IMPLEMENTATION FIDELITY AND CBM

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Response to Intervention

Technical Assistance Center

Overview

- Define CBM implementation fidelity
- Describe why CBM implementation fidelity is an important component of an RtI model
- Identify factors that may influence CBM implementation fidelity
- Discuss CBM implementation fidelity procedures
- Review options for improving CBM implementation fidelity

What Is Implementation Fidelity?

Definition

- Implementation fidelity is:

"*The degree to which a procedure is implemented as planned.*"

Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993

Definition

- In an RtI model, implementation fidelity is a critical component
- Implementation fidelity includes assessing the integrity with which screening and progress monitoring procedures are completed (National Research Center on Learning Disabilities, 2006)
- Ensuring implementation fidelity is a resource-intensive process

What Is It Important?

Important Considerations

- Many failures of education reform are attributed to poor implementation (Gresham, 1988; Levin, Catlin, & Elson, 2005)
- When schools adopt new initiatives without fidelity to essential program design features, results are often poor (Kovaleski, Gickling, & Marrow, 1999)

Important Considerations

- Implementation fidelity is typically assumed, rather than assessed
- Outcomes cannot be determined unless school personnel verify that the procedure was implemented as intended

Important Considerations

- Numerous studies confirm the importance of implementation fidelity to maximize program effectiveness (Foorman & Moats, 2004; Foorman & Schatschneider, 2003; Gresham et al., 2000; Kovaleski et al., 1999; Telzrow, McNamara, & Hollinger, 2000; Vaughn, Hughes, Schamm, & Klinger, 1998)
- Results suggest that program effectiveness can be attributed to three factors

Important Considerations

- Three critical factors:

1. Implementation fidelity of the process at the school level
2. Empirical support for instruction, intervention, or procedure
3. Implementation fidelity at the teacher level

Important Considerations

- Consistent and detailed assessment of implementation fidelity will:
  - Ensure consistent, high-quality instruction
  - Enhance the efficacy of an RtI model
  - Produce better student outcomes

What Is CBM?

Curriculum-Based Measurement

- Curriculum-Based Measurement (CBM) refers to a set of short-duration fluency measures (or probes)
- Assesses basic academic areas:
  - Reading
  - Mathematics computation
  - Spelling
  - Written expression

Curriculum-Based Measurement

- Within an RtI model, CBM is used to monitor student progress across the entire school year
- General uses:

1. Screening
2. Progress Monitoring
3. Instructional Diagnosis

Curriculum-Based Measurement

- Students are given standardized "probes" at regular intervals
- Probes scored for:
  - Speed or fluency
  - Accuracy of performance
- Brief and easy to administer
  - 1 to 5 minutes

Curriculum-Based Measurement

- Example:

I can say many numbers. First I say "one," and then I say "two." I can count very high, but I can't count every number. Even though I can write many numbers, I can never write every number. I would run out of time and space before I could finish. Numbers keep going forever.

I see numbers just about anywhere I look. Numbers help us every day. You can put them together to add. You can take them away to subtract. Numbers help measure how long, short, and wide things are. Numbers tell us how much food and toys cost. They tell us how many miles we have left to drive until we get home. Numbers tell us how fast we ran a race. They let us know how many points our team scored in a game. Numbers tell us how tall we are. They help us figure out how much we've grown. They let us know what size our hands and feet are.

Curriculum-Based Measurement

- Advantages:
  - Brief and easy to administer
  - Administration consistency
  - Technically strong approach for quantifying student progress
  - Reliable and valid measurement tool
  - Improves instructional decision making

Why Is CBM Fidelity Important?

Importance of CBM Fidelity

- Key assumption underlying an RtI model is that the assessment process is reliable and valid (Fuchs, Fuchs, & Compton, 2004)
- The assessment process often adopted in an RtI model incorporates CBM
- There is ample evidence to substantiate the validity and utility of CBM (Fuchs, 1995, Shinn, 1998)

CBM and RtI

- In Tier 1, CBM is used to determine whether core general classroom instruction is effective
- In Tiers 2 and 3, CBM is used to monitor the academic progress of at-risk students who are receiving group or individualized interventions

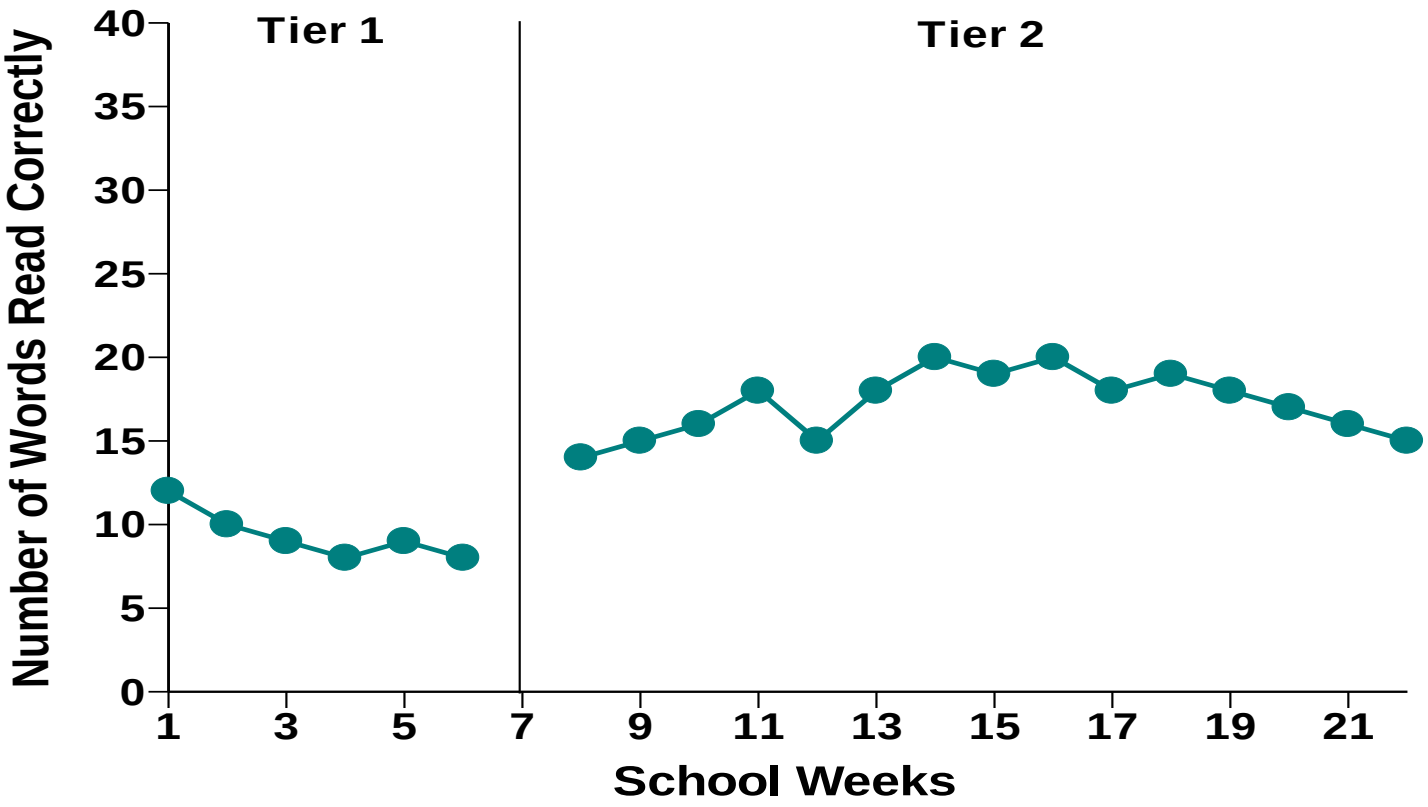
CBM and RtI

Class Distribution by Scores and Percentile

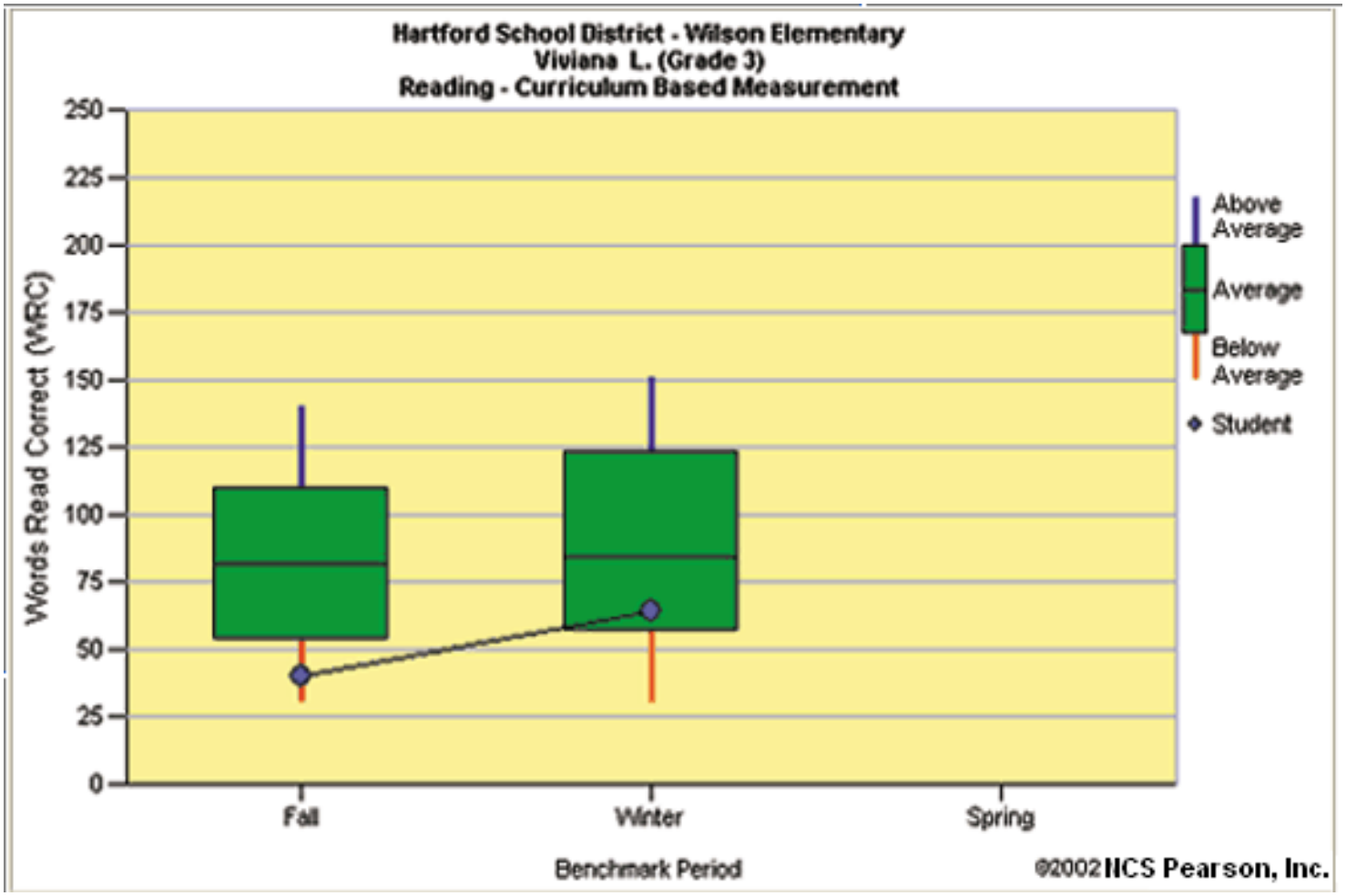
Hartford School District - Wilson Elementary
(A. Jones) Fall 2001-2002
Reading - Curriculum Based Measurement

Name	Corrects	Performance Summary	Potential Instructional Action
Gamble, K.	184	Above Average	Consider Need for Individualized Instruction
Best, V.	143	Above Average	Consider Need for Individualized Instruction
Lisonbee, I.	142	Above Average	Consider Need for Individualized Instruction
Rucskin, N.	135	Above Average	Consider Need for Individualized Instruction
Quandt, E.	127	Above Average	Consider Need for Individualized Instruction
Dement, B.	126	Above Average	Consider Need for Individualized Instruction
Above Average >= 124 (75th %ile)			
Damon, C.	105	Average	Continue Current Program
Waters, J.	94	Average	Continue Current Program
Smallwood, V.	93	Average	Continue Current Program
Average >= 61 (25th %ile)			
Moon, K.	60	Below Average	Further Assess and Consider Individualizing Program
Mckenney, B.	44	Below Average	Further Assess and Consider Individualizing Program
Ward, D.	43	Below Average	Further Assess and Consider Individualizing Program
Below Average >= 34 (10th %ile)			
Nankivell, R.	33	Well Below Average	Begin Immediate Problem Solving

CBM and RtI


Tier 1
Tier 2
Number of Words Read Correctly
40
35
30
25
20
15
10
5
0
1
3
5
7
9
11
13
15
17
19
21
School Weeks

CBM and RtI


Hartford School District - Wilson Elementary
Viviana L. (Grade 3)
Reading - Curriculum Based Measurement
Words Read Correct (WRC)
250
225
200
175
150
125
100
75
50
25
0
Fall
Winter
Spring
Benchmark Period
Above Average
Average
Below Average
Student
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CBM and RtI

- Because CBM is a key outcome measure in an RtI model, it is critical that CBM administration procedures are followed as described
- Deviations in CBM administration can affect student performance and result in invalid assessment findings

Is It Really That Important?

Really Important!

- Numerous studies have identified administration deviations that may alter students' CBM performance
- The setting, timing conditions, and administration instructions may affect students' CBM performance

CBM Setting Considerations

- Derr-Minneci and Shapiro (1992) reported higher oral reading fluency when students were:
  - Assessed by the classroom teacher (vs. school psychologist)
  - Assessed at the teacher's desk (vs. reading group or office)
  - Timed (vs. not time)

CBM Timing Considerations

- Evans-Hampton et al., (2002) reported higher mathematics computation fluency when students were:
  - Timed (vs. not time)

CBM Instructions

- Colon and Kranzler (2006) reported:
  - Students read significantly more words and made significantly more errors during:
    - the fast condition ("Read as fast as you can without making mistakes")
    - than during the best condition ("Do your best reading")

Really Important!

- Adherence to standardized CBM administration procedures is critical
- The same CBM administration procedures need to be used when comparing a student's performance across time or to a normative group
- Deviations in settings, timing procedures, and instructions will result in an unreliable and invalid assessment

What Factors Influence Fidelity?

Factors Influencing Fidelity

- Four general categories of factors may influence the implementation fidelity (Gresham et al., 2000; Reschly & Gresham, 2006)

1. Complexity
2. Materials and resources required
3. Credibility
4. Personnel

Complexity

- The less complex a procedure, the greater the implementation fidelity
- The less time intensive a procedure, the greater the implementation fidelity

Materials and Resources

- If no new or substantial resources are required to implement the procedure, the greater the implementation fidelity
- If resources are readily accessible, the greater the implementation fidelity

Credibility

- The more credibility the procedure has, the greater the implementation fidelity
- If teachers believe the procedure is effective or if the procedure is consistent with their teaching philosophy, they will implement the procedure with fidelity

Personnel

- The more expertise associated with the personnel implementing a procedure, the greater the implementation fidelity
- The greater the motivation of the personnel implementing a procedure, the greater the implementation fidelity
- The less personnel associated with implementing a procedure, the greater the implementation fidelity

How Can Fidelity Be Assessed?

Common Procedures

- Student performance/permanent products
  - Reviewing CBM probes
- Personnel self-reports
  - Rating scale, checklist, interviews
- Direct observation
  - Observation by a teacher mentor
  - Audio taped recording of session reviewed by a peer or teacher mentor

How Can Fidelity Be Improved?

Ensuring Fidelity

- Direct and frequent assessment is considered best practice (National Research Center on Learning Disabilities, 2006)
- Critical considerations:
  - Frequency of implementation fidelity assessments
  - Fidelity assessment findings
  - Remediation efforts for unacceptable levels of fidelity

Ensuring Fidelity

- Proactive Recommendations:
  - Engage in professional development regarding CBM administration procedures
    - Include modeling, coaching, and feedback
  - Continually engage in "refresher" administration sessions

Ensuring Fidelity

- Clearly define personnel responsibilities
- Definitively describe CBM procedures
- Ensure that all materials are easily accessible
- Routinely conduct fidelity checks
- Create a data system for measuring CBM outcomes and implementation fidelity

Ensuring Fidelity

- Create a feedback system for implementation fidelity
- Create accountability measures for non-compliance
- Identify teacher mentors for CBM administration procedures
- Consider soliciting requests for additional support and training from teachers

Ensuring Fidelity

- Creating a system of fidelity checks should occur within a collaborative and positive environment that promotes teacher improvement (National Research Center on Learning Disabilities, 2006)
- Honest and open communication can help a school support its teachers while ultimately improving the RtI model (National Research Center on Learning Disabilities, 2006)

Your Challenge . . . .

Final Considerations

- Does your school have a CBM implementation fidelity system developed and implemented on an ongoing basis?
- Can your school document that it has a CBM implementation fidelity system developed and implemented on an ongoing basis?