Minding the Gap:
Using Curriculum-based Measurement to Target Pre-service Teacher Content Knowledge

Presented by:
Dr. Christine Ralston
Dr. Heather Kindall
Dr. Tracey Crowe
The participant will...

1. learn about the process for developing Curriculum Based Measurements (CBM) for Content Knowledge

1. discover the impact of one literacy-specific CBM on curriculum alignment through a scope and sequence of literacy methodology coursework

1. learn how one elementary education program used this CBM to refine their courses and target instruction for specific student needs
University of Arkansas

- Founded in 1871 as a land-grant college and state university
- Enrollment >27,000
- Students represent all 50 states and 120 countries
- State’s foremost partner and resource for education and economic development
- Major provider of graduate-level instruction in Arkansas
Childhood Education Program

- Two licensure programs
  - 4 year traditional
  - 5 year MAT (traditional)
- Enter teacher education as juniors
- Yearlong internship in public schools
- Transitioning P-4 to K-6
Research Rationale and Purpose

- CAEP Standard 1: Content and Pedagogy
  - Demonstrate knowledge of InTASC standards
- Recent Legislation in Arkansas
  - Dyslexia
  - RISE
  - New Reading Assessment for Licensure
Literature Review

• Importance of developing academic language for teachers
  -Schleppegrell, 2012

• Vocabulary-matching measures as one indicator of student learning in content areas
  -Espin, Shin, & Busch, 2005

• Curriculum Based Measurement (CBM) as a research-validated form of progress monitoring
  -Stecker & Lembke, 2011
Research Questions

1. Do multiple assessments of pre-service teacher candidates’ literacy content knowledge have an impact on aligning instruction to impact future student learning?

1. Does a gap exist between pre-service teacher literacy knowledge and the scope and sequence of literacy methodology coursework?
CBM Instrument Creation

- Began with 1000+ literacy terms
- Narrowed to 163 academic literacy terms
- Defined according to research
- Independently ranked 4, 3, 2, 1
  - 1=should definitely not be on the list
  - 2=should probably not be on the list
  - 3=should probably be on the list
  - 4=should definitely be on the list
CBM Instrument

• BlackBoard course for assessment administration
• 20 matching items with 24 answer choices
• 10 minute timer with option to continue
• Class release time to take assessment
• Accepted student feedback regarding technical issues
Content Validity Established

- 4 external reviewers
- Independently ranked same 163 academic literacy terms
  - rankings of 4 or 3 = essential
  - rankings of 2 or 1 = non-essential
- Lawshe analysis run for Content Validity Index (CVI)
  - among external reviewers, CVI = 0.893
  - including researchers’ rankings, CVI = 0.89
- CVI values greater than .78 from 3 or more experts can be considered evidence of good content validity (Polit, 2007)
CBM Student Directions

• Participants were given...
  – The purpose of the study
  – Rationale according to literature
  – Description of longitudinal study lasting duration of time in program
  – Standard informed consent
    • no impact on course grades
    • confidentiality
    • risks and benefits
CBM Student Directions

Instructions: Choose the letter of the word that matches its definition. Each word may be used once, more than once, or not at all.

Timed Test: This test has a time limit of 10 minutes.

Timer Setting: You will be notified when time expires, and you may continue or submit.

Force Completion: Once started, this test must be completed in one sitting. Do not leave the test before clicking Save and Submit.
CBM Sample

Question Completion Status:

- A speech sound characterized by friction or stoppage of the airflow as it passes through the vocal tract; usually any letter except a, e, i, o, and u
- The peak of suspense in a story
- The understanding that speech is composed of sub-parts -- sentences are comprised of words, words are comprised of syllables, syllables are comprised of onsets and rimes, and can be further broken down to phonemes
- The body of work in which the author purports to tell us about the real world, a real experience, a real person, an idea, or a belief
- A fictional story that happened previously
- The process of learning language and how language is used
- Fantasy stories that have been passed down by word of mouth
- Verbal interaction
- Recognize the word that remains when a phoneme is removed from another word
- Precise directions for the teaching of letter-sound relationships

Click Save and Submit to save and submit. Click Save All Answers to save all answers.
Participants

• Junior, Senior, and Graduate Elementary Education students
  – juniors n=57
  – seniors n=56
  – graduate n=12

• Enrolled in one or more of the following courses
  – Children and Adolescent Literature
  – Emergent and Developmental Literacy
  – Disciplinary Literacy
  – Literacy Assessment and Intervention
  – Elementary Seminar
CBM Administrations

• Administered through a BlackBoard course
  – December 2016
  – January 2017
  – March 2017
  – May 2017
  – August 2017
Data Collection and Analysis

- Excel
- Lawshe to determine Content Validity Index (CVI)
- BlackBoard
- Internal Reliability
- Regression
- Item Analysis
Findings

<table>
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<tr>
<th>Reliability</th>
<th>Value</th>
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<tr>
<td>Cronbach's Alpha</td>
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<td>KR20</td>
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### Findings

#### Comparison of Fall 2016 Pilot CBM and Praxis test scores

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<th></th>
<th>P-4</th>
<th>K-6</th>
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<tbody>
<tr>
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<td><strong>Regression Statistics</strong></td>
<td><strong>Regression Statistics</strong></td>
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<td>Multiple R</td>
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<td>R Square</td>
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<td>Observations</td>
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## Findings

<table>
<thead>
<tr>
<th>correct answer</th>
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<tbody>
<tr>
<td>consonant</td>
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<td>climax</td>
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<td>discourse</td>
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<tr>
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<tr>
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<td>blend</td>
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<td>0.271186</td>
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Findings

Reading level: Refers to independent, instructional, and frustrational levels of text reading

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<th>Times chosen</th>
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<tr>
<td>narrative writing</td>
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Findings

Text complexity: A way to determine the comprehension demands of a book or other text using reader and text factors

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<tr>
<td>running record</td>
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<tr>
<td>transitional spelling</td>
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<tr>
<td>nonfiction</td>
<td>1</td>
</tr>
<tr>
<td>biography</td>
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Implications for Future Program Refinement

- Create professional development modules for faculty
  - Determine literacy terms for each course
  - Literacy building process
- Use common language to explicitly teach vocabulary across all sections of a course
- Continue administering CBM to monitor and adjust
Implications for Program Design

• Re-align order of courses so there is a specific scope and sequence

• Incorporate targeted field experiences specific to each literacy course
  – Identify specific (common) literacy terms in lesson plans
  – Share results with school partnership mentors to set expectations for field experience and literacy vocabulary to work towards transferability in authentic experiences.
Minding the Gap

DISCUSSION
Minding the Gap

QUESTIONS
# Contact Information

<table>
<thead>
<tr>
<th>Christine Ralston, Ph.D.</th>
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<td></td>
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<td>Coordinator/Assistant Professor</td>
<td>Clinical Assistant Professor</td>
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<td>302 Peabody Hall</td>
<td>207 Peabody Hall</td>
<td>211 Peabody Hall</td>
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<td><a href="mailto:tccrowe@uark.edu">tccrowe@uark.edu</a></td>
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THANK YOU!