



National Center for Research on  
Rural Education (R<sup>2</sup>Ed)

# ***A National Study of Rural Teachers' Professional Development, Instructional Knowledge, and Classroom Practice***

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# Project Contributors

## *Investigators*

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# National Center for Research on Rural Education (R<sup>2</sup>ED)

- Project conducted through R<sup>2</sup>ED

## *Long-term goal of R<sup>2</sup>ED:*

- To advance and support the scientific foundation for education in rural settings

## *Immediate research objectives for R<sup>2</sup>ED:*

- To identify effective practices that lead to the provision of evidence-based interventions for reading and science instruction
- To identify effective school, teacher, and family supports to help advance student learning
- To create and provide an infrastructure for research and outreach for the field



# Introduction and Study Rationale

- Although existing literature on teacher professional development (PD), little is known about:
  - characteristics of PD in rural schools
  - impact of PD characteristics on rural teachers' perceptions, knowledge, and practice



# Introduction and Study Rationale

- Addresses a critical gap by investigating:
  - variations in existing rural PD practices
  - differences in PD practices between rural and non-rural settings
  - the potential influence of PD aspects on rural teachers' knowledge, perceptions, and instructional practice
  - moderating effects of context and teacher variables



# Introduction and Study Rationale

- Investigated PD in 4 areas:
  - Reading
  - Science inquiry
  - Mathematics instruction
  - Teachers' use of data to inform reading instruction/intervention
- Study findings useful for informing:
  - future PD in rural schools
  - ongoing reach on PD



# Primary Research Questions

1. How do rural and non-rural teachers differ with respect to their professional development participation and their perceptions and classroom practices pertaining to training foci?
2. What is the potential influence of professional development characteristics on rural teacher perceptions, knowledge, and practices?



# Method

## Participants

- Randomly selected from national NCES database
- Sample included 268 rural and 327 non-rural K-5 teachers from 43 U.S. states
- Within each locale, sample was stratified by school size





# Method

## Procedure

- Surveys mailed in April and September of 2010
- Small incentives were provided to teachers (pen, sticky notes, and tote bag)
- Surveys returned via prepaid envelope
- Teachers responded to questions about their ***best professional development experience within the past year pertaining to one of four content areas***



# Method

Measure	Focus/Description
<b>Demographic information</b>	<ul style="list-style-type: none"><li>• Teaching assignment</li><li>• Certifications</li><li>• Degrees obtained</li><li>• Gender, age, ethnicity</li><li>• Experience</li><li>• Class size and organization</li><li>• School grade-level range</li></ul>
<b>Professional development characteristics</b>	<p>Characterize best PD experience in past year in one of four content areas with respect to:</p> <ul style="list-style-type: none"><li>• Topical focus</li><li>• Format</li><li>• PD leader</li><li>• Total hours and time span</li><li>• Distance travelled</li><li>• Use of demonstration/modeling</li><li>• Opportunities for practice/feedback and interaction/collaboration</li></ul>

# Method

Measure	Focus/Description
<b>Perceptions</b>	Rate: <ul style="list-style-type: none"><li>• Importance of content-specific instructional topics/practices</li><li>• Acquisition of knowledge of specific instructional topics/practices</li></ul>
<b>Instructional content knowledge</b>	Complete one of four measures: <ul style="list-style-type: none"><li>• <i>Teacher Knowledge of Reading and Reading Practices</i> (Carlisle, Johnson, Phelps, &amp; Rowan, 2008)</li><li>• <i>Content Knowledge for Teaching Mathematics</i> (Learning Mathematics for Teaching, 2006)</li><li>• <i>Data-based Decision Making Knowledge for Reading</i> (Project developed)</li><li>• <i>Science Inquiry Instructional Knowledge</i> (Project developed)</li></ul>
<b>Reported practice</b>	Indicate the extent to which instructional topics are focus of practice



# Results & Implications

1. How do rural and non-rural teachers differ with respect to their professional development participation and their perceptions and classroom practices pertaining to training foci?



# Results: Rural and Non-Rural Teachers Best PD Experiences

- Similarities:

	Rural	Non-Rural
Hours Spent in PD	<i>M = 19.91</i> <i>(SD = 19.42)</i>	<i>M = 18.06</i> <i>(SD = 19.12)</i>
Training Method		
Live	95.3%	94.2%
Distance Learning	3.5%	2.9%
% of time spent on practice & feedback opportunities in classroom <small>(coded as continuous variable; e.g., 3 = 21%-30%)</small>	<i>M = 3.32</i> <i>(SD = 2.70)</i>	<i>M = 3.80</i> <i>(SD = 3.11)</i>

# Results: Rural and Non-Rural Teachers Best PD Experiences

- Differences in PD format:

	Rural	Non-Rural
Single Workshop/Institute	25.3%	16.8%
Series of Workshops/Institutes	27.7%	23.5%
Workshops/Institutes w/ Coaching	23.5%	20.9%
Presentation by Colleague	4.2%	9.2%
College Course	3.0%	8.2%
Conference	4.8%	5.1%
Mentor, Coach, Lead Teacher, Observer	4.2%	7.7%
Teacher Collaborative Study Group	6.0%	6.6%



# Results: Rural and Non-Rural Teachers Best PD Experiences

- Differences in PD leader:

	Rural	Non-Rural
Teacher/Staff from School	20.1%	24.0%
District Staff	11.2%	14.0%
Regional Educational Unit Staff	13.0%	10.5%
State Staff	6.5%	3.5%
External Expert/Consultant	39.6%	34.5%
University/College Faculty/Staff	5.3%	10.0%

# Results: Rural and Non-Rural Teachers Best PD Experiences

- Differences in interaction/collaboration:

	Rural	Non-Rural
Did Not Interact/Collaborate	3.4%	9.8%
Part of Professional Development Experience	47.8%	40.4%
Independent of Professional Development Experience	20.1%	16.5%

- Differences in time span:

	Rural	Non-Rural
Span of time (days)	$M = 77.34$ (SD = 120.39)	$M = 52.20$ (SD = 93.84)



# Results: Rural and Non-Rural Teachers Perceptions, Knowledge, & Practices

	Rural	Non-Rural
Perceived utility of topical foci (average rating across listed topics; Not important = 0, Somewhat Important = 1, Important = 2, Critical = 3)	$M = 1.63$ ( $SD = 0.44$ )	$M = 1.63$ ( $SD = 0.47$ )
Instructional content knowledge (proportion of items correct)	$M = 0.55$ ( $SD = 0.19$ )	$M = 0.55$ ( $SD = 0.19$ )
Reported practice (average rating across listed topics; Not a focus = 0, Minor = 1, Significant = 2, Unsure = 0)	$M = 1.41$ ( $SD = 0.53$ )	$M = 1.31$ ( $SD = 0.58$ )

# Implications

- Despite perceptions about limitations in access to PD, rural teachers were not disadvantaged in their receipt of PD
  - Similar to non-rural teachers in time spent in best PD experience
  - Received PD over a longer time span
  - Similar to non-rural teachers in receipt of practice/ feedback in both a workshop and a classroom context

# Implications

- Non-rural teachers may be able to better utilize school/district personnel and have greater access to better conferences and college courses
  - Rural teachers' best PD was more often provided in workshop context by regional/state staff member or external consultant
  - Non-rural teachers' best PD was more often provided by school/district colleague or mentor/lead teacher



# Implications

- Rural teachers reported more collaboration both during and outside of their PD, perhaps a function of:
  - the rural work environment
  - accommodating for limited personnel resources



# Implications

- Neither rural nor non-rural teachers were knowledgeable about content/pedagogy
  - Additional PD may be of benefit

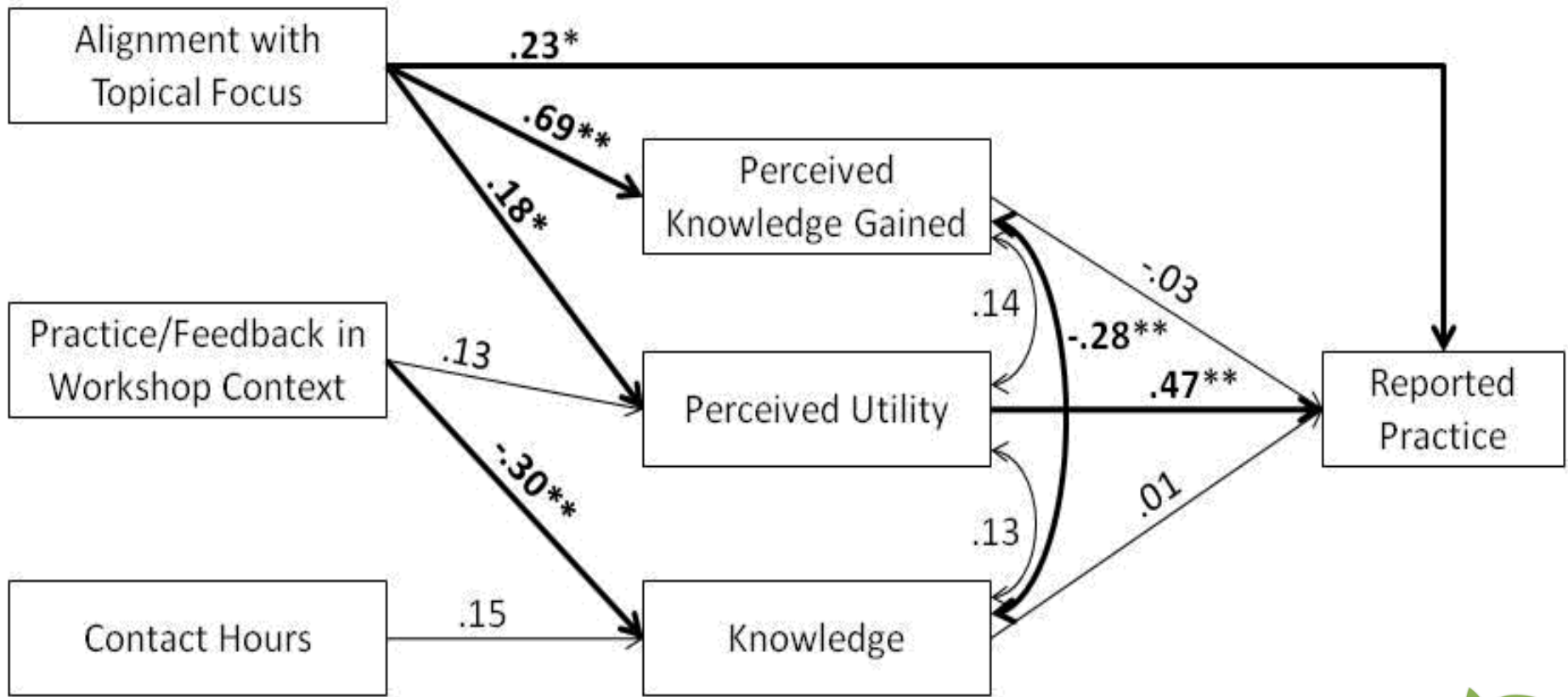
# Results & Implications

2. What is the potential influence of professional development characteristics on rural teacher perceptions, knowledge, and practices?



# Analytic Model for the *Teachers Speak* Survey

## Study of Professional Development



# Results

- Greater emphasis of topics during PD was related to:
  - increased perceptions of the utility of those topics
  - increased perceptions of knowledge gained pertaining to those topics
  - an increased focus on those topics during classroom instruction
- Overall, when topics were included during PD, teachers found the topics to be more useful and reported implementing more practices related to the topics (chi-square tests follow-up)



# Results

- Teachers who perceived topics to be more useful reported more emphasis on those topics during instruction
- Teachers who spent more time in PD had greater pedagogical content knowledge (*total sample only*)
- Teachers who reported receiving more practice/feedback had less pedagogical content knowledge
  - Maybe due to seeking out PD in less knowledgeable areas



# Implications

- By focusing on topics in PD, may be able to increase:
  - teachers' perceptions about their utility
  - their practice in the classroom
- By focusing on teachers' perceptions about a topic's utility, may also be able to increase practices related to that topic in the classroom
- This is promising in that PD appears to have an impact on perceptions and practice

# Ongoing Research

- These findings are useful for informing:
  - PD for rural teachers
  - Existing and future research on teacher PD
- Ongoing randomized trials on PD through R<sup>2</sup>ED in reading and science:
  - Project READERS (Response to Effective Assessment-Driven Early Reading Supports)
  - Coaching Science Inquiry (CSI)



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