New Research on Oral Language, Text Difficulty & Writing

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LANGUAGE COMPREHENSION

BACKGROUND KNOWLEDGE
(facts, concepts, etc.)

VOCABULARY
(breadth, precision, links, etc.)

LANGUAGE STRUCTURES
(syntax, semantics, etc.)

VERBAL REASONING
(inference, metaphor, etc.)

LITERACY KNOWLEDGE
(print concepts, genres, etc.)

WORD RECOGNITION

PHONOLOGICAL AWARENESS
(syllables, phonemes, etc.)

DECODING (alphabetic principle, spelling-sound correspondences)

SIGHT RECOGNITION
(of familiar words)

SKILLED READING:
Fluent execution and coordination of word recognition and text comprehension.
Spoken language vs. reading comprehension

- General language comprehension will constrain the development of reading comprehension
- The strength of this relationship changes with age
Simple View of Reading

Decoding of text \( \times \) Comprehension of language = Reading to gain meaning

Recognizing words in text & sounding them out phonemically

The ability to understand language

The ability to read and obtain meaning from what was read.

Gough and Tunmer (1986)
The Simple View

- Reading Comprehension will develop to the same level as listening comprehension

Gough & Tumner, 1986
Comprehension problems specific to reading

- Syntactic construction
- Vocabulary
- Decontextualization
- Need for integration of information
Academic Language is at the Core of Literacy Instruction

Word Meanings

Text

a. because it allows literate people to discuss literary products; previously referred to as extended discourse or decontextualized language

b. because contextual cues and shared assumptions are minimized by explicitly encoding referents for pronouns, actions, and locations
Components of influence on spoken and written language

• Phonology
• Semantics
• Syntax
• Pragmatics (discourse)
Language

Content

Form

Use

Semantics (vocabulary lexicon),
Concepts such as synonyms, antonyms, multiple meanings, similes, metaphors

Phonology, Morphology, Syntax

Pragmatics, (discourse) how language is used

Phonological (phonemic) awareness

- Children’s knowledge of the internal sound structures of spoken words
- Correlational AND causal connection to reading success
- Becomes reciprocal with reading & writing
- Strongest predictor of early reading success, more than IQ
Semantic Skills--Vocabulary, Syntax, and Oral Language Skills

• Evidence is mixed
  – Word ID and phonological skills limit reading comprehension in the early stages
  – Vocabulary predicts later comprehension skills
  – Vocabulary & comprehension may be reciprocal
  – Syntactic skills & comprehension (weak link) may be mediated by phonological working memory
Vocabulary Lexicon

“The lexicon of a language is the stock of established words speakers can draw on when they speak and have recourse to in understanding what they hear. This stock is stored in memory in such a way that speakers can locate the relevant units to use in both speaking and understanding. To do this, of course, speakers have to be able to identify words either by looking them up in memory (for comprehension) or by retrieving them as appropriate forms for conveying specific meaning (for production).”  

(Clark, 1993, p. 2)
The Vocabulary Quartet & Levels of Knowing

- Receptive vs. Expressive
- Written vs. oral mode
- Depth: Level of understanding
- Breadth: Amount of words in the lexicon
Dimensions of Word Knowledge

- Knowledge of word’s spoken form (pronunciation)
- Written form (spelling)
- Grammatical behavior (syntactic/morphological features)
- Co-locational behavior (occurs with other words)
- Frequency (orally and in print)
- Stylistic register (e.g., academic language; informal)
- Conceptual meaning (antonyms, synonyms)
- Association with other words (inter-relatedness)

Thesaurus Entry: *Exacerbate*

*Exacerbate* vb to cause to become increasingly bitter or severe <foolish words that only *exacerbated* the quarrel>

**synonym** acerbate, embitter, envenom

**related** annoy, exasperate, irritate, provoke; aggravate, heighten, intensify; inflame

**idiom** add fuel to the flame, fan the flames, feed the fire, pour oil on the fire

**contrasted** appease, mollify, pacify, placate, quell; lessen, moderate

**antonym** assuage
Weak empirical link between vocabulary instruction & reading comprehension

1. Three plausible explanations (Pearson et al., 2007)
   – No connection between vocabulary and comprehension
   – Vocabulary instruction is focused on a local skill set that does not transfer to far skills such as reading comprehension
   – Vocabulary measures do not adequately capture enough information on the dimensions of vocabulary that transfer to reading comprehension

2. New studies are more encouraging (e.g., Snow et al., 2009; Leseaux et al., 2010)
Literacy

Understanding literacy

Kindergarten and first grade reading

Print focus

Print

Conversational language

Instruction and Practice in reading

Conversation

Decontextualized language

Reading comprehension in Grade 4

Extended discourse forms and nonfamiliar audiences

(Snow, 1991)
13 higher-SES children (professional)

23 middle/lower-SES children (working class)

6 welfare children

Hart & Risley, 1995
Estimated cumulative words addressed to child

Age of child in months

Professional
Working-class
Welfare

Hart & Risley, 1995
Quality Teacher Talk
(Snow et al., 2007)

- Rare words
- Ability to listen to children and to extend their comments
- Tendency to engage children in cognitively challenging talk
- Promotes emergent literacy & vocabulary & literacy success in secondary grades
## Matthew Effects in Reading (Stanovich, 1986)

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Variation in Amount of Independent Reading

(Cunningham & Stanovich, 1998, adapted from Anderson, Wilson, & Fielding, 1988)
Metalinguistic skills

- Manipulate sounds and meanings of words, phrases, and sentences
- Interpret non-literal meaning
- Reflect on the comprehension of a text
- Repair comprehension problems
- Comprehension monitoring
Discourse-level Skills

- Allow us to make inferences and connect information from different parts of the text
- Crucial to an integrated representation of text as a whole
- Develop in a progression:
  - Conversational discourse
  - Narrative discourse
  - Reading comprehension
Discourse-level Skills

inference skill

comprehension

Oakhill et al., 2003; Oakhill & Cain, 2007
Discourse-level Skills

- narrative skill
- story structure understanding
- reading comprehension

Snyder & Downey, 1991
Oakhill et al., 2003; Oakhill & Cain, 2007
Conclusions on Oral Language

• Written text and oral narratives share many properties, including syntactic structures and rare and more abstract vocabulary items.

• Both oral narratives and written text are decontextualized language forms

• Reading comprehension predictors
  – Oral language skills
  – Memory skills
  – Strategy knowledge
Conclusions on Oral language

• With an increase in age, reading comprehension becomes less closely related to decoding skill, and the relations between reading and listening comprehension increases.

• Reading comprehension will become more heavily dependent on language skills that are also important in listening comprehension as children get older.

Gough, Hoover, & Peterson, 1996
Implications

• Comprehension skills develop simultaneously with basic language skills

• Don’t wait for decoding proficiency to begin instruction in oral language skills
  – Vocabulary
  – Syntax
  – Inference making
  – Comprehension monitoring
Text Difficulty

• Reading demands of college/work place text have increased over past 50 years, but demands of K-12 text have decreased.
Components of Reading Comprehension (Perfetti, 1999)

- **Comprehension Processes**
  - Situation Model
  - Text Representation
  - Parser

- **General Knowledge**
  - Linguistic System
    - Phonology
    - Syntax
    - Morphology

- **Meaning and Form Selection**
  - Word Representation
    - Word Identification
      - Orthographic Units
      - Phonological Units

- **Visual Input**
From Barbara Tuckman’s *The Zimmerman Telegram*…

The first message of the morning watch plopped out of the pneumatic tube into a wire basket with no more premonitory rattle than usual. The duty officer at the British Naval Intelligence twisted open the cartridge and examined the German wireless intercept it contained without noting anything of unusual significance. When a glance showed him that the message was in non-navel code, he sent it in to the Political Section in the inner room and thought no more about it. The date was January 17, 1917, past the halfway mark of a war that had already ground through thirty months of reckless carnage and no gain.
What Makes This Text Difficult?

- Consider the text type and structure
- Consider prior knowledge
- Consider the vocabulary
- Consider the discourse features—linguistic markers for coherence, coreference, deixis
- Consider the inferences needed
Instructional Considerations

• **Text Type/Structure**
  – persuasive text
    • anti-war sentiment, “thirty months of reckless carnage and no gain”
    • indictment of war bureaucracy
  – narrative structure
  – historical non-fiction

• **Prior Knowledge**
  – World War I
    • text references: war, 1917, British, German, duty officer
  – early 20th century communications
    • text references: telegram, pneumatic tube, wire basket, wireless intercept
  – Zimmerman telegram
    • text references: German wireless, non-naval code
"We intend to begin on the first of February unrestricted submarine warfare. We shall endeavor in spite of this to keep the United States of America neutral. In the event of this not succeeding, we make Mexico a proposal of alliance on the following basis: make war together, make peace together, generous financial support and an understanding on our part that Mexico is to reconquer the lost territory in Texas, New Mexico, and Arizona. The settlement in detail is left to you. You will inform the President of the above most secretly as soon as the outbreak of war with the United States of America is certain and add the suggestion that he should, on his own initiative, invite Japan to immediate adherence and at the same time mediate between Japan and ourselves. Please call the President's attention to the fact that the ruthless employment of our submarines now offers the prospect of compelling England in a few months to make peace." Signed, ZIMMERMANN.
Instructional Considerations
(continued)

• **Vocabulary**
  – academic language
    • examined, significance, “ground through”
  – generative words
    • premonitory, carnage, intercept
  – Tier 3 vocabulary (military domain)
    • “morning watch,” non-naval code, German wireless, pneumatic tube

• **Linguistic Markers (Coherence Relations)**
  – pronouns
    • duty officer = he, him
  – co-references
    • German wireless intercept = the message
  – deixis
    • “in the inner room”
  – chronology
    • “When a glance showed him that the message was in non-naval code,…”
The situation model for the Tuchman text requires knowledge of:

a) The war Britain & Germany were engaged in during early 1917

b) The ability to draw inferences about the relevance of a German message intercepted by the British and about the author’s anti-war sentiment.
Instructional Delivery

- Model strategies (activating background knowledge, questioning, searching for information, summarizing, organizing graphically, identifying story structure (e.g., Guthrie et al., 2004; Brown, Pressley et al., 1996)
- Keep the focus on the meaning of the text through high quality discussion.
- Model “thinking like an historian” (e.g., sourcing) to provide a purpose for reading (Biancarosa & Snow, 2004).
Matching Reader to Text

- Select text appropriate to reader ability and interest.
- Scaffold discussion.
- Verify that comprehension is at least at 80% correct.
Measuring Text Difficulty: Qualitative Measures
(see Appendix A of the Common Core State Standards)

- **Levels of Meaning** (literary text) or **Purpose** (informational text):
  - Single vs. multiple levels of meaning (e.g., satire)
  - Explicit vs. implicit

- **Structure**
  - Low complexity: simple, well-marked, conventional
  - High complexity: complex, implicit, unconventional

- **Language Conventionality and Clarity**: literal, clear, contemporary, & conversational language vs. figurative, ironic, ambiguous, purposefully misleading, archaic/unfamiliar, academic & domain-specific language

- **Knowledge Demands**: Texts with few assumptions about reader’s life experiences & depth of cultural/literary and content/discipline knowledge are less complex than those with more assumptions.
Measuring Text Difficulty: Quantitative Measures
(see Appendix A of the Common Core State Standards)

• Readability: The first paragraph of Tuchman’s *Zimmermann Telegram* passage ranges from 8.4 on Dale-Chall to 13.3 on the Flesch-Kincaid & Fry; 13.5 on Lexiles.

• Natural language processing (e.g., Graesser et al., 2004, Coh-Metrix):
  – Linguistic features: vocabulary difficulty; lexical diversity; word concreteness; anaphora; overlapping text segments; sentence and text structure.
  – Discourse features: text coherence & cohesion
Writing: Causes for Concern

- Poor writing skills cost businesses $3.1 billion annually (National Commission on Writing, 2004)
- Only one out of four 12th graders is a proficient writer (Salahu-Din, Persky, & Miller, 2008)
- Nearly 1/3 of high school graduates are not ready for college-level English composition courses (ACT, 2005).
Writing from a Prompt: 
My Best Friend
April 27 2000

My first friend

by: Justin Colbert

First, Pat and I

draw pictures to

start off the day. We draw pictures

of our friends or

sometimes pictures

of true fearsome
dragons going at it in combat.
Next, when we go out side we get chased by girls.
I'm the leader and Pat is the second hand man. It's very exciting.
Last, we play a game of football. We are a great team. Sometimes we
We use a bottle or can for the ball. This concludes my spectacular story.
Writing Development (Wagner et al., in press)

- CFA shows 5-factor model of writing development in 1st and 4th grades: 1) macro-organization; 2) productivity; 3) complexity; 4) spelling & punctuation; and 5) handwriting fluency.

- Handwriting fluency correlated with written composition factors at both grades, but surprisingly strongly related to macro-organization and productivity in grade 4.
Writing Development (Abbott, Berninger, & Fayol, 2010)

• Used SEM to evaluate longitudinal relations from grades 1-7 among reading and writing at subword, word, and text levels (using WIAT).
• Individual differences in spelling explained both word-level spelling and text level composition consistently across grades.
• Spelling was the most stable of skills measured (which also included alphabetic letter writing, written expression, word reading, & reading comprehension).
Writing Research & Resources

• Writing Next (Graham & Perin, 2007): meta-analysis on effective writing instruction for middle and high school.

• Writing to Read (Graham & Hebert, 2010): Meta-analysis on writing techniques shown to enhance students’ reading

• Common Core State Standards: Appendix C
WritingNext: Effective adolescent writing intervention

- Writing strategies (ES = .82)
- Summarization (ES = .82)
- Collaborative writing (ES = .75)
- Specific product goals (ES = .70)
- Word processing (ES = .55)
- Sentence combining (ES = .50)
- Prewriting (ES = .32)
- Inquiry activities (ES = .32)
- Process writing approach (ES = .32)
- Study of models (ES = .25)
- Writing for content learning (ES = .23)
Writing to Read: Effective Practices

• Have students write about the texts they read (ES = .40 to .51, depending on outcome)
  – Respond to text in writing (writing personal reactions; analyzing & interpreting the text)
  – Write summaries of a text
  – Write notes about a text
  – Answer questions about a text in writing, or create and answer written questions about a text
Writing to Read: Effective Practices

• Teach students the writing skills & processes that go into creating text
  – Teach the process of writing; text structures for writing; paragraph or sentence construction skills (improves reading comprehension: ES = .18-.27)
  – Teach spelling and sentence construction skills (improves reading fluency: ES = .79)
  – Teach spelling skills (improves word reading skills: ES = .68)

• Increase how much students write (ES = .30)
Children Must be Taught to Read and Write!

We are all born dyslexic--the difference among us is that some of us are easy to cure and others more difficult.

- Liberman, 1996