What Research Says about Teaching Children to Read

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Literacy is Important

Literacy attainment has strong impact on overall academic achievement (ACT, 2006; Baer, Cook, & Baldi, 2006)

Literacy attainment has strong impact on economic well being (Ritchie & Bates, 2013; U.S. Department of Labor, 1992)

Literacy attainment affects civic involvement (Venezky, Kaestle, & Sum, 1986)

Literacy attainment affects health (Baker, et al., 1996; National Center for Education Statistics, 2006)

Literacy attainment affects social participation (Venezky, Kaestle, & Sum, 1986)

Literacy Levels Languish

But nationwide literacy levels aren't appreciably higher than in 1971 (NAEP)—though they are higher than in 1992

Only 37% of American students are proficient or higher in reading

Early literacy performance usually persists throughout schooling Cunningham, & Stanovich, 1997; Duncan, Dowsett, Claessens, Magnuson, et al., 2007; Juel, 1988; Smart, Prior, Sansor, & Oberkind, 2005; Snow, Tabors, & Dickinson, 2001

Need to achieve higher levels of literacy than in the past—both individually and for the society

Reading Instruction is Controversial

- “Reading Wars” of the 1990s—divisive arguments over the best way to teach reading
- Contentious and continuing arguments in the Twitterverse
- Current dyslexia debates
- Problem is that “everything works”—opportunity costs

Purpose of Presentation

To summarize what research tells us about teaching children to read

To answer your questions

What does it take to improve achievement?

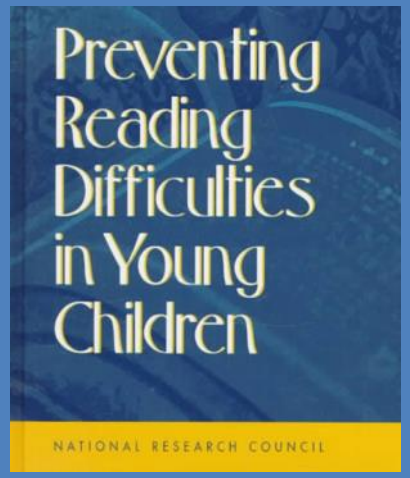
Let’s turn to the research—but which research?

Idea that research can prove anything

Not all research is equal

Research can differ in its suitability to answer questions (descriptive vs. experimental research)

Research can differ in its quality



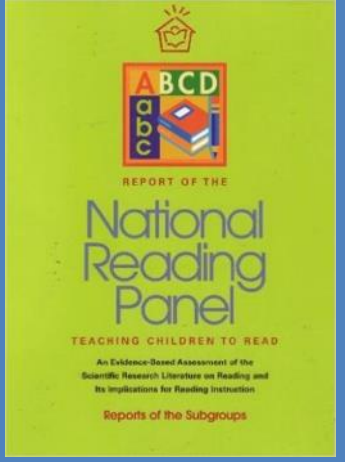
Preventing Reading Difficulties

National Research Council appointed a group of literacy experts to provide research-based recommendations on how to address early literacy

They issued a report in 1998 focused on preschool, kindergarten, and primary grade reading instruction and support

COMMITTEE ON THE PREVENTION OF READING DIFFICULTIES IN YOUNG CHILDREN

CATHERINE SNOW *(Chair),* Graduate School of Education, Harvard University, Chair
MARILYN JAGER ADAMS, Bolt, Beranek, and Newman Inc., Cambridge, Massachusetts
BARBARA T. BOWMAN, Erikson Institute, Chicago, Illinois
BARBARA FOORMAN, Depart of Pediatrics, University of Texas, and Houston Medical School
DOROTHY FOWLER, Fairfax County Public Schools, Annandale, Virginia
CLAUDE N. GOLDENBERG, Department of Teacher Educ, California State University, Long Beach
EDWARD J. KAME'ENUI, College of Education, University of Oregon, Eugene
WILLIAM LABOV, Department of Linguistics and Psychology, University of Pennsylvania
RICHARD K. OLSON, Department of Psychology, University of Colorado, Boulder
ANNEMARIE SULLIVAN PALINCSAR, School of Education, University of Michigan, Ann Arbor
CHARLES A. PERFETTI, Department of Psychology, University of Pittsburgh
HOLLIS S. SCARBOROUGH, Brooklyn College, City University of New York, and Haskins Laboratories, New Haven, Connecticut
SALLY SHAYWITZ, Department of Pediatrics, Yale University
KEITH STANOVICH, Ontario Institute for Studies in Education, University of Toronto
DOROTHY STRICKLAND, Graduate School of Education, Rutgers University
SAM STRINGFIELD, Center for the Social Organization of Schools, Johns Hopkins University
ELIZABETH SULZBY, School of Education, University of Michigan, Ann Arbor



National Reading Panel

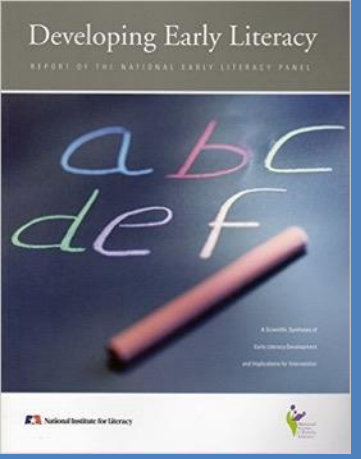
In 1998, Congress asked for a review of what works in reading instruction

U.S. Department of Education and the National Institute of Child Health and Human Development appointed a panel

Panel reviewed more than 500 studies on reading instruction (K-12)

National Reading Panel

Donald Langenberg, University of Maryland, Chair
Gloria Correro, Mississippi State University
Linnea Ehri, City University of New York
Gwenette Ferguson, Houston Public Schools
Norma Garza, parent
Michael L. Kamil, Stanford University
Cora Bagley Marrett, University of Massachussetts-Amherst
S.J. Samuels, University of Minnesota
Timothy Shanahan, University of Illinois at Chicago
Sally E. Shaywitz, Yale University
Thomas Trabasso, University of Chicago
Joanna Williams, Columbia University
Dale Willows, University of Toronto
Joanne Yatvin, Portland State University



National Early Literacy Panel

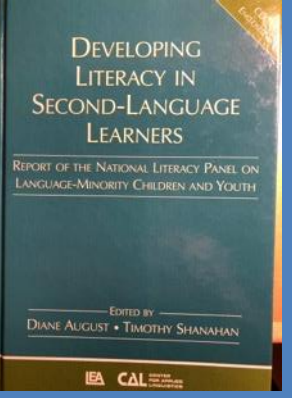
National Early Literacy Panel (2003-2008) reviewed research on the teaching of reading in preschool and kindergarten

Largest meta-analysis of research data on the teaching of reading during these years (examined 400-500 studies)

Set out to determine which skills needed to be taught early on and what confers literacy learning advantages to young children

National Early Literacy Panel

Timothy Shanahan, University of Illinois at Chicago, Chair
Anne Cunningham, University of California Berkeley
Kathy C. Escamilla, University of Colorado
Janet Fischel, State University of New York at Stony Brook
Susan Landry, University of Texas Health Science Center at Houston
Christopher J. Lonigan, Florida State University
Victoria J. Molfese, University of Louisville
Chris Schatschneider, Florida State University
Dorothy Strickland, Rutgers University



National Literacy Panel for Language Minority Children and Youth

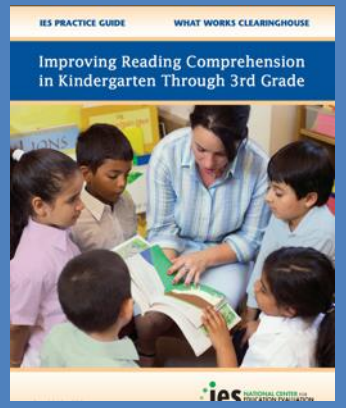
National Early Literacy Panel (2003-2006) reviewed research on the teaching of reading to children (ages birth to 18) from language minority families

Largest analysis of research data on the teaching of reading during this population

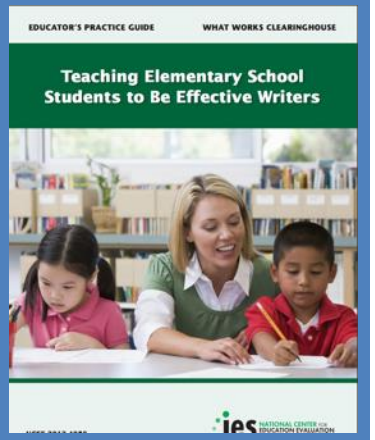
Set out to make a wide range of determinations concerning what facilitates the English-langauge literacy learning of non-English speakers (including young children)

National Panel for Language Minority Children and Youth

Timothy Shanahan, University of Illinois at Chicago, Chair
Diane August, Center for Applied Linguistics
Isabel L. Beck, University of Pittsburgh
Margarita Calderón, Johns Hopkins University
David J. Francis, University of Houston
Georgia Earnest García, University of Illinois at Urbana-Champaign
Fred Genesee, McGill University
Esther Geva, University of Toronto
Claude Goldenberg, California State University, Long Beach
Michael L. Kamil, Stanford University
Keiko Koda, Carnegie Mellon University
Gail McKoon, Ohio State University
Robert S. Rueda, University of Southern California
Linda S. Siegel, University of British Columbia



What Works Clearinghouse



U.S. Department of Education

Panels of experts assembled based on particular topics

Panels can make any recommendations that they choose, but WWC evaluates supporting research and indicates the strength of the underlying evidence

What Works Clearinghouse Panelists (sample)

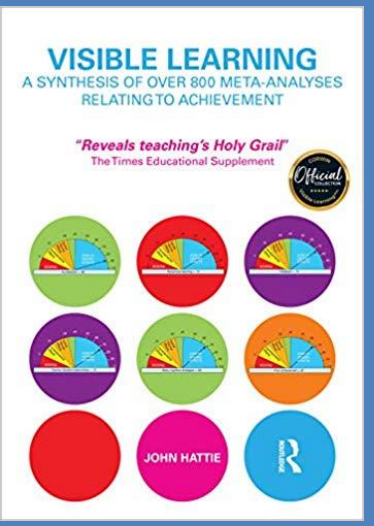
- Carol Connor, Florida State University
- Janice Dole, University of Utah
- Nell Duke, Michigan State University
- Jill Fitzgerald, University of North Carolina
- Barbara Foorman, Florida State University
- Steve Graham, Arizona State University
- Laura Justice, Ohio State University
- Michael L. Kamil, Stanford University
- James Kim, Harvard University
- P. David Pearson, University of California, Berkeley
- Timothy Shanahan, University of Illinois at Chicago
- Joe Torgesen, Florida State University

Carnegie Corporation Meta-Analyses

For the most part, government reports have focused on reading alone, with little consideration of writing

Carnegie has supported Steve Graham's meta-analyses on writing instruction (and he has done additional ones)

All of these have been published in high quality, rigorously reviewed journals



Visible Learning

Compendium of over 800 meta-analyses relating to achievement (Hattie, 2008)

Used as a source of data – not depending on Hattie's synthesis of these

This Presentation

Will rely heavily on the evidence included in these public reports

Along with more recent studies

And my own experience as Director of Reading for the Chicago Public Schools

Learning is Individual

- We learn through our own experiences (and when it comes to academic learning, the only thing that matters is our academic experiences)
- The only actions that can enhance learning are actions that alter experiences in some way

Three Aspects of Experience

Amount of instruction or experience

Content or focus of that experience

Quality (effectiveness or efficiency) of that experience

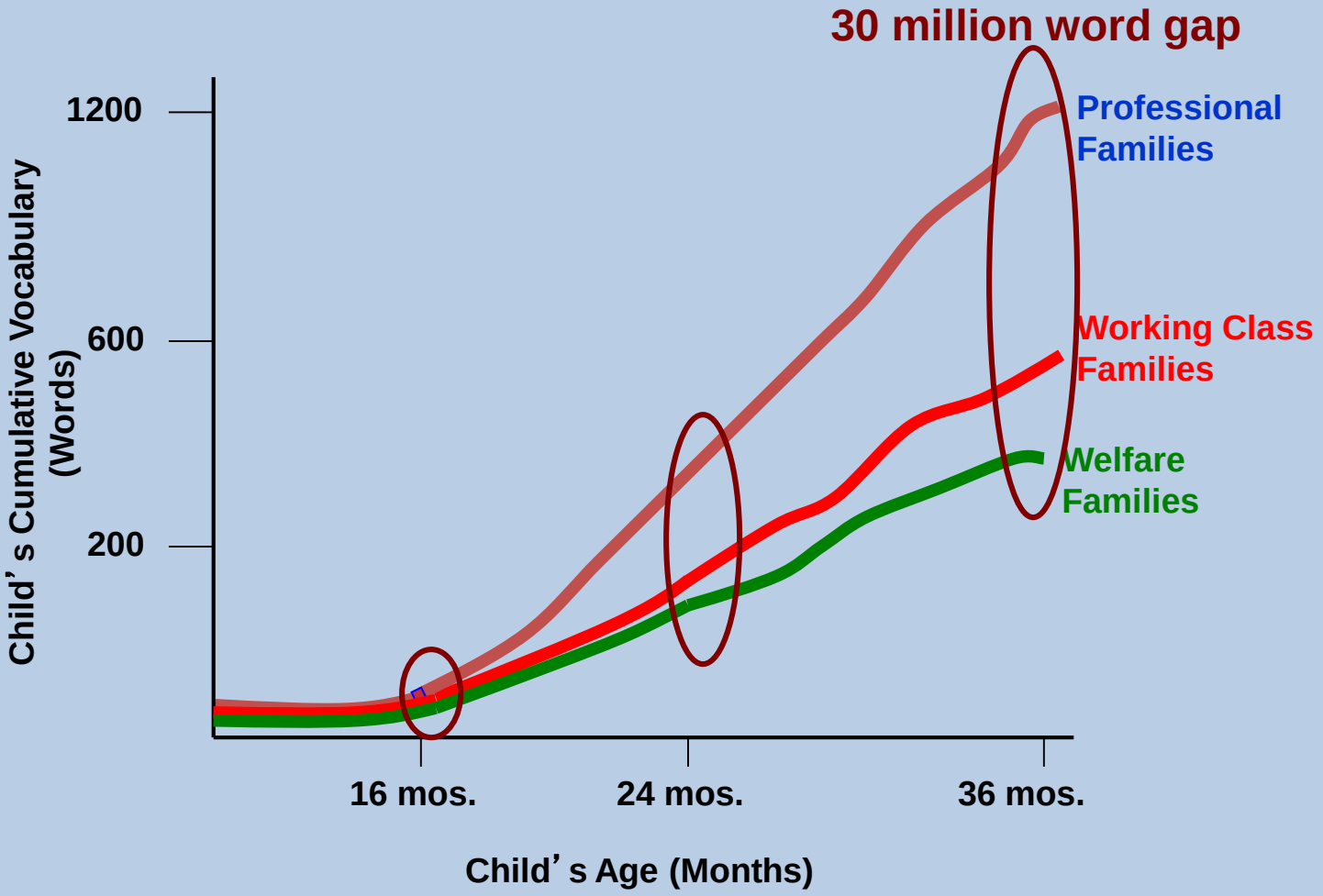
Amount of Instruction

Research suggests that amount of instruction is the single most important alterable determinant of learning

Amount of Teaching

- What evidence is there that amount of teaching/experience makes a difference?
- The ”immediate, powerful” positive impact of amount of instruction and study time on learning is the most “consistent finding of all psychological research on academic learning” (Walberg, 2002)
- Evidence of increases in learning due to increases in amount of instruction/academic experience is extensive, consistent, and overwhelming

Disparities in Early Vocabulary Experience

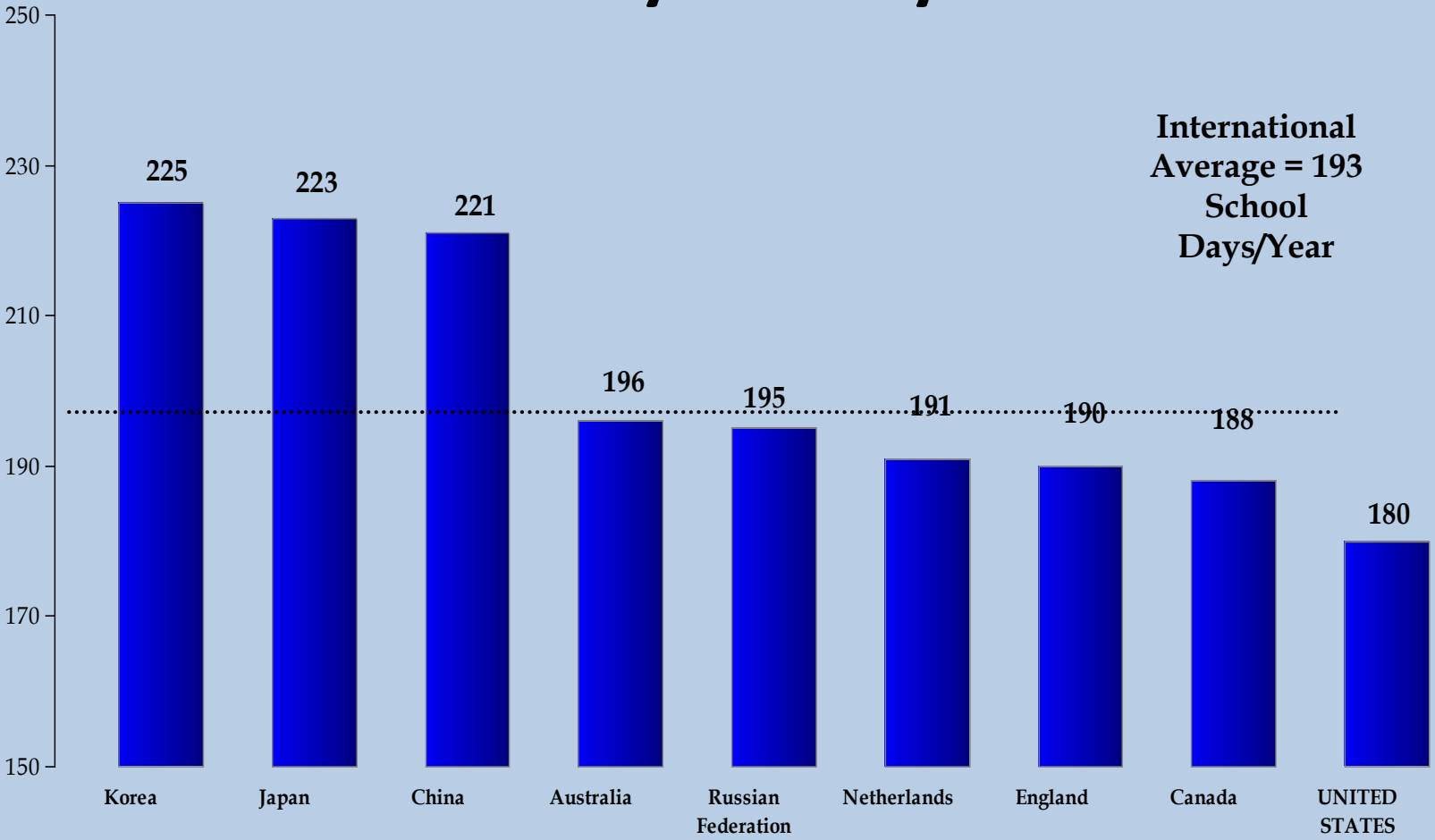


Source: Hart & Risley (2003)

Effects of full-day kindergarten

- Full-day kindergarten increases academic experience by about one month per year
- Full-day kindergartens consistently outscore half-day kindergartens on achievement tests
- Full-day kindergarten has stronger, longer lasting
  benefits for children from low-income families or with few educational resources prior to kindergarten

Number of Instructional Days in School Year by Country



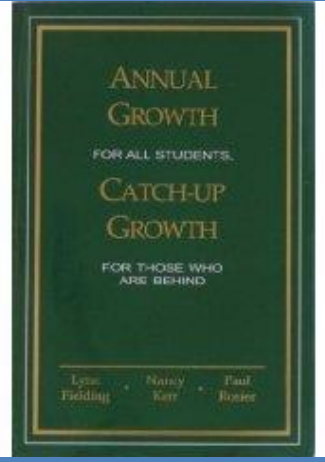
SOURCE: Trends in International Mathematics and Science Study (TIMSS) 2003

Extended school year

- In a study in Chicago, extending the school year by 30 days led to increases in student learning in reading and math (Frazier & Morrison, 1998)
- This study increased kindergarten by 30 days and raised reading achievement by about 1 full year in reading over comparison children

Use of School Day

- Concept of Academic Learning Time (Fisher, Marliave, Filby, 1978)—big differences in the use of time from class to class
- Beat the odds comparisons showed that effective teachers in grades K-3 keep students on task/engaged 96% of the time, students of less effective teachers only 63% (Taylor, 1999, 2006).



Kennewick School

Annual Growth for All Students… Catch-up Growth for Those Who are Behind by Lynn Fielding, Nancy Kerr, and Paul Rosier

Tells of experiences in Kennewick, WA school that successfully raised reading achievement

They estimate that 60-80 minutes of reading instruction (per day/per year) will raise achievement one year

So, a youngster who enters 3rd grade 2 years behind in reading, will need about 240 minutes of instruction daily to catch up

Washington Elementary School

Growth in % of 3rd grade students meeting grade level standards

School Year

95	96	97	98	99	00	01	02	03	04	05	06

Percent at Grade level

57	72	72	68	78	94	96	99	94	98	99	98

Began providing intensive interventions in the afternoon to many students

Working harder and more effectively at 3rd grade

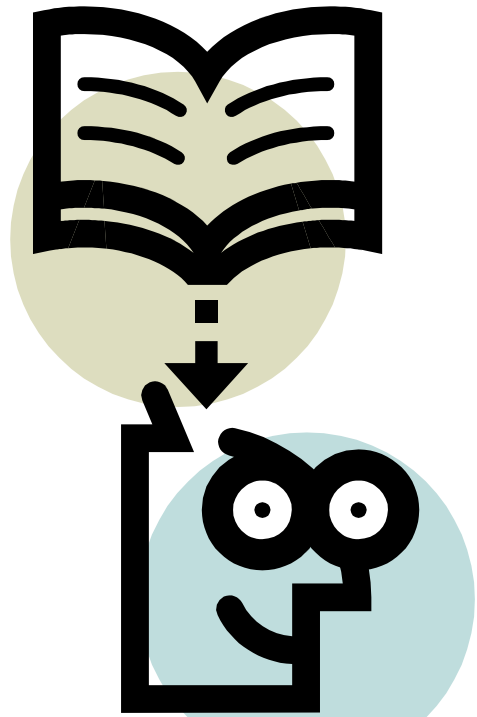
Result of improvement at both 2nd and 3rd Grade

Baseline year

Began testing in 2nd grade and focusing on earlier improvement

Other time data

- Preschool
- Absenteeism
- After-school programs
- Summer school programs
- Snow days
- Days with unplanned teacher absences



Content of Instruction

The second biggest determinant of school learning is content coverage—what we teach

What needs to be taught?

- Teach those things that research has supported… what needs to be learned to make someone a reader?
- Long lists of skills and standards…. Unwieldy, unmanageable...
- Organize into clusters and divide the time roughly equally among them

Components of Literacy

Knowledge of Words and Parts of Words (phonological awareness, phonemic awareness, alphabet, phonics, spelling, sight vocabulary, morphology, word meaning)

Oral Reading Fluency (accuracy, speed, prosody)

Reading Comprehension/Learning from Text (reading comprehension strategies, text structure, cohesion, grammar, learning)

Writing (narration, exposition, argument, writing process, summarization, analysis, synthesis, coherence, elaboration, focus, voice, diction, conventions)

Phonological Awareness

Phonological Awareness is the ability to hear and manipulate language sounds including word and syllable separations and the phonemic within spoken words

Phonemic Awareness refers to the ability to hear and manipulate the smallest sounds within words (it is a part of Phonological Awareness)

PA is not phonics

Development of PA progresses from gross sounds (words, syllables) to finer-grained sounds (phonemes)

The instructional goal is to enable children to be able to easily and quickly fully segment the phonemes within words

Phonological Awareness (cont.)

National Early Literacy Panel (2008) reviewed nearly 70 studies showing that phonological awareness was a strong predictor of later reading achievement

NELP meta-analyzed approximately 50 studies finding that instruction in PA in pre-K and/or K (alone, combined with AK, combined with phonics) led to significant impacts on PA, AK, Reading, Spelling

NRP meta-analyzed more than 51 studies finding that phonemic awareness instruction in K, 1, and remediation led to significant improvements in phonemic awareness, decoding, reading comprehension, and spelling (NICHD, 2000)

Examples of PA Skills

PA Skill	Example
Word separation	The---man---ran---up---the---hill.
Syllabic segmentation	Ti--mo--thy--Shan--a--han
Onset/rime	b—ig; m—an; r—ug; l--amb
Phoneme identity	ball, game, baby, bat
Phoneme isolation	p—an, pa—n
Phoneme blending	/p/-/a/-/n/
Phoneme segmentation	m/a/p, t/a/b/l
Phoneme addition	re, red, redea, redeam, redeams
Phoneme substitution	map, cap, pap, rap, sap—sam, sad, saf, sag
Phoneme deletion	Ready, read, re, r

Phonics

- Phonics refers to instruction aimed at teaching the alphabetic system of English; includes sound-symbol correspondences and the relationships between spelling patterns and pronunciations of words. Decoding from print to pronunciation.

Phonics (cont.)

NELP examined 70 studies on decoding instruction found that such instruction in Pre-K and K had moderate to large impacts on students' reading and spelling development and on various emergent literacy skills

NRP examined 38 studies on phonics instruction and found that such teaching in grades K-2 and with older remedial readers had a positive impact on decoding and fluency and on reading comprehension and spelling as well K-2.

No point during these PreK-2 years when code-focused instruction is not beneficial to students (and the benefits appear to be long lasting)

Phoneme-Grapheme Correspondences

Phoneme	Word Examples	Common spellings
/p/	pit, spider, stop	p
/b/	bit, brat, bubble	b
/m/	mitt, comb, hymn	m, mb, mn
/t/	tickle mitt, sipped	t, tt, ed
/d/	die, loved	d, ed
/n/	nice, knight, gnat	n, kn, gn
/k/	cup, kite, duck, chorus, folk, quiet	k, c, ck, ch, lk, q
/g/	girl, Pittsburgh	g, gh
/ng/	sing, bank	ng, n
/f/	fluff, sphere, tough, calf	f, ff, ph, lf
/v/	van, dove	v, ve
/s/	sit, pass, science, psychic	s, ss, sc, ps

Phoneme-Grapheme Correspondence

Phoneme	Word Examples	Common spellings
/z/	zoo, jazz, nose, as, xylophone	z, zz, se, s, x
/th/	thin, breath, ether	th
/th/	this, breathe, either	th
/sh/	shoe, mission, sure, charade, precious, notion, mission, special	sh, ss, s, ch, sc, ti, si, ci
/zh/	measure, azure	s, z
/ch/	cheap, future, etch	ch, tch
/j/	judge, wage	j, dge, ge
/l/	lamb, call, single	l, ll, le
/r/	reach, wrap, her, fur, stir	r, wr, er/ur/ir
/y/	you, use, feud, onion	y (u, eu), i
/w/	witch, queen	w, (q)u
/wh/	where	wh
/h/	house, whole	h, wh

Phoneme-Grapheme Correspondence

Phoneme	Word Examples	Common spellings
/ē/	see, these me, eat, key, happy, chief, either	ee, e__e, -e, ea, ey, -y, ie, ei
/ĭ/	sit, gym	i, y
/ā/	make, rain, play, great, baby, eight, vein, they	a__e, ai, ay, ea, -y, eigh, ei, ey
/ĕ/	bed, breath	e, ea
/ă/	cat	a
/ī/	time, pie, cry, right, rifle	i__e, ie, -y, igh, -i
/ŏ/	fox, swap, palm	o, wa, al
/ŭ/	cup, cover, flood, tough	u, o, oo, ou
/aw/	saw, pause, call, water, brought	aw, au, all, w, ough
/ō/	vote, boat, toe, snow, open	o_e. oa, oe, ow, o-
/o͝o/	took, put, could	oo, u, ou
/ū/ [o͞o]	moo, tube, blue, chew, suit, soup	oo, u_e, ue, ew, ui, ou

Phoneme-Grapheme Correspondence

Phoneme	Word Examples	Common spellings
/y/ /ū/	use, few, cute	u, ew, u_e
/oi/	boil, boy	oi, oy
/ow/	out, cow	ou, ow
/er/	her, fur, sir	er, ur, ir
/ar/	cart	ar
/or/	sport	or

Syllable Patterns

Syllable type	Definition	Examples
Closed	Syllable with short vowel spelled with a single vowel letter ending in one or more consonants	dap-ple, hos-tel, bev-erage
Vowel-C-e (Magic e)	Syllable with a long vowel spelled with one vowel + one consonant + silent e	com-pete, -des-pite
Open	Syllable that ends with a long vowel sound, spelled with single vowel letter	pro-gram, ta-ble, re-cent
Vowel team	Syllables that use 2-4 letters to spell the vowel	beau-ti-ful, train-er, con-geal, spoil-age
Vowel-r (r-controlled)	Syllable with er, ir, or ur	in-jur-ious, con-sort, char-ter
Consonant-le	Unaccented final syllable containing a consonant before /l/ followed by a silent e	drib-ble, bea-gle, lit-tle

Vocabulary

- National Reading Panel reviewed 45 studies and found that direct instruction in words and/or the meaningful parts of words (morphology) has a positive impact on reading comprehension (studies from grades 1-12)
- NLP studies showed the special importance of vocabulary to second-language learners: effect size is bigger

Oral Reading Fluency

Oral reading fluency refers to the ability to read text accurately, quickly, and with proper expression

National Reading Panel reviewed 52 studies and found that oral reading fluency instruction improved decoding, word reading, fluency, and reading comprehension in Grades 1-4 and with remedial students Grades 1-12

Fluency is best predictor of reading comprehension in lower grades (2nd: 73% of comprehension variance explained by fluency; this declines to 25% by grade 8)

Reading Comprehension

- National Reading Panel reviewed 204 studies of reading comprehension strategy instruction (K-12)
- What Works Clearinghouse (Shanahan, Carlson, Carriere, Duke, et al., 2010) concluded that reading comprehension strategy instruction was effective with students in the primary grades

Reading Comprehension (cont.)

Effective instruction focuses on summarization, questioning, monitoring, visualization, story mapping

Multiple strategies are most effective

Reading Comprehension (cont.)

Vocabulary instruction is usually treated as part of comprehension work (and as already explained, vocabulary instruction improves comprehension)

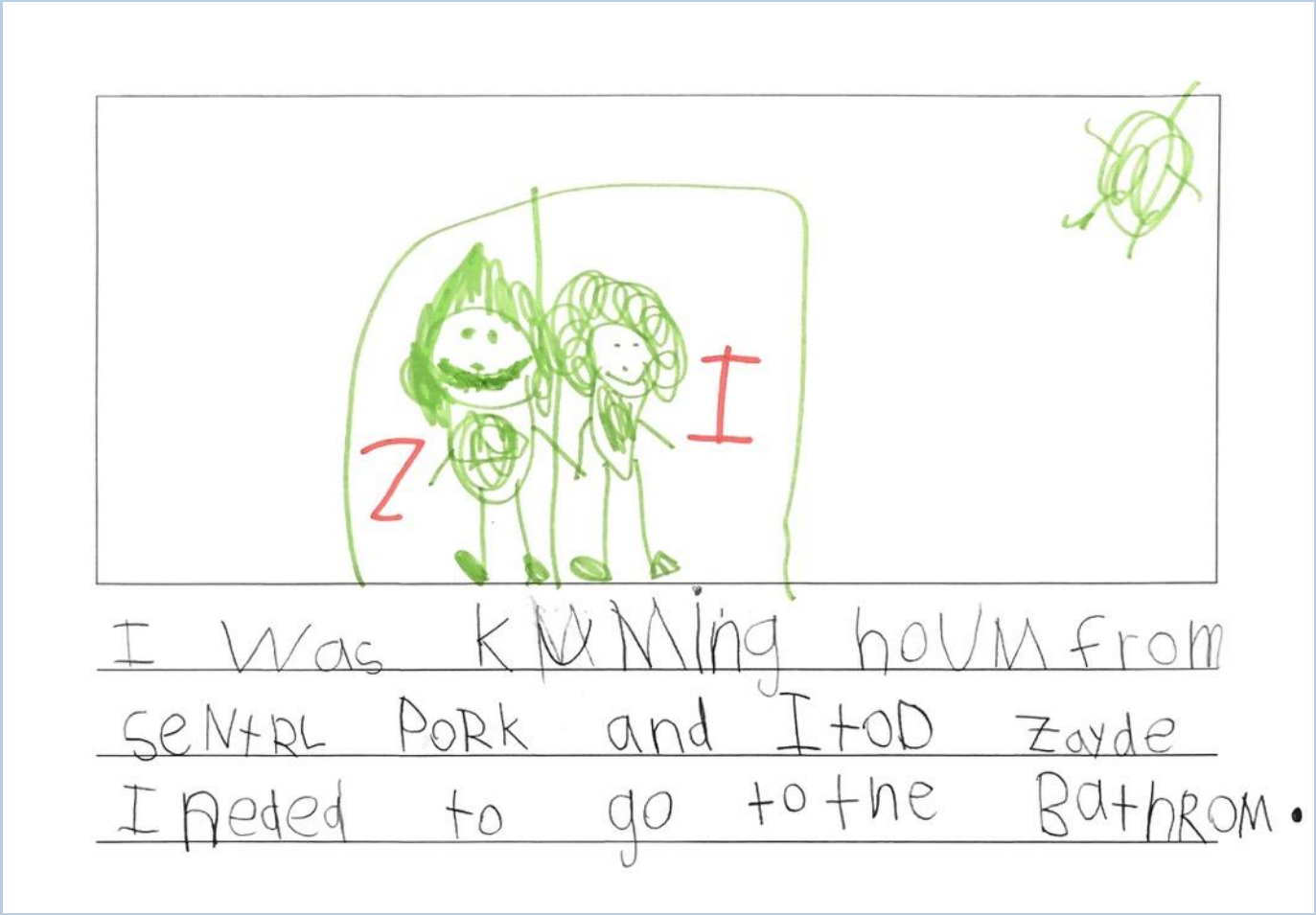
Sentence combining (sentence reducing) improves understanding of syntax and transfers to comprehension

Text structure and cohesion work improves reading comprehension, too

Writing

- Writing—the ability to communicate one's ideas effectively through written/printed words
- Writing is important in its own right
- Emphasis here is on the value that writing has to reading achievement

First-grader's attempt to represent 59 phonemes



Writing about Text

Graham & Hiebert meta-analyzed more than 100 studies that required students to write about text

93% of the findings were positive

Writing about text was better than just reading the text, better than reading and rereading, better than reading and discussing in terms of improving comprehension and learning from text

Writing about Text

- Modeling
- Summarizing
- Analysis/critique
- Synthesis

Research shows clear causal relationship between teaching the following and reading achievement:

- Phonological awareness (including letters)
- Phonics (including sight words)
- Vocabulary
- Oral Reading Fluency
- Reading comprehension strategies
- Writing

Quality of Instruction

There are quality factors in teaching as well—and they too can have an impact on achievement

Quality of Instruction

Only a negative definition of this

Instructional features that influence learning without increasing amount of instruction or altering the content to be taught

Quality of Instruction (cont.)

- Clear purposes
- Explicit instruction
- Amount of reading/language use within lessons
- Thoroughness/intensity of instruction
- Amount of interaction
- Depth of information
- Quality of explanation
- Motivation

If you want to improve reading…

Time	Make sure kids get a lot of teaching and experience
Content	Make sure the right things are being taught
Quality	Make sure the instruction is good

Common Parent Questions

- How early should we teach reading?
- What is dyslexia?
- Should our kids get homework?
- What books should my children read?
- How can we help our children succeed in reading?
- How can we know if our children are doing well?
- Who does better, boys or girls?
- How much screen time should we allow?
- Etc. etc. etc.?

Some Current Controversies

- “Science of Reading”
- Common Core State Standards
- Importance of knowledge
- Response to Intervention
- Independent Reading
- Disciplinary Literacy
- Testing
- Text complexity