there was evidence of meaningful impacts on vocabulary, word analysis skills, and reading comprehension for both ELLs and native English speakers.
- The approach was particularly effective for students with lower vocabulary levels.
  - Greater impacts for vocabulary, word analysis
  - Also improved writing performance
- Fidelity and ease of implementation were high, even when scaled up to 14 schools.

Principles for Academic Vocabulary Instruction

- Targeting depth of word knowledge
- High utility academic words
- Direct instruction & word-learning strategies
- Multiple, planned exposures
- Anchored in text

(e.g., Carlo et al., 2004; Graves, 2006; Hiebert & Kamil, 2005; Stahl & Nagy, 2006)
ALIAS Elements

- Starting with expository, content-rich texts
- Building depth of word knowledge over time
- Engaging students & encouraging word play
- Increasing *student talk* in class
- Gradually releasing responsibility to students

One Systematic Approach, but not a Magical Sequence

<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Day 1</td>
<td>Read article and discuss concepts. Read words (structured talk)</td>
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<td>Day 2</td>
<td>Define words (activating background knowledge)</td>
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<tr>
<td>Day 3</td>
<td>Answer text-based questions using target words (Reader Response Questions)</td>
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<tr>
<td>Day 4</td>
<td>Sketch target word, write related sentence. Teach multiple meanings (Graphic representations)</td>
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<td>Day 5</td>
<td>Morphology introduction (Word Form Chart, Find the Misfits, Opposite Day)</td>
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<td>Day 6</td>
<td>Morphology review and practice (Crazy Compounds, Caption It!, Suffix Stumpers)</td>
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<td>Day 7</td>
<td>Answer questions in new contexts (Mock Interview, Please Explain, Deep Processing)</td>
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<td>Day 8</td>
<td>Read supplemental article, plan writing (Planning Your Writing, Graphic Organizer)</td>
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<tr>
<td>Day 9</td>
<td>Write paragraph, revise &amp; edit (Working with transition words)</td>
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</tbody>
</table>
Gradual Release of Responsibility

Student Responsibility

Teacher Responsibility

Day 1: Direct instruction in text & words
Day 2: Guided co-construction of definitions
Day 3: Guided & scaffolded use of words
Day 4: Students represent words & judge use
Day 5: Students learn strategies for ind. word learning
Day 6: Students use new word forms in writing
Day 7: Students use words in new contexts
Day 8: Students use words to plan extended writing
Day 9: Students use words appropriately in extended writing

Before Day 1:
Choose an article & words to teach

- Expository Texts
- Topics that stimulate conversation
- Select words that appear in the text & on the Academic Word List (Coxhead, 2000)

http://www.nottingham.ac.uk/~alzsh3/acvocab/index.htm
Day 1: Teacher Read-Aloud

Teacher:
  • Engages the students through personal connections
  • Points out comprehension strategies
  • Discusses key concepts
  • Intermittently interjects short, clarifying comments while reading
  • Stops to ask students about difficult words

Day 2: Create personal definitions

1. Brainstorm – What do you already know about the target word?
2. Share – Create a class list of ideas about the word’s meaning
3. Compare list to dictionary definition
4. Write class definition
5. Record personal definition
Day 2:
Generate class definitions

Day 3:
Answer text-based thinking questions

- Teacher models how to answer questions about the article
- Students work together to come up with answers to remaining questions
Day 4:
Sketch definitions

individual

Day 4:
Uncover multiple meanings

Individual – (noun)
A single person

Individual – (adj.)
For the use of one person only
Days 5 & 6:
Morphology – Instruction & Practice

Day 5
Introduce word parts

Day 6
Meaningful practice in manipulating word parts

Unit 9: Crows
Base word: Bonanza!

<table>
<thead>
<tr>
<th>Base word</th>
<th>Added letters at the beginning*</th>
<th>Added letters at the end?</th>
</tr>
</thead>
<tbody>
<tr>
<td>researcher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reactor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>responsive</td>
<td></td>
<td></td>
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<tr>
<td>potentially</td>
<td></td>
<td></td>
</tr>
<tr>
<td>individualize</td>
<td></td>
<td></td>
</tr>
<tr>
<td>previously</td>
<td></td>
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</tr>
</tbody>
</table>

(Cut out words and place on the desk. With a partner, looking for a two word base word.)

(Kieffer & Lesaux, 2007, 2011)

Day 7:
Target words in new contexts—Deep Processing Questions

Name__________________________ Famous Person______________________

Unit 9: Crows
Mock Interview Questions

Directions: Choose a famous person to act out during a mock interview. Then, with a partner, decide which of the following questions you choose to answer. You will be asking your partner the 4 questions in order, and he will be asking you the 4 questions you choose. Each response must include at least one of the underlined target words in the question.

1. Have you ever taken your dog to the vet before? When was the last time?
2. What are your hobbies? What do you like to do in your free time?
3. What is one thing you would like to be known for in the future?
4. Do you enjoy your job? If yes, what do you like about it?

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Day 8 & Day 9: Writing with the words

Scaffolded, Authentic, & Spiraling Opportunities to Use the Words

1. Students read a second short text and discuss key concepts
2. Teacher models the pre-writing process
   - pre-writing questions
   - a graphic organizer
3. Students talk with partners to generate ideas
4. Students plan their writing and draft a paragraph

Building up Knowledge of a Word, Piece by Piece...

<table>
<thead>
<tr>
<th>The meaning of the word in different contexts</th>
<th>How to use the word to write &amp; talk about other topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>The different word parts inside the word &amp; their meanings</td>
<td>The different forms of the word &amp; how they are used</td>
</tr>
<tr>
<td>Multiple meanings for the word</td>
<td>How to represent its meaning graphically</td>
</tr>
<tr>
<td>Its meaning in the article</td>
<td>How to use it to talk about the article</td>
</tr>
<tr>
<td>What I already know about its meaning</td>
<td>Its dictionary definition</td>
</tr>
<tr>
<td>How to spell it</td>
<td>What it looks like</td>
</tr>
</tbody>
</table>
Teachers’ Insights about Implementation

- Student talk, collaborative learning, and relevant texts increased engagement.
- Regular routine provided structure and scaffolding, but also led to flagging engagement in later units.
- New approaches required teachers to learn more about language (especially morphology).

(Lesaux, Kieffer, Faller, & Kelley, 2010)

Teachers’ Insights about Supports for Implementation

- Program Materials
  "When it comes down to it, it’s you, the classroom, and the curriculum”
- Other Teachers in the School
  Colleagues helped in “debugging” the program.
- Program Specialist
  Newer teachers and teachers with fewer colleagues using ALIAS found specialist especially helpful

(Lesaux, Kieffer, Faller, & Kelley, 2010)
Questions

Michael Kieffer
Teachers College, Columbia University
www.tc.columbia.edu/faculty/index.htm?facid=mk3157
Remarks at the
Content Area Literacy Conference 2010

Dr. Thomas Bailey

George and Abby O’Neill Professor of Economics and Education

Director of Community College Research Center and National Postsecondary Research Center
Teachers College, Columbia University

It’s a pleasure to be here. I must say, when Margaret [Crocco] and Dolores [Perin] got in touch with me to speak here, I wasn’t really sure I was the right person. Like many professors, my knowledge of the classroom is my own experience—nothing systematic. Margaret said she’d like me to explain to the audience what we know about what it takes to make the successful transition from high school to college. Certainly we know a lot about that. I studied primarily community colleges, so we are talking about students who tend to be at the lower end of academic proficiency. Margaret went on to say that, “We’d like you to offer the audience some perspective on what it takes from an academic standpoint to succeed for college.” Fortunately, I only read that a few days ago, when I was preparing this. If I had read that first, I would have called and said forget it.

One of the things that we’ve actually found about post-secondary education is that we don’t know that much about what goes on in the post-secondary classroom. Dolores [Perin] is one of the handful of people around the country focusing on that. And I think we are decades behind K-12 research in thinking about what goes on in the classroom and what’s successful. It’s only been the last few years that we’ve been thinking much about how to help students succeed in getting to college and graduating.

Margaret sort of threw me a lifeline in the next paragraph:
For urban minority students to graduate from high school in places like New York City, it takes the commitment of the faculty…to work together with other teachers to set high expectations for students, including the aspiration to attend college.

So, I do think that I can talk about what we can do together and particularly—I’m sure that I’m the person in this room who knows the least about what to do in a classroom—I want to urge us to think about what collectively we can do outside the classroom. We need more than just groups of teachers working together because this is a broader institutional problem.

When we talk about students with weaker academic skills and the transition of those students to college, I think we have a massive institutional failure—especially related to information; that is, what it is a student needs to know in order to be successful in college. Not successful at Columbia or Harvard, but what a student needs to be successful at a less selective or a more open-admissions type of an institution. We’re only thinking about that now and trying to measure that. At the same time, the students that we are talking about doesn’t have a very clear idea about where they are in that pipeline to college. I think that leads to a lot of significant problems.

Over the last decades, we’ve made a lot of progress in getting students into college. More than three-fourths of students now have some post-secondary experience within eight years of graduating from high school or from their presumed high school graduation time. So that’s good. Of course, there’s still a lot of inequality in that. If you come from a low-income family, you are much less likely to go to college. If you come from the upper quartile of the income distribution, it’s almost impossible for you not to go to some college. So, we have a lot of work to do there. But certainly we’ve made progress and one of the changes in post-secondary research in the last decade has been a shift from a focus on getting students into college to a focus on what happens to them once they are there.

Now that’s a much more serious problem. If you take students who start in community colleges, after about eight years, only 35% to 40% of them actually have a degree or a certificate. Some of them are still there, but more than 50% of them have left with no actual credential.

Now it’s true that community colleges are open-admissions institutions, but that’s a little bit misleading. No student in April gets a thick letter saying “Don’t show up. You’ve been rejected.” But nevertheless, when they do arrive in September, they’re sent to take an assessment test, and on the basis of that test, they are assigned to remediation or to developmental education. There are some political issues behind those two words, but I’ll use them interchangeably. So what happens to those students? About two-thirds of community college students are assessed into developmental education. Already that’s a serious problem. Most of those students are high school graduates. So what is it we are doing where we’re graduating somebody from high school and then they’re going to college and they’re told they’re not ready for college? Now it’s not
as bad as that. There are a lot of adults who are coming back, so it’s not only recent high school graduates.

But what I find even more surprising is that of those 60% of students, 80% think they are ready for college. That’s 80% of 60%, so 40% to 50% of students entering community colleges not only aren’t prepared, but they don’t know they are not prepared. So that’s what I mean when I say there’s an information issue here that we need to address.

Now, what about the low-income student who is prepared for college? Well, there’s a recent book by Bowen and McPherson called Crossing the Finish Line, and they find that if you’re from a low-income family and your test scores and GPA and everything shows that you will be successful in a prospective college, you still have a much lower probability of entering those colleges. So that’s another issue of what it is those students know about themselves.

I think this problem represents a legacy of the institutions. We have a K-12 set of institutions and colleges, and they come from totally different backgrounds. They have different cultures, different human resource policies, and different objectives. When you think about it, the structure of those institutions has not changed very much in the last century.

Now, we’ve come to a situation where the consensus minimum level of education to get access to a decent job has drifted above the high school degree. We think that everybody needs some post-secondary education. Nevertheless, we are stuck with these institutions that have this big chasm between them. We don’t hold conferences about how to make the transition from eleventh to twelfth grade. But the difference between the eleventh to twelfth grade and the twelfth to thirteenth grade is huge. So, we need to think about how to make the twelfth to thirteenth grade transition more like an eleventh to twelfth grade one. It’s not going to be exactly the same, since students are getting older and there are many adults going back to school, but I think it’s one thing that we ought to think about.

Certainly parts of our education system are very effective at getting people from high school to college, such as the elites. If you’re in Stuyvesant and you want to go to Columbia, you know what to do. That process is drenched in information. Throughout high school, students have many ways of knowing where they stand: they take PSATs and SATs and college board exams, their GPAs, they’re in the honors track, they’re taking APs. There’s a million ways they know, their parents know, and their teachers know where they stand in the process of admissions into a selective college. And they don’t show up at college and are surprised that they are not ready for college. The kind of gap in understanding that we see at the community college door is inconceivable in the world of elite education.

So I think about two things when we’re thinking about helping low-income students. One is the whole social structure—the resources and everything else that go into elite high school education. The parents are involved; the parents all have advanced degrees. If a problem shows up, tutors can be hired and companies are there to help out. Much of what we’re doing in social policy when we’re trying to deal with inequality is trying to make up for the lack of social capital for people who do not have it. And that’s extremely difficult; there’s no question about that.

But the second part is that you have an institutional structure that aims toward getting students into college. I think there’s an important point about that. When we think about higher education, we think about getting into selective colleges, but most colleges aren’t selective. So what do you do with a motivation structure that’s based on working hard to get into a selective college, when all these colleges around aren’t selective? So it’s important to think about the difference between the existing system, which is based on getting you into college, versus one that’s based on preparing you to be successful in college. Of course, this is part of the legacy. In the past, a select group of people went to selective colleges, but now college is a mass phenomenon. Everyone needs to go to college, but we still have the old structure. We need to think about that.

Let’s go back to the student who shows up at the community college door. What do we know about that student and what do those students know about themselves? I’ve contrasted the rich, multidimensional information that we know about middle-class students. Well, the student may have a transcript or a GPA, which isn’t looked at all that much. Most community college students usually don’t take SATs or ACTs, so we don’t have that. Maybe they’ve passed whatever requirements there are to finish high school. So they come, and we don’t have that much information about them. They’re given a test—usually in reading, math, and writing. And based on that short-term test, we make judgments about them.

That’s a set of information we get at the end. They are no longer able to go back and address whatever problems there were. That’s why we have developmental education, which is middle school and high school education that we give to students in college. As I said before, the students were not aware of the situation they were in.

So, what are these assessments that we use anyway? How many people are familiar with the COMPASS or ASSET assessments? Those are the assessments that
your students are being given to judge whether they're ready for college. This is a massive structure and system that we're using to assess where students are at and how good they are.

We actually did a study with a state last year in which we tracked students who were referred to developmental education because of their test scores. And those students—this state didn't require them to take the developmental education courses—so many of those students skipped them and went right into college-level courses. Those students did as well as those students who were referred to developmental education and took their medicine. It's not clear what's going on there, but certainly one thing is that the assessment system is not very good. Not only do we test them late, when it's too late to do anything about it, but we give them an assessment that, in my opinion, is of rather dubious value.

One of the problems is that we don't really know what being college-ready means at this level. What is the minimum level of knowledge and experience that a student has to have to be successful in an open-admissions institution? First of all, many different assessments are used. Even when the same assessment is used, there isn't a consensus about what the cut-off score is. This was a situation in Connecticut recently. There were different cut-off scores on the same test for different colleges. If you failed at Norwalk Community College, you could go down to Housatonic Community College, and the same scores would put you into college level. The state has tried to correct that and use a common cut score, but we don't know what that cut score should be. Whatever it is, you're cutting into a distribution and we don't know much about that distribution anyway. The point I want to make here is that we don't collect information on these students, they don't know where they stand, and when we do collect information, we use kind of a dubious instrument. And I think this reflects that we don't really understand what it is that students need to know to be successful at those colleges.

There's a nice example of a larger higher education issue, which shows how the process and information questions get in the way of substantive effect. Now we know that students are sensitive to the price of college. And we know that if you give financial aid to a student, that student will be more likely to go to college. But, if you look at the biggest financial aid system, the Pell Grant, which is 12 or 15 billion dollars, research has suggested that it actually does not influence college-going. What you're doing is that you're giving money to low-income students who would be going to college anyway. But if we want to use financial aid to increase college going, it's not a successful system. Why? It's too complicated. Filling out the FAFSA form is more complicated than the 1040. So the students who have the knowledge, the support, and the parental guidance—who can successfully fill out the FAFSA—those are the students who have the resources to go to college as well. The students that we'd like to influence, the ones who don't have that kind of support, are thwarted by the complication of the system. There's been good research recently that shows that simplification of the process has a very significant effect on college-going. So, it's not the notion that financial aid doesn't work, it's that information and process problems stand in the way of it having a successful effect.

If you've followed the recent controversy, people are complaining that the for-profit colleges get much more financial aid. They have 10% of the students and get 25% of the financial aid, and they spend that on marketing. But what that marketing is, is helping students apply for financial aid. That's something that community colleges ought to be doing as well. One of the problems with community colleges is that they don't need to focus on helping the students get in. They just open their doors and people come, especially nowadays, so they don't provide that type of information.

All right. I don't want to be just negative. It's easy to get a lot of pessimistic data, and this is one of the problems of being around something. I've been studying community colleges for 15 years, and the discussion about the transition from high school into a community college-type of post-secondary institution has completely transformed in the last not 15 years, but really the last 6 or 7 years. This has come along with the focus of moving away from emphasizing enrollment, to one of emphasizing students' success. We haven't asked what it is, really, that a student needs. It was enough to get a student into college. We provided them the opportunity, but we didn't think about what happens to them once they're there.

So, what do we need to do? First of all, we need to continue the national discussion about what it means to be ready for college. There's a lot of this going on now. There's the Common Core movement from the [Obama] administration that just published their standards in the last few weeks. In my opinion, I think they are still too focused on high school but, nevertheless, there's also a movement in states that's going to try to develop assessments based on those common standards, which could be used to judge whether people are ready for college. If you can get involved with that, I think that's certainly something worth doing.

Second, we need to promote institutional interaction between college and high school administrators and faculty. Washington State has a program where high school and college math faculty are getting together...
to develop an articulated curriculum. There are many other programs. We’ve done research on dual enrollment, which means high school students taking college courses. I just came back from Santa Monica Community College where the high school teachers are all made into adjunct faculty and receive the faculty development that the college gives.

Early assessment. Washington and California have an early assessment program. College now here in New York assesses students at the end of their sophomore year. So those students begin to know where they stand at an earlier time when they can take steps to change that.

We also need to change the discussion about college preparation from admissions to success in college. Obviously for some students, the question about admissions—getting into a selective college—is important. But we have a motivation system that spurs our best students to work harder, but doesn’t do much for our weaker students because the open-admissions system allows them to get into at least some type of college.

I was on a task force to help identify what high schools can do to help students navigate the pathway through college. This was part of the What Works Clearinghouse, which is a function of the Department of Education. You can go to the What Works Clearinghouse website, but I’ll just give you the five recommendations that we made:

1. Offer, as a default, courses and curriculum that prepare students for college-level work and ensure that students understand what constitutes a college-ready curriculum by ninth grade. Of course, we have to figure out what a college-ready curriculum is before we can do that.

2. Utilize assessment measures throughout high school so students are aware of how prepared they are for college and assist in overcoming deficiencies as soon as they are identified. Students should not be drifting through high school without being aware of where they stand on that schedule.

3. Surround students with adults and peers who build and support their college-going aspirations. That’s obviously very difficult, and that’s part of the attempt to try to replace the social capital with some other kind of policy.

4. Engage and assist students in completing the critical steps for college entry. This is the financial aid issue. Students need help with that. Certainly we’ve seen policies now, where you have an assembly and students have to come with their parents and they fill out those forms. There are other things that can be done.

5. And finally, increase families’ financial aid awareness and help students apply for financial aid. It’s surprising how many students think that you need $50,000 a year to go to college when, in fact, community college is much cheaper. So, there’s a tremendous amount of ignorance about what it takes financially to go to college.

These are tremendous problems that we’re facing, but we really have a two-part problem: one, knowing what we need to do with our students to get them ready for this type of college, and two, what the students know about where they are on that trajectory. I don’t think we’ve asked those questions for these students. We thought we had these open-admissions institutions—so that these students can go to college and that we would work with whatever they got out of high school. But there isn’t an institutional structure that pushes us to make sure that they know where they are and that we know where they are in that trajectory. I think those are questions we’ve only been asking recently. So while I think they are very difficult, I’m optimistic that by asking those questions, we can start to make some progress down that road. Thank you.
Biographies of Speakers and Research Team

Speakers

Andrés Henríquez
Carnegie Corporation of New York
Program Officer, Urban Education, National Program

*Literacy for College and Career Readiness: A Philanthropic Journey*

Andrés Henríquez is the Program Officer, Urban Education, National Program at Carnegie Corporation of New York. He has over 15 years of experience as a consultant and senior staff member at a number of organizations. At the Corporation, Henríquez works on issues across the spectrum of the Education Division’s program concerns with a special emphasis on intermediate and adolescent literacy.

Prior to joining the Corporation, Henríquez served as the Assistant Director for Strategic Planning, Center for Children and Technology (CCT) at the New York offices of the Education Development Center, Inc. He also worked at the National Science Foundation (NSF) in Washington, D.C., as an Associate Program Director, responsible for monitoring the Network Infrastructure for Education and assisted with the Research in Education Policy and Practice program. Earlier, he gained research skills and experience while working as a Field Research Coordinator at the Children’s Television Workshop and as a Senior Research Analyst at MTV Networks, both in New York City.

Henríquez is a certified teacher and taught for five years at a public elementary school in East Harlem.

Henríquez has served on a number of proposal review panels for organizations including NSF, DeWitt Wallace-Readers’ Digest Fund, the U.S. Department of Education, and the Public Education Network. Over the years, he has worked as a consultant to several organizations, including the I Have a Dream Foundation, The Ford Foundation, and MacMillan Publishers. He has also published numerous papers and articles on many topics, including educational media and technology. Henríquez received his undergraduate degree in psychology from Hamilton College and a master’s in curriculum and teaching from Teachers College, Columbia University.

Dr. Carol D. Lee
Northwestern University

*Text Types, Strategies, and Disciplinary Tasks: Fundamentals of Teaching Reading Comprehension in the Content Areas*

Carol D. Lee is Professor of Education and Social Policy in the Learning Sciences Program at Northwestern University. Dr. Lee recently served as President of the American Educational Research Association (May, 2009-May, 2010), a member of the National Academy of Education, past President and Fellow of the National Conference of Research on Language and Literacy, former Vice President of Division G of the American Educational Research Association, and a former fellow at the Center for Advanced Study in the Behavioral Sciences. Dr. Lee is the author of three books, including the most recent *Culture, Literacy and Learning: Taking Bloom in the Midst of the Whirlwind*, and co-editor of *Vygotskian Perspectives on Literacy Research*, along with numerous other scholarly publications. She is the co-author of *Reading in the Disciplines: The Challenges of Adolescent Literacy*, a report by Carnegie Foundation of New York, focusing on the demands of reading comprehension in the content areas. Her research focuses on ecological influences on learning and development, including the Cultural Modeling Framework for the design of instruction that scaffolds knowledge constructed from youth’s everyday experiences to support discipline-specific learning. She is a co-founder of four schools in Chicago spanning a 37-year history, including three charter schools; she has also served as chairman of the Board of Directors of the Betty Shabazz International Charter Schools. In addition, she has worked as a classroom teacher and administrator for over 20 years.
**Dr. Timothy Shanahan**  
University of Illinois at Chicago  

*What it Means to Teach Disciplinary Literacy*

Timothy Shanahan is Professor of Urban Education at the University of Illinois at Chicago (UIC) where he is Director of the Center for Literacy. He has been director of reading for the Chicago Public Schools, and has authored/edited more than 175 publications. His research emphasizes improving reading achievement. Dr. Shanahan is past president of the International Reading Association (IRA), and received a presidential appointment to the Advisory Board of the National Institute for Literacy. He served on the National Reading Panel, convened by the NICHD at the request of Congress, to evaluate research on teaching reading, and chaired two other federal research panels: one on literacy learning among language-minority students and one on preschool literacy. Dr. Shanahan received the Albert J. Harris Award for outstanding reading disability research and the Milton D. Jacobson Readability Research Award from IRA, the Amoco Award for Outstanding Teaching, the University of Delaware Presidential Citation for Outstanding Achievement, and in 2010 the Researcher of the Year award (in Social Sciences and Humanities) from UIC. He developed Project FLAME, a family literacy program for Latino immigrants, which received an Academic Excellence Award from the U.S. Department of Education, and he was inducted into the Reading Hall of Fame in 2007. For more information, see www.shanahanonliteracy.com

**Dr. Elizabeth Birr Moje**  
University of Michigan  

"But My English Teacher Said...": Supporting Students in Learning How to Read and Write in the Natural and Social Sciences

Elizabeth Birr Moje is an Arthur F. Thurnau Professor of Literacy, Language, and Culture in Educational Studies at the University of Michigan, Ann Arbor, MI. Dr. Moje teaches undergraduate and graduate courses in secondary and adolescent literacy, literacy, and cultural theory, and qualitative and mixed research methods. She also serves as a Faculty Associate in the University’s Institute for Social Research, and a Faculty Affiliate in Latino/a Studies. Her research interests concern the intersection between the literacies and texts youth are asked to learn in the disciplines (particularly in science and social studies) and the literacies and texts they experience outside of school. In addition, Dr. Moje studies how youth make culture and enact identities from their home and community literacies, and from ethnic cultures, popular cultures, and school cultures. Her current research is centered in communities and schools in Detroit, Michigan, and she also engages in professional development with teachers in Detroit. Dr. Moje has published three books and numerous book chapters, as well as articles in many scholarly journals. She is currently serving on the National Academy of Science/National Research Council’s Committee on Learning—Adolescent and Adult Literacy, and on the 2009 PISA Steering Committee; she is also co-editor of the forthcoming *Handbook of Reading Research*, Volume IV, and Associate Editor of *Journal of Research in Science Teaching*.

**Dr. Michael Kieffer**  
Teachers College, Columbia University  

*Academic Language Instruction for English Language Learners: Teaching the Building Blocks for Reading and Writing in the Disciplines*

Michael J. Kieffer is Assistant Professor of Language and Education at Teachers College, Columbia University. Dr. Kieffer earned his EdD in Language and Literacy and EdM in Quantitative Methods in Developmental Research from Harvard Graduate School of Education. A former middle school teacher, Dr. Kieffer aims to conduct research that can inform policy and instructional practice to improve the
academic outcomes of adolescents from linguistically diverse backgrounds. He is currently conducting a two-year study of English Language Learners’ growth trajectories in reading and math as they transition into middle school. He is also pursuing a new line of research that will identify and address the specific linguistic demands that English Language Learners face in reading to learn from science and social studies texts. In addition, Dr. Kieffer has served as coordinator for the Advisory Council on Advancing Adolescent Literacy for Carnegie Corporation of New York. His research has been published in *Reading Research Quarterly, Journal of Educational Psychology, Review of Educational Research, American Educational Research Journal, Applied Psycholinguistics, Reading and Writing, The Reading Teacher,* and *Journal of Adolescent and Adult Literacy.*

**Dr. Thomas Bailey**  
Teachers College, Columbia University  
Director of Community College Research Center  
and National Post-secondary Research Center

Thomas R. Bailey is the George and Abby O’Neill Professor of Economics and Education in the Department of International and Transcultural Studies at Teachers College, Columbia University. Dr. Bailey holds a PhD in labor economics from MIT. He is an economist, with specialties in education, labor economics, and econometrics. In 1996, with support from the Alfred P. Sloan Foundation, Dr. Bailey established the Community College Research Center (CCRC) at Teachers College, which conducts a large portfolio of qualitative and quantitative research based on fieldwork at community colleges and analysis of national- and state-level datasets.

As Director of CCRC, Dr. Bailey led a team of researchers conducting a national field study of community colleges that examined 8 research topics at 15 community colleges across the country. The book resulting from this project, *Defending the Community College Equity Agenda,* was published in December 2006. Dr. Bailey also completed a project for the Ford Foundation, which examined the role of community colleges in promoting educational attainment of Black and Hispanic students. In July 2006, Dr. Bailey became the Director of the National Center for Post-secondary Research (NCPR), funded by a five-year grant from the Institute of Education Sciences of the U.S. Department of Education. He has served as a consultant to many public agencies and foundations, including the U.S. Department of Labor, the U.S. Department of Education, the U.S. Congress Office of Technology Assessment, the Alfred P. Sloan Foundation, the William T. Grant Foundation, and several state and local economic development and educational agencies.

**Introducers**

**Dr. Esther Klein Friedman**  
Director, SES-NYCLA, New York City Department of Education, Division of School Support

Esther Klein Friedman has served New York City students since 1973 as a teacher of special education and reading in elementary, middle, and high school, staff development trainer, principal in District Two, director of literacy and social studies in District Six, regional director of intervention services and local instructional superintendent in Region Ten, director of secondary school reform, most recently as director of academic intervention services K-12 at the New York City Department of Education central offices, and currently as director of an NCLB Supplemental Education Services program that is internal to the New York City Department of Education. Dr. Friedman arrived in this country in the middle of first grade and is a product of the New York City public schools. She completed her undergraduate degree at Queens College and received her Master’s degree and PhD from New York University. Her doctoral work focused on reading acquisition in struggling students. Dr. Friedman’s professional interests include exploration of the challenges and solutions for supporting achievement of students in urban schools, particularly in the area of literacy.
Beth Fertig
National Public Radio Education Reporter, and
Author of *why cant u teach me 2 read?: Three Students and a Mayor Put Our Schools to the Test*

Beth Fertig is WNYC’s education reporter and also covers city affairs. Ms. Fertig is a New York City native who discovered her love for journalism at her college newspaper at the University of Michigan. She also has a Master’s degree in Social Sciences from the University of Chicago. “If New York City’s public schools were a city, they’d be one of the ten largest cities in the United States,” she says. “With over a million students and another couple of hundred thousand employees, the Department of Education is a fascinating microcosm—or macrocosm. And with the federal stimulus dollars, and the Obama Administration’s interest in school reform, there is a lot happening in education right now.” Ms. Fertig is a frequent contributor to National Public Radio. She has won many local and national awards, including the prestigious Alfred I. DuPont Columbia University Award for Broadcast Journalism for her series of reports on an effort to privatize some struggling city schools. She also won an Edward R. Murrow Award for an investigation of a subway fire. Other awards include the city’s Deadline Club, the Society of Professional Journalists, and the New York Press Club, which presented a special award after the 2001 terrorist attacks for a profile on the friendship of two WTC survivors. In 2008, Ms. Fertig took time off from WNYC to write her first book called *Why cant u teach me 2 read? Three Students and a Mayor Put Our Schools to the Test*, published in the fall of 2009 by FSG Books. The book grew out of a 2006 WNYC radio series on the low graduation rate for special education students.

Dr. A. Lin Goodwin
Teachers College, Columbia University
Department of Curriculum and Teaching
Associate Dean of Teacher Education

A. Lin Goodwin is Professor of Education in the Department of Curriculum and Teaching at Teachers College, Columbia University, and has been engaged in the preparation of teachers for over 20 years. She also serves as Associate Dean for Teacher Education and School-Based Support Services, a position she has held since 2005. Her research and writing focus on the connections between teachers’ identities and their development and learning, and between multicultural understandings and curriculum enactments; and on the particular issues facing Asian and Asian American teachers and students in U.S. schools.

Dr. Goodwin’s publications have appeared in key education journals such as *Journal of Teacher Education, Urban Education, Teaching Education,* and *Education and Urban Society,* and she is also the editor of several books. Some of her most recent work includes “Globalization and the preparation of quality teachers: Rethinking knowledge domains for teaching” in *Teaching Education,* and “Teaching as a profession: Are we there yet?” to appear in *The International Handbook on Teacher and School Development.* She has just completed a case study of quality teacher preparation in Singapore, and is editor of an upcoming book, *Promoting Social Justice for Children: Facing Critical Challenges to Early Learning and Development,* with Beatrice Fennimore.

Dr. Goodwin has served as a consultant and staff developer for a wide variety of organizations, including school districts, philanthropic foundations, higher education institutions, and professional educational organizations around issues of diversity, educational equity, assessment, and teacher education. Her work in multicultural teacher education and curriculum development has taken her throughout Europe and Asia, where she has collaborated with teacher education faculty, school administrators, and teachers to bring about school, teaching, and curriculum reform.
Conference Team

**Dr. Dolores Perin**
Teachers College, Columbia University  
Department of Health and Behavior Studies  
Reading Specialist Program Coordinator

Dolores Perin is a professor of psychology and education at Teachers College, Columbia University, where she directs the Reading Specialist Program which provides preparation for state certification as a teacher of literacy. With funding from Carnegie Corporation of New York, Dr. Perin and colleagues developed adolescent literacy course work, which is now part of Teachers College’s teacher preparation programs in Social Studies Education and Science Education. Dr. Perin is also a senior research associate at the Community College Research Center. She was principal investigator of a recently-completed study of a contextualized reading-writing intervention for academically underprepared community college students, funded by the Institute of Education Sciences of the U.S. Department of Education. Dr. Perin has published in journals such as *Reading Psychology, Adult Basic Education, Journal for Adolescent and Adult Literacy, Exceptional Children, Community College Journal of Research and Practice, Community College Review, Higher Education, Urban Education,* and *Teachers College Record.* She received her PhD from the University of Sussex in England.

**Dr. Margaret S. Crocco**
Teachers College, Columbia University  
Department of Arts and Humanities Program Coordinator

Margaret Crocco is Professor of Social Studies and Chair of the Department of Arts and Humanities at Teachers College, Columbia University, in New York City, where she has worked since 1993. She has published numerous articles and edited or authored eight books, including the award-winning *Teaching The Levees: A Curriculum for Democratic Dialogue and Civic Engagement.* Dr. Crocco teaches courses on diversity issues and social studies, especially gender, teacher education, and curriculum development. Her research focuses on teacher education in the social studies and the history of the field. She has been involved in the literacy project at Teachers College in an effort to enhance teacher preparation in social studies through an emphasis on content-driven literacy approaches.

**Dr. Anand R. Marri**
Teachers College, Columbia University  
Department of Arts and Humanities, Social Studies Program

Anand R. Marri is an assistant professor of social studies and education at Teachers College, Columbia University. He teaches courses on civic education, economics education, teacher education, and social studies education and research. His research examines the ways in which urban students can be better educated for active citizenship. In addition to authoring several chapters, Dr. Marri’s work has appeared in journals such as *Social Education, The Social Studies, Teachers College Record, Urban Education,* and *Urban Review.* He currently serves on several journal editorial boards and has received over $4.2 million in grants for research and training. Prior to obtaining his doctoral degree, Dr. Marri taught high school social studies in San Jose, California. He received his PhD from the University of Wisconsin-Madison.
Dr. Jessica Riccio
Teachers College, Columbia University
Department of Math, Science, and Technology

Jessica Riccio is the coordinator of Secondary Science Teacher Education Program at Teachers College, Columbia University. In that role, she prepares preservice teachers for biology, chemistry, earth science, and physics state certification in grades 7 through 12. Prior to working at Columbia, she was a New York City High School Science Teacher in the Department of Education, and an Urban Science Education Doctoral Fellow in the Department of Mathematics, Science, and Technology at Teachers College. As one of the founding members of the interdisciplinary Content Area Literacy effort there, Dr. Riccio completed her doctoral thesis on the topic in 2008, and continues to research preservice and inservice teachers’ use of content area literacy practices. In her current work with urban schools, she provides professional development and support to both new and experienced teachers on the importance of using literacy and inquiry as a pedagogical tool in the science classroom. She received her EdD from Teachers College, Columbia University.

Dr. Ann Rivet
Teachers College, Columbia University
Department of Math, Science, and Technology

Ann Rivet is an associate professor of science education at Teachers College, Columbia University. Her research examines the role of teachers and innovative curriculum in inquiry-based learning environments, and how students develop rich understandings of science content in urban middle school settings. Dr. Rivet also serves as the Earth Science content area specialist in the science education program, with specific expertise in students’ interpretation and use of models and other representations for developing understandings of the Earth. Her work has been published in several leading journals, including Journal of Research in Science Teaching, and she has presented her work at multiple national and international settings, including the American Educational Research Association and the International Conference of the Learning Sciences. She has a Bachelor’s degree in physics from Brown University and a doctoral degree in science education from the University of Michigan.

Alison Villanueva
Teachers College, Columbia University
Department of Arts and Humanities, PhD Candidate

Alison Villanueva is completing her PhD in English Education in the Department of Arts and Humanities at Teachers College, Columbia University. She is a Graduate Assistant for the Content Area Literacy Project and a Literacy Education instructor at City College, CUNY. Her research interests include digital literacy, post-colonial literature, and multi-literacies in the classroom. Before coming to Teachers College, Ms. Villanueva was a Literacy Specialist and teacher at both the elementary and secondary level. She is also a coach for the Center for Professional Education of Teachers (CPET) at Teachers College and provides professional development on integrating technology, literacy, and the arts into the secondary school curriculum in and around New York City. Originally from Toronto, Canada, she completed an Honors Bachelor of Arts in English Literature from York University and a Master of Arts in Literacy Education from New York University.