The Science and Practice of Early Literacy in Today’s Schools and Classrooms

Nonie K. Lesaux, PhD
August 17, 2023
Albany, NY
Today’s Session

1. What is Literacy for Today and Tomorrow?
   Knowledge, Skills + Competencies for all Learners

2. What does Science of Reading Mean for Early Literacy Efforts?
   Four key ideas to inform early literacy work

3. What are the Core Elements of Effective Early Literacy Instruction?
   Building Literacy for Today & Tomorrow in all Classrooms

4. How does Effective Literacy Instruction Promote Child Development?
   What We’re Learning from Brain Science & Social-Emotional Research
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New role of language and literacy skills in society and economy

Increasingly sophisticated literacy skills needed to thrive in the future

WHAT IT MEANS TO BE “LITERATE” IS EXPANDING AND EVOLVING

Literacy for Today & Tomorrow
Knowledge, Skills & Competencies for A New Era
Changing Demands of Workforce Participation in the 21st Century

Through technological advancements, the literacy skills necessary for students’ success in work and life have been redefined.

Literacy for Today & Tomorrow

Knowledge, Skills & Competencies for A New Era

- Critical thinking and problem-solving skills
- Advanced literacy skills
- Global and cultural knowledge/social and emotional competencies
Literacy for Today & Tomorrow

Knowledge, Skills & Competencies for A New Era

Work tasks in the U.S. economy (1960-2009)

Working with new information
Solving unstructured problems
Trends in Craft and Gross Physical Job Requirements, 1992-2019

*Scaled to the mean in 1992

Handel, 2020, Figure III.9
Literacy for Today & Tomorrow
Knowledge, Skills & Competencies for A New Era

*Scaled to the mean in 1992

Trends in Cognitive and Interpersonal Job Requirements, 1992-2019

- People Skills
- Cognitive Skills
- Verbal Skills
- Math Skills

Handel, 2020, Figure III.8
“In order to prepare young people to do the jobs computers and technology cannot do, we must re-focus our education system around one objective:

Giving students the foundational skills in problem-solving and communication that computers don’t have.”

Lewandowski, 2022; Murnane & Levy, 2013; White House, 2022
Literacy for Today & Tomorrow

Knowledge, Skills & Competencies for A New Era

Large-Scale Analysis of U.S. Job Descriptions

- Oral and Written Communication Skills
- Collaboration Skills
- Problem Solving Skills

EdWeek Survey of What Top Executives Want from Today’s K-12 Students

- Develop + Refine Skills to Communicate Clearly, w/ Intention (work, client, and personal relationships)
- Presentation Skills
- Effective Writing

Rios et al., 2020

Lieberman, 2021
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The Science of Reading

Key Ideas

1. The term Science of Reading refers to a body of research.

The Science of Reading reflects research in education, psychology, linguistics, neuroscience, sociology, speech and language pathology, implementation science, and other fields. Integrating discoveries from across disciplines creates a comprehensive understanding of the reading and writing processes.
The Science of Reading

Key Ideas

1. The term Science of Reading refers to a body of research.
2. This Science of Reading should inform instruction from early childhood through adolescence.

Spotlight: Pressing Need to Anchor in SoR:
- Word reading instruction in the primary grades
- Vocabulary, comprehension, fostering engagement across the grades

Approaches and practices that are ineffective—or that are effective but absent—from classrooms compromise students’ opportunities for lifelong success.
The Science of Reading

Key Ideas

1. The term Science of Reading refers to a body of research.

2. This Science of Reading should inform instruction from early childhood through adolescence.

3. The Science of Reading highlights the importance of **structured literacy instruction** that develops the “Big 6” Skills and Competencies.
THE "BIG 6"

**Oral Language**
Oral language, which includes speaking and listening, provides the foundation for written language.

**Vocabulary**
A student’s vocabulary, or internal dictionary, is comprised of words and their meanings.

**Phonological Awareness**
Phonological awareness is an awareness of speech sounds. *Phonemic awareness* involves being able to identify and manipulate sounds.

**Fluency**
Oral Reading Fluency is the ability to read connected text with accuracy, expression, and at an appropriate rate.

**Phonics**
Phonics is an instructional method that involves systematically matching sounds with the letters that represent the sounds.

**Comprehension**
Comprehension, a complex process, is the ultimate goal of reading. It is the ability to construct meaning from and interpret texts.
## Structured Literacy Instruction: Three Principles

<table>
<thead>
<tr>
<th>SYSTEMATIC + CUMULATIVE</th>
<th>EXPLICIT AND DIRECT</th>
<th>RESPONSIVE AND AUTHENTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reading skills and competencies are introduced and taught in a manner and sequence that is systematic and logical.</td>
<td>• Instruction is direct and structured. Lessons are clear; students are shown how to start and succeed on a task—they are not expected to assumptions.</td>
<td>• Instruction is tailored to meet students’ diverse needs and abilities. Educators provide various authentic pathways for learning and adapt instruction as necessary.</td>
</tr>
<tr>
<td>• New skills build upon those previously taught, to support strong foundational skills + competencies, language and knowledge for content learning and success.</td>
<td>• Curriculum materials and pedagogical approaches provide plenty of modeling, chances to learn + practice strategies and skills, and to get feedback.</td>
<td>• There is a focus on the assets that students bring to the classroom, and there is a commitment to raising expectations and making learning relevant for all students.</td>
</tr>
</tbody>
</table>
The Science of Reading

Key Ideas

1. The term Science of Reading refers to a body of research.

2. This Science of Reading should inform instruction from early childhood through adolescence.

3. The Science of Reading highlights the importance of structured literacy instruction that develops the “Big 6” Skills and Competencies.

4. The “Science of Reading” emphasizes and reflects the importance of fostering a culturally responsive teaching environment.
Student-Centered, Culturally Responsive Environments

welcoming, affirming environments
  students feel represented, reflected, understood, valued

academically rigorous, intellectually challenging and adaptive to student needs

inclusive curriculum + assessments

effective and equitable instruction
  (the cornerstone of Science of Reading)
<table>
<thead>
<tr>
<th>MYTHS</th>
<th>FACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The <em>Science of Reading</em> (SoR) refers to one instructional approach, i.e., it is a tangible program or curriculum.</td>
<td>SoR is a term that references 50+ years of interdisciplinary research. The term reminds us to use the research to inform instructional design + implementation.</td>
</tr>
<tr>
<td>2. SoR signals that reading instruction should focus on teaching specific skills in isolation.</td>
<td>SoR shows that different skills require different instructional strategies; the overall approach should be cohesive and coordinated.</td>
</tr>
<tr>
<td>3. SoR demonstrates that effective early literacy instruction is limited to promoting the acquisition of phonics and decoding.</td>
<td>SoR shows that explicit, intensive phonics and word reading instruction is imperative in the primary grades. It also shows that explicit, intensive oral language + comprehension instruction is equally important in all grades.</td>
</tr>
<tr>
<td>4. SoR and culturally responsive teaching are distinct approaches.</td>
<td>SoR shows that it is only in student-centered, culturally-responsive and inclusive classrooms characterized by rigor and high expectations children develop literacy skills for life.</td>
</tr>
</tbody>
</table>
What does this information about 1) fundamental literacy skills for today and tomorrow and 2) the Science of Reading have you thinking about?
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What are the Core Elements of Early Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

CHALLENGE (& OPPORTUNITY):

To design learning environments and curricular materials that create a tight match between the skill and competency demands of today’s context and students’ needs and goals.

LET’S LOOK AT THIS IN TWO WAYS:

1. What does this learning environment look and feel like?
2. What does this mean for the approach to classroom learning and curriculum design?
WHAT DOES THIS LEARNING ENVIRONMENT LOOK AND FEEL LIKE?
What are the Core Elements of Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

Moving to even more dynamic, relevant, and applied teaching.
What are the Core Elements of Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

ENVIRONMENTS WHERE LEARNERS ARE:

- Mentally active
- Engaged
- Socially interactive
- Building meaningful connections to their lives
CHANGING THE PARADIGM

IN THE EXACT OPPOSITE DIRECTION

IF YOU ARE INTERESTED IN THE MODEL OF EDUCATION

I BELIEVE WE NEED TO GO...
WHAT DOES THIS MEAN FOR THE APPROACH TO CURRICULUM DESIGN + CLASSROOM LEARNING?
Big Picture: We Make Two Key Distinctions

1. Code-Based Skills and Meaning-Based Skills

2. Everyday Language and Academic Language
### Key Distinction #1: Code-Based Skills & Meaning-Based Skills

<table>
<thead>
<tr>
<th>Code-based skills</th>
<th>Meaning-based Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 sounds, 1 word: /sh/ /ar/ /k/</td>
<td>Cognitive strategies</td>
</tr>
<tr>
<td>Spelling pattern: there vs. their</td>
<td>Vocabulary</td>
</tr>
<tr>
<td>~100 words correct per minute (grade 3)</td>
<td>Relevant background knowledge</td>
</tr>
<tr>
<td></td>
<td>Understanding of language</td>
</tr>
<tr>
<td></td>
<td>Interest and motivation</td>
</tr>
</tbody>
</table>

There are almost 400 different kinds of sharks. Each kind of shark looks different, has a unique diet, and behaves differently. There are sharks in all four oceans of the world. Some sharks are longer than a school bus, while others are so small they can live in fish tanks. Sharks come in all kinds of colors. Most of the time, their skin color helps them blend in with their surroundings. But, some sharks that live in the deepest part of the ocean actually have parts that glow in the dark. Most sharks live in salt water, but some can live in fresh water. All sharks are unique, or have different qualities that make them so special.
Key Distinction #1: Code-Based Skills & Meaning-Based Skills

- **Code-Based Skills**
  - **Phonological Awareness**
  - **Phonics and Word Recognition**
  - **Spelling**
  - **Fluency**

- **Meaning-Based Skills**
  - Conceptual knowledge about the world
  - Understand abstract, complex ideas when reading
  - Produce written language about abstract and complex ideas
  - Produce academic language in speech
Key Distinction #2: Everyday Language & Academic Language

Academic language is the oral and written language used primarily in school, civic, and professional settings—the language of text, academic success, and of power and influence. It is distinct from everyday conversational language.
### Key Distinction #2: Everyday Language & Academic Language

<table>
<thead>
<tr>
<th>Source</th>
<th>Academic words per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers</td>
<td>68.3</td>
</tr>
<tr>
<td>Adult books</td>
<td>52.7</td>
</tr>
<tr>
<td>Comic books</td>
<td>53.5</td>
</tr>
<tr>
<td>Children’s books</td>
<td>30.9</td>
</tr>
<tr>
<td>Conversation between two college-educated adults</td>
<td>17.3</td>
</tr>
</tbody>
</table>

Hayes & Ahrens, 1998
Research Snapshot: *Quality* of language environment matters more than the quantity of talk

(e.g., Cartmill et al., 2013; Hirsh-Pasek et al., 2015; Newman, Rowe & Ratner 2016; Rowe, 2012; Rowe, Leech & Cabrera, 2016; Rowe & Snow, in press)

Note: “Other Factors” includes all other factors related to language development besides the speech children are exposed to (e.g., nutrition, parenting stress, genetic factors, etc.)
Research Snapshot: Back-and-forth communication is associated with greater language skills

“Results suggest that conversational experience impacts neural language processing over and above SES [socio-economic status] or the sheer quantity of words heard” (Romeo et al., 2018).

These findings are consistent with research performed in classrooms, where studies have shown that conversational turns between teachers and children and among children (peers) are the best predictors of vocabulary growth (Perry et al., 2018).
Children’s outcomes grow the most when there is a **balance of teacher and child talk**.

- **Adults listen to child/children**: 5%
- **Children talk to adults or other children**: 24%
- **Adults talk to children**: 56%
Key Distinction #2: Everyday Language & Academic Language

Decontextualized language is language that is removed from the here and now. For example:

• **Talking about another time** (e.g., talking about what happened yesterday or what will happen next weekend)
• **Explanations** (e.g., “She can’t have chocolate because she’s a little baby.”)
• **Pretend play/talk** (e.g., assuming a role or making one object represent another)

(Snow, 1990; Rowe, 2012)
BIG PICTURE

We Make Two Key Distinctions.

And then we Design to Foster Skills, Competencies, Knowledge, and Engagement.
What are the Core Elements of Early Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

**DESIGN PRINCIPLES**

- Organizes learning around units of study with content-rich themes and texts
- Provides rigor and challenge in a supportive context
- Combines explicit instruction with inquiry-based learning
- Promotes culturally responsive learning environments
- Uses consistent routines and language
- Supports peer-to-peer interaction
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*Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms*

<table>
<thead>
<tr>
<th>What do we learn at school? What are schools like around the world?</th>
<th>What makes a family?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we get what we need?</td>
<td>What’s wild about weather?</td>
</tr>
<tr>
<td>How are animals different?</td>
<td>Why do we need maps?</td>
</tr>
<tr>
<td>What’s different about then and now?</td>
<td></td>
</tr>
</tbody>
</table>

**THEMES**
- Learning around the world
- Communities: Familiar to Global
- Goods and Services
- Physical Adaptations in The Animal Kingdom
- Understanding the Weather around Us
- Innovations Then + Now
- Representing our World Through Mapping
What are the Core Elements of Early Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms
<table>
<thead>
<tr>
<th>What makes a strong friendship?</th>
<th>What shapes our identity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What qualities do leaders need to succeed?</td>
<td>How can innovation improve society?</td>
</tr>
<tr>
<td>Why do people take risks?</td>
<td>How does adversity make us stronger?</td>
</tr>
<tr>
<td>How can we achieve happiness?</td>
<td>How can we become citizens of the world?</td>
</tr>
</tbody>
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What are the Core Elements of Early Literacy Instruction?

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Design Principles:

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- Supports peer-to-peer interaction
A Learning Cycle for Today’s Context

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

LESAUX, PHILLIPS GALLOWAY & MARIETTA, 2016; LESAUX & HARRIS, 2015
What are the Core Elements of Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

**HALLMARKS OF ADVANCED LITERACY INSTRUCTION**

- Use protocols to support reading, writing, speaking, and listening
- Read a variety of short pieces of text that feature big ideas and rich content
- Use writing as a platform to build language and knowledge
- Talk/discuss to build language and knowledge
- Study a small set of high-utility academic language needed for language and content
What are the Core Elements of Early Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

What makes a community?

A Big Idea or Question

- Read Aloud (narrative & expository)
- Decodables, Early Readers
- Extended Writing
- Study of Words that Represent Abstract Concepts
- Collaborative Research Project
- Debate in Teams to Present Project
What are the Core Elements of Early Literacy Instruction?

Mapping Knowledge, Skills, & Competencies for a New Era to Today’s Classrooms

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Explicit, intensive instruction PK-3 as part of a coordinated + cohesive plan

- Code-Based Skills
  - Phonological Awareness
  - Phonics and Word Recognition
  - Spelling
  - Fluency

- Meaning-Based Skills
  - Conceptual knowledge about the world
  - Produce written language about abstract and complex ideas
  - Understand abstract, complex ideas when reading
  - Produce academic language in speech
Peer Learning & Inquiry-Based Learning

Language Production Project:

To work in groups on a plan for how a local habitat can be protected. Building on independent and collaborative work over 4 weeks, during week 5, groups generate an advocacy product: a pamphlet, letter to the mayor, presentation to city council, etc.
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“Broadly speaking, social and emotional learning (SEL) refers to the process through which individuals learn and apply a set of social, emotional, and related skills, attitudes, behaviors, and values that help direct their thoughts, feelings, and actions in ways that enable them to succeed in school, work, and life.”
What is Social and Emotional Learning?

Understand and deal with feelings

Focus thinking

Manage behavior

Build positive relationships

Jones et al., 2021
SEL Skills & Competencies

Managing & shifting attention, controlling impulses, planning & goal setting, critical thinking

Emotion knowledge and expression, emotion & behavioral regulation, empathy

Understanding social cues, social perspective taking, prosocial behavior, conflict resolution, social problem solving

Self-efficacy, growth mindset, agency, self-esteem, self-knowledge, purpose

Ethical, performance, intellectual, and civic values

Optimism, gratitude, openness, enthusiasm/zest

Academic

Cognitive

Emotional

Social

Identity

Character /Values

Personality

Reading, writing, math

Jones et al., 2021
Children are not born with these skills...they need to be cultivated for proficiency, beginning at birth and esp. between ages 3 and 8.

Another sensitive period occurs in late childhood and through adolescence.

Knudsen, 2004
How does Effective Literacy Instruction Promote Child Development?

Making Connections to Brain Science + Social-Emotional Research

The brain...

Develops cognitive, emotional, and social skills together

Builds connections throughout a lifetime

Is Very, Very Sensitive to its Environment(s)

Center for Developing Child, 2007; Jones, 2021
EFFECTIVE SEL PROGRAMS

- Set reasonable goals
- Taught, modeled, practiced, discussed
- Occur within supportive contexts
- Build adult skills

- Consider Broader Context
- Target specific behaviors & skills

- Clear, explicit instruction
- Adults model and live skills
- Real life practice
- Reflection to facilitate understanding and transfer

- Positive culture and climate
- Integration into school structures and classroom practices

- Adult SEL competencies
- Teacher/staff training
- Supports (coaching, planning time, etc.)

- Partnerships with family & community
- Culturally relevant/ responsive practices

- Define expectations for students, students, and classroom/school environment
- Align goals with approach

- Clear about which skills are being taught
- Understand what it looks like when are or are not successfully using skills

Jones et al., 2021
<table>
<thead>
<tr>
<th>Literacy Instruction</th>
<th>PRINCIPLES</th>
<th>Social-Emotional Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>...knowledge &amp; skills</td>
<td>Provide direct instruction...</td>
<td>...in emotion management, social skills, and attention</td>
</tr>
<tr>
<td>... for discussing academic concepts and questions</td>
<td>Use rich texts as a platform...</td>
<td>... for promoting emotional language development, self reflection, and empathy</td>
</tr>
<tr>
<td>...of words and how they work</td>
<td>Cultivate consciousness...</td>
<td>...of our own feelings and the feelings of others</td>
</tr>
<tr>
<td>...to build language and reading skills</td>
<td>Increase classroom talk...</td>
<td>...to build cooperation and conflict resolution skills</td>
</tr>
<tr>
<td>...to support instructional cohesion across classrooms and grades</td>
<td>Use consistent routines and language...</td>
<td>...to reduce chaos and minimize anxiety, create common social norms</td>
</tr>
</tbody>
</table>
Bringing it All Together

**Process Features**
- Safe, caring environments
- Warm climate, tone/tenor
- Consistent, effective routines, behavior + classroom management practices
- Opportunities to develop strong relationships

**Developmentally Appropriate Instruction**
- Rigorous, explicit, and supportive
- Units of study w/ rich content
- Frequent opportunities to respond (oral, written, small + whole group)
- Collaborative learning, peer-to-peer learning interactions
- Track + monitor growth

Bronfenbrenner & Morris, 1998; Vélez-Agosto, 2017
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