Developing and evaluating a K-3 multi-tier reading reform initiative:

The Connecticut K-3 Literacy Initiative

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HILL for Literacy
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Outline of Session:

- Context for CK3LI
- Features of CK3LI Reading Model
- Evaluation of CK3LI Pilot
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Context: Achievement Gap

YEARLY PROGRESS OF READING COMPREHENSION FOR SUCCESSFUL AND STRUGGLING READERS ACROSS GRADES 1, 2, AND 3.
Context

What research tells us about the achievement gap in reading:

- The achievement gap emerges early
- The achievement gap grows more discrepant over time
- The achievement gap is stubbornly resistant to change
- The achievement gap is evident across all areas of literacy
### Context

<table>
<thead>
<tr>
<th>4th Grade Reading Achievement Gap in CT</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor vs. middle- and high-income students</td>
<td></td>
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<tr>
<td>Hispanic vs. white students</td>
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<td>Black vs. white students</td>
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<td>4th Grade Reading Achievement Gap in CT</td>
<td>Rank</td>
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<tr>
<td>-----------------------------------</td>
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</tr>
<tr>
<td>Poor vs. middle- and high-income students</td>
<td>3rd worst</td>
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<tr>
<td>Hispanic vs. white students</td>
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<td>Black vs. white students</td>
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## Context

### 4th Grade Reading Achievement Gap in CT

<table>
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<th>Group Comparison</th>
<th>Rank</th>
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<tr>
<td>Poor vs. middle- and high-income students</td>
<td>3rd worst</td>
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<td>5th worst</td>
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<td>Black vs. white students</td>
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### 4th Grade Reading Achievement Gap in CT

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<td>Black vs. white students</td>
<td>7th worst</td>
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</table>
Context/History

- Comprehensive education reform bill approved with bipartisan support in the legislature and signed into law by Governor Malloy
- Public Act 12-116, *An Act Concerning Educational Reform*
  - Black and Puerto Rican Caucus
  - State Department of Education
CK3LI Goals

1. Focused initial effort in Year 01 on establishing a comprehensive assessment system, identifying students most at risk for reading difficulties, and providing them with intensive small group intervention. *(5 pilot schools)*

2. Full implementation K-3 reading model in Year 02 to incorporate comprehensive classroom reading supports for all students including research based instructional tools and materials, embedded coaching, professional development, data based decision making, and parent engagement. *(5 pilot schools)*

3. Expanded implementation of K-3 reading model in Year 03 across 17 school districts in CT. *(17 expansion schools)*
CK3LI Initial Pilot Schools

- Norris, Langford (East Hartford)
- Windham Center (Windham)
- Burns Latino Studies Academy (Hartford)
- Truman (New Haven)
- John Barry (Meriden)

CK3LI Leadership Team

- **UConn**: George Sugai, Michael Coyne, Ashley Oldham, Mari Cuticelli
- **HILL for Literacy**: Darci Burns
- **Literacy How**: Margie Gillis
Outline of Session:

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RTI/MTSS

Tier 1: Comprehensive & Coordinated Instruction for All Students

~80% of Students

Tier 2: Supplemental Intervention for Students Performing Below Grade Level

~15%

Tier 3: Specialized, Individualized Intervention for Students with Intensive Needs

~5%

CT K-3 Literacy Initiative: CK3LI
Comprehensive School-wide Reading Improvement Model

- School-wide reading improvement plan
- School literacy leadership team
- Comprehensive literacy assessment system
- High quality classroom reading instruction for all students
- Evidence-based supplemental intensive reading interventions
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CT K-3 Literacy Initiative: CK3LI

School Literacy Plan SY13-14

**Priority Goal 1:** Establish a team of literacy leaders with a cohesive knowledge base on the leadership routines necessary to institute evidence-based literacy practices within a tiered instructional model and that will provide on-site facilitation and establish sustainability for the initiative.

**Priority Goal 2:** Collaborate with the school to implement the new core program in a multi-tiered instructional framework.

**Priority Goal 3:** Create a consistent knowledge base and common language among teachers that is based on the overview of reading, current reading research and evidence-based practices in reading instruction and behavior management.

**Priority Goal 4:** Collaborate with the school leaders to establish a framework and process for using scientifically-based dynamic assessments to make instructional decisions at the district, school, grade, classroom and individual student levels.

**Priority Goal 5:** Develop and implement a school-home/family model for student support.
## Activity Timeline

**2013-2014**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time/Hours</th>
<th>Activity/Topic</th>
<th>Materials Needed</th>
<th>Facilitator</th>
<th>Attendees</th>
<th>Goal</th>
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<tr>
<td>8/14</td>
<td>9-2</td>
<td>Literacy Leadership Team Retreat</td>
<td>Calendars Schedules School Literacy Plan Activity Timeline</td>
<td>CK3LI Leadership Team</td>
<td>Literacy Team</td>
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<td>8/15-8/16</td>
<td>8:30-3:00</td>
<td>Summer Teacher Training</td>
<td>TE Training Materials Guide on the Side ECRI templates</td>
<td>Pearson HILL</td>
<td>Teachers</td>
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<td>Week of 9/12</td>
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<td>Disseminate Testing memo</td>
<td>Testing Memo</td>
<td>Coach</td>
<td>Teachers RS, SPED</td>
<td>2</td>
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<td>9/12</td>
<td>9:00-grade 3 9:50-grade 2 12:10-grade 1 1:00-K</td>
<td>Grade Level Implementation Meetings</td>
<td>Reading Street – set up and distribute materials</td>
<td>Katie</td>
<td>Grade Level Teams</td>
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<td>9/12</td>
<td>2:00-3:30</td>
<td>Literacy Leadership Team Meeting</td>
<td>Activity Timeline SLP Distribution of People Resources</td>
<td>Coaches</td>
<td>Team</td>
<td>6-7</td>
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<td>9/26</td>
<td>1:30-3:30</td>
<td>Early Release - Small Group PD</td>
<td>Reading Street Alternate Small Group Plans ECRI Templates Norris Small Groups</td>
<td>Coaches Cathie Callanan</td>
<td>All Teachers</td>
<td>5</td>
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<td>9/16-9/27</td>
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<td>DIBELS Next Testing</td>
<td>Testing Materials Data Entry Forms Stopwatches</td>
<td>Interventionists</td>
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<td>9/16-9/27</td>
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<td>Reading Street Baseline test (grades 2 and 3)</td>
<td>Testing Materials</td>
<td>Interventionists</td>
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<td>9/5—9/19</td>
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<td>SAT 10 Testing</td>
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<td>Teachers</td>
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<td>Data Entry Due Date</td>
<td>Data System</td>
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<td>Week of 10/7</td>
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<td>Data meeting Prep</td>
<td>Data Meeting Docs LCD/Screen Data Reports Workbook</td>
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<td>School-based data leaders</td>
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<td>Completed Data Workbooks DDS Reports</td>
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<td>Grade Level Data Meetings</td>
<td>Data Meeting Docs</td>
<td>Katie</td>
<td>Grade Level Teams</td>
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- School-wide reading improvement plan
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School Leadership Team:

- **Purpose:** Distributed leadership
- **Monthly meetings**
- **Members:**
  - Principal
  - Teachers (SPED, ELL and Regular Ed)
  - Literacy Coach
  - Instructional Assistants
  - Parents
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Developed a comprehensive literacy assessment implementation plan in each school

- Selected an assessment system (CBM: DIBELS) for screening, benchmarking, and progress monitoring that is highly predictive of reading outcomes
• Conducted grade level data meetings with teachers, interventionists and administrators 5x per year.
• Reviewed school level data 3-4x per year during leadership team meeting.
• Reviewed school level data with district leaders 3x per in district leadership team meetings.
### Data Workbooks

- Organize assessment data to identify student needs and to coordinate instruction and intervention

<table>
<thead>
<tr>
<th>Name</th>
<th>Teacher</th>
<th>PSF</th>
<th>NWF</th>
<th>Focus</th>
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<th>Small Group</th>
<th>Tier 2 Program</th>
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<td>Sandra</td>
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<td>on-level</td>
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<td>phonics</td>
<td>on-level</td>
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<td>Ruiz</td>
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<td>strategic</td>
<td>Clark</td>
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<td>James</td>
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<td>basic phonics</td>
<td>strategic</td>
<td>Clark</td>
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<td>Joe</td>
<td>Ruiz</td>
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<td>letter-sound</td>
<td>intensive-EL</td>
<td>Watson</td>
<td>P-EIR 1</td>
<td>Watson</td>
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<tr>
<td>Ben</td>
<td>Ruiz</td>
<td>20</td>
<td>14</td>
<td>letter-sound</td>
<td>intensive-EL</td>
<td>Watson</td>
<td>P-EIR 1</td>
<td>Watson</td>
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<tr>
<td>Abby</td>
<td>Ruiz</td>
<td>10</td>
<td>2</td>
<td>letter-sound</td>
<td>intensive-EL</td>
<td>Watson</td>
<td>P-EIR 1</td>
<td>Diaz</td>
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Tiered Instructional Model

Grades K-3

Tier I
Reading Street + differentiated instruction

- Core whole group instruction
- Differentiated small-group instruction
- Differentiated practice stations

Tier II
Reading Street + differentiated instruction

- Core whole group instruction
- Small group instruction (~6 to a group), 5 days, 30-45 minutes

Tier III
Reading Street + differentiated instruction

- Core whole group instruction & differentiated small-group instruction
- Small group instruction during literacy block 5 x per week, 30-45 minutes
- Additional intervention outside of literacy block (pull-out) 5x per week, 30 minutes

EIR
RAVE-O
Comprehensive School-wide Reading Improvement Model

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Screening data

Tier 2: Supplemental Intervention
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Developed a supplemental intervention implementation plan for each school

- Identified *Proactive Early Interventions in Reading (P-EIR)* as base intervention program
Developed a supplemental intervention implementation plan for each school

- 40-60% of K-3 students at each school received intervention
- Students received 30-45 minutes of small-group intervention per day, 5 days per week
- Intervention was adjusted and differentiated based on ongoing progress monitoring data
- Implementation data suggests that intervention was delivered with high levels of quality, fidelity, and consistency across schools
Systems to Support Practices: Example

Master Academic Schedule

- Maximize opportunities for targeted small group reading instruction and intervention
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Professional Development Topics:

- Model of Reading Development
- Current Reading Research
- Implementing systematic, explicit instruction
- Managing the literacy block
- Behavior management techniques
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Professional Development Sequence

“Stand and Deliver”

Co-Teaching

Observation Walk-through

Embedded Practice

Embedded Practice

Observation Walk-through

Co-Teaching

Co-Teaching
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3. Expanded implementation of K-3 reading model in Year 03 across 17 school districts in CT. *(17 expansion schools)*
Research Questions

• Year 01
  ▪ Does supplemental small-group reading intervention increase the literacy and reading achievement of K-3 students most at risk for reading difficulties?

• Year 02
  ▪ Does the full CK3LI model increase the literacy and reading achievement of all K-3 students?
The Reading Achievement Gap

Pilot Schools
Fall Screening: Kindergarten 2013
(DIBELS First Sound Fluency)

- Students well below beginning of kindergarten benchmark
- Students at or above beginning of kindergarten benchmark

Students well below beginning of kindergarten benchmark
## Participants

<table>
<thead>
<tr>
<th>Grade</th>
<th>Intensive Intervention</th>
<th>Classroom Instruction Only</th>
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<tr>
<td>Kindergarten</td>
<td>114</td>
<td>172</td>
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<tr>
<td>1\textsuperscript{st} Grade</td>
<td>105</td>
<td>170</td>
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<tr>
<td>2\textsuperscript{nd} Grade</td>
<td>129</td>
<td>144</td>
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<tr>
<td>3\textsuperscript{rd} Grade</td>
<td>142</td>
<td>127</td>
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</table>
Year 01 Evaluation

Measures

- Phonemic Awareness
  - DIBELS Phoneme Segmentation Fluency (PSF)
- Letter Knowledge, Decoding
  - WRMT Letter-Sound Subtest
  - DIBELS Nonsense Word Fluency (NWF)
- Reading Fluency
  - DIBELS Oral Reading Fluency (ORF)
- Reading Comprehension
  - DIBELS DAZE
  - WRMT Passage Comprehension Subtest
Regression Discontinuity design

- A regression discontinuity design estimates the causal effect of an intervention by comparing the actual achievement of students who received the intervention with their predicted achievement if they had not received the intervention.
- Using this design, we are able to examine whether reading growth can be attributed to the intervention rather than to other variables (e.g., selection bias, maturation, etc.)
2nd Grade EOY: PSF

2nd Grade Cut Score (DORF < 45; Zero Centered)
Effect Sizes

- Magnitude of the effect of an intervention

<table>
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<th>Effect Size: $d$</th>
<th>Magnitude</th>
<th>Improvement Index</th>
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<tr>
<td>0.25</td>
<td>small/medium</td>
<td>10 percentile points</td>
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<tr>
<td>0.5</td>
<td>medium</td>
<td>20 percentile points</td>
</tr>
<tr>
<td>0.8</td>
<td>large</td>
<td>30 percentile points</td>
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**Improvement Index**: the expected change in percentile rank for an average comparison group student if the student had received the intervention.
# Year 1 Results

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<th>K</th>
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<tr>
<td>DIBELS PSF</td>
<td>.36 (14%)</td>
<td>.05 (2%)</td>
<td>1.01 (34%)</td>
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<tr>
<td><strong>Decoding</strong></td>
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<tr>
<td>DIBELS NWF</td>
<td>.23 (9%)</td>
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<tr>
<td>Letter Sound</td>
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Summary of Findings

- CK3LI students who were identified as experiencing significant reading difficulties and received small group intervention experienced greater reading growth and achievement than they would have if they had not received intervention.

- These findings compare favorably to existing research on effective beginning reading interventions.
Research Questions

• Year 01
  ▪ Does supplemental small-group reading intervention increase the literacy and reading achievement of K-3 students most at risk for reading difficulties?

• Year 02
  ▪ Does the full CK3LI model increase the literacy and reading achievement of all K-3 students?
Participants

- 900 students in grades K-3
  - 40 K-3 classrooms
  - more than 80% of students eligible for free and reduced lunch
  - 66% Hispanic students, 17% Black students, 13% White students, and 4% other race/ethnicity
Participants

- 4 pilot schools from Year 01 & 02
  - 900 students in grades K-3
  - 40 K-3 classrooms
  - more than 80% of students eligible for free and reduced lunch
  - 66% Hispanic students, 17% Black students, 13% White students, and 4% other race/ethnicity
Measures

- Phonemic Awareness
  - DIBELS Phoneme Segmentation Fluency (PSF)
- Letter Knowledge, Decoding
  - WRMT Letter-Sound Subtest
  - DIBELS Nonsense Word Fluency (NWF)
- Reading Fluency
  - DIBELS Oral Reading Fluency (ORF)
Year 02 Evaluation

Design/Analyses

- We compared cohorts of students who entered each grade level during the 2012-2013 school year with cohorts of students who entered the same grade during the 2013-2014 school year

- **2012 – 2013 cohort**: one year of partial implementation
- **2013 – 2014 cohort**: one year of full implementation
- **2014-2015 cohort**: second year of full implementation
Effects of K-3 Reading Model

Benchmark Goal (Spring K) = 40

Phonemic Awareness: PSF

Students (N = 192) entering K in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 217) entering K in 2013 (Full K-3 Implementation)
Effects of K-3 Reading Model

Benchmark Goal (Spring K) = 40

Full Implementation compared to Baseline: Average improvement of 33% (d = .90)

Students (N = 192) entering K in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 217) entering K in 2013 (Full K-3 Implementation)
Effects of K-3 Reading Model

Benchmark Goal (Spring K) = 28

Students (N = 192) entering K in 2012 *(Baseline: Partial K-3 Implementation)*

Students (N = 217) entering K in 2013 *(Full K-3 Implementation)*
Effects of K-3 Reading Model

KINDERGARTEN

1ST GRADE

Full Implementation compared to Baseline:
Average improvement of 21% (d = .54)

Benchmark Goal (Spring K) = 28

Students (N = 192) entering K in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 217) entering K in 2013 (Full K-3 Implementation)
Effects of K-3 Reading Model

Benchmark Goal (Fall 1st) = 40

1st GRADE

2nd GRADE

3rd GRADE

Phonemic Awareness: PSF

Students (N = 169) entering 1st in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 207) entering 1st in 2013 (Year 1 Full K-3 Implementation)

Students (N = 172) entering 1st in 2013 (Year 2 of Full K-3 Implementation)
Phonemic Awareness: PSF

Effects of K-3 Reading Model

Benchmark Goal (Fall 1st) = 40

Full Implementation compared to Baseline: Average improvement of 27% (d = .74)

Students (N = 169) entering 1st in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 207) entering 1st in 2013 (Year 1 Full K-3 Implementation)

Students (N = 172) entering 1st in 2013 (Year 2 of Full K-3 Implementation)
Effects of K-3 Reading Model

Benchmark Goal (Fall 1\textsuperscript{st}) = 40

2nd year of Full Implementation compared to Baseline:
Average improvement of 34\% (d = .99)

Full Implementation compared to Baseline:
Average improvement of 27\% (d = .74)

Students (N = 169) entering 1\textsuperscript{st} in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 207) entering 1\textsuperscript{st} in 2013 (Year 1 Full K-3 Implementation)

Students (N = 172) entering 1\textsuperscript{st} in 2013 (Year 2 of Full K-3 Implementation)
Effects of K-3 Reading Model

Students (N = 169) entering 1st in 2012 (Baseline: Partial K-3 Implementation)
Students (N = 207) entering 1st in 2013 (Year 1 Full K-3 Implementation)
Students (N = 172) entering 1st in 2013 (Year 2 of Full K-3 Implementation)

Benchmark Goal (Fall 2nd) = 58
Effects of K-3 Reading Model

Benchmark Goal (Fall 2\textsuperscript{nd}) = 58

Full Implementation compared to Baseline:
Average improvement of 10\% (d = .24)

Students (N = 169) entering 1\textsuperscript{st} in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 207) entering 1\textsuperscript{st} in 2013 (Year 1 Full K-3 Implementation)

Students (N = 172) entering 1\textsuperscript{st} in 2013 (Year 2 of Full K-3 Implementation)
Effects of K-3 Reading Model

1st GRADE

2nd GRADE

3rd GRADE

Word Reading: NWF-CLS

Benchmark Goal (Fall 2nd) = 58

Full Implementation compared to Baseline:
Average improvement of 10% (d = .24)

2nd year of Full Implementation compared to Baseline:
Average improvement of 18% (d = .47)

Students (N = 169) entering 1st in 2012 (Baseline: Partial K-3 Implementation)

Students (N = 207) entering 1st in 2013 (Year 1 Full K-3 Implementation)

Students (N = 172) entering 1st in 2013 (Year 2 of Full K-3 Implementation)
Year 02 Evaluation

Summary of Findings

- Students who receive the full K-3 Reading Model demonstrate greater literacy growth and achievement than students who do not receive the full K-3 Reading Model.

- The effects of receiving the K-3 Reading Model on early literacy outcomes are educationally meaningful.

- On average, students who receive the full K-3 Reading Model meet important literacy benchmarks earlier than students who do not receive the full K-3 Reading Model.

- Students who receive multiple years of the K-3 Reading Model demonstrate greater literacy growth and achievement than students who receive fewer years of the K-3 Reading Model – so effects are cumulative over time.
“I see a big improvement. In his first school he didn’t like to learn. He didn’t want to go to school. He would cry and chase me down the hall. He’d just say, ‘I don’t know.’ Now he’s excited. He comes home and tells me what he learns every day. He’s constantly trying to read things. Look Daddy...this is what this says.”

Parent of a 1st Grader
“I’m reading bigger words. When it doesn’t make sense, I reread.”  Angelie, grade 2

“My mom and grandma were really worrying about my reading and so was I. Now I’m becoming a better reader and it feels good.”  JT, grade 2

“I like how we stay together as a team, try our best, and I want to be in this reading group forever.”  Derek, grade 1
“I sound out words. I do this at home and school. I’m a good reader now.” Melanie, grade 2

“I got better at reading since working with Mrs. B. I read at bedtime.” Leilani, grade 2

“I was having trouble. I didn’t know how to read hard words. Now I sound them out and I got it. Now...I’m reading even hard words in the books. I feel kinda happy ‘cause I know how to read the hard words.” Thomas, grade 1

“Every time when Mrs. M gives me a book I go home and read it. I like to read now.” Jenalis, grade 2