Untangling Reading Comprehension: Diagnosing and Articulating Comprehension Difficulties

Katherine Stahl

April 21, 2016

Spring Meeting

Ohio School Psychologist Association

Name Game: Who are they? How are they present in your school? Put your answers on paper with your school team name at top. Prizes awarded.

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Getting Acquainted: Who are you?

- School Psychologist
- Classroom Teacher
- Literacy Interventionist
- Literacy Coach
- Principal/Asst. Principal
- Special Educator
- ENL/ELL Teacher
- Speech/Language Therapist
- District Administrator
- Other

Getting Acquainted: Who am I?

- Taught in public schools for 27 years
- Literacy Program Director at NYU
- Teach Literacy Courses
- Literacy Clinic Chief Cook and Bottle Washer
- Member of RTI-TAC Consortium
- Member of NYS ELA Content Advisory Panel
- Author
- School Consultant
- Specialties are comprehension prek-2 & struggling readers

Learning Objectives

- Identify text, context and student factors that contribute to comprehension proficiency
- Identify diagnostic tools for evaluating the dimensions of comprehension strengths and weaknesses
- Identify strengths and weaknesses of popular progress monitoring tools
- Identify the characteristics and components of effective comprehension protocols

RTI/MTSS Requires Working Together

- We share power as change agents in schools.
- You are in unique role to gauge existing quality of school assessment practices and initiate improvements.
- In many ways, you serve as resident assessment monitor and advisor for the school.

What Comprehension is Not

- Filling in a word in a cloze task
- Selecting the correct choice as part of a maze task
- The number of words that a reader uses to retell a portion of an oral reading fluency task
- Words Correct per Minute
- A Lexile estimate
- A number on a state ELA test
- Determined by an item analysis on an ELA test

We Want a Silver Bullet Assessment Tool

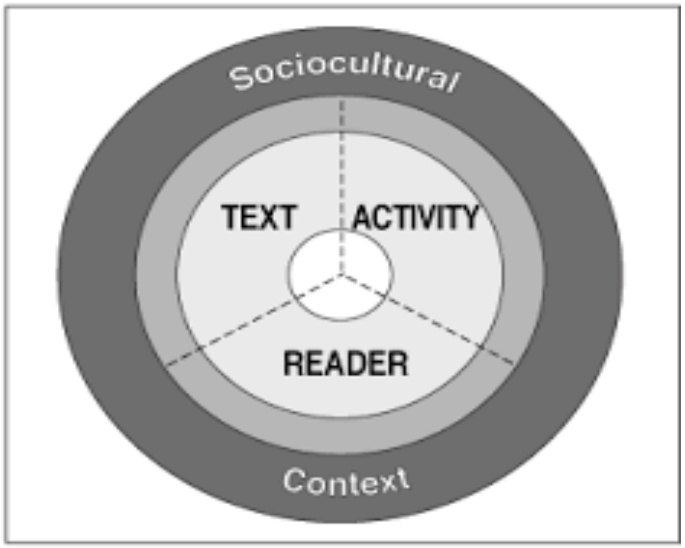
- Unlike foundational skills, there is no single test that can provide a snapshot of a reader's comprehension
- Reading comprehension is a "paradigm for cognition." (Kintsch, 1998)
- Multiple artifacts must be collected to identify the multidimensional, invisible aspects of comprehension.
- We can only gauge comprehension indirectly using artifacts that are:
  - Spoken
  - Written
  - Produced

What is Comprehension?

The process of simultaneously extracting and constructing meaning through interaction and involvement with written language.

Rand Reading Study Group (2002);

Snow (2003)



Continuum: Constrained to Unconstrained Abilities
(Paris, 2005)

Phonemic Awareness

Fluency

Vocabulary

Phonics

Comprehension

Constrained

Unconstrained

Why is this important?

- Constrained abilities are fairly linear and with instruction children develop mastery within a few years. They are easy to assess.
- Unconstrained abilities are multidimensional, incremental, context dependent and develop across a lifetime.

Paris, S. (2005). Reinterpreting the development of reading skills. Reading Research Quarterly,40, 184-202.

Why is this important?

- Context, purpose, genre and content *(context and text factors)* influence comprehension.
- Thresholds in decoding, fluency, vocabulary, prior knowledge, metacognition, working memory, and self-regulation *(reader pressure points)* are necessary to comprehend a specific text.
- All of these factors act together in nonlinear, dynamic ways in response to specific texts and tasks to yield comprehension that falls within a wide range of understanding.

COMPREHENSION IS NEVER ALL OR NOTHING!!!

AHA and ?

(1 minute)

Difficulties in Assessing Comprehension
(Snow, 2003, pp. 193-195)

- To capture the "developmental nature of comprehension;"
- To focus on "comprehension for engagement, for aesthetic response, for purposes of critiquing an argument or disagreeing with a position;"
- To identify why comprehension breaks down, separating "comprehension processes (inferencing, integrating new with existent knowledge) from lack of vocabulary, of domain-specific knowledge, of word reading ability, or of other reader capacities involved in comprehension;"
- To determine teachers' instructional emphases and effectiveness;
- To be psychometrically reliable and valid.

List the comprehension tests that you use or trust- rate your trust on a scale of 1-5

(5 minutes)

List the comprehension tests that you use or trust- rate your trust on a scale of 1-5

- Woodcock-Johnson
- GORT

- STAR
- FastBridge--Adaptive
- DAZE-Maze
- NWEA-MAP
- R-CBM

Gas Cars or Electric Cars?

Most cars run on gasoline, or "gas" for short. Gas cars work very well. There is a problem, though. Cars that run on gas make the air dirty. This dirty air is not good for people, animals, or trees. Gas cars make the air dirty for all living things. What can we do? We can drive electric cars!

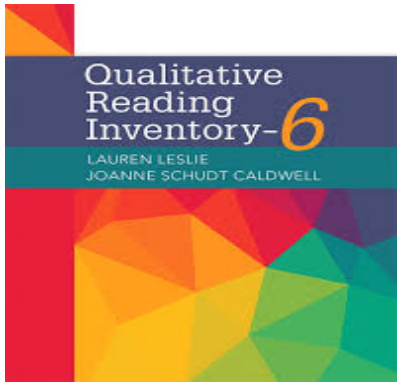
Electric cars do not use gas. These cars do not make the air dirty. These cars have battery packs that power their motors. The batteries can be charged many times. They can be used again and again. This makes electric cars great.

But electric cars have problems, too. They are slower than gas cars. They are also very quiet. This means that some people cannot hear them when they drive by. These people may not think a car is coming. They have to be careful.

People are finding ways to make electric cars better all the time. Maybe someday all cars will be electric. That would be much better for the world.

Other Assessments Commonly Used by Teachers as Screening Tools

- Benchmark Kits (Fountas & Pinnell or Developmental Reading Assessment)
- Informal Reading Inventories
- State ELA

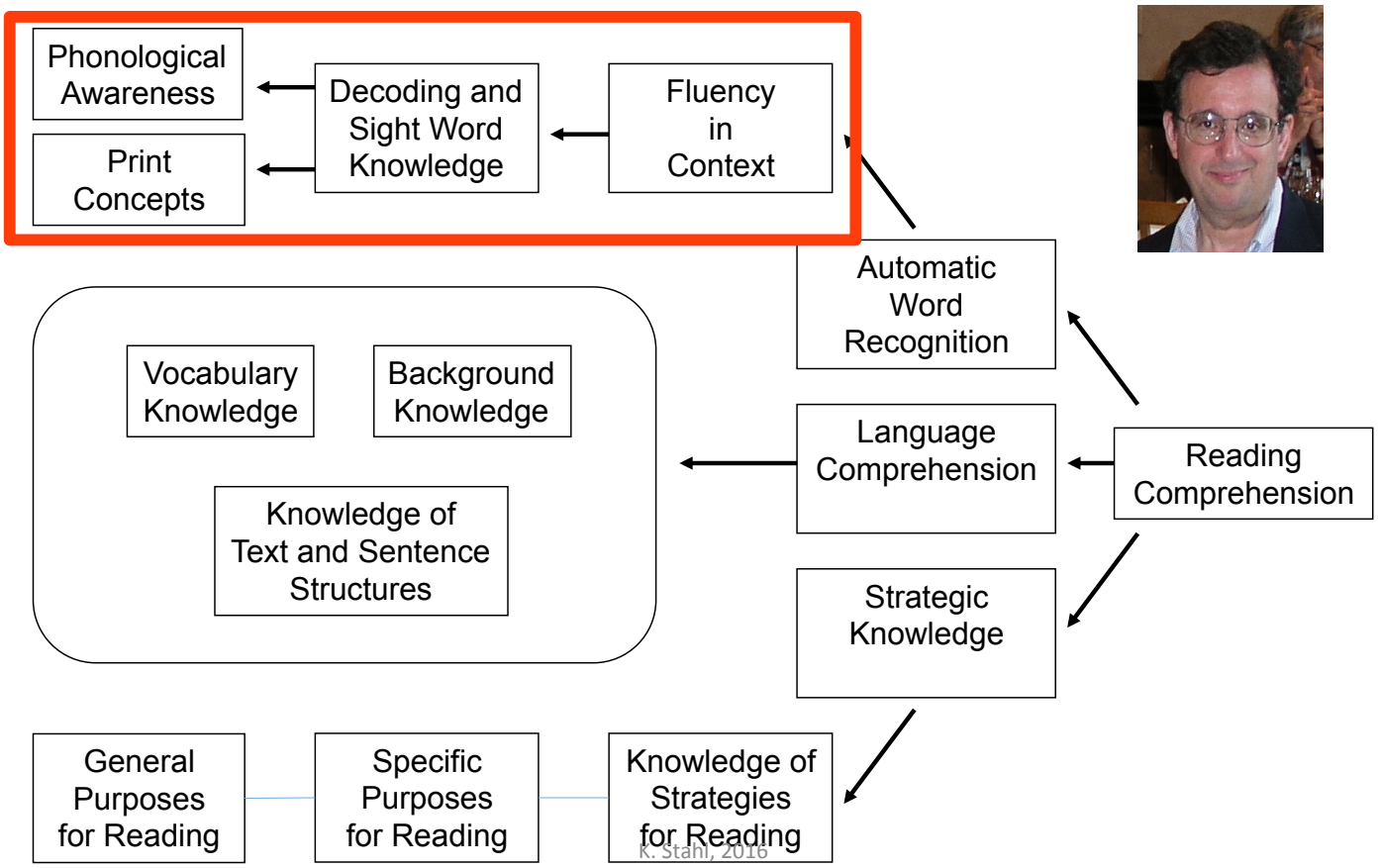


Functions of Assessments

- Screening--Thermometer
- Diagnostic---Often the missing piece
  - What do I teach to make an impact?
  - What is my target?
  - Selectivity: At both student level and test level
- Progress Monitoring-

  Is what I am doing working?

The Cognitive Model (McKenna & Stahl, 2015)



Diagnosing to inform comprehension instruction is not going to be clean

- There is not a single assessment task that can be used as a diagnostic to inform instruction.
- A suite of assessment tools is needed to get the big picture.
- Another deliberate alternative is to select one or two components of comprehension, focus on the diagnosis and intervention of those and ignore the others (with deliberation, not ignorance)
- You need a reading expert or a speech-language expert.
- Earlier is better than later –age 4 and 5 is not too soon!

Considerations in Selecting Diagnostic Tools

- Development (prek-2/3; 3-6; 6 and beyond)
- First language
- Response format: spoken, written
- Listening comprehension and reading comprehension
- Narrative and Expository
- Conscious administration choice regarding oral and silent reading

What assessments give you these options?

- There isn't one single test that will provide a comprehensive view of comprehension competencies.
- Choose a few tests that can serve multiple functions.
- That does not mean that you can use a grade level ORF retelling in one minute (or more) to draw any kind of valid conclusion about a child's comprehension.
- You need a suite of assessment tasks that address the pressure points.

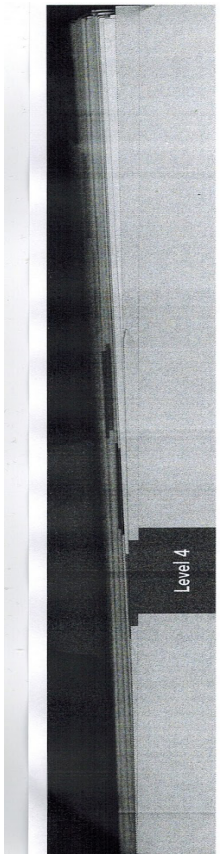
Essentials

Verbal

Retelling with individual text scoring guide (idea units or specific story grammar elements/key ideas)

Questions, Cued Recall—with text-based questions (literal & inferential)

Written Responses to Text (beginning grade 3)



Level: Four

Europe. A person could travel about 90 miles by railroad in just a few hours. Such a trip took a day and a half by horse-drawn wagon. (297 words)

From *Scott Foresman Social Studies: The United States, Pupil Edition, Grade 5*. Copyright © 2003 by Pearson Education, Inc. or its affiliates. Adapted by permission. All Rights Reserved.

Number of Total Miscues (Total Accuracy): 3

Number of Meaning-Change Miscues (Total Acceptability): 0

Total Accuracy		Total Acceptability
0–7 miscues	3 Independent	____ 0–7 miscues
8–31 miscues	____ Instructional	____ 8–16 miscues
32+ miscues	____ Frustration	____ 17+ miscues

Rate: 297 × 60 = 17,820/____ seconds = ____ WPM

Correct WPM: (297 – ____ errors) × 60 = ____ /____ seconds = ____ CWPM

Retelling Scoring Sheet for "Early Railroads"

Main Idea

____ Railroads began as rails
____ laid down in a road.

Details

____ The rails were wood
____ topped with iron.
✓ Horses pulled carts
✓ running along the rails.
____ The rails were smoother
____ than the roads
____ so the horses could pull the carts
____ faster.

Main Idea

✓ Peter Cooper got an idea.

Details

____ Why not develop a steam engine,
____ or locomotive,
____ to pull the carts?
____ He believed
____ an engine would be able to pull heavier loa
____ faster
____ than horses could.

Main Idea

____ In 1830,
____ Cooper built a steam engine.

Details

____ It was small.
____ Because of its size,
____ it became known as the Tom Thumb.
✓ Tom Thumb was a tiny hero
____ in old stories.

Main Idea

____ Cooper wanted people to know
____ about his machine
____ so he advertised a race
____ between the Tom Thumb
____ and a horse.

Details

____ On an August day,
____ the locomotive
____ and the horse lined up.
✓ The race began.
✓ At first,
✓ the horse pulled ahead.
✓ Then the train picked up speed.
✓ Soon it was neck and neck.
____ Then Tom Thumb pulled ahead
____ and a cheer went up.
____ But a valve broke.
____ The locomotive slowed
____ and fell behind the horse.

Main Idea

____ Although Tom Thumb lost the race,
____ engines would take over from horses.

Less Commonly Used Comprehension Assessment Tools

- Think-aloud tasks

- Strategy Interviews

Gauging Vocabulary Knowledge

- ❖Peabody Picture Vocabulary Test-4 (PPVT4; Dunn & Dunn, 2007)
- ❖Expressive Vocabulary Test 2 (Williams, 2007)
- Common Formative Measures (McKenna & Stahl, 2015; Stahl & Garcia, 2015)
- Disciplinary Unit Vocabulary (McKenna & Stahl, 2015; Stahl & Bravo, 2010)
- English Learner Considerations
- Isolated Vocabulary Programs
- Basal tests

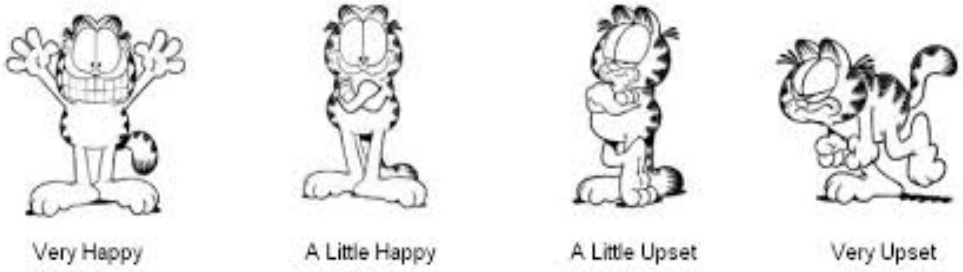
Process Writing

- Periodic Common Prompts with Established Rubrics for:
- Narrative
- Exposition
- Argumentation

- (Grade level, may be embedded within disciplinary units)

Motivation

- Garfield Elementary Reading Attitude Survey (McKenna & Stahl, 2015)



ATTITUDE

Survey of Adolescent Reading Attitude: Grades 6-8 (McKenna et al., 2012; McKenna & Stahl, 2015)

- Recreational reading in print setting
- Recreational reading in digital settings
- Academic reading in print settings
- Academic reading in digital settings

Considerations in the assessment of novice readers

- The CCSS has increased the emphasis of comprehension in the primary grades.
- Today the youngest students are exposed to texts that vary greatly in difficulty, topics, and genre.
- As a result, comprehension difficulties are being exposed much earlier than they were in the past.

Considerations in the comprehension assessment of novice readers

- When concerned about possibility of reading comprehension "issue," non-reading comprehension assessments must be administered.
- MSV does serve as valuable comprehension indicator in first grade.
- Low level stories (leveled text, little books) often do not have complete story grammar.
- Lexiles are not precise/reliable until around the end of second grade (450L-600L).
- Benchmarks kits are not all created equal and have varying degrees of technical adequacy and psychometric integrity (see Stahl & Garcia, in press).

Prek-Grade 2 (Non-reading measures)

- Utilization of video narratives with scripted questions (Kendeou et al, 2005, Kendeou, Bohn-Gettler, White & van den Broek, 2008; Kendeou, van den Broek, White & Lynch, 2007, Lynch et al., 2008, van den Broek et al., 2005; van den Broek et al., 2009)
- Sulzby Scale (**Sulzby, 1985;** McKenna & Stahl, 2015; Stahl & Garcia, 2015)
- Narrative Wordless Picture Book Assessment (**Paris & Paris, 2003**; **van Kraayenoord & Paris, 1996;** see also McKenna & Stahl, 2016; Silva & Cain, 2015; Strasser & del Rio, 2013; Stahl & Garcia, 2015; Tompkins, Guo, & Justice, 2013)

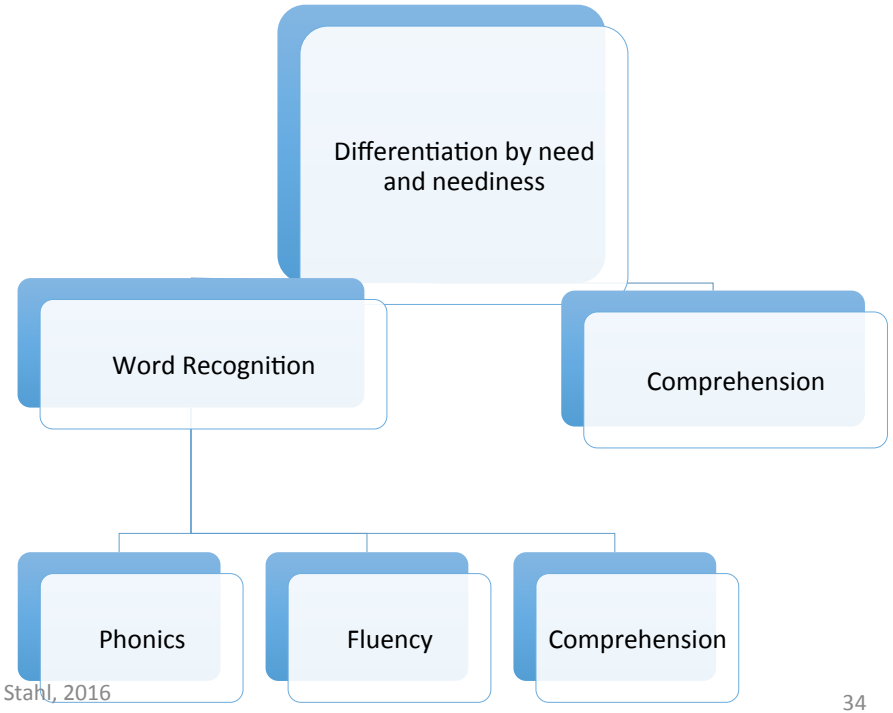
- Packages are not available. Schools would need to create 3-4 standardized forms.

Assessing Novice Readers (Gr. 1-3)

- MSV of oral running record of instructional level text
- Developmental Reading Assessment 2 (DRA 2; Beaver, 2005)
- On the horizon: PARCC has stated that it is developing formative assessments for K-2, but information is currently unavailable.

How are we Identifying and Grouping for Intervention of Older Students?

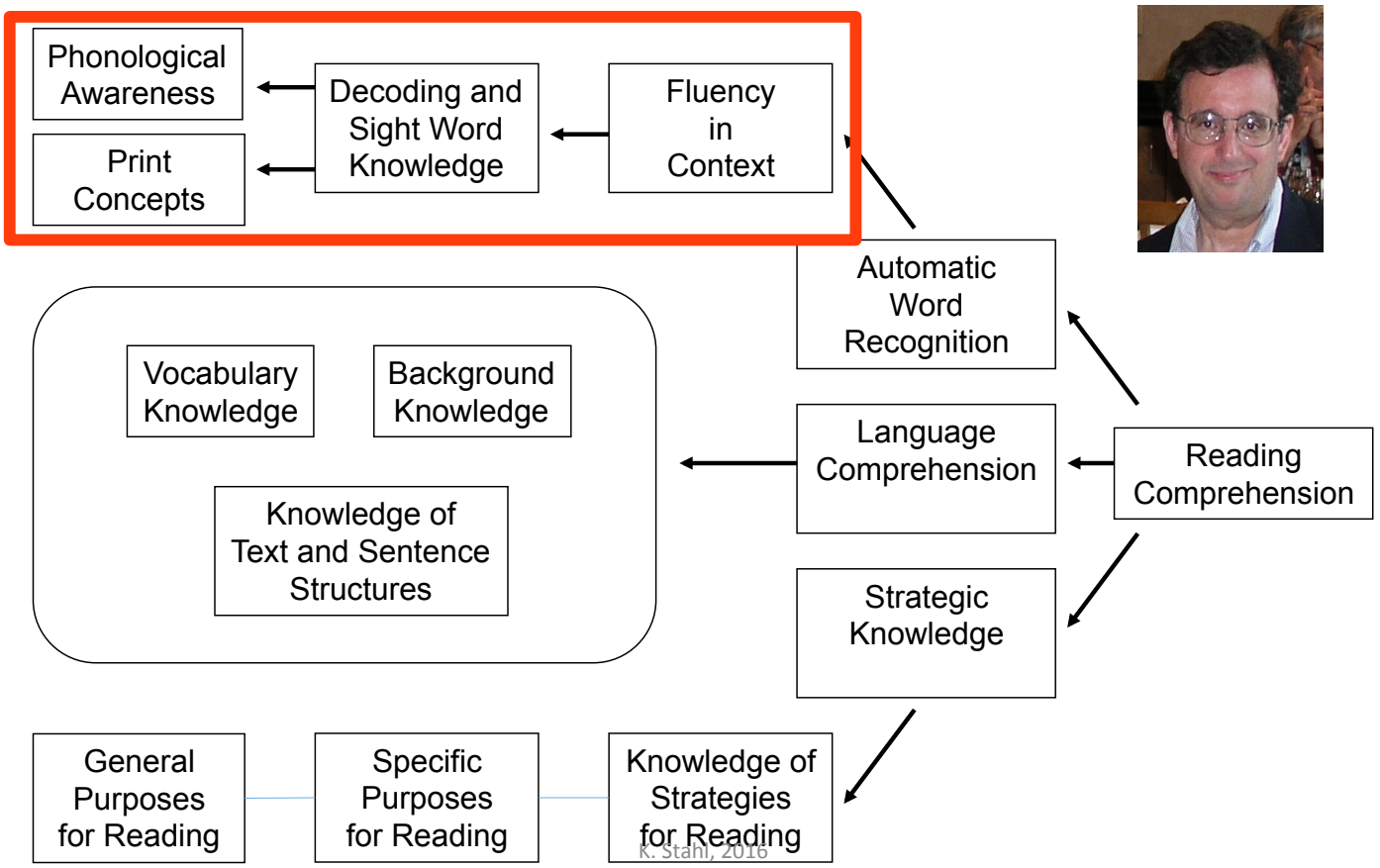
- Use triangulation of ELA, CBM ORF, WTW Elementary Spelling Inventory and IRI (retelling and questions/Lexile correlated) to identify needs and the neediest.



Diagnostic Tools in the Intermediate Grades

- Informal Reading Inventories (QRI 6-Leslie & Caldwell, 2016; Basic Reading Inventory-Johns, 2012)
- Common formative assessments
  - An assessment process that is tied to a curriculum unit of instruction, small scale (less than a class period) and short cycle.
- Writing in response to text
- Strategy interviews
- Think-alouds

The Cognitive Model (McKenna & Stahl, 2015)



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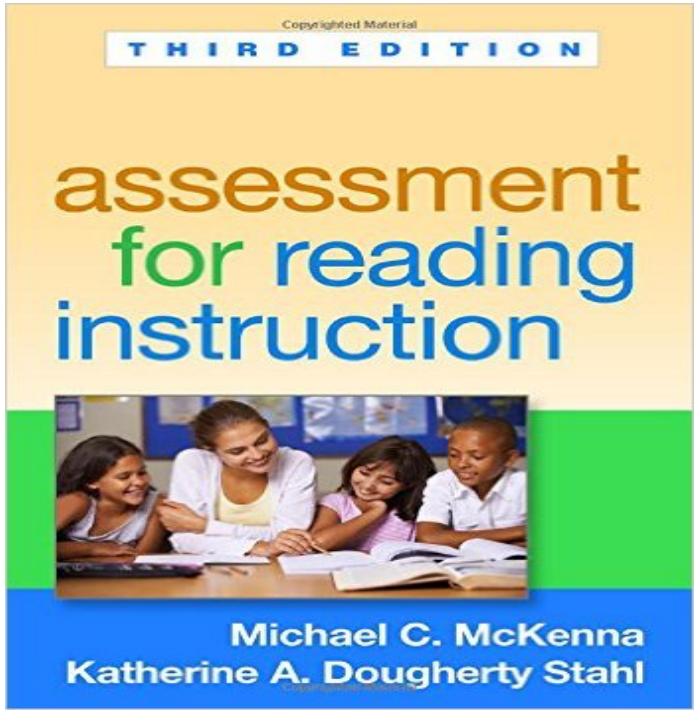
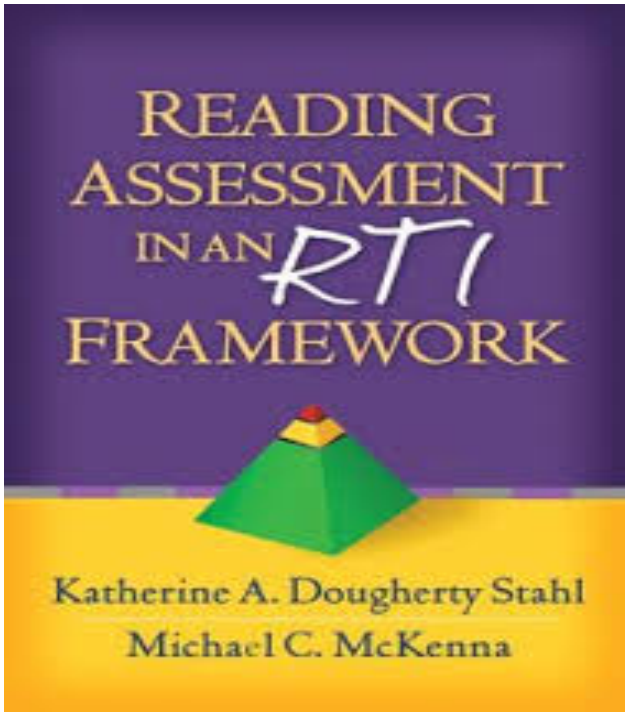
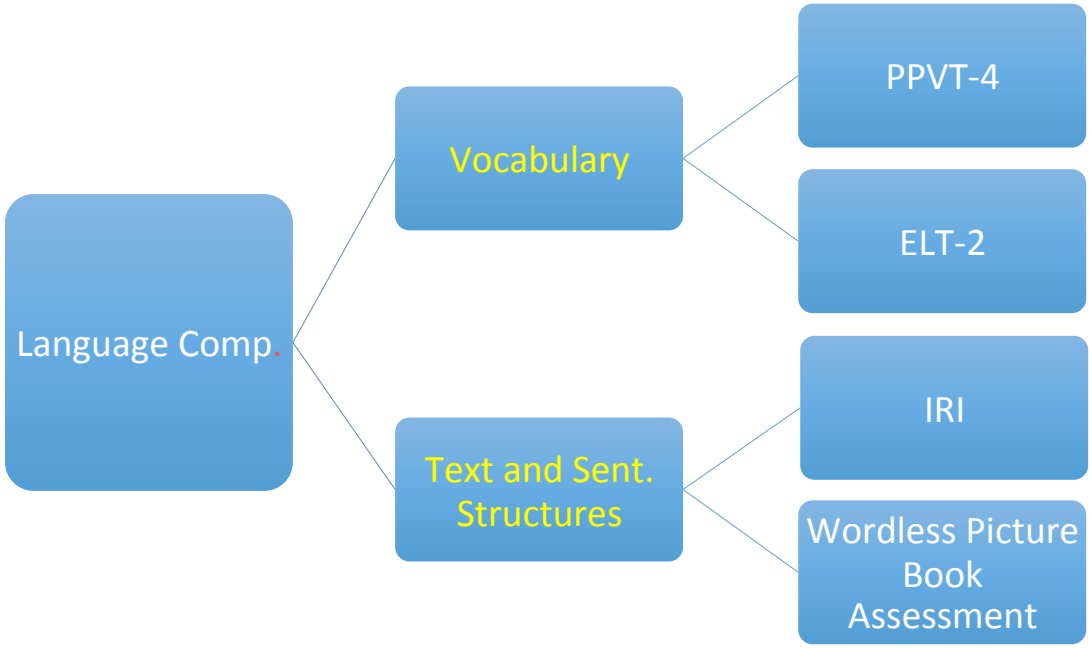
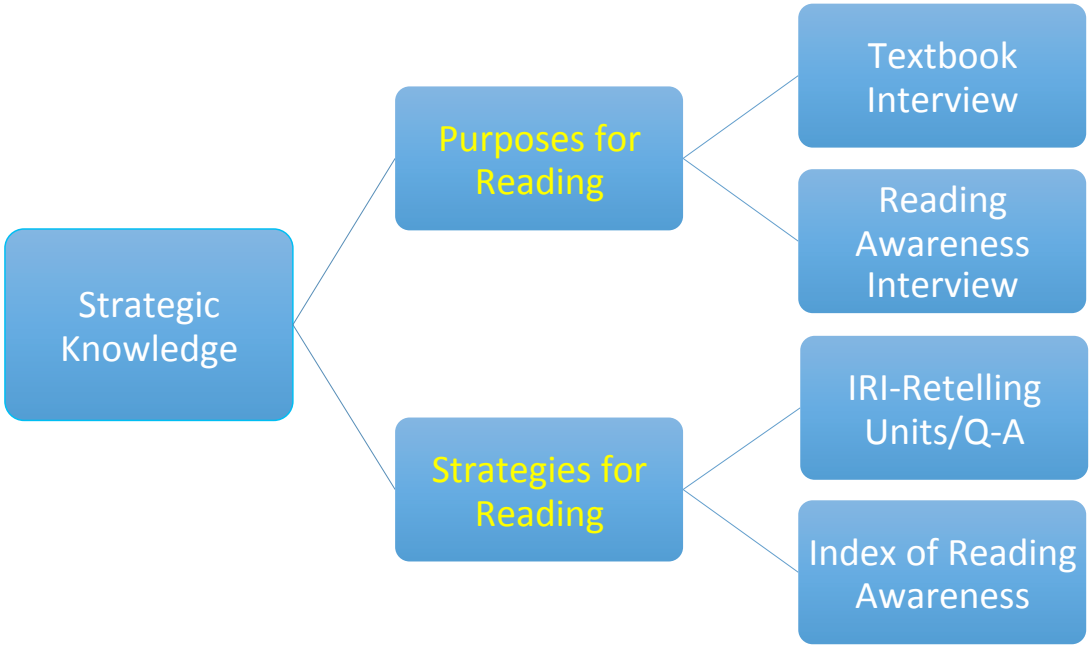




Assessing for Tier 3 & Spec. Ed.



Assessing for Tier 3 & Spec. Ed.



Progress Monitoring Tools in K-2

- Running record text levels are essential: allows for observing word recognition and comprehension (MSV) of increasingly difficult texts.

- Beginning mid-first grade ORF in conjunction with prosodic rating, would allow for repeatedly administering multiple parallel versions across short periods of time.

ORF Issues

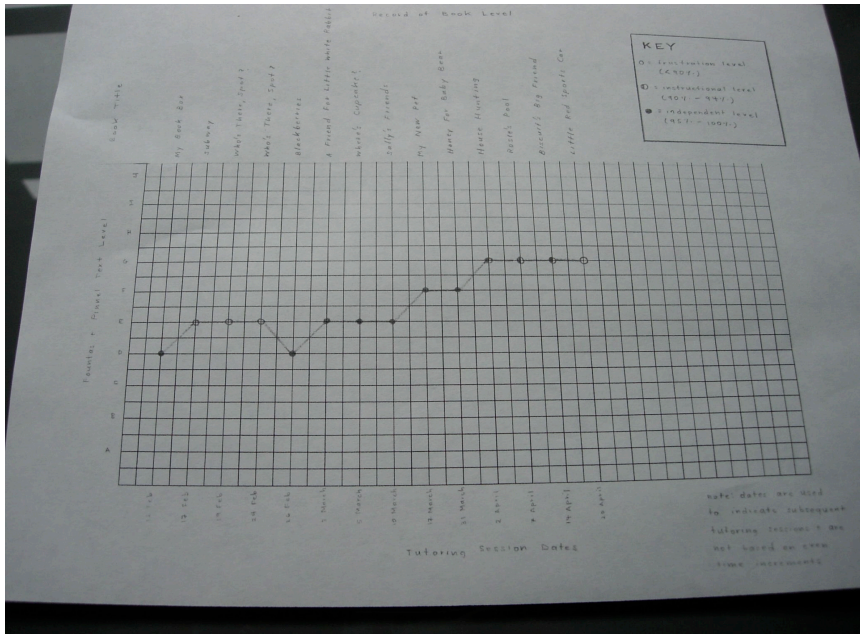
- There is a correlation and predictive relationship between ORF CBM and comprehension (Carlson, Geinsinger, & Jonson, 2014; Deno & Marston, 2006; https://dibels.uoregon.edu; Fuchs, Fuchs, Hosp, & Jenkins, 2001; Kim, Petscher, Schatschneider, & Foorman, 2010; Riedel, 2007; Schilling, Carlisle, Scott, & Zeng, 2007).
- For older students, comprehension of complex texts is more reliant on non-decoding pressure points: Background knowledge, vocabulary, purpose for reading, self-regulation (Paris, Carpenter, Paris, & Hamilton, 2008; Paris & Luo, 2008 Schilling et al., 2007; Shinn, 1988; Shinn et al., 1992).
- Only a viable PM option in Gr 2-3, before achieving fluency plateau (van den Broek, 2012).

ORF Issues

- False negatives for comprehension: 32% of second graders and 37% of third graders identified as low-risk were not achieving 50th%ile on standardized test (Shilling et al., 2007).
- Consequential validity: teaching for speed at expense of comprehension (Kuhn et al., 2010; Valencia et al., 2010).
- In order to comprehend complex texts, readers need to adjust speed according to purposes and text demands (Hudson, Pullen, Lane, & Torgeson, 2009).
- In a medical model, it is the equivalent of monitoring for the known medicinal side effects.

Progress Monitoring in Grades 4-6

- CBM Maze
- Monthly adaptive tests
- Written Response to Text
  - Keep reading context constant
  - Keep text structure constant
  - Keep time constant (8-10 minutes)
  - Quantitative: Word Count
  - Qualitative: Rubric



Let’s Take a Break-Turn in Game Sheets

Name Game: Who are they? How are they present in your school? Put your answers on paper with your school team name at top. Prizes awarded.

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Comprehension Intervention Protocols

- Diagnostics are needed to inform instruction.
- Instructional interventions should be research-validated programs or practices.
- If research-based programs are selected, the providers need to be familiar with the original research that the program is based on.
- Success of programs must be monitored ANNUALLY—how are the students' program scores related to:
  - Academic success in classroom settings?
  - High stakes tests?
  - Increased student performance?
  - Annual school risk-level evaluations?

Consult Research Clearinghouses

- What Works Clearinghouse

  http://ies.ed.gov/ncee/wwc/

- Best Evidence Encyclopedia

  http://www.bestevidence.org/

However, you must be critical consumers and assume responsibility for looking more deeply into the research than placing blind belief in consumer report websites.

Categories of Practice
Scientifically-validated
Evidence-based
Research-based
Journal Article
Book Description

Scientifically–Validated Research-Tested or Research-Proven

- One or more studies have tested the impact of a particular instructional technique or protocol.
- The studies may have been quantitative, qualitative or action research.
- We can't make assumptions that one kind of research is necessarily better than the other.
- We need to evaluate the rigor of each study individually.
- We need to be cautious not to overgeneralize outcomes.

Scientifically–Validated Research-Tested or Research-Proven

Duke & Martin (2011) recommend asking the following questions:

- What did the research test?
- Was it compared to something else? What else?
- Sample?
- Outcome measures?
- Degree of impact or Effect Size?
- Number and quality of studies?
- Publication history-blind, peer-reviewed journals

Research-Based or Evidence-Based

- Not tested in a research study, but designed to be consistent with research findings

Duke & Martin (2011) recommend asking the following questions:

- What research is the protocol based on?
- What is the quality of that research?
- How similar is the protocol's application to the research?

Categorize These Popular Practices

Read 180

Core/Basal Readers

Calkin's Reading and Writing Workshop

Reading Recovery

Wilson Reading System

LLI

Self-regulated Strategy Development

PALS

KWL

Beck/McKeown Text Talk Read Aloud

Directed-Reading Thinking Activity

Reciprocal Teaching

World of Words

Fluency-oriented Reading Instruction

*Something You Like

PAVEd for Success

Scientifically-Validated Research-validated	Research-based Evidence-based	Journal Article or Book

Add Your Own Favorites

Scientifically-validated	**Evidence-based Research-based**	**Description**
Reading Recovery	Core/Basal Reading Series	Reading/Writing WS
Self-regulated Strategy Instruction	LLI	KWL
FORI		
DRTA		
Reciprocal Teaching		
Text Talk		
PAVEd & WOW		
Read 180		
Wilson (phonics only)		

Intervention Practices and Programs

Programs

Typically, commercial products that are designed to be implemented according to a set script or protocol.

Standard: Wilson RS; Read 180

Problem Solving: Reading Recovery

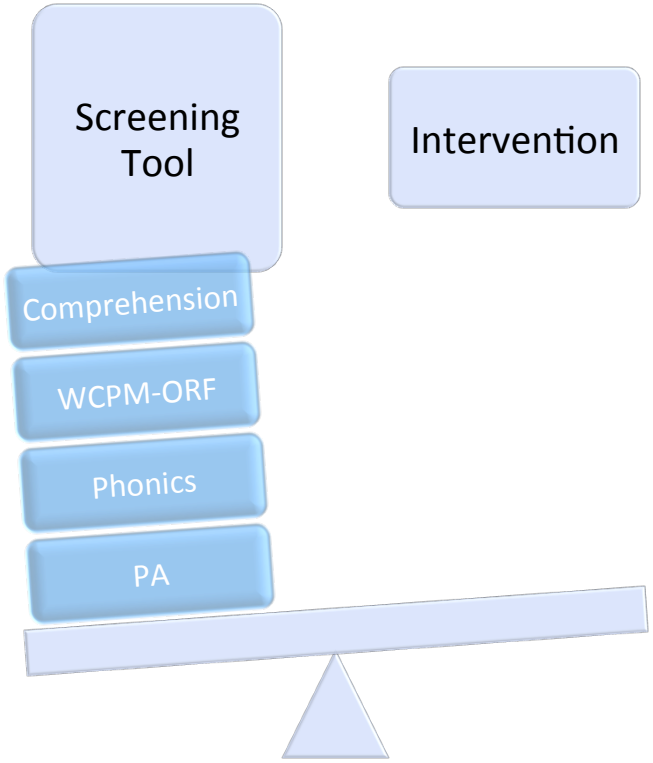
Practices

Instructional routines, heuristics, protocols or techniques that were developed and tested by researchers (or not) in order to accomplish particular learning objectives.

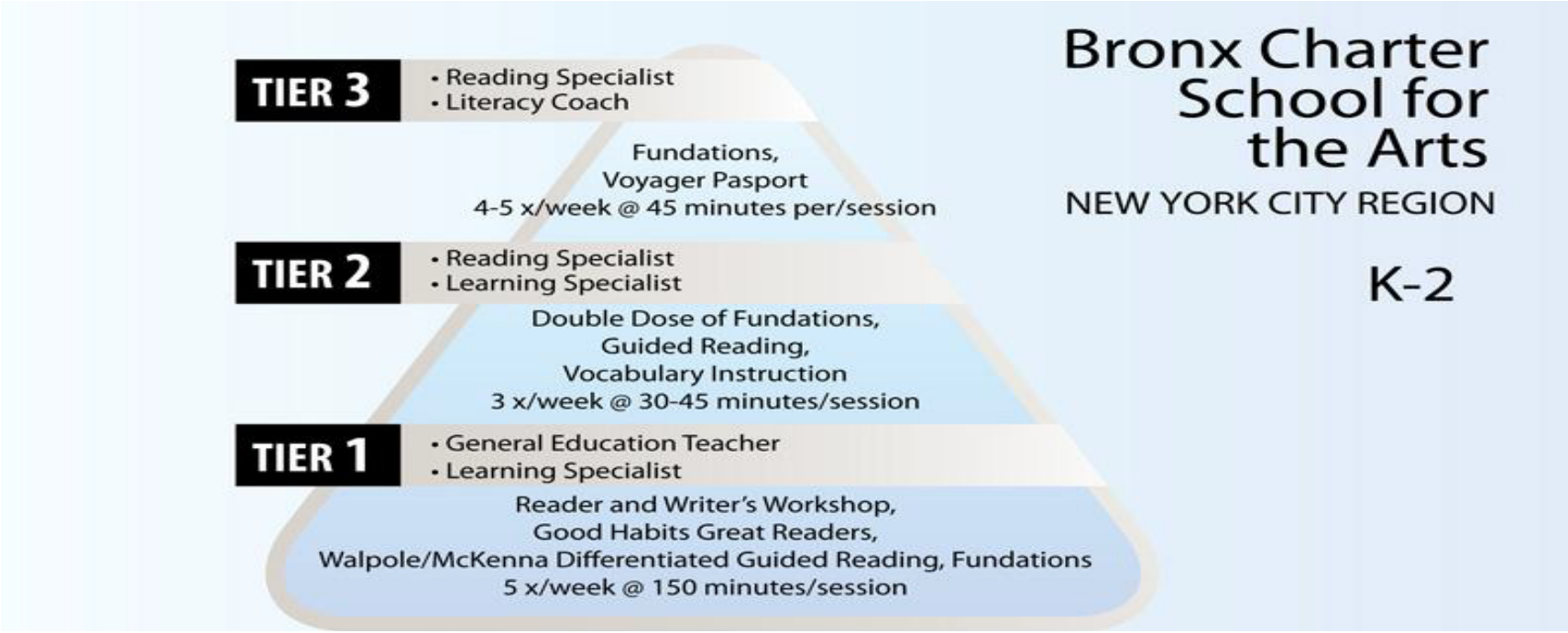
Standard: Reciprocal Teaching

Problem Solving: FORI (Classwide. Dev.)

Matching Decisions and Resources



Explicitly Specify Tiered Interventions for ELA



What are your go-to intervention recommendations for comprehension difficulties?

For emergent readers?

For novice readers?

For intermediate readers?

For adolescents?

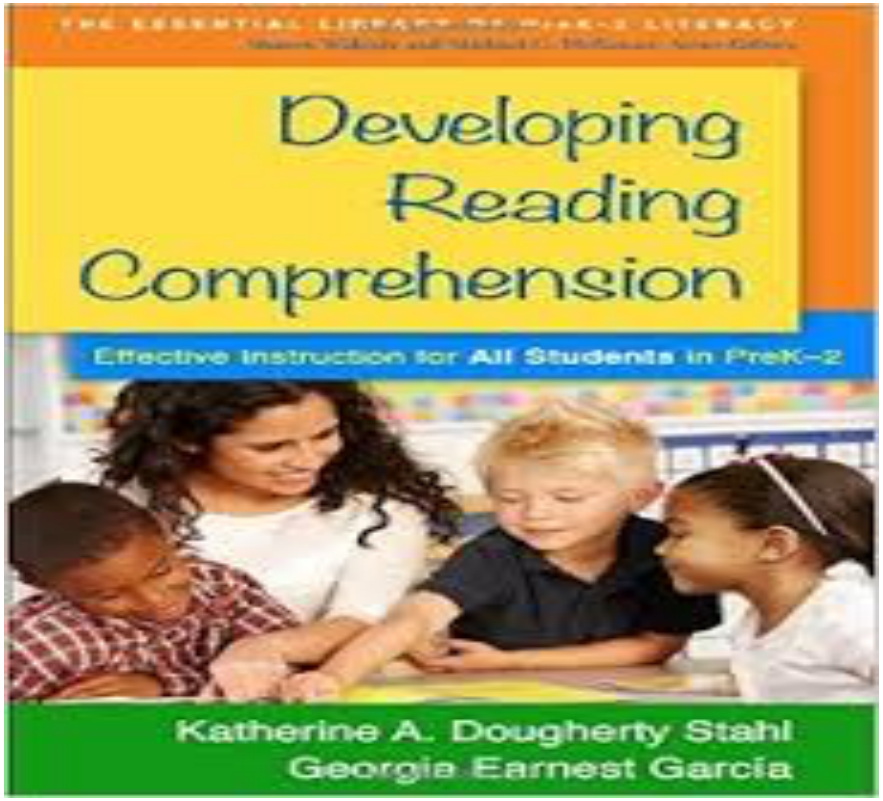
The Elephant in Most Rooms

Read 180

- There is research validation for its effectiveness.
- Implementation Fidelity: 90 minutes
  - 20 minutes whole group instruction
  - 3 X 20 minute small group instruction (1=teacher group)
  - 10 minutes-closure

Providing Comprehension Intervention for Emergent Readers and Novice Readers

- Recruit the assistance of the speech and language therapist
- Challenge is finding a knowledgeable provider and school having the resources to use this rare jewel in prek-K
- Who? Paired teacher classrooms, speech-language therapist, trained volunteers, school reading specialist, ESL teacher
- When and where:
  - Classroom integration in high-risk settings
  - 15-minute station
  - 15-minute pull-out


Developing
Reading
Comprehension
Effective Instruction for All Students in PreK–2
Katherine A. Dougherty Stahl
Georgia Earnest Garcia

Early Intervention Guidelines

- 1-1 is best, group should not exceed 3
- Interventions with younger kids (K-1) yield larger outcomes than interventions with older students (Wanzek & Vaughn, 2010)
- Incorporate retelling and cued recall (Goldman et al., 1999; Morrow, 1984, 1985, Swanson et al., 2011).
- Include multiple readings of the same text (Demarais et al., 2013; Swanson et al., 2011).
- Attend to needs of ELs sooner rather than later in collaboration with EL teacher (Linan-Thompson et al., 2003)

Early intervention is not a lifetime cure for factors that contribute to most reading difficulties---it is a only first step.

Research-validated Interventions for Emergent-Early Novice Readers

Dialogic Reading Intensive with Inference Training

(Demarais et al., 2013; Swanson et al., 2011; van Kleeck et al., 2006; Whitehurst et al., 1994; Zevenbergen & Whitehurst, 2003)

- 15 minutes, 2-4 days/week
- Incorporate multimedia

Research-validated interventions for Emergent-Early Novice Readers

- Informational Content Intensive
- Content Units: 5-10-day disciplinary themes, 15 min./day
- Lists of Target Vocabulary
- Vocabulary Picture Cards
- Active forms of conceptual development (text reading, writing, hands-on, categorization, multimedia, conversation)
- Incorporation of phonological awareness
  - World of Words (WOW; Neuman, Newman & Dwyer, 2011; Newman & Wright, 2013)
  - PAVED for Success (Schwanenflugel et al., 2010; SERVE Center, 2010)

Research-validated Interventions for Novice Readers---Early Intermediate Readers

- Reading Recovery (comprehensive reading)

- Theme Identification (Williams et al., 2002)
  - Introduction of universal themes
  - Read text together
  - Protocol of specific theme-based questions followed by transfer questions

- Compare-Contrast Text Structure Protocol (Williams, et al., 2009; see also Armbruster et al. 1987; Graham & Harris, 2005)
  - Reading texts and comparing two category members using key words
  - Writing compare-contrast summaries using paragraph frames

More Strategy-driven Interventions (Gr. 2 and beyond)

Collaborative Strategic Reading

(Gr. 4-12, Gen. Ed, SLD, ELL)

CSR Learning Log		
Before reading Preview	During reading	After reading Wrap up
Knowledge: What do you know about the topic?	**Clunks**: Make a list.	**Questions and discussion**
Prediction: What will you learn?	**The gist**: Write the gist for each section. *You may add more sections.* Paragraph 1: Paragraph 2: Paragraph 3:	**Review**: What did you learn?

(Adapted from *Promoting reading comprehension, content learning, and English acquisition through collaborative strategic reading (CSR)*, by Klingner, J. K. & Vaughn, S. 1999, p. 745)

More Strategy-driven Interventions (Gr. 2 and beyond)

- Peer-Assisted Learning Strategies (Fuchs)
- Grades 2-6, but some research now extends beyond those grades
  - Partner Reading with a Retell
  - Paragraph Shrinking
  - Prediction Verification

Interventions for Intermediate Through Adolescence

- Self-Regulated Strategy Development for Writing (Graham, Harris, & Mason, 2005; Harris, Graham & Mason, 2006; Lane et al., 2011)
  - 20 minutes 3X/week
  - Use of graphic organizers matched to text structure
  - Teaches students and instructional sequence to discuss, plan, monitor, evaluate and revise writing.

Interventions for Intermediate Through Adolescence

- Questioning the Author (Beck & McKeown)
- Collaborative Reasoning (Anderson et al.)
  - General Ed and SLD
  - Discussion format to develop argumentation
  - http://csr.education.illinois.edu/CR/papers.html

Future Directions

- Collaboration among the fields of reading, educational psychology, evaluation and assessment, speech and language therapy, and special education is needed to pool knowledge about measurement of comprehension processes.
- The development of school-friendly and trustworthy assessments must involve publishers and teachers.
- Computer technology is another promising area of future assessments.

Stahl & Garcia (in press)

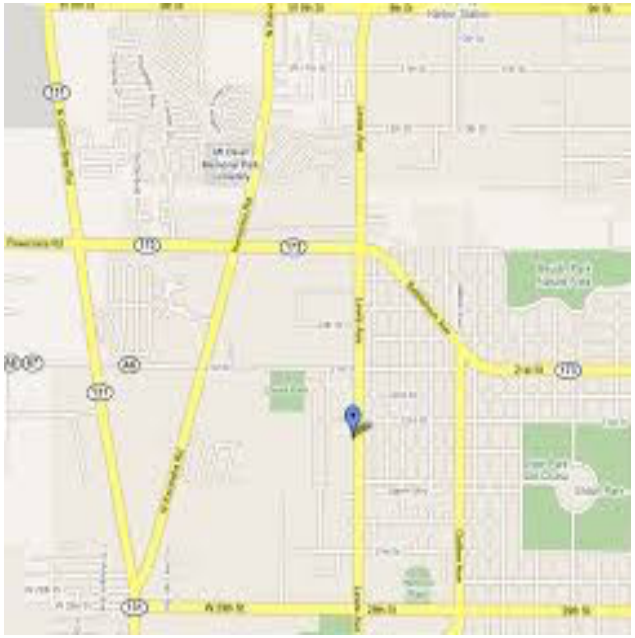
Handbook of Reading Comprehension, 2nd Ed.

Closing Thoughts

"Just as our Google maps allow us to use both a zoom and wide angle lens, and choose a photographic, political, or road portrait view, we need multiple tools to chart the journey of where children have been, where they are and how to help them arrive at their reading destination."

Stahl & Garcia (in press)

Handbook of Reading Comprehension, 2nd Ed.



Questions?