



Using Assessment to Inform and Promote Effective Early Learning Opportunities for Young Children

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Acknowledgements

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- Funding for this research is provided by the National Institute of Child Health and Human Development, R01HD48539 and P50 HD052120
- The teachers, students, parents and educational leaders
- The ISI partners and lab



IES Launches Research Network on Early Childhood Education

January 19, 2016

IES Launches Research Network on Early Childhood Education

Early Learning Network to conduct research and develop tools to improve programs and policies across the country.

(01/19/2016)—The Institute of Education Sciences (IES) is launching a new research network that will develop reliable information and useful tools to improve early childhood education across the country. IES' National Center for Education Research (NCER) and the U.S. Departments of Education and Health and Human Services (Departments) today announced that \$26 million in grants have been awarded for the creation of the new Early Learning Network, which will conduct its work over the next five years.

"The Early Learning Network will study what is happening in early education programs across the country and how successfully children are making the transition from preschool to elementary school," said Ruth C. Neild, delegated director of IES. "The Network will seek to identify what policymakers and practitioners can do to improve early learning programs so students are prepared for long-term success in school."

Access to preschool and other early childhood education programs has grown across the country in recent years. [According to data from IES' National Center for Education Statistics](#), the percentage of children, ages 3 and 4, who are enrolled in a preschool program has risen from 44.4 percent in 1990 to 54.9 percent in 2013. Research indicates that for some students, especially those from disadvantaged backgrounds, the positive impact of early childhood education programs does not translate into success in elementary school and beyond. This so-called early learning "fade out" may be due to many factors, including insufficient supports for low-income families during the child's early years, the type of outcomes being measured, or poor alignment between preschool programs and elementary schools.

"As we increase access to early education, we need high-quality research to show us the most effective ways to prepare children for success in elementary school and beyond," said Acting Secretary of Education John King. "The Early Learning Network will develop important information and tools that will help policymakers and practitioners improve preschool and elementary school teaching and learning across the country."

The IES grants, with support from the Departments' jointly-administered Preschool Development Grants program, will allow several research teams to each conduct three studies, with a special focus on disadvantaged students:

IES Early Learning Research Network

- **Dr. Susan Sheridan, of the University of Nebraska – Lincoln**, network lead and leading research studying early learning policies and programs in Nebraska;
- **Dr. Margaret Burchinal, of the University of North Carolina at Chapel Hill**, leading a research team studying early learning policies and programs in rural North Carolina;
- **Dr. JoAnn Hsueh, of MDRC**, leading a research team studying early learning policies and programs in Boston Public Schools;
- **Dr. Laura Justice, of The Ohio State University**, leading a research team studying early learning policies and programs in Ohio; and
- **Dr. Robert Pianta, of the University of Virginia**, leading a research team studying early learning policies and programs in Fairfax County, Virginia;
- **Dr. Carol Connor, of the University of California, Irvine**, leading the **assessment team** in the development of the Optimizing Learning Opportunities for Students (OLOS) Early Learning Observation System.

What are the aims?

- **A descriptive study of school transitions.** A descriptive study of state and/or local policies and practices that are designed to support children as they move from preschool into the early elementary school grades, and between grades in elementary school;
- **Classroom factors associated with school readiness.** A classroom observation study to identify factors that are associated with children's school readiness skills and achievement, including curriculum, instructional practices, classroom climate, and teacher, student, and peer interactions; and
- **A longitudinal study of achievement.** A study that will follow the academic progress of a cohort of students over time and identify factors impacting their achievement, including, but not limited to, attendance in preschool and types of preschool programs; parental involvement; continuity in learning goals and expectations, and instruction.
- **A classroom observation system** that can be used by practitioners and that is valid and reliable.

Preschool through early elementary achievement



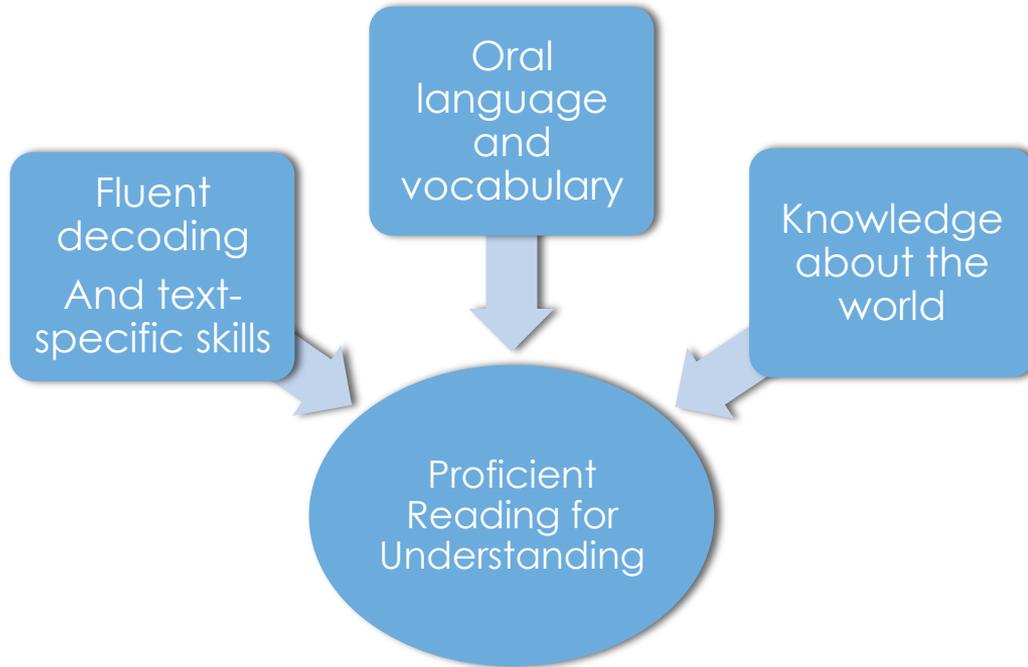
Optimizing Learning Opportunities

- One reason that students fail to achieve proficient academic skills is that they do not receive the amounts and types of instruction they need.
 - Child characteristic X instruction interaction (CXI) effects on reading achievement
 - ([Connor, Morrison, & Katch, 2004](#); [Juel & Minden-Cupp, 2000](#))
 - Also called Aptitude X Treatment Interactions
 - (Cronbach & Snow, 1969)
 - Constellation of skills – language, comprehension, and text specific skills

Using assessment to guide instruction

- Difficult for many teachers (Roehrig et al., 2008)
- Instructional Regimes (Raudenbush, 2005)
 - Generally more effective
 - Standards of practice vs. idiosyncratic practice
- What does it take?
 - For young children - preschoolers
 - For students who are struggling with reading
 - For students who are English Learners
 - For students with less experience with literacy
 - For students with typical or above average skills

What does it take to attach meaning to text?



Read this...

ai kæn rɪd ðɪs

kæn ju

Now this!

आय कैन रीड दिस
कैन यू

Read this paragraph

- Outside in the garden, over the dinner tables, the three objects Scrimgeour had given them were passed from hand to hand. Everybody exclaimed over the Deluminator and the *Tales of Beedle the Bard* and lamented the fact that Scrimgeour had refused to pass on the sword, but none of them could offer any suggestion as to why Dumbledore would have left Harry an old snitch.
 - What did you do when you came to a word you didn't know?
 - Who is Harry?
 - Who is Scrimgeour?
 - What is a Deluminator?
 - What is happening in this scene?
 - What do you think happened to Dumbledore?
 - Page 131, *Harry Potter and the Deathly Hallows*
 - Rufus Scrimgeour is the Minister of Magic

World or Background Knowledge

- “Haig conferred with the lawyers again to consider their double-edged strategy – how to satisfy the committee and keep Nixon from scrapping the transcripts altogether.”
- What do you need to know to understand this paragraph?
- p. 130, *The Final Days*, Woodward and Bernstein (1976).

Examples of Third Grade Instructional Strategies Specifically Recommended by A2i Software

Dimensions	Teacher/Child Managed	Child Managed
Code-focused	The teacher is working with a small group of students on an activity designed to help decode and spell multi-syllabic words by using similar root words with different prefixes and suffixes. (Morphological Awareness)	Students are working in small, peer groups to practice spelling and decoding multisyllabic words. (Word Encoding)
Meaning-focused	The teacher, working with a small group of students, asks them to make inferences between two or more stories they have just read, in order to help them make connections and build background knowledge. (Listening & Reading Comprehension)	Students are working on a multiple-meaning vocabulary worksheet with the following words: bark, story, and track. Other students are engaged in writing a summary of a story they've recently read. (Print Vocabulary)

Classroom Observation

Teacher/Student Managed
Small group
Content

7.1. Literacy Codes:

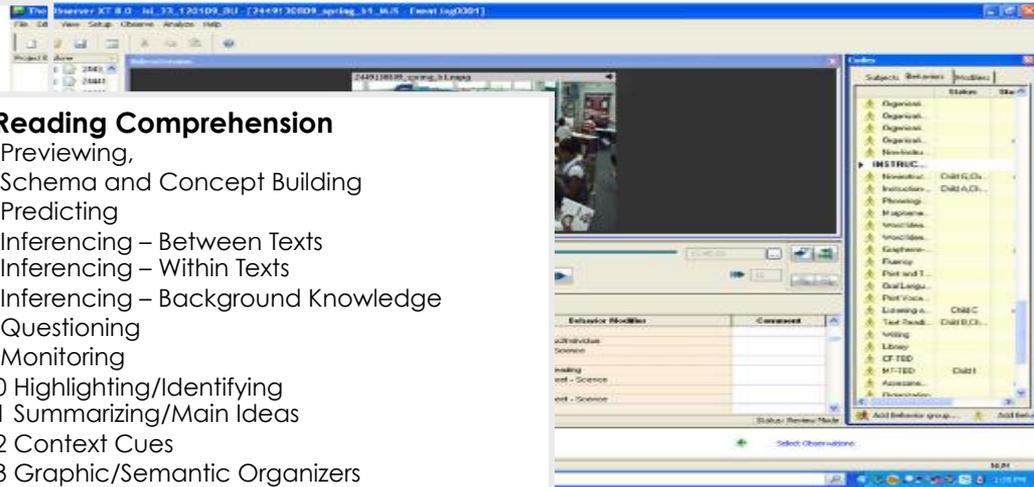
- 7.1.2. Phoneme Awareness
- 7.1.3. Syllable Awareness
- 7.1.4. Morpheme Awareness
- 7.1.5. Onset/Rime Awareness
- 7.1.6. Word ID/Decoding
- 7.1.7. Word ID/Encoding
- 7.1.8. Fluency

7.1.12. Reading Comprehension

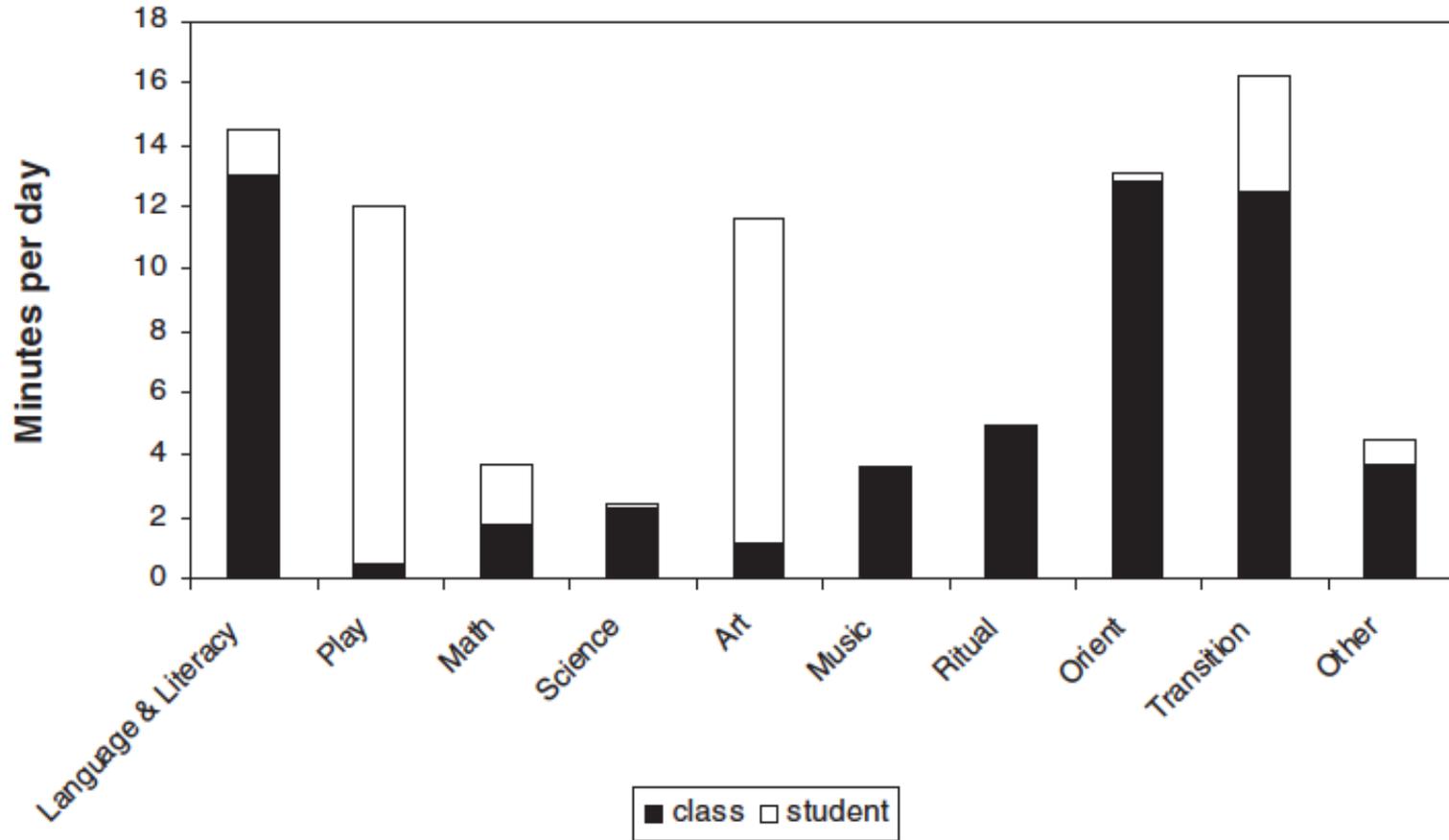
- 7.1.11. Print Vocabulary
- 7.1.12. Reading Comprehension
- 7.1.13. Text Reading
- 7.1.12.14. Writing
- 7.1.15. Library
- 7.1.16. Assessment

7.1.12 Reading Comprehension

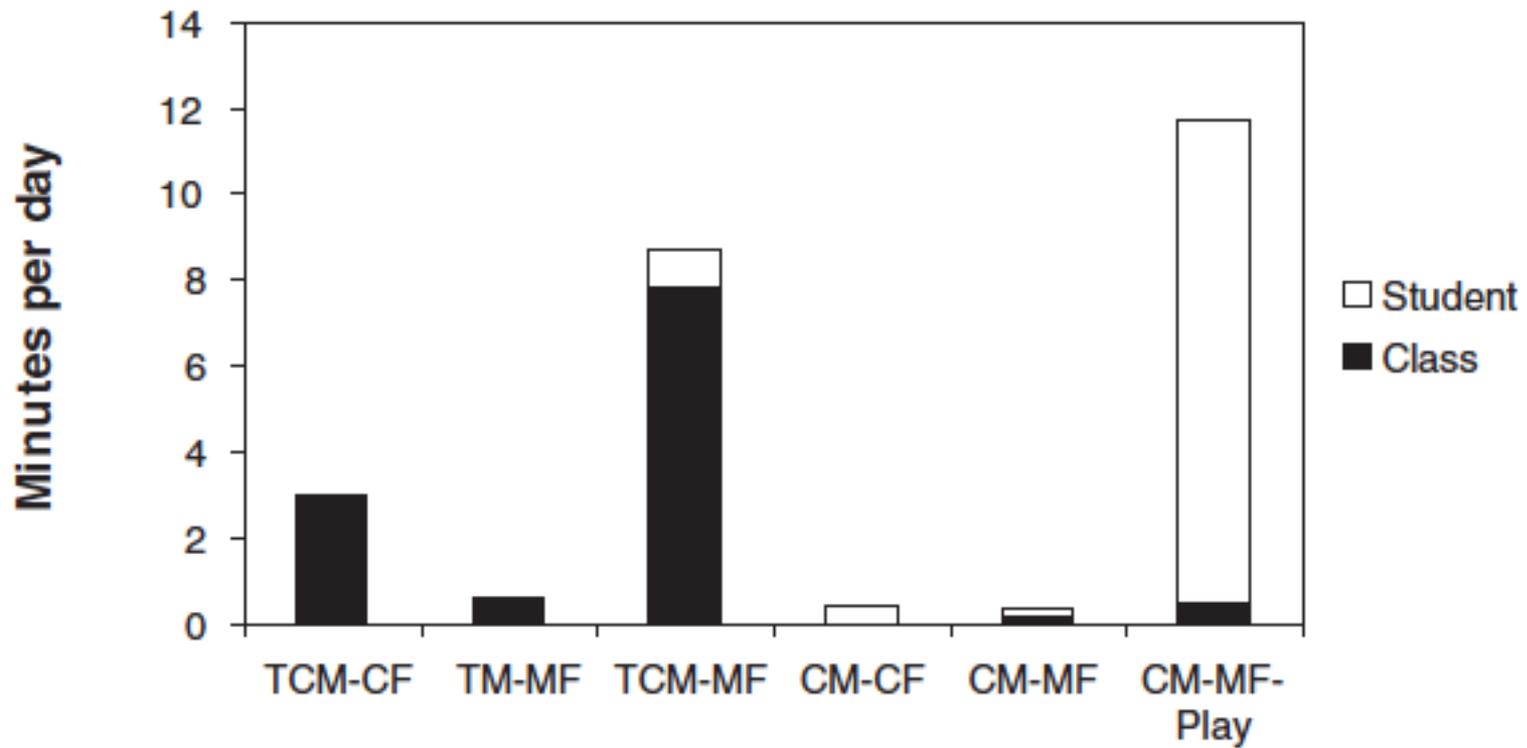
- 7.1.12.2 Previewing,
- 7.1.12.3 Schema and Concept Building
- 7.1.12.4 Predicting
- 7.1.12.5 Inferencing – Between Texts
- 7.1.12.6 Inferencing – Within Texts
- 7.1.12.7 Inferencing – Background Knowledge
- 7.1.12.8 Questioning
- 7.1.12.9 Monitoring
- 7.1.12.10 Highlighting/Identifying
- 7.1.12.11 Summarizing/Main Ideas
- 7.1.12.12 Context Cues
- 7.1.12.13 Graphic/Semantic Organizers
- 7.1.12.14 Prior Knowledge
- 7.1.12.15 Retelling
- 7.1.12.16 Sequencing
- 7.1.12.17 Comparing/Contrasting
- 7.1.12.18 Cause and Effect
- 7.1.12.19 Fact vs. Opinion
- 7.1.12.20 Multicomponent/Integrated Strategy

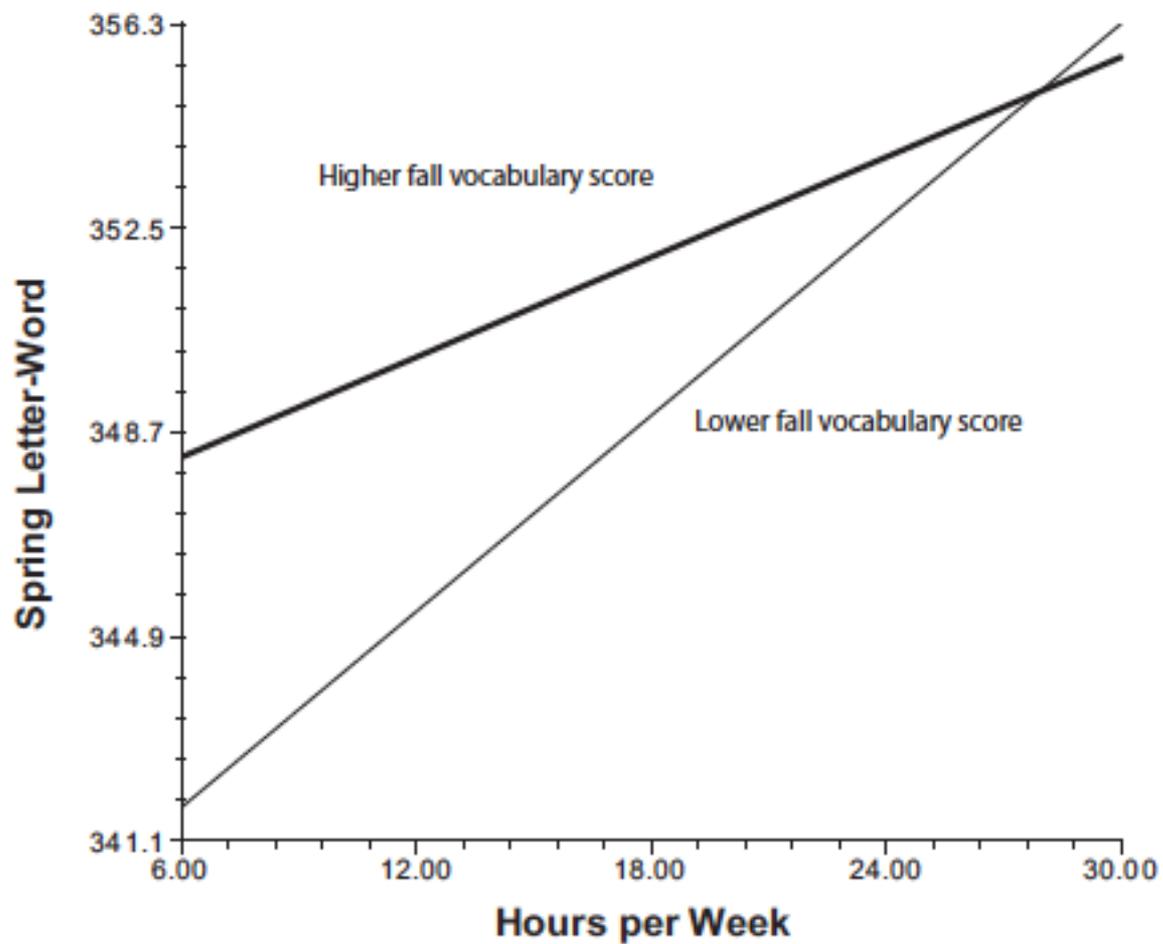


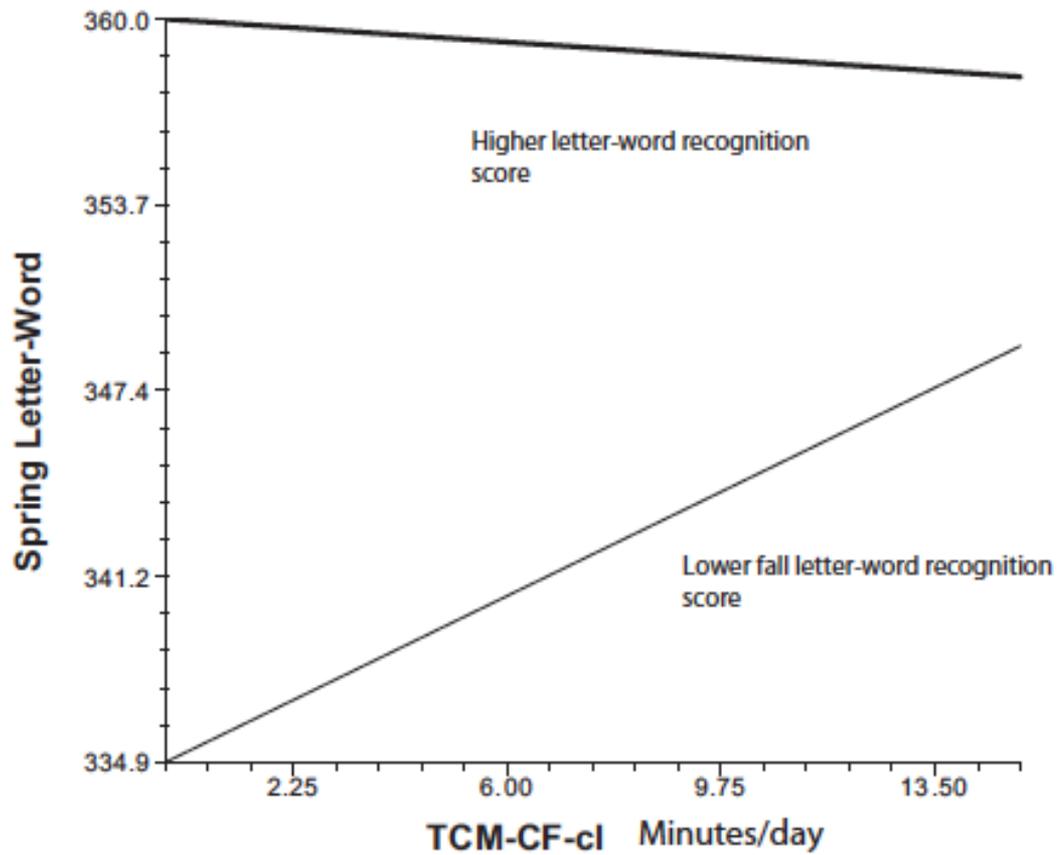
ishman, B., Ponitz, C. C.,
. Schatschneider, C. (2009).
system: Examining the
individual students.
, 85-99.

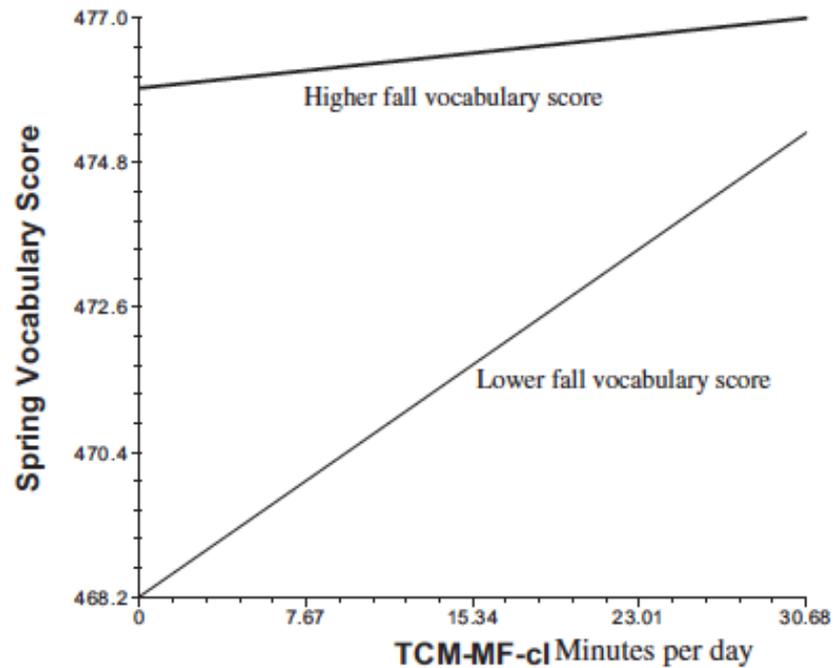


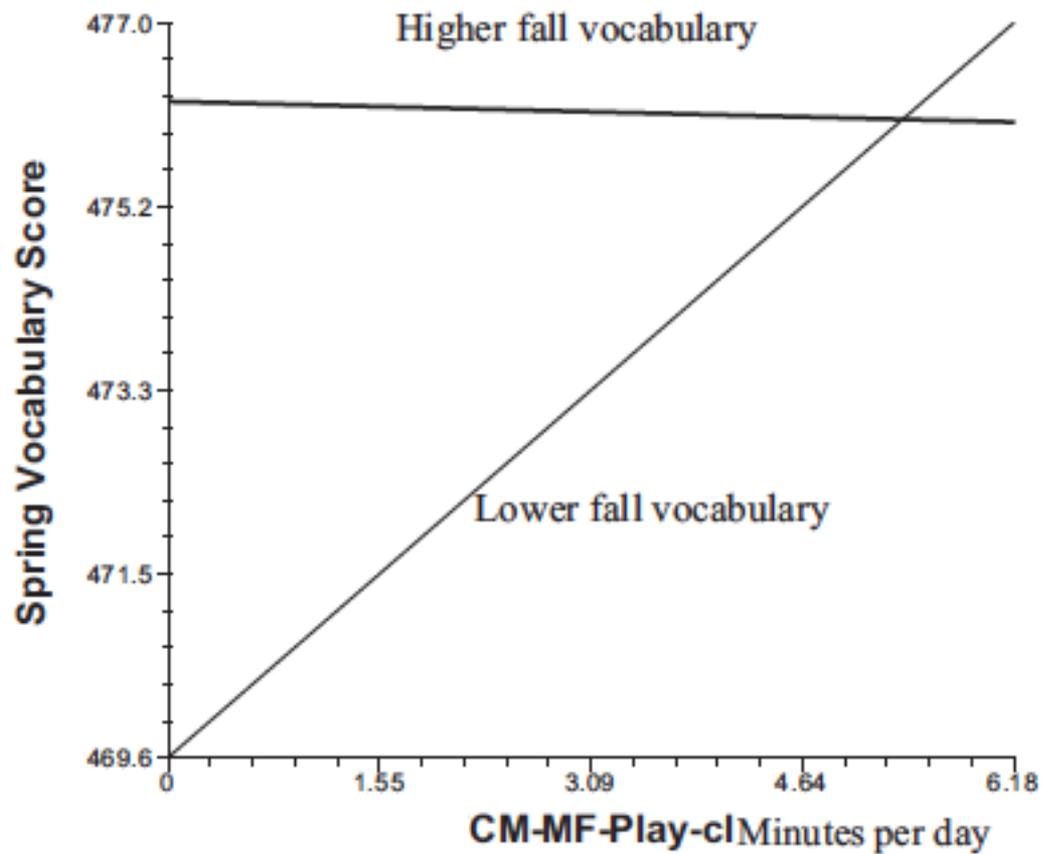
Connor, C. M., Morrison, F. J., & Slominski, L. (2006).
 Preschool instruction and children's literacy skill growth.
Journal of Educational Psychology, 98(4), 665-689.



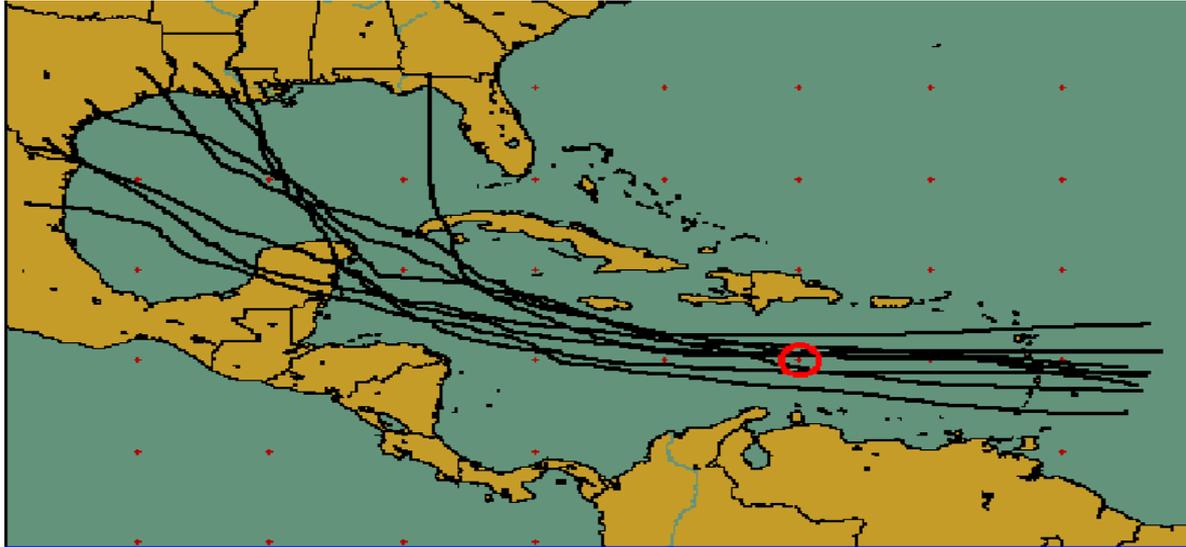




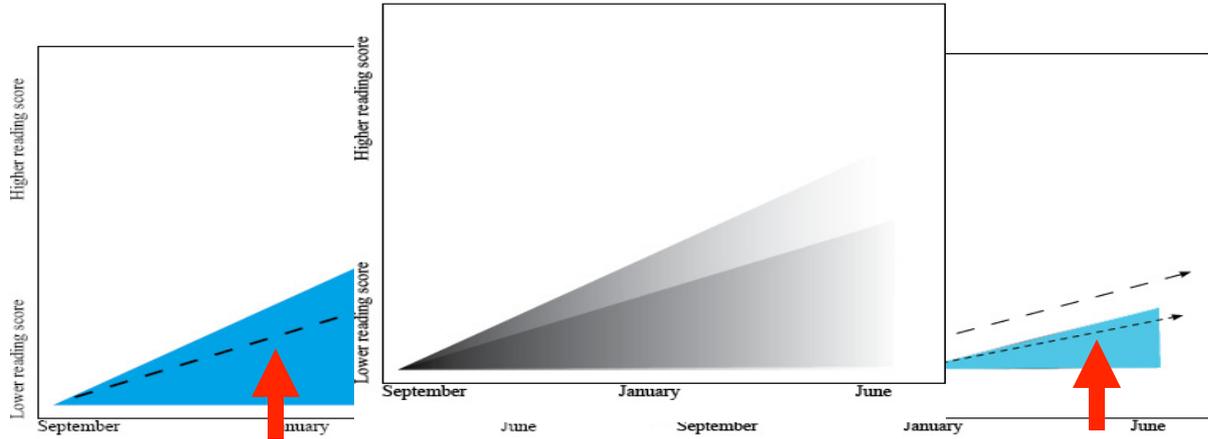




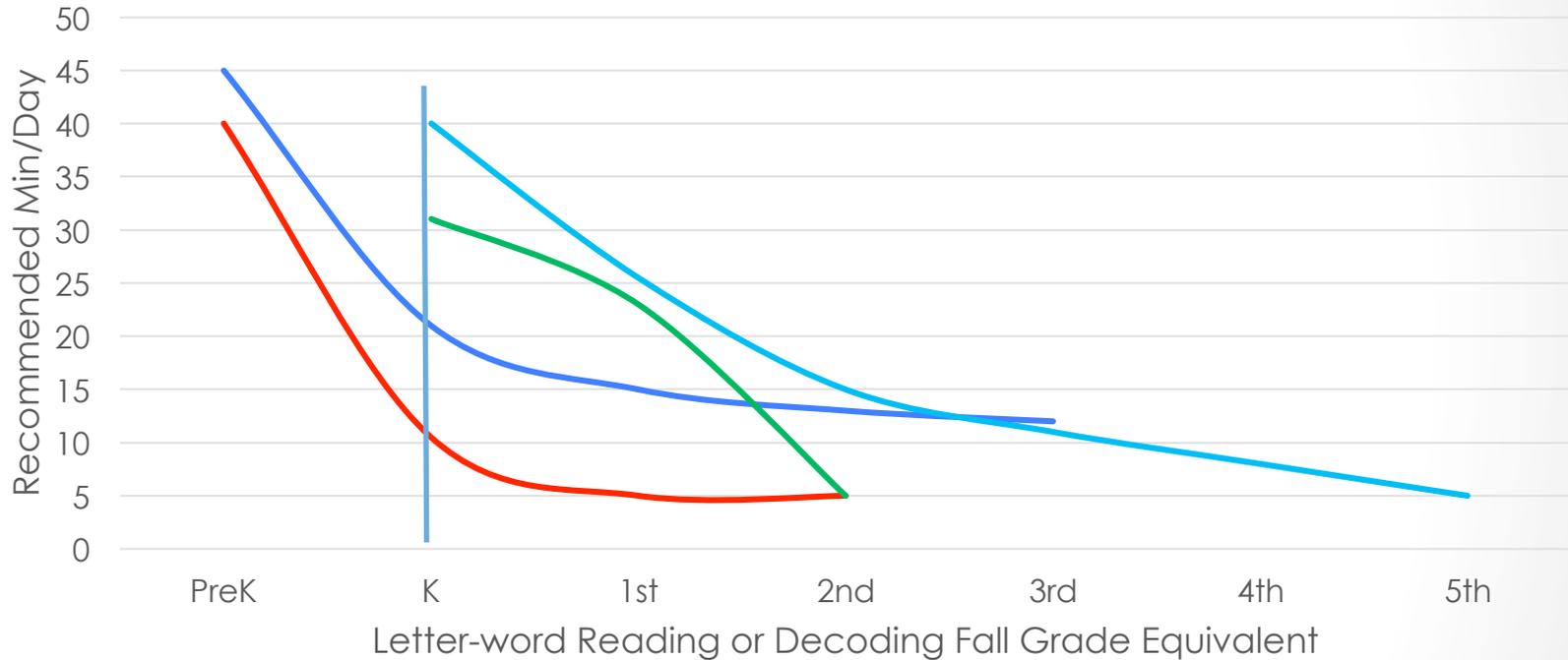
Potential Trajectories of Achievement



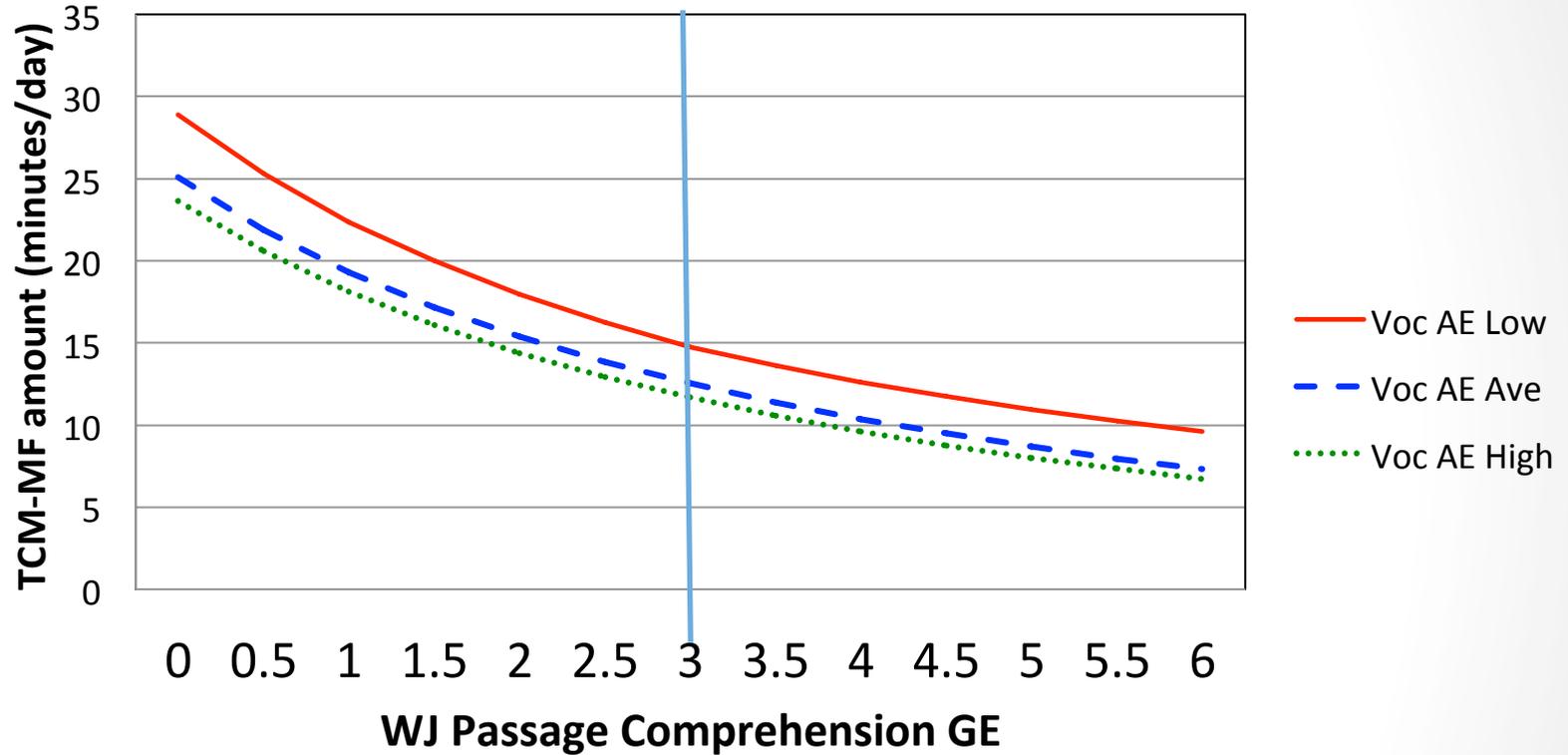
Dynamic Forecasting Algorithms



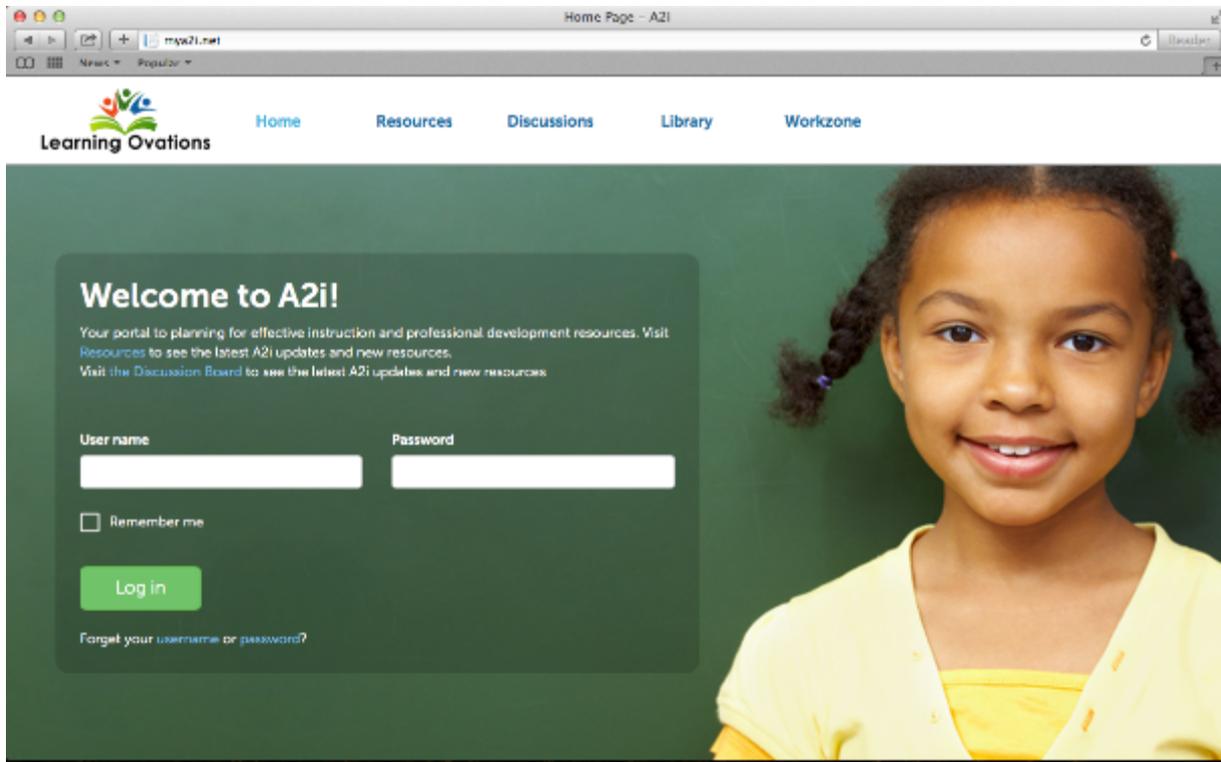
TCM-CF



— K — 1st Grade — 2nd Grade — 3rd Grade



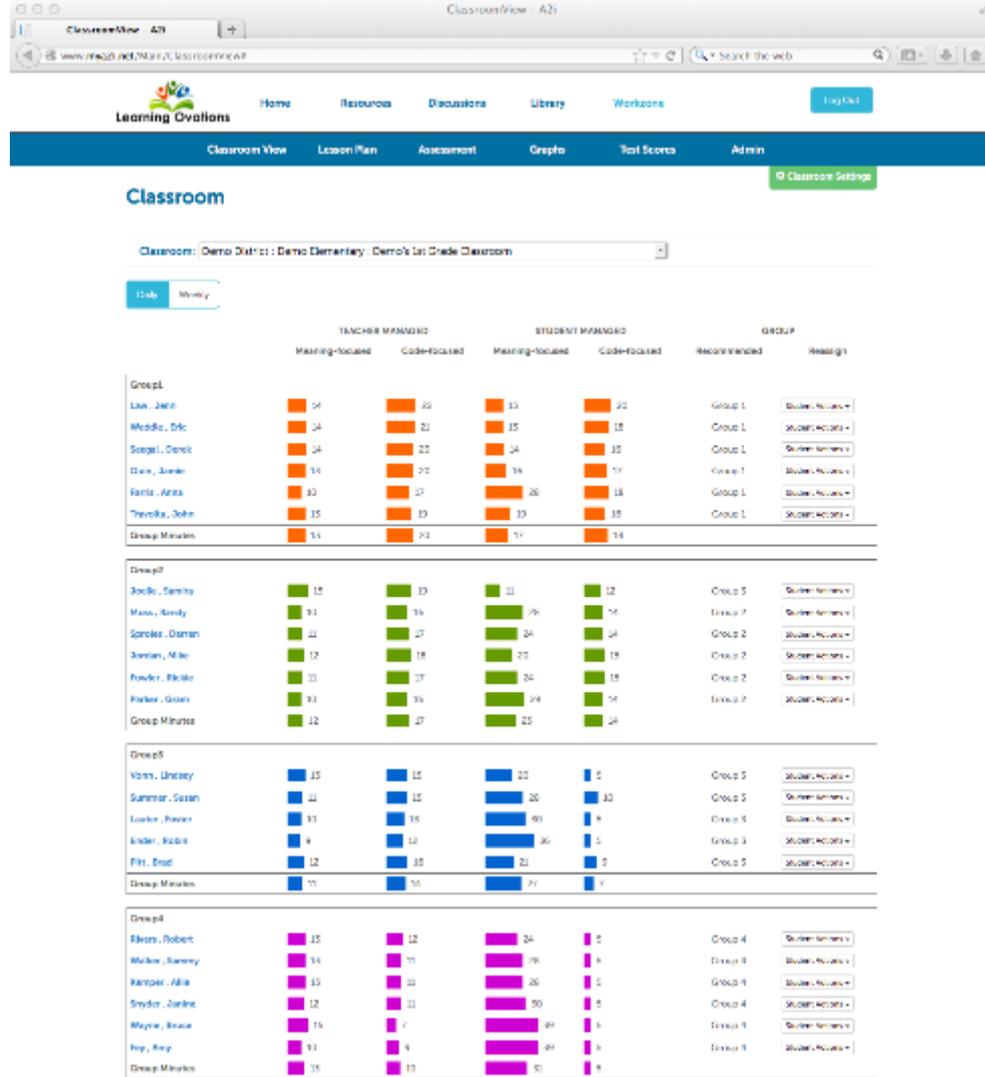
Third Grade A2i Recommendation
function



A2I TECHNOLOGY

Assessment-to-Instruction (A2i) Technology platform

Developed with teachers and principals





Assessments

Classroom:



WORD MATCH GAME



LETTERS 2 MEANING

The screenshot shows the 'Letters 2 Meaning' game interface. At the top, it says 'Letters 2 Meaning' with a '20 Assessment' button. Below that is a 'Listen Again' button with a speaker icon and a progress bar. The main area displays the letters 'g', 'a', 'l', and 'do' on a set of three horizontal lines (top, middle-dashed, bottom). The 'do' is positioned on the top and middle lines. At the bottom, there is a 'Next' button with a right-pointing arrow.

Student Info

Name: Jerri Lee Status: Intervention: Interventioned

Go To Student's Page Go To Classroom View



Details

Test Scores

All Test Scores

Date	Test Type	Raw Score	Age Equivalent	Standard Score	Oral Fluency
10/20/21 10:00:00 AM	This is the DIBELS Letter Naming Fluency	20		0.1	
10/20/21 10:00:00 AM	This is the DIBELS Nonsense Word Fluency	0		0.1	
10/20/21 10:00:00 AM	This is the DIBELS Phoneme Segmentation	1		0.1	
10/20/21 10:00:00 AM	This is the DIBELS Phonics Game	408		-0.9	
10/20/21 10:00:00 AM	This is the DIBELS Nonsense Word Fluency	1		0.2	
10/20/21 10:00:00 AM	This is the DIBELS Letter Naming Fluency and	7		0.2	
10/20/21 10:00:00 AM	This is the DIBELS Phonics Game	438		0.6	

Lesson Plan

View 13, 21 & 2

1N-01 4 minutes/day	Fluency Game FCPS Student Center Activities Orals (1 and 1) Level 1 Page: 7-005 Readings: Standard 12 (18-004) GE: 1-4
1N-02 4 minutes/day	Fluency Game FCPS Student Center Activities Orals (1 and 1) Level 1 Page: 7-007 Readings: Standard 14 (18-004) GE: 1-4
0N-03 20 minutes/day	Fluency Game FCPS Student Center Activities Orals (1 and 1) Level 2 Page: 7-005 Readings: Standard 26 (18-004) GE: 1-4
0N-02 14 minutes/day	Fluency Game FCPS Student Center Activities Orals (1 and 1) Level 2 Page: 7-007 Readings: Standard 12 (18-004) GE: 1-4

Print

Notes

Test Notes [View All Notes](#)

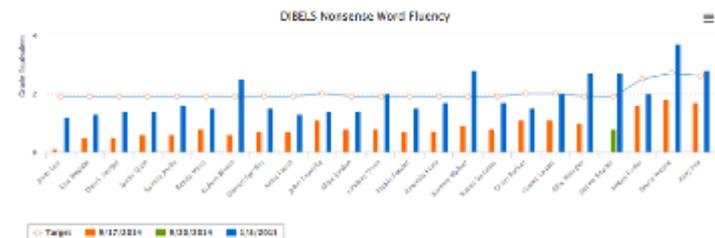
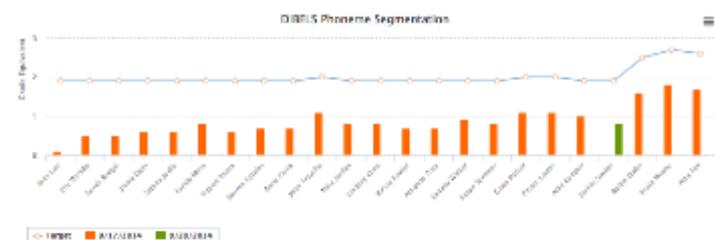
about a quarter of a grade level better. Please assist her way to check progress.

Make Note Public

Test Note

Graphs

Classroom View
 Classes: Down Fluency / Down to Grow Classroom





Optimizing Learning Opportunities for Students

OLOS



Home

Resources

Library

Workzone

Reports

Log Out

Assessments

Classroom:



WORD MATCH GAME



LETTERS 2 MEANING



READING 2 COMPREHENSION

Ms. Washington's Preschool Grades 1-29, 2016

Observed: Literacy

Drop-down menu includes Literacy, Math, and Science/Social Studies

Start

Stop

New Lesson

Small Groups

Whole Class



Walter



Jose



Matilda



Amber



Demario

Play

TCM-MF

TCM-MF

Play

Play

TCM-CF

TCM-MF

CM-CF

CM-MF

Drop-down menu allows observer to select relevant instruction or non-instruction (e.g., waiting, disruption)

Tap/click: Active

Tap: Active

Tap: Active

Tap: Active

Tap: Generative

Tap: Generative

Tap: Generative

Tap: Generative

Tap: Generative

On Task

On Task

Off Task

On Task

On Task

Toggle tap turns on and off timer

Notes

Ms. Washington's Preschool
Observed: **Literacy**

Sept. 20, 2016
Observation
Length: 34 min.

Classroom Learning
Environment Rubric

Start
New
Lesson

Encouraging Student Talk

1 2 3 4 5 6

Brief description of each rating – 1 is low and 6 is exemplary

When observer taps number, the number is circled or made bold. Tapping a different number changes the selection

Support for Language and Higher Order Thinking

1 2 3 4 5 6

Brief description of each rating – 1 is low and 6 is exemplary

Roll over provides
rubric indicators for
each score

Organization

1 2 3 4 5 6

Brief description of each rating – 1 is low and 6 is exemplary

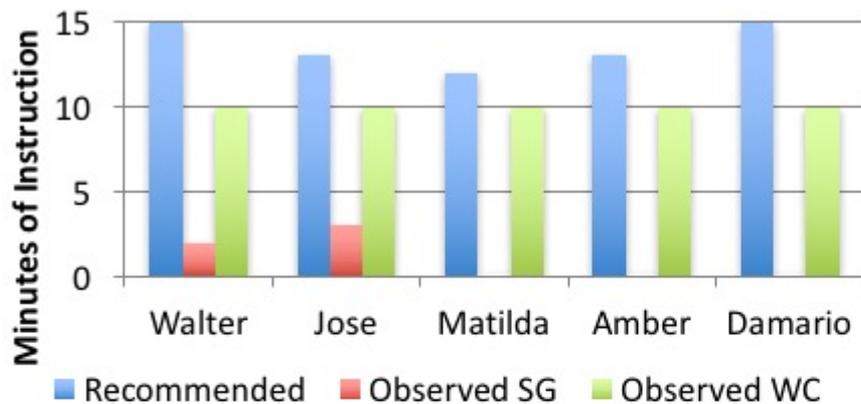
Warmth/Responsiveness

1 2 3 4 5 6

Brief description of each rating – 1 is low and 6 is exemplary

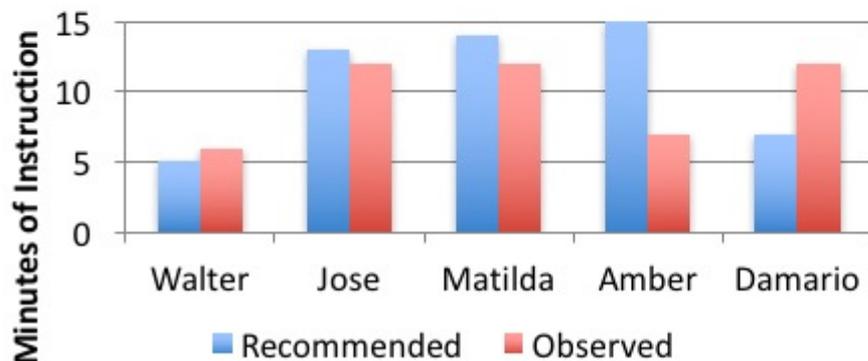
Notes

Teacher/student-managed Meaning Focused



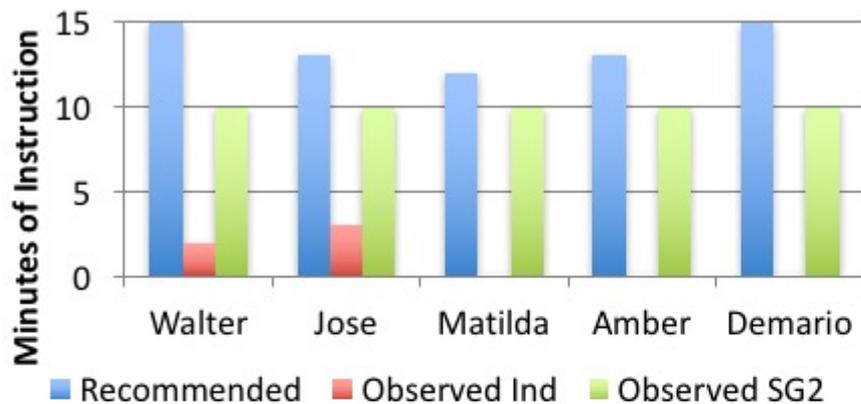
For MF instruction, both small group and whole class appear to be effective in improving student outcomes. However, the effect of SG is 4 times greater than WC

Teacher/student-managed Code Focused, Small Group



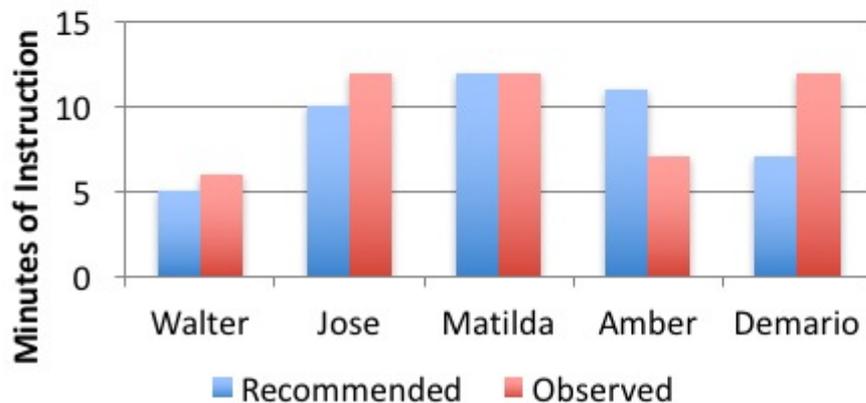
Previous studies suggest that being within 5-10 minutes of small group CF recommendations is related to stronger student outcomes

Child/peer-managed Play



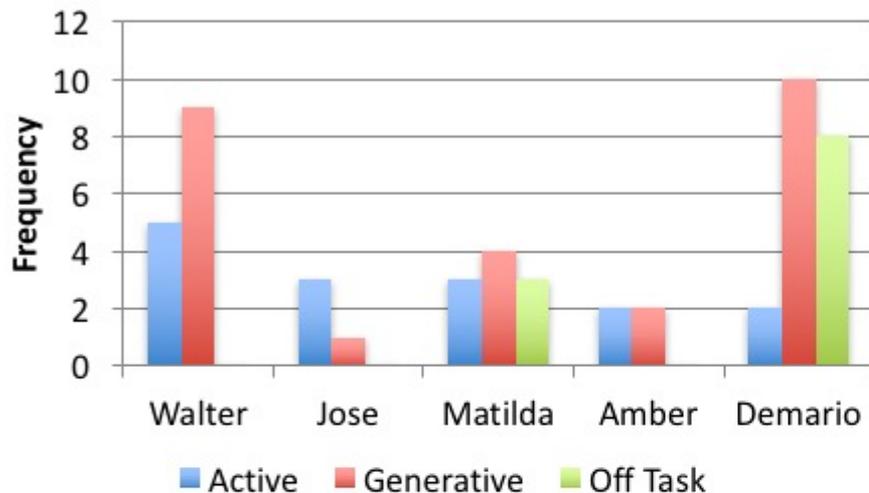
Play is socio-dramatic play. The amount of individual play vs. peer play is monitored

Teacher/child-managed Play



Teacher facilitated socio-dramatic play is particularly effective for children with weaker language skills

Student Participation in Learning Opportunity



Recommendations:

1. Re-assess Amber and Demario and revise groupings so TCM-CF SG is better aligned with recommended amounts. Demario received too much and Amber too little TCM-CF
2. Finds ways to improve organization.
3. Demario is an active participant but is also off-task above recommended levels. More challenge?
4. Find ways to encourage Jose, Amber, and Matilda to be more generative in their moves. Think about ways to make sure all students are participation at high levels

Length of Obs. 34 min

COLT-T Ratings

- Encouraging student talk – 3
- Support for language – 4
- Organization – 2
- Warmth/responsiveness – 5

Notes.

- Encouraging talk is low because not all students are getting opportunities to talk
- Seems like Demario and Amber are in the wrong groups for CF instruction.
- Not sure why Demario is so off task. Does he need more challenge?



HOW DOES THIS LOOK IN THE CLASSROOM?

EVIDENCE FOR ISI
KINDERGARTEN-3RD GRADE

Participants

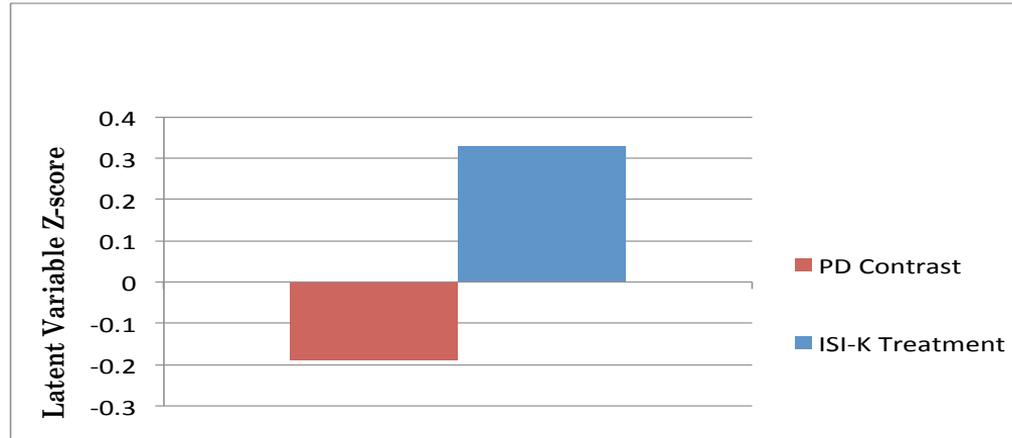
District 1

- 8 schools – urban, suburban, rural
 - 24-92% Free and Reduced Lunch
- 27 classrooms
- 480 students/grade
 - 50% qualified for Free and Reduced Lunch
 - 45% African American
 - 50% White
 - 5% other ethnicities
 - 15% received Special Education Services

District 2

- 5 schools – urban, suburban, rural
 - 17-98% Free and Reduced Lunch
- 36 classrooms
- 560 students/grade
 - 50% qualified for Free and Reduced Lunch
 - 20% African American
 - 75% White
 - 5% other ethnicities
 - 13% received Special Education Services

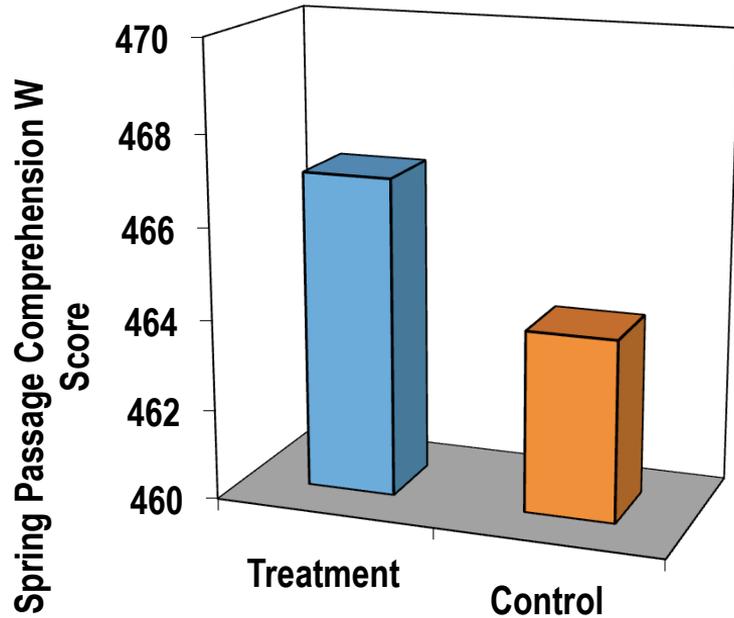
Kindergarten: Multivariate Multilevel Modeling Results



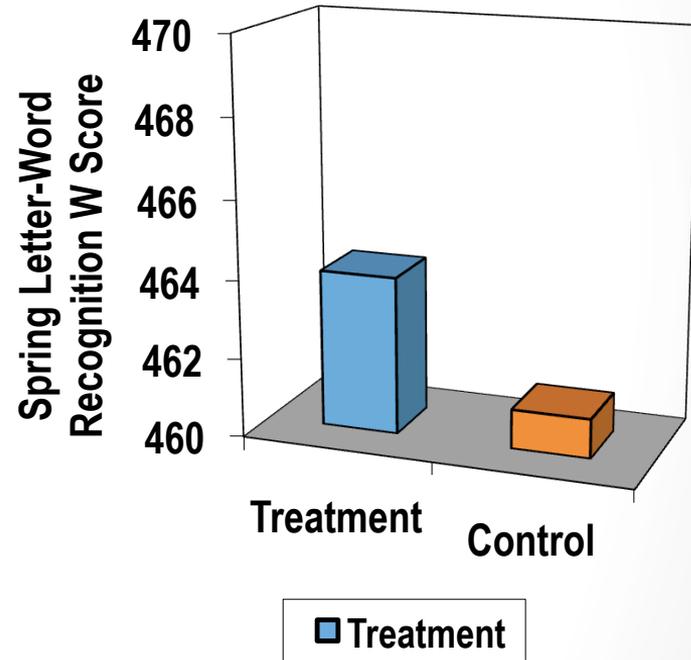
Al Otaiba, S., Connor, Carol M., Folsom, Jessica S., Greulich, L., Meadows, J., & Li, Z. (2011). Assessment Data-Informed Guidance to Individualize Kindergarten Reading Instruction: Findings from a Cluster-Randomized Control Field Trial. *The Elementary School Journal*, 111(4), 535-560.

First Grade

Study 1 (2005-2006)



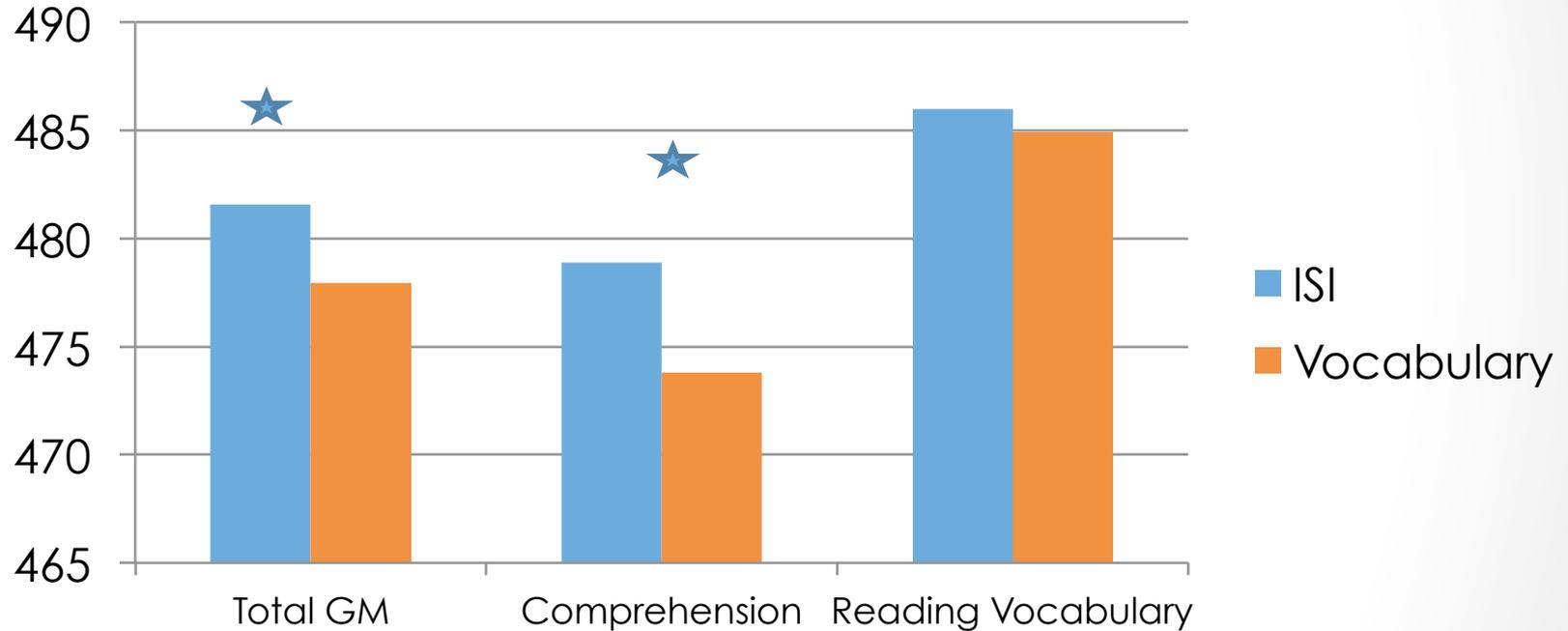
Study 2 (2006-2007)



Connor, C. M., Morrison, F. J., Fishman, B. J., Schatschneider, C., & Underwood, P. (2007). THE EARLY YEARS: Algorithm-guided individualized reading instruction. *Science*, 315(5811), 464-465. doi: 10.1126/science.1134513

Connor, C. M., Morrison, F. J., Schatschneider, C., Toste, J., Lundblom, E. G., Crowe, E., & Fishman, B. (2011). Effective classroom instruction: Implications of child characteristic by instruction interactions on first graders' word reading achievement. *Journal for Research on Educational Effectiveness*, 4(3), 173-207.

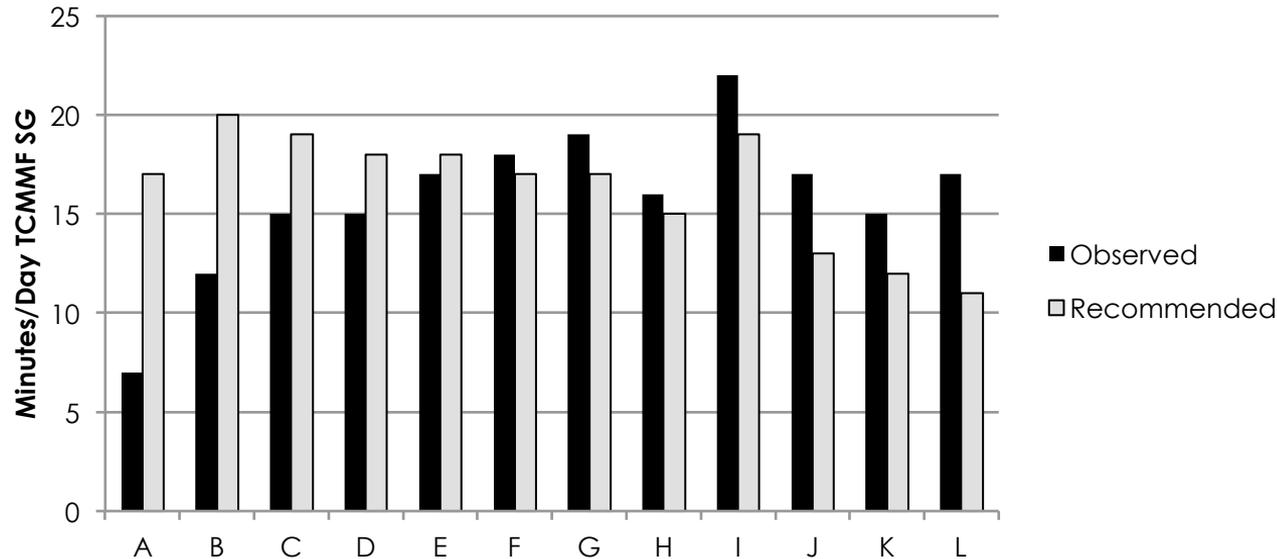
Third Grade



Connor, C. M., Morrison, F. J., Fishman, B., Giuliani, S., Luck, M., Underwood, P., . . . Schatschneider, C. (2011). Classroom instruction, child X instruction interactions and the impact of differentiating student instruction on third graders' reading comprehension. *Reading Research Quarterly*, 46(3), 189-221.

PRECISION MATTERS!

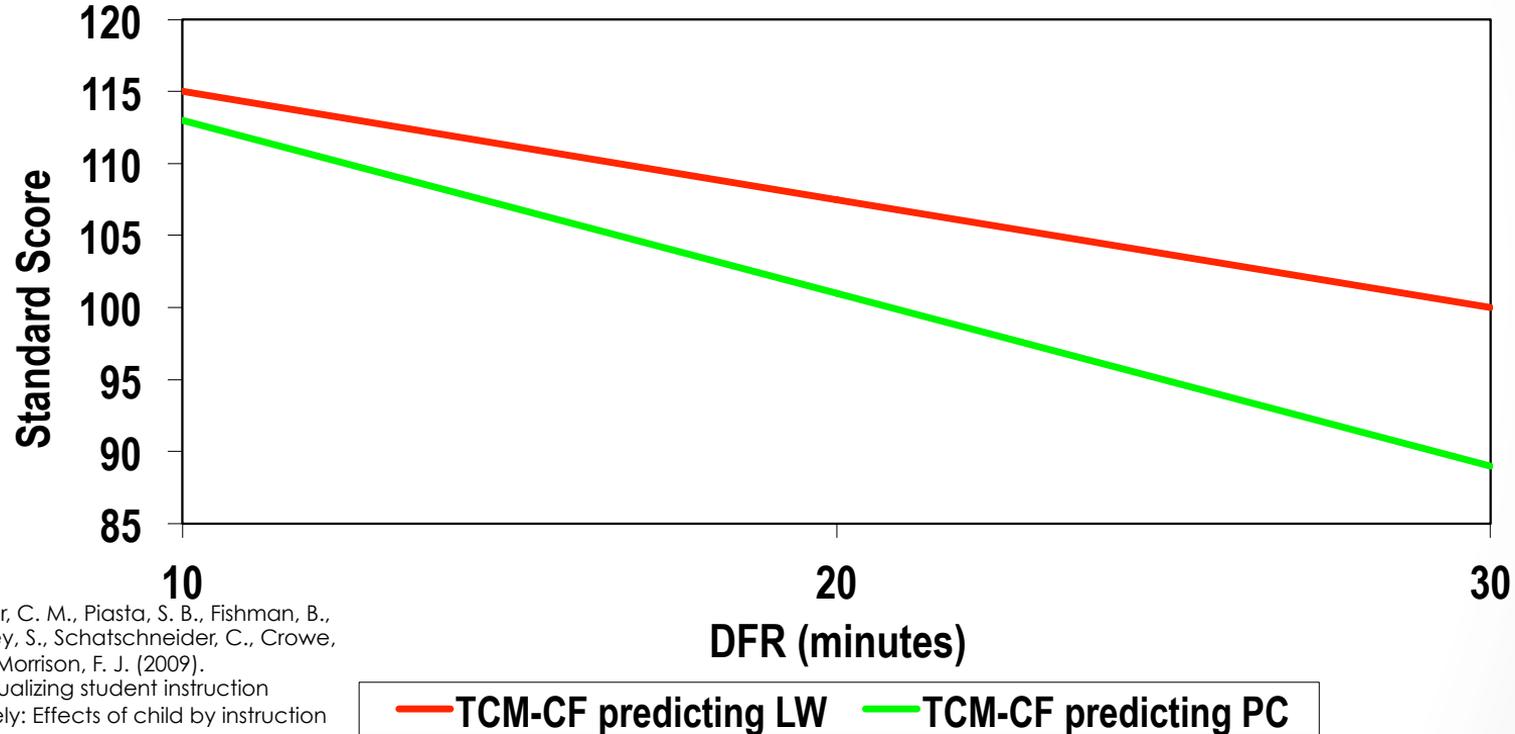
3rd Grade TCM Small-group Meaning-focused DFR



Connor, C. M., Morrison, F. J., Fishman, B., Giuliani, S., Luck, M., Underwood, P., . . . Schatschneider, C. (2011). Classroom instruction, child X instruction interactions and the impact of differentiating student instruction on third graders' reading comprehension. *Reading Research Quarterly, 46*(3), 189-221.

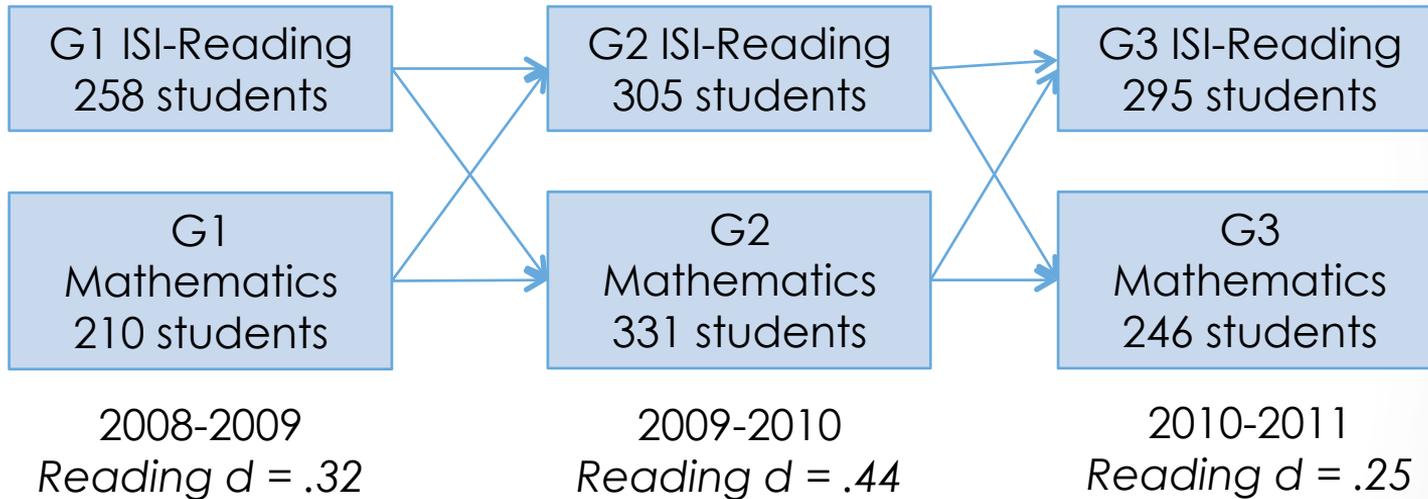
Connor, C. M., Piasta, S. B., Fishman, B., Glasney, S., Schatschneider, C., Crowe, E., . . . Morrison, F. J. (2009). Individualizing student instruction precisely: Effects of child by instruction interactions on first graders' literacy development. *Child Development, 80*(1), 77-100.

First Grade: Distance from Recommendations (SS)

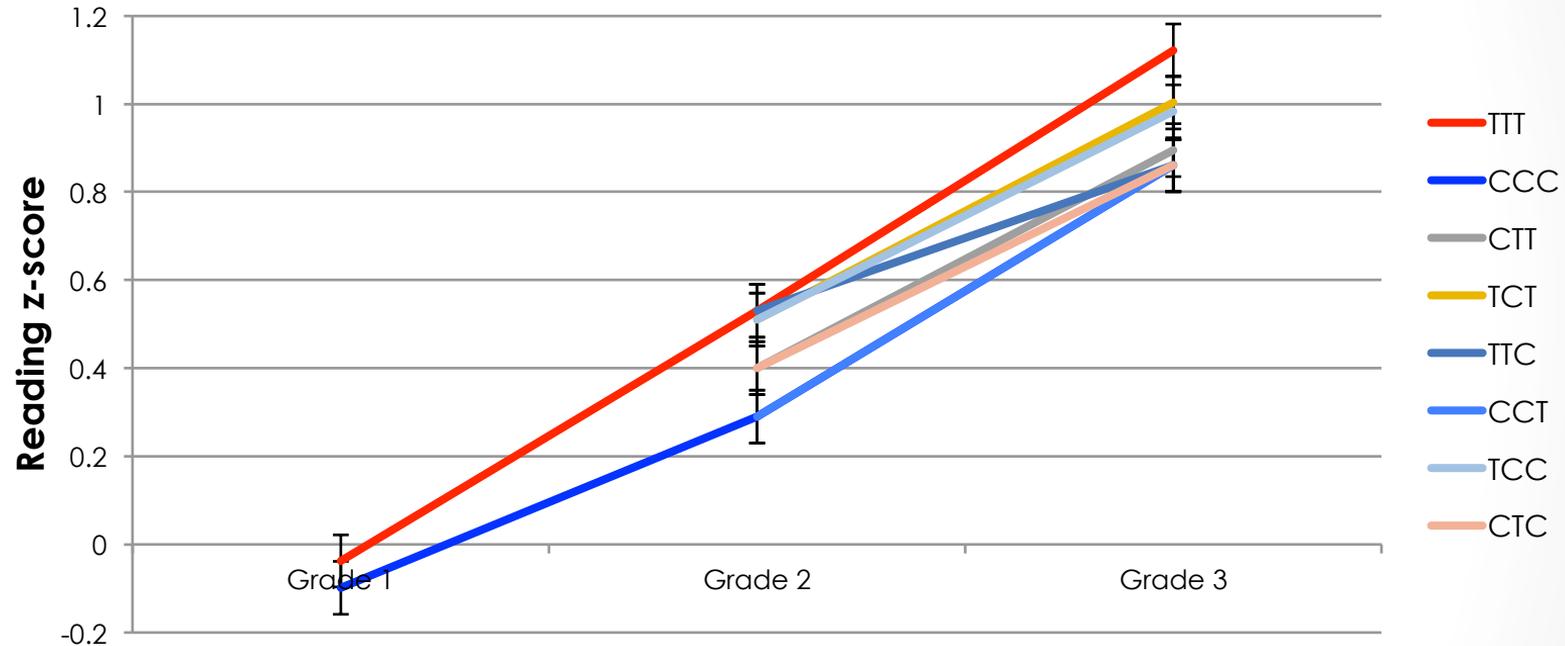


Connor, C. M., Piasta, S. B., Fishman, B., Glasney, S., Schatschneider, C., Crowe, E., . . . Morrison, F. J. (2009). Individualizing student instruction precisely: Effects of child by instruction interactions on first graders' literacy development. *Child Development*, 80(1), 77-100.

Accumulation of Instruction Effects



End of Grade Effects



Connor, Carol McDonald, Morrison, Frederick J., Fishman, Barry, Crowe, Elizabeth C., Al Otaiba, Stephanie, & Schatschneider, Christopher. (in press). A Longitudinal Cluster-Randomized Control Study on the Accumulating Effects of Individualized Literacy Instruction on Students' Reading from 1st through 3rd Grade. *Psychological Science*.

Take Away Messages

The ELRN will take a preschool-third grade view of effective learning opportunities that support achievement and social-emotional development



- Effective use of assessment, including of language, improves learning opportunities for all children
 - Prevention paradox
- Individualizing instruction based on students' constellation of language, decoding, and comprehension skills is more effective than one-size-fits all – and effects accumulate
- **OLOS will take into account individual child differences**
 - **Offers feedback and guidance to teachers**
- Planning to individualize and strong classroom organization is key



What is your plan for this student?



- First grader
- Attends a high poverty school
- Strong language skills
- Delayed decoding and reading comprehension skills
- Limited world knowledge

How about this student?

- First grader at a high poverty school
- Delayed language skills
- Delayed decoding and reading comprehension
- Limited world knowledge



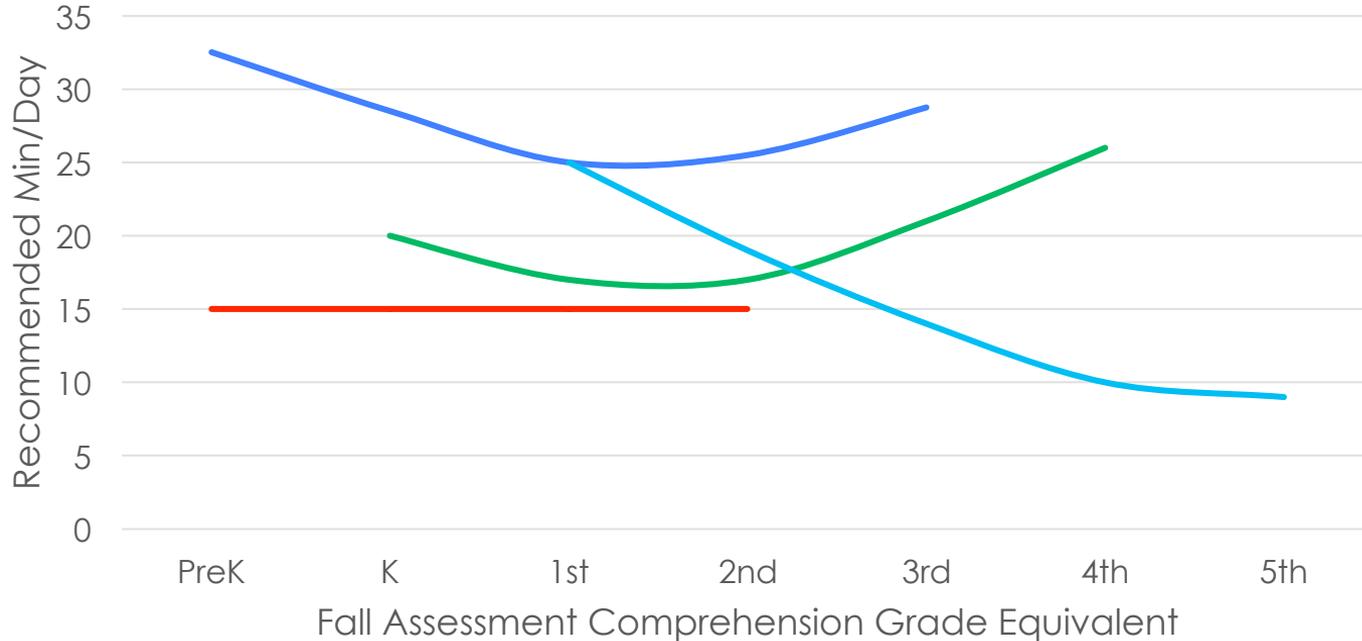
How about this student?

- First grader at high poverty school
- Strong language skills in both sign and English
- Strong decoding and comprehension skills
- Adequate World Knowledge



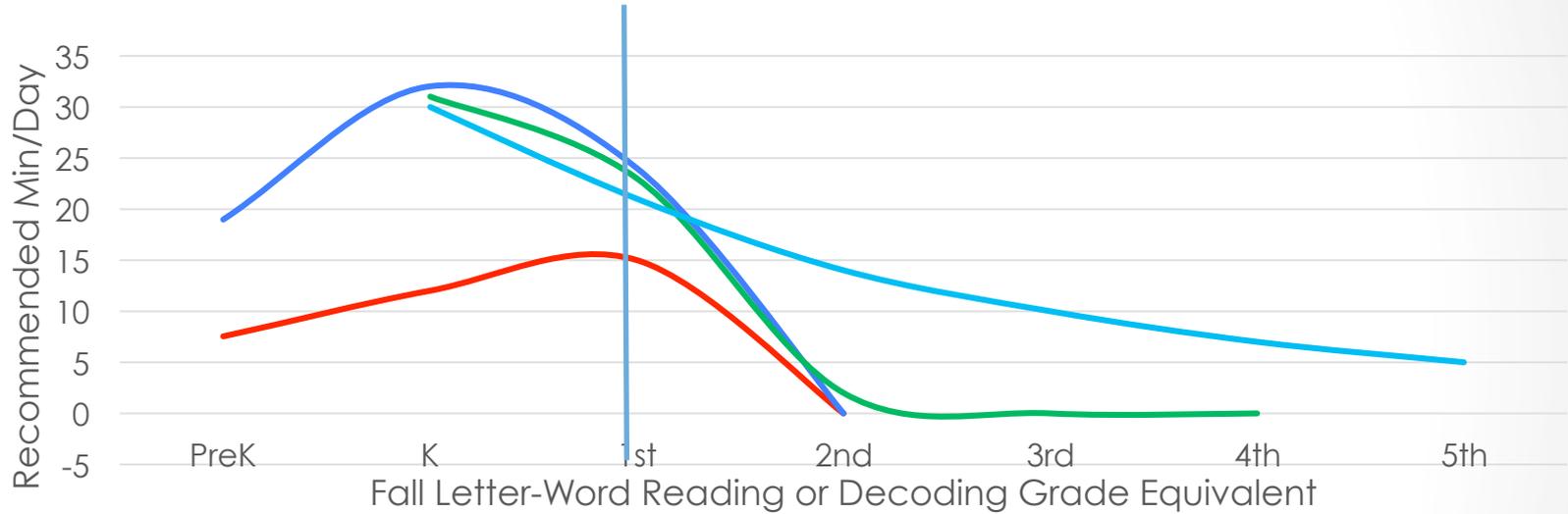
DISCUSSION!

TCM-MF

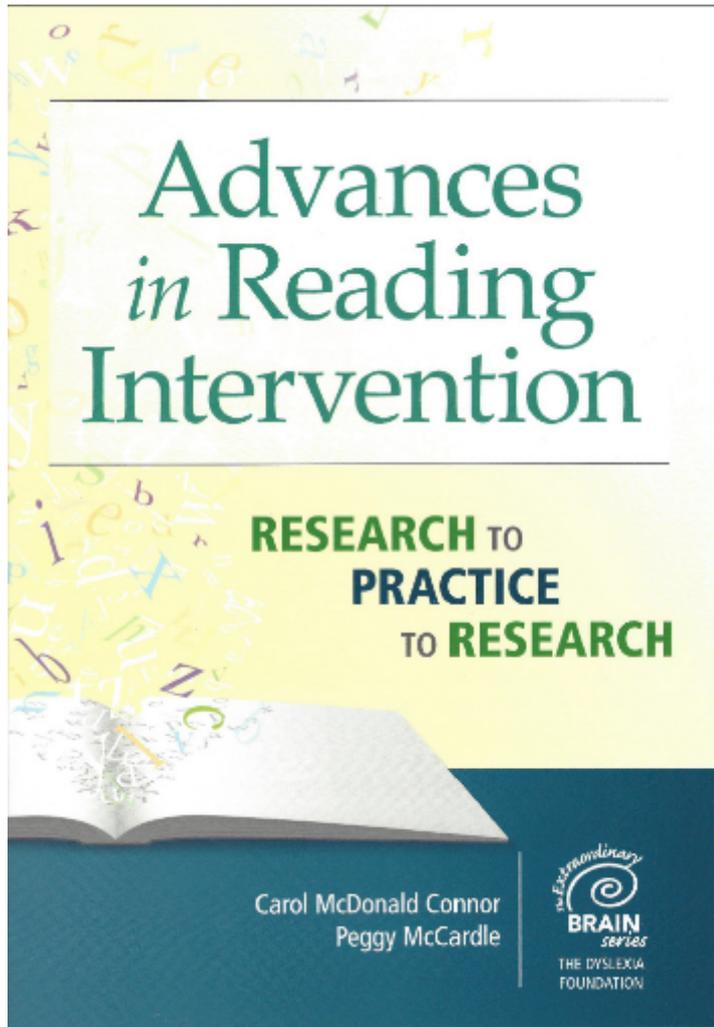


— K — 1st Grade — 2nd Grade — 3rd Grade

CPM-CF



— K — 1st Grade — 2nd Grade — 3rd Grade



- <http://dyslexiafoundation.org/>