

# What do High Quality Special Education Teachers Know and Do to Improve Reading Achievement?

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# Why Study Teacher Quality?

- Research demonstrates that teachers make a difference:
  - Some teachers secure better student achievement gains than others (Ross, Stringfield, Sanders, & Wright, 2003)
  - Explicit, engaging literacy instruction within a literature rich context makes a difference (Pressley & Allington, 1998)
  - More subject matter knowledge and stronger verbal ability makes a difference in student achievement (Darling-Hammond, 1999; Rice, 2003)

# Why Study Teacher Quality?

- Research demonstrates that teachers make a difference:
  - Certain literacy practices are linked to the learning of 1st grade students (Haager, Gersten, Baker, & Graves, 2003; Scanlon et al., 2005)
  - Pedagogical content knowledge linked to student achievement gains in mathematics and reading (Phelps, 2006; Rowan, 2001)

# Teacher Quality Research in Special Education

## *What do we need?*

- A richer conceptualization of teacher quality in special education
- Valid and reliable measurement that can be used to assess the dimensions of teacher quality
- Studies linking dimensions of special education teacher quality to each other and student achievement

# Teacher Quality Research in Special Education

## *Why is this important?*

- In a policy context that emphasizes student outcomes and teacher quality, we need to know:
  - What defines a highly qualified teacher. . . .
    - But first, we need to define and assess what effective beginning special educators do
    - So, we can understand how to cultivate teacher quality through preparation and professional development

# Teacher Quality Research in Special Education

## *What are the challenges to such research?*

- Roles and responsibilities of special education teachers vary considerably
- Curriculum and school/district contexts vary dramatically
- Multiple sources contributing to instruction
  - *In our study students spent 30-135 minutes a day in special education*
- Case loads of most special education teachers cut across grade levels

# Teacher Quality Research in Special Education

## *What are the challenges to such research?*

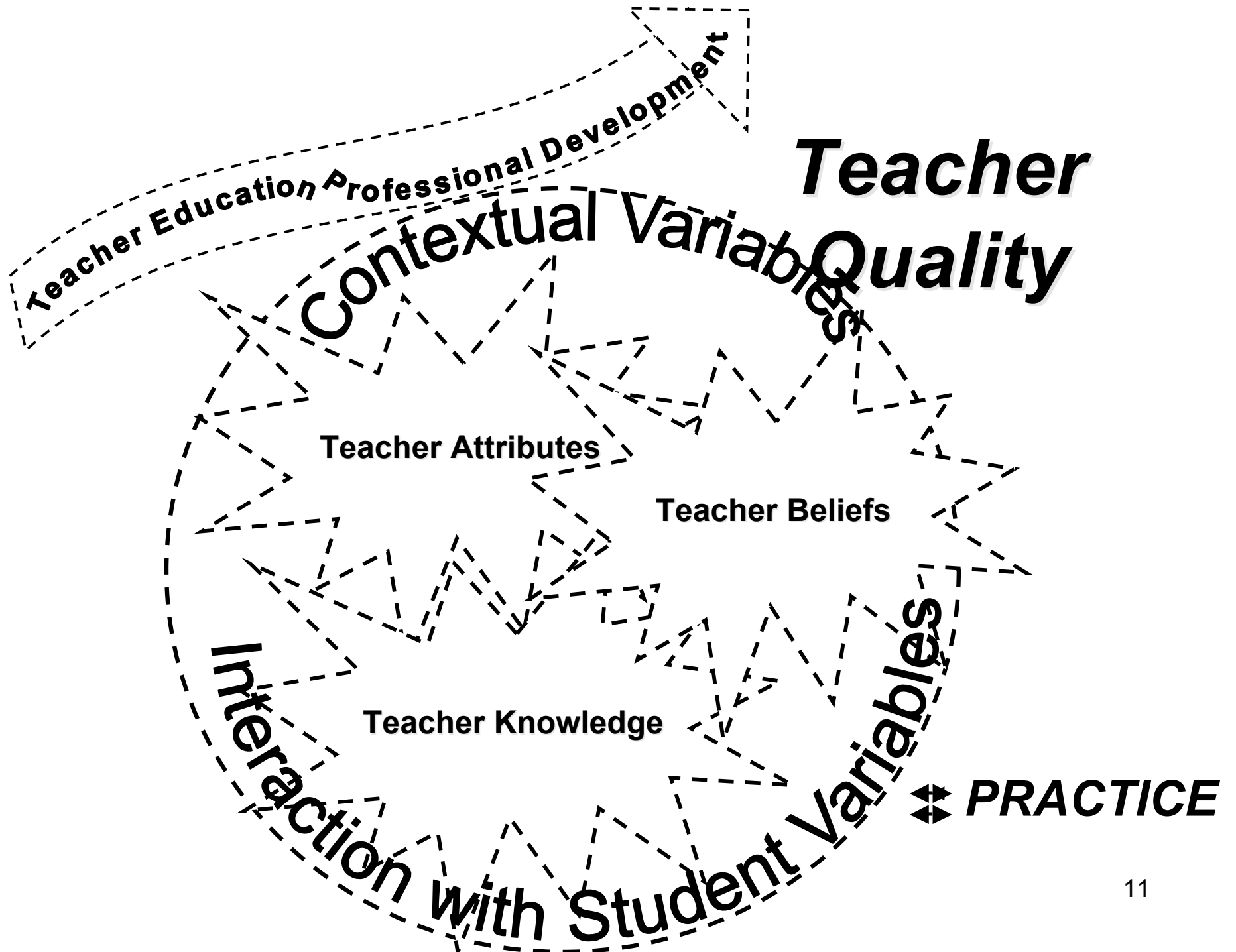
- Instructional objectives in reading varied from teacher to teacher
- Identifying assessments that are sufficiently sensitive, standardized, and individually administered
- Lack of understanding of what a good gain is for students with disabilities at various achievement levels
- Student variability in achievement gains in reading within the same special education class
  - *In our first study, the confidence interval for mean gain scores on oral reading fluency for 12 students was 97 words per minute, or 168 words per minute for 4 students*

# Teacher Quality Research in Special Education

- ***Purpose of the research:***
  - Define dimensions of special education teacher quality and validate assessments of these dimensions
- ***Main Research Question:***
  - What are the relationships between observed classroom practice, content knowledge, beliefs, and reading growth of intermediate grade students taught by special education teachers?

# Teacher Quality Research in Special Education

- Supporting research questions:
  - What role do school environments, particularly professional development opportunities, play in the reading achievement gains of students with disabilities? Practice of special education teachers?



# Methodology

# Participants

## **Participating Teachers:** (N=62 in 60 classrooms)

- Experienced teachers (N=53) and beginners (N=9)
- 3 states
- Multiple settings, delivery models and curriculum

## **Students with Learning Disabilities:** (n=369)

- Majority of students were SLD (Specific Learning Disabilities)
- 3rd to 5th grade
- Receive special education instruction for reading and have IEP goals in reading
- Minimum of 3 students per teacher
  - Florida: 3 to 13
  - California: 4 to 12
  - Colorado: 3 to 8

# Teacher Quality Research in Special Education

- Student Achievement Measures
  - Oral reading rates on CBM passages at the 1st, 2nd, and 3rd grade levels
  - Woodcock Reading Mastery Word Identification and Word Attack Subtests
  - Gray Oral Reading Test (2nd study only)

# Teacher Measures

- Reading Instruction in Special Education  
(Items adopted from the English Language Learner Observation Instrument: Baker, Gersten, Haager, Goldenberg, & Graves, 1999)
- Special Education Influences on Practices Survey
- Content Knowledge for Teaching Reading Questionnaire (Ball & Phelps, 2002)
- Teacher Interviews

# Findings

**What we learned about  
classroom practice  
and student achievement**

# Modeling of Student Gains as a Function of Teacher Practice

- Hierarchical Linear Modeling used to determine the effect of teacher practice on student achievement gains:
  - After controlling for site and SES, overall teacher practice had a:
    - Moderate effect on CBM-3 gains ( $R^2=.064$ ,  $p=.109$ )
    - Large effect on WA gains ( $R^2= .343$ ,  $p=.079$ )
    - Moderate to large effect on WID gains (  $R^2=.159$ ,  $p=.005$ )

# Modeling Student Gains as a Function of Influences on Teacher Practice

- Hierarchical Linear Modeling used to determine the effect of context on student achievement gains:
  - After controlling for site and SES, coherence of learning opportunities had a large effect on GORT-S gains ( $R^2=.349$ ,  $p = .000$ )
  - Coherence: To what extent are the reading curriculum and materials you have learned in the past several years:
    - Consistent with your goals for improving reading instruction
    - Based on teacher education coursework

# Modeling Student Gains as a Function of Influences on Teacher Practice

- Hierarchical Linear Modeling used to determine the effect of context on student gains:
  - After controlling for site and SES, schoolwide efforts to improve reading had a moderate to large effect on GORT-S gains ( $R^2=.141$ ,  $p=.019$ )
  - Schoolwide efforts: To what extent do you agree or disagree with the following statements about efforts at your school to improve reading:
    - At this school, resources are used in ways to provide intensive reading instruction to struggling readers, including those with disabilities
    - Teachers are encouraged to continually learn and seek out new ideas about teaching reading

# Relationships Between Sites Vary

- Correlations between overall classroom practice and student gains
  - For Florida, a moderate relationship exists between OCP and CBM 3rd grade gains ( $r = .45$ ,  $p = .045$ )
  - For California, a moderate relationship between OCP and
    - Gains on GORT ( $r=.39$ ,  $p=.096$ )
    - Gains on WI ( $r=.45$ ,  $p=.054$ )
    - Gains on WA ( $r=.41$ ,  $p=..086$ )

# Relationships Between Sites Vary

- Correlations between phonological awareness practice and student gains
  - For Florida, a moderate relationship between PA and WI gains ( $r = .45$ ,  $p = .38$ )
  - For California only, a moderate to large relationship between PA and
    - Gains on CBM grade 2 ( $r=.55$ ,  $p=.12$ )
    - Gains on WI ( $r=.70$ ,  $p=.04$ )
    - Gains on WA ( $r=.46$ ,  $p=.22$ )

# Time and its Role in Establishing Concurrent Validity

- Correlations between overall classroom practice and student achievement increase with time spent in special education

	n = 10	n=23	n=37	n=17	n=16	n=7
time:	<45	<60	>59	>79	>89	>99
cbm3	0.014	0.265	0.211	0.441	0.443	-0.23
cbmtot	-0.482	-0.004	0.156	0.234	0.251	-0.25
gort-s	-0.128	-0.18	0.19	0.296	0.289	0.448
wid	0.621	0.086	0.296	0.241	0.256	0.385
wa	0.13	0.179	0.188	0.282	0.309	0.413

# What we learned about teacher knowledge

Classroom practice and student  
achievement

**PROCEED WITH CAUTION**

# Teacher Knowledge and Classroom Practice

- Relationship of teacher knowledge with practice:
  - total knowledge of reading is moderately related to
    - Classroom practice in word study ( $r=.39$ ,  $p=.01$ )
  - decoding knowledge is moderately related to
    - Overall classroom practice ( $r=.33$ ,  $p=.01$ )
    - Classroom practice in word study ( $r=.43$ ,  $p=.00$ )

. . .yet, considerable between  
site variation exists

- In Florida, there was a significant correlation between total knowledge and
  - Overall classroom practice ( $r=.55$ ,  $p=.03$ )
  - Word study ( $r=.58$ ,  $p=.02$ )
  - Fluency ( $r=.62$ ,  $p=.01$ )

. . .yet, considerable between  
site variation exists

- In Florida, there was a significant correlation between decoding knowledge and
  - overall classroom practice ( $r=.58$ ,  $p=.02$ )
  - word study practice ( $r=.65$ ,  $p=.01$ )
  - fluency practice ( $r=.52$ ,  $p=.04$ )

As well as comprehension knowledge and  
fluency practice ( $r=.53$ ,  $p=.03$ )

# Teacher Knowledge and Student Achievement: Sites Vary

- Decoding knowledge was related to student achievement growth on WI ( $r=.30$ ,  $p=.03$ )
  - . . . yet, between site variability was considerable. The relationship between decoding knowledge and WI gains was significant in CA ( $r=.57$ ,  $p=.01$ )

# Teacher Knowledge and Student Achievement: Sites Vary

- In Florida, knowledge of comprehension is significantly related to:
  - CBM gains on grade 1 passages ( $r=.61$ ,  $p=.01$ )
  - CBM gains on grade 3 passages ( $r=.64$ ,  $p=.01$ )
- In Florida, total knowledge of reading is significantly related to:
  - CBM gains on grade 3 passages ( $r=.53$ ,  $p=.03$ )

# More on Teacher Knowledge

- The knowledge survey was relatively easy for many special educators
- The between site variability is interesting given that knowledge performance was comparable across sites
- Perhaps curriculum differences across sites are playing a role!!

# A Close Up Look at Two Highly Effective Teachers

# Laurie

- Laurie was a veteran special education teacher:
  - 22 years of experience
  - Bachelor's degree in elementary education
  - Certification in special and math education
  - Former lead teacher in the UF multidisciplinary clinic for students at risk
  - Currently teaching at a special school for homeless and neglected children
  - All students on free and reduced lunch; 11 of 12 students are African-American

# Laurie's Classroom Performance

- **Provides support to students who need assistance (Instructional Practice)**

*We observed Laurie helping students struggle to define the word conman. She held up a pen and told them it was magic and that it would help them write anything, even a novel. She asked students if such a thing would be possible. When they said no, she told them she was trying to trick them. Then, she went on to define conman. At this point, the children were excited and able to provide other examples.*

# Laurie's Classroom Performance

- **Provides explicit instruction in fluency**

*Laurie consistently highlighted mastery while reading text. She encouraged students to practice reading stories until they were error free. She often used error correction to improve student decoding while reading.*

# Laurie's Classroom Performance

- Provided explicit instruction in word study

*Laurie consistently taught phonics at the individual letter/sound and connected text level. She provided students with multiple opportunities to practice at all levels. Student errors were always corrected. She also highlighted phonologically irregular words (e.g., said, to, of, was) and encouraged students to pay attention to them.*

# Lisa

- Lisa was a veteran special education teacher:
  - 27 years of experience
  - Bachelor's degree in elementary education
  - Certification in special education, National Board Certification
  - Currently teaching at a school in a low SES neighborhood
  - All students on free and reduced lunch

# Lisa's Classroom Performance

- Foster student motivation and interest (General Instructional Environment)

*Lisa used interesting stories and asked cognitively challenging questions to promote student motivation and interest. The topics of the stories were appealing to students and included everyday experiences, special events, exciting adventures, and folktales. She also asked higher-order questions (e.g., prediction) to increase student involvement.*

# Lisa's Classroom Performance

- Provides explicit instruction in comprehension skills and strategies

*Lisa often used a graphic organizer to help students understand the story. She discussed the characters of the story in detail and wrote students' predictions about how events might unfold for the characters. As the the class read the story, Lisa went over the graphic organizer to determine if predictions held true. Students were actively engaged in discussing the story.*

# Tentative Conclusions about Quantitative Data

- Quality of the special education teachers' reading instruction and knowledge plays a role student achievement gains, particularly at the basic skill level. . .
  - but the ways in which it matters are more difficult to understand.
- The special education teachers' knowledge for reading seems to matter, particularly for WI and fluency instruction.

# Tentative Conclusions about Quantitative Data

- Highly qualified special education teachers have strong pedagogical content knowledge, suggesting that subject matter knowledge alone is insufficient
- School context for improving reading seems to have a stronger influence than the special education teacher on reading comprehension gains

# Implications for Future Research

- Possible to understand and assess teacher quality in special education, but these issues must be addressed:
  - Considerable variation between sites and its impact on classroom practice needs further exploration
  - Need to better understand the role between curriculum, teacher practice, and teacher knowledge
  - Improved understanding and assessment of the reading knowledge for special education teachers needed
  - Valid classroom performance assessments must consider time devoted to instruction
  - Need to consider time spent in instructional activities in when assessing classroom practice
  - Further work on sensitive student assessment is imperative

# Center for Personnel Studies in Special Education

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