The Impact of the School Change Framework in Twenty-Three REA Schools

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The Impact of the School Change Framework

In Twenty-Three REA Schools*

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Overview

Today we hear a great deal about the importance of researched-based practices in shaping school improvement efforts in reading (Learning First Alliance, 2000; National Reading Panel Report, 2000; Put Reading First, 2001). This emphasis is understandable because a large body of research identifying what effective schools and accomplished teachers do to promote students' reading growth and achievement does exist (Charles A. Dana Center, 1999; Designs for Change, 1998; Langer, 2000; Lein, Johnson, & Ragland, 1997; Taylor, Pearson, Clark, & Walpole, 2000). For example, the National Reading Panel Report (2000) focused on curricular components of effective reading programs. These included: (a) phonemic awareness instruction, (b) explicit, systematic phonics instruction, (c) repeated oral reading practice with feedback and guidance, (d) direct and indirect vocabulary instruction, and (e) comprehension strategies instruction.

Other research has focused on effective teachers of reading with the idea that "how" we teach may be as important as "what" we teach (Duffy et al., 1987; Pressley et al., 2001; Taylor, Peterson, Pearson, & Rodriguez, 2002). For example, Taylor, Pearson, Peterson & Rodriguez (2003) developed a framework of instruction maximizing

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cognitive engagement in literacy learning through an analysis of teaching behaviors that were correlated to students' growth in reading, and by combining key ideas from the work of Knapp et al. (1995), which stressed teaching for meaning, with the engagement construct of Guthrie et al. (2000). The cognitive engagement framework contains four teaching dimensions: (1) supporting higher-level thinking through both talk and writing about text, (2) encouraging independent use of word-recognition and comprehension strategies during reading activities, (3) using a student-support stance where the teacher is coaching and modeling instead of a primarily teacher-directed stance where the teacher is mostly telling information or conducting recitations, (4) promoting active engagement in literacy activities with every single child reading, writing, sharing with a partner, or manipulating rather that turn-taking. When teachers provided instruction that maximized students' cognitive engagement in literacy activities, they saw relatively high student growth in reading.

A third area of research has examined the characteristics of effective schools and successful reading reform efforts (Taylor, Pressley, & Pearson, 2002). Key elements of effective schools included: (a) improved student learning is a school-wide priority, (b) strong building leadership, (c) strong staff collaboration, (d) ongoing professional development and the implementation of research-based practices, (e) systematic use of student assessment data, and (f) strong school-wide efforts to reach out to parents as partners.

Researchers have told us a great deal about what needs to occur in schools and classrooms for students to achieve, but accomplishing these things is more complicated than simply informing schools of what they must do. For example, it is important for

teachers to collaborate and for schools to develop ownership over their reform efforts (Fullan, 1999; Little, 2002; Newmann, 2002). The School Change Framework (Taylor et al., 2003; 2005) was designed to support schools as they (a) improved their reading program based on local needs, (b) worked collaboratively in their delivery of reading instruction and in their professional development activities, and (c) were informed by research-based knowledge of effective practices related to reading instruction, school reform, effective schools, effective teachers, and parent partnerships.

Initial research on this model in 13 high-poverty elementary schools across the U.S. demonstrated its effectiveness (Taylor, et al, 2005). Through hierarchical linear modeling (HLM) analyses (Raudenbush & Bryk, 2002) of school-level and classroom-level variables, we found that success in implementing the reform explained a substantial proportion of the between-school variance in reading comprehension growth. The teachers in the high reform effort schools used more effective reading instruction practices than teachers in the low reform effort schools and made more research-based changes in their reading instruction. This paper will describe the use of the model by 23 schools in Minnesota participating in the Minnesota Reading Excellence Act (REA) Program. The model is also currently being used with 29 Reading First schools in Minnesota.

Program Components

At the start of the project, teachers learn about effective reading instruction and effective teachers of reading, characteristics of effective schools, and characteristics of effective school improvement. Teachers also learn about the major components of the School Change Framework for reading improvement. It is recommended that there is

buy-in for the use of the framework, with at least 80% of the teachers within a building voting to use the model.

All teachers of reading in schools that decide to use the School Change Framework engage in hour-long study group meetings 3 times a month. Within study groups, teachers learn about and implement research-based reading practices and reflect on and strengthen their reading instruction. The teachers also meet once a month as a whole group to share study group activities and to discuss issues related to the school-wide delivery of reading instruction. As a school and individually, teachers examine data on students' reading abilities as well as data on their teaching of reading and data on school leadership, collaboration, and parent partnerships as pertains to their reading program.

It is recommended that each school have a full time literacy coordinator (or at least a half-time person in this role) and a school leadership team made up of the principal, literacy coordinator, and teacher leaders. It is also recommended that the school hire a 20- 40% time external facilitator to bring outside expertise into the process.

The implementation of the School Change Framework is further described in **Appendix A** and it is also summarized elsewhere (Taylor, Frye, Peterson, & Pearson, 2003; Taylor et al, 2005).

Scaling Up through the Reading Excellence Act Program

In the 2003-2004 school year there were 23 Minnesota schools using the REA/CIERA School Change Framework. Fifteen of these schools were very high poverty schools, with 70-98% of their students on subsidized lunch. Three were high poverty schools with 50-69% of students on subsidized lunch, and five were moderately

high poverty schools with 44-49% of students on subsidized lunch. Fifteen of these schools had moderate to high percentages (20-49%) of ELL students. Fifteen of these schools were in urban school districts, four were in suburban districts, and four were in small town/rural districts.

Student Assessments

All children in grades K-3 in regular education homeroom classrooms were tested in the fall and spring. A table summarizing the tests that were used at each grade level is provided in **Appendix B**.

Tables 1-4 give the mean score by grade for a particular assessment across the 23 schools in Year 1 and 2. We provide an individual school's score for each assessment and for ELL students where applicable. We also include Gates-MacGinitie scores for students who were high, average, or low in the fall in beginning reading (grade 1) or in vocabulary and in comprehension (grades 2 and 3) and their mean scores on the Gates decoding and comprehension (grade 1) or vocabulary and comprehension (grades 2-3) in the spring of Year 2. (High students had an NCE in beginning reading, vocabulary, or comprehension in the fall that corresponded to the 67-99th percentile, average students the 34th-66th percentile, and low students the 1st-33rd percentile.) These scores are in Tables 1-4.

Student Results

Gates-MacGinitie. Looking across years 1 and 2, grade 2 students on average had significantly higher vocabulary and comprehension NCE scores in fall of year 2 than fall of year 1, $\underline{t}(2693) = 2.43$, $\underline{p} = .009$, and $\underline{t}\ (2696) = 2.61$, $\underline{p} = .009$, and made typical growth in reading from fall to spring in year 2. In grade 3, students did not differ

between fall of year 1 and 2 or spring of year 1 and 2 in comprehension or vocabulary. However, students did have significantly higher scores in vocabulary from fall to spring of year1, t (1389) = 12.78, $p < .001$, and year 2, t (1178) = 12.27, $p < .001$, indicating accelerated growth. On average, grade 3 students had the same NCE in comprehension in fall and spring of year 2, indicating typical growth; nevertheless, an area of concern is that students in grade 3 in general were not increasing their reading comprehension scores at an accelerated rate.

In general, low ability students in grades 2 and 3 had accelerated growth on the Gates in vocabulary, $t(567) = 4.13$, $p < .001$ and $t(660) = 12.76$, $p < .001$, and in comprehension, $t(503) = 4.98$, $p < .001$ and $t(570) = 3.85$, $p < .001$, which is excellent. In general, average ability students in grade 2 showed above average growth in comprehension, $t(281) = 3.71$, $p = .005$ and average ability students in grade 3 showed above average growth in vocabulary, $t(310) = 3.81$, $p < .001$, which is also good. An area of concern is with students in the high ability range. High ability students in general decreased in comprehension in grades 2 and 3, $t(271) = -7.65$, $p < .001$, $t(236) = -2.79$, $p = .006$. Students in grade 2 decreased in vocabulary, $t(284) = -6.37$, $p < .001$, but they increased in vocabulary in grade 3, $t(238) = 2.46$, $p = .015$.

In grade 1, students had excellent decoding and comprehension scores on the Gates in the spring on average, with a mean NCE score of 52 in decoding and 49 in comprehension. Furthermore, students showed good growth in reading, on average, since they had a mean NCE Gates score in the fall of 46 on the beginning reading test.

Fluency. On average, students in grades 1-3 made very good progress in fluency. Students started the 2003-04 school year above the national benchmarks of 60 wcpm in

grade 2 and 90 wcpm in grade 3. Also, the mean fall fluency scores were higher than the previous year: in grade 2, 61 versus 58 wcpm (Year 2 vs. Year 1) and in grade 3, 97 versus 92 wcpm (Year 2 vs. Year 1). In spring, students on average also scored at or above national benchmarks of 60, 90, and 115 wcpm (in grades 1, 2, and 3, respectively), and the mean spring scores were higher than the previous year: in grade 1, 59 versus 53 wcpm, in grade 2, 94 versus 92 wcpm, and in grade 3, 116 versus 113 wcpm.

Emergent literacy. In general, students knew 90% of the upper and lower case letter names and 75% of the consonant sounds in spring of kindergarten, which is outstanding. Students had high phonemic awareness scores at the end of kindergarten, with a mean of 6.8 out of 12 correct, and beginning of first grade, with a mean of 6.4 out of 12 correct. In grade 1, the students in the lowest third on the fall Gates had a mean phonemic awareness score of 3.9, and they had a spring wcpm score of 38, Gates decoding NCE of 38 and a Gates comprehension NCE of 36. These are the students who are in need of a sound intervention program in grade 1 that is supplemental to their regular reading instruction. In grade 1, the students in the middle third on the Gates in the fall had a mean phonemic awareness score of 7.5, had a mean wcpm score in the spring of 63, a mean Gates decoding score of 54, and a Gates comprehension score of 51. The students in the highest third on the Gates in the fall had a mean phonemic awareness score of 10.1, had a mean wcpm score in the spring of 97, a mean decoding NCE of 74, and a mean comprehension NCE of 69. Based on the findings by ability, these are students whom we need to be sure are being challenged so that they may meet their full potential and continue to achieve at high levels in grade 2 and 3.

Student assessment results suggest that collectively, REA schools did an outstanding job developing students' fluency in particular. Although progress was made in the areas of comprehension and vocabulary, more work remains to be done.

Classroom Observation Data

On three occasions, we observed all regular classroom teachers in grades K-3 for an hour during reading instruction. In some schools we also observed specialists if they were the main reading teacher for a group of students. The purpose of this observation system is to provide schools and teachers with data related to teaching: their grouping practices, literacy activities, materials, interaction styles, expected student responses to the literacy events, and students' engagement rate. The best benchmarks for interpreting data from a particular school are the means and standard deviations for all the schools on the various aspects of instruction for your grade level (K, 1, 2, 3) and the significant relationships of various practices with students' growth in reading during the year (See Table 9).

Teachers received their observations along with self-reflection questions. Additionally each teacher received a summary of the three observations in September. Teachers were encouraged to interpret this data with help from colleagues to improve classroom reading instruction.

The observer wrote a narrative of what was happening in the classroom, including what the teacher and children were saying and doing, for 5 minutes. Then the observer took a count of the total number of children who appear to be on task out of all the children in the room. Next the observer coded what was happening during the five-minute segment. First, the observer coded who was providing the instruction – typically

the classroom teacher because this is who we were following (level 1), the grouping pattern in use for that segment (level 2), the major literacy category for that segment, such as reading writing, or language (level 3). Then the observer coded the 3-4 most salient literacy activities (level 4 codes) occurring during that 5-minute segment. For every level 4 activity, the materials being used (level 5), the teacher interaction styles being used (level 6), and the expected responses of the students for that literacy activity (level 7) are also coded. An example of a 5-minute observational segment is provided below. The description of each code at each level is provided in **Appendix C** at the end of the report.

Sample of Observational Notes

9:15 Small group of first graders is silently reading a book *The Perfect Pet* at the table. Teacher is listening to one child at a time read aloud softly. S.: "It's a turtle!" T.: "Did you think that when you were reading earlier?" S.: "No, I thought that it was a lizard. And here's a turtle and there is one on the back of the book, too." T.: "Yes, there is. Keep reading." Ss. Continue reading silently. T. listens to another S. When he stops on a word T. says: "That's a hard word. The middle sound is /ou/." S.: "Loud." T.: "You're right." S. continues reading and stops at another word. T.: "The 'i' is saying its name because of the magic e." S.: "Wide." T.: "Right." Ss have finished reading. T.: "What were some of the hints that Mrs. Green gave the children?" S.: "It can get out by itself. It doesn't make noise." T.: "Right, it doesn't make noise, because it was quiet."

5/5 OT (On Task)

Codes	**c/s/r**	**r/n/l/r**	**wr/n/c/or-tt**	**m1/n/r/or-tt**
Levels	**1/2/3**	**4/5/6/7**	**4 /5/6/7**	**4 /5/6/7**

In this example, the Level 1-3 codes c/s/r indicate that the classroom teacher (c) was teaching a small group (s) in the major literacy area of reading (r). The level 4-7 codes r/n/l/r indicates that one literacy activity that was occurring was reading (r) from a narrative text (n), the teacher was listening and giving feedback to students while they read (l), and children were expected to be reading (r). Another literacy activity was the teacher coaching two children in word recognition (wr) as they were reading a narrative text (n), the teacher was coaching (c), and the children were responding orally to the teacher's prompts (or-tt). A third literacy activity was lower level talk about text (m1) from a narrative text (n); the teacher was engaging the children in recitation (r), and the children are taking turns responding (or-tt).

The coding from the observation scheme has good inter-rater reliability. Observers (n=19) received training in how to use the observation scheme and had to be able to score a test passage with at least 80% agreement at all 7 levels of the coding scheme before they could begin observations. A random sample of 10% of all observations was then checked by an expert observer. Initial inter-rater agreement on the observations used in the 2003-2004 school year were as follows: 99% at level 2, 99% at level 3, 77% at level 4, 95% at level 5, 88% at level 6, 84% at level 7. For schools (observers) in which the agreement fell below 80% agreement at a particular level, a second person recoded all observations at that level. A third person resolved differences

between the two sets of codes. The final inter-rater agreement was as follows: 99% at level 2, 99% at level 3, 86% at level 4, 91% at level 5, 88% at level 6, 85% at level 7.

To make the data most meaningful, we collapsed across some variables at a particular level. The variables from the observation codes (or observation categories) that we report on in this paper are explained in **Appendix D**. The observation data by grade level are in Tables 5-8.

Relationships between Students' Growth in Reading and Measures from the Classroom Observations

Within each grade level we used HLM (Raudenbush & Bryk, 2002) to investigate relationships between students' spring reading scores (after controlling for fall scores) and the variables listed in the chart in Appendix D. The significant relationships reflect classroom practices that appeared to have an effect on students' growth in a particular reading measure between the beginning and end of the school year. Below we will report the significant findings. It is important to remember that the findings are correlational, not causal. The results across all grade levels are summarized in **Table 9.** Similar results from the CIERA studies are presented in **Appendix E**.

One way to interpret these data is to look at the mean scores and standard deviations for teacher practices for all schools in grade K (Table 5), grade 1 (Table 6), grade 2 (Table 7) or grade 3 (Table 8). If a particular practice is positively related to reading achievement, but a school falls below the mean for all schools, teachers may wish to engage in professional development activities that might increase the frequency of the practice. In contrast, if a particular practice is negatively related to achievement, but a school is above the mean for all schools, teachers may wish to decrease (but not eliminate) the prevalence of the practice. In fact, targets for positive behaviors might be

a standard deviation above the mean while targets for negatively associated behaviors might be one standard deviation below the mean.

Kindergarten. Teaching comprehension strategies was positively related to growth in spring letter sound scores and to phonemic awareness scores, adjusted for fall letter sound scores. A high level of phonemic awareness instruction was negatively related to spring phonemic awareness scores, after accounting for fall letter sound scores, and negatively related to spring letter name scores, after accounting for fall scores. While this may seem puzzling, it is actually compatible with the NRP report finding that 5-20 hours of phonemic awareness was sufficient.

A supplementary analysis of the REA observations of instruction that were particularly high in phonemic awareness activities revealed that most of the instruction was in rhyme and alliteration (beginning sounds). This suggests that too much emphasis on phonemic awareness instruction other than phoneme blending and segmentation may not be beneficial to students' development in this area.

Coaching was positively related to spring phonemic awareness scores (after accounting for fall letter sound scores) and spring letter sound scores (after accounting for fall letter sound scores). Telling was negatively related to growth in letter name knowledge,

The percent of ELL students in a school was negatively related to growth in phonemic awareness but not growth in letter sound or letter name scores. Poverty (as measured by the percent of students on subsidized lunch) was not related to students' growth in phonemic awareness or letter sounds, and only nominally related to growth in letter names. Reflection on practice based on the K-3 interviews and the school

effectiveness rubric was positively related to students' growth in phonemic awareness. (See Tables 10-12.)

Grade 1. Having a sufficient amount of time for whole group/large group instruction was positively related to students' growth in reading comprehension (Gates), and decoding (Gates). This finding suggests that it is important to have a balance between large and small group reading instruction. Similar findings are reported for grades 2-3.

A high level of comprehension strategies instruction was positively related to growth in comprehension (Gates). A high level of rote comprehension skill practice was negatively related to students' growth in comprehension, decoding (Gates), and fluency.

A high level of coaching was positively related to students' growth in decoding (Gates). A high level of recitation was negatively related to students' growth in fluency. A high class mean for time on task was positively related to students' growth in fluency.

Poverty, but NOT percent of ELL students, was negatively related to students' growth in comprehension and fluency. However, poverty and percent of ELL students were negatively related to students' growth in vocabulary. Reflection on instruction was positively related to students' growth in fluency. (See Tables 13-15.)

Grades 2-3. A sufficient amount of whole/large group instruction was positively related to students' growth in comprehension (Gates) and vocabulary (Gates). A very high level of small group instruction was negatively related to students' growth in fluency. Again, as was pointed out in the section on grade 1 results, students need a good balance between whole and small group instruction.

A high level of higher level questioning was positively related to growth in comprehension (Gates). A relatively high level of phonics instruction was negatively related to growth in comprehension (Gates), vocabulary (Gates), and fluency. A relatively high level of comprehension strategies instruction was positively related to growth in fluency.

A relatively high level of telling was positively related to students' growth in vocabulary. However, a relatively high level of recitation was negatively related to growth in vocabulary.

Poverty, but NOT percent of ELL students, was negatively related to students' growth in comprehension and fluency. Poverty and school ELL status were negatively related to students' growth in vocabulary. An increase in reform effort score was positively related to students' growth in comprehension (Gates). (See Tables 16-18.)

Discussion of grade K-3 grouping practices. In grades 1-3 students saw more growth in comprehension and vocabulary in classrooms in which whole group instruction was observed from 30-60 percent of the time. In grades 2-3, students saw the least growth in fluency in classrooms in which small group instruction was observed from 90-100 percent of the time. These data suggest that in grades 1-3, students benefit from reading blocks in which whole group and small group instruction are balanced. If a teacher is only observed providing small group instruction and in fact, this is typically what occurs in her classroom, it may be the case that students are not productively engaged in literacy activities all of the time they are working at their seat or in centers while the teacher is with small groups.

Discussion of grade K-3 instructional activities. In grades 2 and 3, a high incidence of higher level questioning was related to students' comprehension and vocabulary growth. This finding is very consistent with Knapp (1995) and CIERA research findings (Taylor & Pearson, 2004). High level questioning is an important factor to consider when focusing on the improvement of classroom reading instruction to improve students' reading achievement.

In grade 1, a high incidence of comprehension skill instruction was negatively related to students' reading growth. One interpretation is that low level mentioning of or drilling on comprehension skills does little to challenge students and thus takes valuable time away from more useful instruction. On the other hand, a relatively high level of comprehension strategy instruction was positively related to reading growth in grades K-3. This finding is compatible with the NRP Report (2000).

A high level of phonics instruction was not useful in grades 2-3. This finding is compatible with findings reported in the National Reading Panel Report (2000). Also, a high level of phonics instruction was found to be negatively related to reading growth in grades 2-5 in the CIERA School Change studies (Taylor, et al., 2003). Findings suggest that teachers in grades 2-3 must be selective in terms of the amount of explicit phonics instruction needed for different students. Students who can read on at least a mid-second grade level will probably need relatively little explicit phonics instruction. It is recommended that most phonics instruction occur in grades K-1 (NRP, 2000).

In kindergarten, students showed less growth in phonemic awareness in classrooms of teachers at the high end of the continuum for frequency of phonemic

awareness instruction (e.g., 25-35% of the time). Phonemic awareness instruction is important, but so is balance.

Discussion of grade K-3 teacher and student actions. A high level of recitation was negatively related to students' fluency growth in grade 1 and students' vocabulary growth in grades 2-3. On the other hand, coaching was positively related to growth in decoding in grade 1 and phonemic awareness and letter sound knowledge in kindergarten. A high incidence of students on task was positively related to students' growth in fluency in grade 1.

One somewhat surprising finding is that a reasonably high amount of telling (e.g., 50-70 percent of the time), was positively related to vocabulary growth in grades 2-3. However, when focusing on Tier 2 words (Beck, McKeown, & Kucan, 2002), it makes sense that the teacher does need to provide students with information about these words (e.g., tell them). At the same time, it is important to bear in mind that recitation was negatively related to grade 2-3 students' vocabulary growth. Results do not say that a teacher should refrain from engaging in recitation. However, results suggest that if a teacher operates in a very top-down or heavily teacher-directed manner, indicated by engaging in too much recitation or telling, children may not be actively engaged in their learning and their reading growth may suffer. Shifting on the continuum from a heavily teacher-directed stance towards a more student-support stance (e.g., modeling, coaching, watching and giving feedback) may be a profitable way for some teachers to enhance their students' reading growth. Also, teachers are encouraged to look at their data on active versus passive responding and consider shifting towards more instructional activities in which students are actively engaged in their learning.

We have known for a long time that high pupil engagement is an important factor for maximizing student learning, so the findings in the present study are not especially newsworthy. Hopefully, however, teachers can use the data in the tables on instructional practices (Tables 5-9) to gauge whether pupil time on task is a factor they need to work on in their own classrooms.

Discussion of grade K-3 materials. Across all grades, the use of informational text was seldom observed. In contrast, narrative text was coded with great regularity. A similar finding on the low usage of informational texts was recently reported by Duke (2000) in a study of first grade classrooms. Increased use of informational text during reading instruction, especially in grades 2 and 3, is an option some teachers may wish to consider.

Time Spent on Reading/Language Arts Instruction

On average, REA schools spent a mean of 100-116 minutes on reading instruction (depending on the grade) and a mean of 37-43 minutes on language arts. Also, schools increased their time spent on reading instruction from Year 1 to Year 2 (See Table 19). Specifically, time for reading instruction increased on average by 9 minutes at kindergarten, 10 minutes at grade 1, 4 minutes at grade 2, and 8 minutes at grade 3. In the CIERA Beating the Odds study (Taylor, et al, 2000), the most effective schools spent more time on reading instruction (M=134 minutes a day) than the moderately and least effective schools (M=113 minutes a day).

An Example of Effective Reading Practices

One limitation of quantitative analyses is that these results can seem distant from the real life work of classroom teachers. To offer a clearer picture of what effective

reading practices look like in a classroom, we describe a teacher who consistently applies the practices identified as positive by the quantitative analyses. Mr. Larson (all names are pseudonyms) is a kindergarten teacher in a school that has been participating in the School Change Framework for the past two years. His school is in a large metropolitan area in Minnesota and is a very high poverty school. This year Mr. Larson has 21 children in his full-day kindergarten class and one third of the children do not speak English as a first language. On the day previous to the observed lesson, Mr. Larson read the book *Geraldine's Big Snow* by Holly Keller to his students. He explained that they would be talking about a big theme from the story—anticipation. The class then completed a vocabulary word map for the word "anticipate" to help develop the students understanding of the word's meaning. Synonyms the children gave for "anticipate" were "be excited about," "look forward to," "hopeful or eager," and "want to happen." Each child then wrote a sentence about something he or she anticipated and drew a picture of that event or activity. The next day, Mr. Larson began the lesson by reminding students of the big theme and the meaning of the word "anticipate." He explicitly stated the purpose of reading the book and making connections between the story and the students' lives, "Our purpose is to construct meaning from the story; what it means to anticipate something. We're going to do this by stopping along the way to ask and answer questions. Good readers do this to gain meaning. Just reading the words is not enough. We need to know what the story is about. We also want to make connections to our own lives. We will do this by doing a Think-Pair-Share and then we'll be writing in response to the story." An example of the higher level questions that Mr. Larson asked to help the students make a connection between the story and their lives was, "In the story, Mr.

Peters wants to read a lot of books during the big snow. What would you like to do during a big snow and why would you want to do that?" Mr. Larson gave the children time to think about the question and then he asked them to turn to a partner to share their responses. This involved the children in active responding where every child got a chance to share instead of only calling on one or two students for a response. While the children were talking in pairs, Mr. Larson walked around and coached children to elaborate upon their answers. For example, one boy shared that he would like to make a snow fort and snowballs in the big snow. Mr. Larson asked him, "Why do you think this would be fun?" The student responded with a more detailed response, "I would build a humongous snow fort so I could hide and throw snowballs at my brother and smack him!" Following the read aloud, Mr. Larson told the group that they would be writing about an activity that they anticipated. They would need to describe the activity by saying when and where it happened, who was there, and what they hoped would happen. They would also write about what they were feeling during the activity and explain why they felt that way. Then Mr. Larson explicitly demonstrated and modeled how he would respond to that question. He said he was going to do a "think aloud" to help them see how he would organize his thoughts before writing. Mr. Larson talked about how he had anticipated adopting his son, and how he was feeling as he prepared for parenthood. He specifically modeled how he would elaborate on his ideas to give the reader more details. He also modeled how to reread the question to make sure he was answering all parts of the question. He then had children Think-Pair-Share as a pre-writing activity. Children who were able to start writing without assistance were dismissed to their seats while a small group of children who needed more help with writing were asked to join Mr.

Larson at his table. In the small group, Mr. Larson continued to coach students to write more and elaborate on their thoughts. For example, one girl said she was really happy. Mr. Larson asked her, "What were you happy about?" She responded, "I was happy that my dad was going to bake a cake." After she had written that sentence, Mr. Larson asked her, "Why was your dad baking a cake? Was it for a special occasion?" She elaborated on her response by describing her brother's birthday and what they had done to prepare for that special event. After the students who needed more support were all writing, Mr. Larson walked around the room to coach and give feedback to the students who were writing independently. He encouraged all students to use the tools that were available around the room to help them with their writing. These tools included: the Word Wall with high frequency words and sight words, a quality work rubric that the class had developed so children could self-check their work, short vowel charts, alphabet letter and sound boards, and student dictionaries. For example, when a child asked for help writing the word "friends," Mr. Larson asked him, "Where can you find the word 'friends'?" The child then went to look at the word wall. When students asked how to spell words, Mr. Larson would encourage them to say the word slowly and to write the sounds they heard. All students wrote multiple sentences about the activity they anticipated and they concluded the lesson by reading their responses to three peers in the classroom. This lesson demonstrates a balance between whole and small group instruction, higher level questioning with both talking and writing about text, active responding, and teacher coaching and modeling.

Findings on Teachers' Perceptions of School Level Characteristics

Interviews. The teachers who participated in the data collection were interviewed for a half hour in the fall and spring. From the interviews we focused on teachers' perceptions related to the following school-level practices found to be related to effective schools (Fullan, 1999; Louis, & Kruse, 1995; Taylor et al, 2000):
1) collaboration among teachers in the delivery of reading instruction, 2) ongoing professional development efforts within buildings, 3) reflection on teaching, 4) school leadership shared across the principals and teachers, 5) partnerships with parents, and
6) use of regular assessments to inform instruction. The criteria considered to rate schools from 0-3 (low-high) on these 6 factors and the scores are presented in Table 11. Each school set of interviews was scored by one of seven people. A second person scored a random 10% of the interviews. The inter-rater agreement was 94%.

From the interviews we found that the mean composite school effectiveness rating did not significantly change from Year 1 to Year 2. However, higher ratings of staff reflection on and change in instruction were positively related to students' fluency growth in grade 1 and phonemic awareness growth in kindergarten (See Tables 10 and 15.)

Reform Effort

The notes from study group meeting and actions plans, as well as information from the interviews, were used to determine which aspects of the REA/CIERA School Change Framework were being implemented within schools. A composite scale was created on 10 aspects of the reform (e.g., meeting in study groups an hour a week on average, having cross-grade study groups, reflecting on instruction and student work in study groups, referring to research-based practices in study groups, being guided by an action plan, sticking with substantive topics for several months or longer, sharing in large groups once

a month, effectively using the expertise of an external facilitator, having an effective internal leadership team developing parent partnerships). See Table 12 for school data on the reform effort and the reform rubric. Each school's set of artifacts was scored by one of seven people. A second person scored all schools' sets of artifacts. The inter-rater agreement was 93%.

For most of the 10 dimensions of the reform effort, scores stayed the same or increased slightly from Year 1 to Year 2. The increase from 75 to 96% of schools meeting regularly in study groups and a mean reform effort score of 7.1 are commendable.

Schools in this project had an easier time meeting weekly in study groups, meeting in cross-grade study groups, meeting once a month in a large group to share across study groups to deal with school-wide issues related to the reform effort, sticking with substantive study group topics over time, and effectively using their external facilitator as a resource. Schools were having less success with reflecting on instruction in study groups, being guided by their action plans, or with achieving effective use of their internal leadership team. Also, about half the schools had not yet turned to the reform component of working with parents as partners.

Hierarchical linear modeling revealed that a school's positive increase in reform effort score from Year 1 to Year 2 was positively related to grade 2-3 students' growth in comprehension (Gates) in Year 2. This finding indicates that schools that worked the hardest to improve their reform effort score saw the most growth in students' reading comprehension in Year 2. (See Table 16.)

Growth curve analysis was conducted to look at the impact of reform effort across the two years of the REA project. (See Table 22). On average looking across grades 1-3,

students grew in comprehension across the two years, but at the same time grade was negatively related to comprehension scores. On average, across grades 1-3, the mean NCE in comprehension was 41.8 in fall of Year 1 with a mean growth of 2.2 NCEs per time point but with grade negatively related to students' score (with -1.0 NCEs times grade per time point). Also, the analysis revealed that reform effort made an additional significant contribution to students' growth in comprehension scores across the two years. That is, the schools that did a better job of implementing the School Change Framework in Year 2 saw accelerated growth in students' reading comprehension scores. Forty-six percent of the variance in slope (e.g., growth in comprehension across 2 years) was between schools and reform effort accounted for 20 percent of this variance. For every 1 point increase in the reform effort score, a schools' mean NCE increase beyond the average increase was .51 NCEs per time point, or 1.53 NCEs per one point increase in reform effort score across the 2 years. Similar findings on the impact of reform effort were reported in a national study of the School Change Framework (Taylor, Pearson, Peterson, & Rodriguez, 2005) that also looked across two years of implementation.

One of the most powerful indications of the effects of the School Change Framework is the comments that teachers and administrators make about the changes they see in their schools because of the reform effort. One teacher stated, "Communication and collaboration have increased 100% since starting the grant. Observation feedback and attending study groups has been wonderful. I feel that I have improved my teaching skills tremendously. I always thought I was a good teacher, but now I know that I have improved when I see what my students are doing. I feel good about what is happening at our school." A teacher at another school confirmed this sentiment by saying, "REA has

seriously changed the way we are teaching and we see kids engaged in ways we have never seen before. I get so many good ideas from people I wish it could continue." Another teacher at a third school remarked, "Nobody is scared to ask for help and nobody looks down on anyone asking for help. There is so much talking among teachers, sharing of ideas, working on problems. There's a lot of positive feedback. Many teachers will never teach reading the same as prior to this."

In follow-up interviews a year after the completion of the grant, we hear responses like: "I made monumental changes. I do more high level thinking questions, more coaching and modeling rather than telling. I think that my expectations for the children increased; I raised the bar…What I learned is a part of ALL of my instruction, not just my reading instruction…The School Change Project made a huge difference in respect to our expectations of the children and our collaboration across grade levels."

Important aspects transparent in these teachers' comments are the reflection on and improvement of teaching, increased expectations for students and delight with increased student success, the concept of "we" not just "I," and the idea that what teachers have learned will stay with them for the rest of their teaching careers.

Conclusions

Results of these analyses suggest that higher-level comprehension instruction, including both higher level talk and writing about text and comprehension strategies instruction, is an important aspect of reading instruction. Teachers in schools which are falling below the mean in terms of asking higher level questions and in teaching comprehension strategies should consider increasing this focus on higher level

comprehension in their classrooms, with support coming from participation in a study group on one of these topic.

The School Change Framework for Reading Improvement was effective in Minnesota REA schools. Almost all schools saw growth in students' reading scores, and those schools that did a better job of implementing the School Change Framework was accelerated growth. Importantly, this finding on the effectiveness of the School Change Framework within a school leading to accelerated reading growth replicates a finding from an earlier study (Taylor et al, 2005).

Essential components of this reading reform model include a high degree of teacher buy-in to implement the reform; use of data on students' reading and teachers' teaching to guide the reform effort; and a constant effort by all teachers to reflect on and improve reading instruction and to come together as a school community. Schools need to keep the focus on teaching reading well rather than on jumping from one hot topic to another or looking for the silver bullet.

Change is a long, slow process. All who are involved need to keep the faith and remain patient and supportive of one another through the natural ups and downs of a reform effort. School leaders need to help school members maintain commitment and perseverance. But by working together and providing excellent teaching throughout a school, almost ALL students can become good readers and thinkers. It is particularly exciting to see this happening in high poverty schools where we have a moral imperative to make a substantial, positive difference in children's lives.

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Table 1

Summary of Year 1 and 2 Student Scores Grade: K

		Letter Names (total = 52)	Letter Sounds (total = 23)	Phonemic Awareness (total = 12)
All Schools Fall – Year One	**M**	**27.57**	**5.27**	
	(SD)	**(17.49)**	**(6.00)**	
	N	**1302**	**1302**	
All Schools Spring – Year One	**M**	**45.07**	**16.66**	**6.12**
	(SD)	**(10.99)**	**(5.57)**	**(4.32)**
	N	**1302**	**1302**	**935**
All Schools Fall – Year Two	**M**	**30.27**	**6.37**	
	(SD)	**(17.54)**	**(6.30)**	
	N	**1160**	**1153**	
All Schools Spring – Year Two	**M**	**47.51**	**17.49**	**6.78**
	(SD)	**(8.56)**	**(4.83)**	**(4.42)**
	N	**1160**	**1160**	**1252**

Table 2

Summary of Year 1 and 2 Student Scores Grade: 1

		Dibels Letter Names	Letter Sounds (total = 23)	Phonemic Awareness (total = 12)	WCPM (spring target)*= 60)	Spring Retelling Scores**	Gates Decoding NCE	Gates Comp. NCE
All Schools Fall – Year One	**M (SD) N**	**34.98 (17.29) 1417**	**16.25 (5.19 1417**	**5.45 (4.13) 1417**				
All Schools Spring – Year One	**M (SD) N**				**53.01 (34.50) 1361**	**2.41 (0.85) 181**	**50.21 (20.19) 1364**	**47.85 (20.43) 1366**
All Schools Fall – Year Two	**M (SD) N**	**44.24 (27.13) 1409**	**16.73 (5.26) 1409**	**6.38 (4.29) 1409**				
All Schools Spring – Year Two	**M (SD) N**				**58.75 (35.84) 1383**	**2.59 (0.74) 195**	**51.92 (20.91) 1228**	**49.20 (20.07) 1228**

*Johns, J.C., & Berglund, R.L. (2005). Fluency strategies and assessment, 2nd edition. Dubuque, IA: Kendall Hunt.

**Score goes from 1 (low) to 4 (high). Based on a random sample of students who could decode at 90% accuracy or greater.

Table 3

Summary of Year 1 and 2 Student Scores Grade: 2

		Words Correct per Minute (spring target = 90)*	Spring Retelling Scores**	Gates Vocabulary - NCE	Gates Comprehension - NCE
All Schools Fall – Year One	**M (SD) N**	**58.08 (37.70) 1285**		**42.26 (19.70) 1218**	**42.57 (20.05) 1220**
All Schools Spring – Year One	**M (SD) N**	**91.79 (38.42) 1285**	**2.69 (0.80) 256**	**42.97 (19.27) 1218**	**44.52 (19.62) 1220**
All Schools Fall – Year Two	**M (SD) N**	**61.38 (37.25) 1143**	**2.38 (0.70) 237**	**44.27 (20.25) 1149**	**44.85 (20.53) 1147**
All Schools Spring – Year Two	**M (SD) N**	**93.62 (37.53) 1143**	**2.66 (0.71) 237**	**43.94 (19.54) 1149**	**45.32 (20.63) 1147**

*Johns, J.C., & Berglund, R.L. (2005). Fluency strategies and assessment, 2nd edition. Dubuque, IA: Kendall Hunt.

**Score goes from 1 (low) to 4 (high). Based on a random sample of students who could decode at 90% accuracy or greater.

Table 4

Summary of Year 1 and 2 Student Scores Grade: 3

		Words Correct per Minute (Spring target = 110)**	Spring Retelling Scores*	Gates Voc. - NCE	Gates comp - NCE
All Schools Fall – Year One	**M** **(SD)** **N**	**91.93** **(37.95)** **1361**		**38.12** **(20.48)** **1367**	**42.01** **(18.64)** **1368**
All Schools Spring – Year One	**M** **(SD)** **N**	**112.61** **(39.31)** **1361**	**2.64** **(0.79)** **278**	**42.49** **(20.48)** **1367**	**43.97** **(20.28)** **1368**
All Schools Fall – Year Two	**M** **(SD)** **N**	**96.58** **(38.94)** **1170**	**2.52** **(0.80)** **357**	**40.13** **(20.77)** **1178**	**43.81** **(18.86)** **1179**
All Schools Spring – Year Two	**M** **(SD)** **N**	**115.96** **(38.79)** **1170**	**2.87** **(0.82)** **357**	**44.17** **(21.35)** **1178**	**44.19** **(20.63)** **1179**

*Johns, J.C., & Berglund, R.L. (2005). Fluency strategies and assessment, 2nd edition. Dubuque, IA: Kendall Hunt.

**Score goes from 1 (low) to 4 (high). Based on a random sample of students who could decode at 90% accuracy or greater.

Table 5

Observation Data by Grade Level **Grade: K**

Variable		All REA Schools Year 1 N=74	All REA Schools Year 2 N=71
Large Group*	**M (SD)**	**0.60 (0.31)**	**0.47 (0.30)**
Small Group*	**M (SD)**	**0.37 (0.32)**	**0.51 (0.30)**
Phonemic Awareness**	**M (SD)**	**0.21 (0.18)**	**0.16 (0.17)**
Phonics**	**M (SD)**	**0.23 (0.28)**	**0.47 (0.27)**
Word Recognition Strategies**	**M (SD)**	**0.09 (0.11)**	**0.13 (0.15)**
Low Level Text Comprehension**	**M (SD)**	**0.27 (0.18)**	**0.28 (0.20)**
High Level Text Comprehension**	**M (SD)**	**0.12 (0.17)**	**0.17 (0.15)**
Comprehension Skill**	**M (SD)**	**0.15 (0.14)**	**0.19 (0.18)**
Comprehension Strategy**	**M (SD)**	**0.03 (0.06)**	**0.08 (0.13)**
Vocabulary**	**M (SD)**	**0.16 (0.17)**	**0.16 (0.16)**
Reading Text**	**M (SD)**	**0.21 (0.19)**	**0.28 (0.18)**
Narrative Text*	**M (SD)**	**0.40 (0.19)**	**0.48 (0.22)**
Informational Text*	**M (SD)**	**0.03 (0.07)**	**0.07 (0.11)**
Telling*	**M (SD)**	**0.46 (0.22)**	**0.48 (0.22)**
Recitation*	**M (SD)**	**0.72 (0.17)**	**0.78 (0.16)**
Coaching*	**M (SD)**	**0.17 (0.16)**	**0.22 (0.20)**
Modeling*	**M (SD)**	**0.15 (0.14)**	**0.10 (0.14)**
Watching/giving Feedback*	**M (SD)**	**0.44 (0.19)**	**0.46 (0.21)**
Active Responding****	**M (SD)**	**0.41 (0.10)**	**0.41 (0.10)**
Passive Responding****	**M (SD)**	**0.59 (0.10)**	**0.59 (0.10)**
Time on Task*****	**M (SD)**	**0.92 (0.06)**	**0.94 (0.07)**

*Percent of time (5-minute segments) coded **Percent of all reading segments coded

Percent of all codes for teacher interaction * Percent of all codes for student responding

***** Mean time on task count (every 5 min

Table 6

Observation Data by Grade Level **Grade: 1**

Variable		All REA Schools Year 1 N=73	All REA Schools Year 2 N=90
Large Group*	M (SD)	0.53 (0.33)	0.35 (0.32)
Small Group*	M (SD)	0.43 (0.24)	0.62 (0.31)
Phonemic Awareness**	M (SD)	0.07 (0.08)	0.03 (0.05)
Phonics**	M (SD)	0.37 (0.27)	0.26 (0.21)
Word Recognition Strategies**	M (SD)	0.15 (0.15)	0.22 (0.17)
Low Level Text Comprehension**	M (SD)	0.33 (0.21)	0.31 (0.22)
High Level Text Comprehension**	M (SD)	0.15 (0.14)	0.26 (0.21)
Comprehension Skill**	M (SD)	0.16 (0.16)	0.22 (0.18)
Comprehension Strategy**	M (SD)	0.07 (0.09)	0.15 (0.17)
Vocabulary**	M (SD)	0.23 (0.36)	0.21 (0.14)
Reading Text**	M (SD)	0.39 (0.20)	0.42 (0.19)
Narrative Text*	M (SD)	0.47 (0.24)	0.64 (0.22)
Informational Text*	M (SD)	0.03 (0.09)	0.06 (0.12)
Telling*	M (SD)	0.53 (0.22)	0.50 (0.21)
Recitation*	M (SD)	0.73 (0.15)	0.75 (0.18)
Coaching*	M (SD)	0.27 (0.48)	0.28 (0.22)
Modeling*	M (SD)	0.08 (0.10)	0.09 (0.10)
Watching/giving Feedback*	M (SD)	0.52 (0.20)	0.51 (0.20)
Active Responding****	M (SD)	0.39 (0.08)	0.39 (0.09)
Passive Responding****	M (SD)	0.61 (0.08)	0.61 (0.09)
Time on Task*****	M (SD)	0.91 (0.08)	0.94 (0.06)

*Percent of time (5-minute segments) coded
**Percent of all reading segments coded
***Percent of all codes for teacher interaction
**** Percent of all codes for student responding
***** Mean time on task count (every 5 min

Table 7

Observation Data by Grade Level Grade: 2

Variable		All REA Schools Year 1 N=68	All REA Schools Year 2 N=78
Large Group*	**M**	**0.50**	**0.29**
	(SD)	**(0.33)**	**(0.27)**
Small Group*	**M**	**0.47**	**0.66**
	(SD)	**(0.32)**	**(0.28)**
Phonemic Awareness**	**M**	**0.03**	**0.01**
	(SD)	**(0.06)**	**(0.02)**
Phonics**	**M**	**0.18**	**0.09**
	(SD)	**(0.20)**	**(0.13)**
Word Recognition Strategies**	**M**	**0.14**	**0.18**
	(SD)	**(0.15)**	**(0.17)**
Low Level Text Comprehension**	**M**	**0.37**	**0.33**
	(SD)	**(0.22)**	**(0.23)**
High Level Text Comprehension**	**M**	**0.21**	**0.34**
	(SD)	**(0.25)**	**(0.24)**
Comprehension Skill**	**M**	**0.18**	**0.23**
	(SD)	**(0.20)**	**(0.22)**
Comprehension Strategy**	**M**	**0.07**	**0.14**
	(SD)	**(0.13)**	**(0.15)**
Vocabulary**	**M**	**0.30**	**0.29**
	(SD)	**(0.20)**	**(0.17)**
Reading Text**	**M**	**0.41**	**0.45**
	(SD)	**(0.23)**	**(0.21)**
Narrative Text*	**M**	**0.53**	**0.63**
	(SD)	**(0.21)**	**(0.21)**
Informational Text*	**M**	**0.07**	**0.16**
	(SD)	**(0.10)**	**(0.20)**
Telling*	**M**	**0.51**	**0.49**
	(SD)	**(0.19)**	**(0.20)**
Recitation*	**M**	**0.71**	**0.73**
	(SD)	**(0.19)**	**(0.19)**
Coaching*	**M**	**0.19**	**0.25**
	(SD)	**(0.17)**	**(0.22)**
Modeling*	**M**	**0.06**	**0.05**
	(SD)	**(0.08)**	**(0.08)**
Watching/giving Feedback*	**M**	**0.55**	**0.52**
	(SD)	**(0.19)**	**(0.20)**
Active Responding****	**M**	**0.38**	**0.36**
	(SD)	**(0.10)**	**(0.10)**
Passive Responding****	**M**	**0.62**	**0.64**
	(SD)	**(0.10)**	**(0.10)**
Time on Task*****	**M**	**0.91**	**0.93**
	(SD)	**(0.07)**	**(0.06)**

*Percent of time (5-minute segments) coded **Percent of all reading segments coded
Percent of all codes for teacher interaction * Percent of all codes for student responding
***** Mean time on task count (every 5 min

Table 8

Observation Data by Grade Level Grade 3

Variable		All REA Schools Year 1 N=64	All REA Schools Year 2 N=78
Large Group*	M (SD)	0.61 (0.30)	0.31 (0.32)
Small Group*	M (SD)	0.35 (0.32)	0.63 (0.34)
Phonemic Awareness**	M (SD)	0.01 (0.03)	0.01 (0.02)
Phonics**	M (SD)	0.07 (0.16)	0.06 (0.13)
Word Recognition Strategies**	M (SD)	0.07 (0.11)	0.11 (0.12)
Low Level Text Comprehension**	M (SD)	0.43 (0.29)	0.34 (0.24)
High Level Text Comprehension**	M (SD)	0.28 (0.21)	0.38 (0.26)
Comprehension Skill**	M (SD)	0.21 (0.20)	0.28 (0.19)
Comprehension Strategy**	M (SD)	0.10 (0.13)	0.17 (0.20)
Vocabulary**	M (SD)	0.30 (0.19)	0.26 (0.16)
Reading Text**	M (SD)	0.33 (0.19)	0.38 (0.19)
Narrative Text*	M (SD)	0.52 (0.23)	0.63 (0.23)
Informational Text*	M (SD)	0.12 (0.15)	0.14 (0.18)
Telling*	M (SD)	0.51 (0.20)	0.50 (0.21)
Recitation*	M (SD)	0.73 (0.16)	0.74 (0.17)
Coaching*	M (SD)	0.18 (0.18)	0.22 (0.20)
Modeling*	M (SD)	0.04 (0.06)	0.04 (0.06)
Watching/giving Feedback*	M (SD)	0.49 (0.19)	0.48 (0.22)
Active Responding****	M (SD)	0.33 (0.11)	0.35 (0.10)
Passive Responding****	M (SD)	0.67 (0.11)	0.65 (0.10)
Time on Task*****	M (SD)	0.91 (0.09)	0.92 (0.08)

*Percent of time (5-minute segments) coded **Percent of all reading segments coded
Percent of all codes for teacher interaction * Percent of all codes for student responding
***** Mean time on task count (every 5 min

Table 9

Summary of REA Year 2 Findings

Grade 2-3		Classroom Factors	School Factors
Comp NCE	19 % of variance was between teachers, 23%was between schools	**Whole Group +** **Phonics –** **High Level Questions +** - accounting for 22% of the variance between teachers	**Poverty –** **Reform Effort Change** – accounting for 86% of the variance between schools
Voc NCE	20% of variance was between teachers, 34% was between schools	**Whole Group +** **Telling +** **Recitation –** **Phonics –** **High Level Questions +** accounting for 35% of the variance between teachers	**Poverty –** **ELL -** - accounting for 90% of the variance between schools
WCPM	48% of variance was between teachers(after accounting for grade), 14% was between schools	**Grade +** **Small Group -** **Phonics –** **High Level Questions +** **Comprehension Strategies +** Accounting for 42% of the variance between teachers	**Poverty –** Accounting for 44% of the variance between schools

Grade 1			
Comp NCE	15% of the variance was between teachers, 12% was between schools	**Whole Group +** **Comprehension Skills -** **Comprehension Strategies +** Accounting for 32% of the variance between teachers	**Poverty –** – accounting for 46% of the variance between schools
Word NCE	18% of the variance was between teachers. 11% was between schools	**Whole Group +** **Coaching +** **Comprehension Skills -** Accounting for 22% of the variance between teachers	**Poverty –** **ELL -** – accounting for 82% of the variance between schools
WCPM	22% of the variance was between teachers. 2% was between schools	**Recitation –** **Comprehension Skills -** **Time on Task +** Accounting for 15% of the variance between teachers	**Poverty /ELL –** **Reflection/Change in Teaching +** accounting for 100% of the variance between schools

Table 9 Cont'd

Kindergarten			
Phonemic awareness	12% of the variance was between teachers, 24% was between schools	**Phonemic Awareness Skills -** **Coaching +** Accounting for 24% of the variance between teachers	**ELL –** **Reflection/Change in Teaching +** accounting for 30% of the variance between schools
Letter Sound	20% of the variance was between teachers, 14% was between schools	**Comprehension Strategies +** ***Coaching*** **+** Accounting for 12% of the variance between teachers	
Letter Name	33% of the variance was between teachers, 1% was between schools	**Telling –** **Phonemic Awareness Skills –** Accounting for 12% of the variance between teachers	**Poverty –** accounting for 45% of the variance between schools

Table 10

Grade Kindergarten – Phonemic Awareness

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	1.79	12*		
Student Residual	9.90			
School Means	3.64	24		
Total	15.33			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	1.36	24*		
Student Residual	9.90			
School Means	2.56	30*		
Classroom Fall Score Slope	.00			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	7.14	18.78	11	.000
ELL (school)	-.06	-2.50	20	.022
Coaching (classroom)	1.54	2.03	20	.056
Phonemic Awareness (classroom)	-3.25	-2.12	67	.034
Fall Score (student)	.34	17.51	1095	.000

*Variance between classrooms = 1.79/15.33. Varience between schools = 3.64/15.33. Classroom-level variance accounted for by the model = (1.79-1.36)/1.79. School–level variance accounted for by the model = (3.64-2.56)/3.64.

Table 11

Grade Kindergarten – Letter Sound

Initial Random Effects	Variance Component	% Variance Between
Classroom Means	4.0	20
Student Residual	13.30	
School Means	2.79	14
Classroom Fall Score Slope	.03	
School Fall Score Slope	.02	
Total		

Final Random Effects		% Variance accounted for by model
Classroom Means	3.54	12
Student Residual	13.29	
School Means	2.91	0
Classroom Fall Score Slope	.03	
School Grade Slope	.02	

Final Fixed Effects	Coefficient	*t*-ratio	df	*p*-value
Intercept (Grand Mean)	17.42	38.55	22	.000
Coaching (classroom)	2.74	4.58	62	.000
Comprehension Strategies (classroom)	2.69	2.18	62	.029
Fall Score (student)	.38	9.87	22	.000

Table 12

Grade Kindergarten – Letter Name

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	4.73	33		
Student Residual	44.11			
School Means	.77	1		
Classroom Fall Score Slope	.04			
Total	66.61			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	19.08	12		
Student Residual	44.03			
School Means	.04	45		
Classroom Fall Score Slope	.42			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	46.93	4.91	21	.000
Poverty (school)	-.03	-2.38	21	.027
Telling (classroom)	-6.57	-1.97	62	.060
Phonemic Awareness (classroom)	-5.29	-1.82	62	.060
Fall Score (student)	.25	8.95	64	4.04

Table 13

Grade 1 – Reading Comprehension

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	35.44	15*		
Student Residual	174.52			
School Means	27.77	12		
Classroom Fall Score Slope	0			
Total	237.73			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	24.10	32*		
Student Residual	174.54			
School Means	15.02	46*		
Classroom Fall Score Slope	.00			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	49.18	45.63	21	.000
Poverty (school)	-.21	-3.85	21	.001
Whole Group (classroom)	10.02	2.42	70	.016
Comprehension Skill (classroom)	-19.61	-2.83	70	.005
Comprehension Strategy (classroom)	7.14	2.25	70	.024
Fall Score (student)	.74	33.50	73	.000

*Variance between classrooms = 35.44/237.73. Variance between schools 27.77/237.73. Classroom-level variance accounted for by the model = (35.44-24.10)/35.44. School–level variance accounted for by the model = (27.77-15.03)/27.77.

Table 14

Grade 1 – Decoding

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	44.20	18		
Student Residual	169.58			
School Means	26.93	22		
Classroom Fall Score Slope	.01			
Total	240.71			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	34.49	22		
Student Residual	169.55			
School Means	4.87	82		
Classroom Fall Score Slope	.01			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	52.03	54.01	20	.000
Poverty (classroom)	-.15	-3.19	20	.005
ELL (school)	-.19	-2.67	20	.015
Whole Group (classroom)	11.10	2.41	70	.016
Coaching (classroom)	11.96	2.75	70	.000
Comprehension Skills (classroom)	-19.97	-2.15	70	.032
Fall Score (student)	.82	28.68	73	.000

Table 15

Grade 1 – Reading Fluency

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	154.56	22		
Student Residual	549.71			
School Means	12.00	2		
Classroom Fall Score Slope	.07			
Total	716.27			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	122.59	15		
Student Residual	412.25			
School Means	105.71	35		
Classroom Fall Score Slope	27.28			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	61.10	42.29	20	.000
Poverty/ELL (school)	-.15	-3.14	20	.006
Reflect (classroom)	5.02	2.11	20	.048
Recitation (classroom)	-19.54	-2.08	70	.037
Comprehension Skill (classroom)	-31.34	-2.18	70	.029
Time on Task (classroom)	67.88	1.86	70	.063
Fall Score (student)	1.37	36.86	73	.000

Table 16

Grade 2-3 – Reading Comprehension

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	50.13	19*		
Student Residual	157.58			
School Means	60.02	23		
Classroom Fall Score Slope	.01			
Total	268.02			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	38.72	22*		
Student Residual	157.10			
School Means	8.16	86*		
Classroom Fall Score Slope	.01			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	43.75	51.23	20	.000
Poverty (school)	-.36	-9.02	20	.006
Reform Effort Change (school)	.80	3.12	20	.006
Whole Group (classroom)	6.83	2.27	139	.023
Phonics (classroom)	-13.21	-2.16	139	.031
High Level Questioning (classroom)	11.67	4.21	139	.000
Fall Score (student)	.74	45.31	142	.000

*Variance between classrooms = 50.13/268.02. Variance between schools 60.02/266.02. Classroom-level variance accounted for by the model = (50.13-38.72)/50.13. School–level variance accounted for by the model = (60.02-8.16)/60.02.

Table 17

Grade 2-3 – Vocabulary

Initial Random Effects	Variance Component	% Variance Between		
Classroom Means	46.98	20		
Student Residual	107.38			
School Means	107.38	34		
Classroom Fall Score Slope	.02			
School Fall Score Slope	.002			
Total	235.10			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	31.70	35		
Student Residual	107.22			
School Means	8.05	90		
School Fall Score Slope	.003			
Classroom Fall Score Slope	.01			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	43.31	32.77	20	.000
Poverty (classroom)	-.31	-7.63	20	.000
ELL (school)	-.22	-3.49	20	.003
Whole Group (classroom)	6.63	2.27	137	.012
Tell (classroom)	9.39	2.51	137	.012
Recitation (classroom)	-7.00	-2.20	137	.027
Phonics (classroom)	-18.21	-2.42	137	.016
High Level Questioning (classroom)	12.15	3.49	137	.000
Fall Score (student)	.77	40.85	22	.000

Table 18

Grade 2-3 – Reading Fluency

Initial Random Effects*	Variance Component	% Variance Between		
Classroom Means	320.55	48		
Student Residual	292.92			
School Means	102.69	14		
Classroom Fall Score Slope	.01			
Total	716.17			
Final Random Effects		**% Variance accounted for by model**		
Classroom Means	183.84	42		
Student Residual	292.55			
School Means	56.43	45		
Classroom Fall Score Slope	.01			
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
Intercept (Grand Mean)	101.91	51.23	21	.000
Poverty (school)	-.41	-5.08	21	.000
Grade (classroom)	18.03	11.11	137	.000
Small Group (classroom)	-22.44	-4.40	137	.000
High Level Questioning (classroom)	25.70	4.04	137	.000
Comprehension Strategy (classroom)	15.16	1.73	137	.083
Phonics	-49.95	-2.70	137	.001
Fall Score (student)	.87	60.04	142	.000

*After accounting for Grade.

Table 19

Summary Data on Mean Times Spent on Reading Instruction (in minutes per day) From School Reporting

Grade		Time Reading	Time Language Arts
K – All REA Schools in 02-03	M (SD)	91.14 (23.98)	119.63 (31.70)
K – All REA Schools in 03-04	M (SD)	99.73 (38.42)	137.27 (44.63)
1 – All REA Schools in 02-03	M (SD)	105.63 (19.07)	143.39 (27.71)
1 – All REA Schools in 03-04	M (SD)	115.16 (23.91)	156.16 (22.53)
2 – All REA Schools in 02-03	M (SD)	101.51 (22.81)	139.40 (26.90)
2 – All REA Schools in 03-04	M (SD)	105.40 (23.33)	148.28 (27.20)
3 – All Schools in 02-03	M (SD)	94.88 (25.25)	136.67 (29.95)
3 – All REA Schools in 03-04	M (SD)	102.79 (18.75)	141.37 (20.85)

Table 20

Summary Data from the Teacher Interviews and Descriptions of Categories Analyzed

Ratings of Teacher Perceptions		Mean Rating for All Schools in 02-03 *	Mean Rating for All Schools in 03-04
Links to Parents	**M** **(SD)**	**1.71** **(0.25)**	**1.75** **(0.24)**
Collaboration	**M** **(SD)**	**1.63** **(0.36)**	**1.53** **(0.39)**
Professional Development	**M** **(SD)**	**1.61** **(0.34)**	**1.65** **(0.27)**
Reflection on Teaching	**M** **(SD)**	**1.66** **(0.34)**	**1.31** **(0.36)**
Building Leadership	**M** **(SD)**	**1.75** **(0.30)**	**1.67** **(0.39)**
Assessment	**M** **(SD)**	**1.11** **(0.30)**	**1.14** **(0.32)**
Total – School Effectiveness Rating	**M** **(SD)**	**9.46** **(1.31)**	**9.10** **(1.42)**

***** Each dimension is rated on 4 pt. rubric where 0 = low and 3 = high

Table 21

Reform Effort Ratings*

Reform Effort Variable	Percent of All REA Schools Demonstrating Variable in 02-03	Percent of All REA Schools Demonstrating Variable in 03-04
Meeting 1 hour per week in study groups	75	96
Meeting in cross-grade study groups	71	96
Reflecting on instruction and student work	17	26
Considering research-based practices	63	65
Being guided by action plans	37	52
Sticking with substantive topics for 3-4 months or more	75	78
Meeting once a month as a whole faculty to share, etc.	79	91
Working on a plan to involve parents as partners	58	52
Effective use of external facilitator	79	91
Effective use of internal leadership team	67	70

***Mean Reform Effort Rating on 03-04: 7.1 (S.D. = 2.17)**
Mean Reform Effort Increase: .82 (S.D. 1.99)

Reform Rubric
(5/04)

Please Note: For most of the reform effort variables a school receives 1 point if the item is fulfilled at least 80% of the time (unless other criteria are specified). The school receives 0 points if the item is fulfilled less than the specified criteria.

Reform Effort Variables:

1. Study group meetings are conducted for 1 hour each week during the school year.
2. Study groups are composed of teachers and specialists across several grade levels.
3. Study group activities cause teachers to reflect on their own instructional practices, and evaluate student work and engagement (This year we specifically looked for reflection on teaching through video sharing and examining student work during the months of February, March, and April since many schools did not begin video sharing until January).
4. Study groups utilize current research to inform their discussions of instructional methods and practices. "Using current research" was defined as using the REA modules or research articles and books referenced in the REA modules. Additional resources were coded as "research" if they met the criteria described in the IRA position statement "What is Evidence-Based Reading Instruction?"
5. Study groups develop action plans that cause teachers to reflect on their own instruction and examine student assessment data. The action plans show that each study group is discussing a substantive topic over time.
6. Study groups have chosen substantive topics that are based on student assessment data and current research on best practices, and they maintain these topics over many months.
7. Schools hold whole group meetings once a month to look at assessment data, deal with school-wide issues related to reform, and share across study groups.
8. Schools have specific school-wide plans for involving parents as partners.
9. Schools have external facilitators that are actively involved with the reform process (ie. Meet regularly with the internal leadership team to provide expertise and support. Visit classrooms to model lessons, observe and give feedback)
10. Schools have internal leadership teams that meet for at least one hour once a month and play an active role in leadership.

Table 22

Grade 1-3 Growth Curve Analysis - Reading Comprehension

Initial Random Effects	Variance Component	% Variance Between		
Student Status Fall Year 2	236.08			
Student Growth Slope	5.45			
Student Residual	74.18			
School Status Fall Year 2	33.02	10%*		
School Growth Slope	4.59	46%*		
Total	343.28*			
Final Random Effects		**% Variance accounted for by model**		
Student Status Fall Year 2	233.75			
Student Growth Slope	4.06			
Student Residual	74.99			
School Status Fall Year 2	32.47			
School Growth Slope	3.67	20%*		
Final Fixed Effects	**Coefficient**	***t*-ratio**	**df**	***p*-value**
School Status	41.87	33.25	22	.000
Grade	-.99	-18.20	2662	.068
School Growth	2.19	4.29	21	.000
Reform Effort	.51	2.18	21	.041

Total = 236.08+74.18+33.02. Variance in status between schools = 33.02/343.28. Variance in growth between schools = 4.59/(5.45+4.54). Percent of variance in growth slope accounted for by model = (4.59-3.67)/4.59.

Appendix A

Components of the School Change Framework

Assumptions

- No single solution to reform exists. Schools are at different places with different needs.
- Schools will benefit from becoming collaborative, learning communities.
- Teachers will benefit from reflection and change efforts related to their teaching practices.
- School staff must put the children first.

Components

- Schools should have at least 80% agreement to participate among the teaching staff. This buy-in obligates everyone in terms of participating in the framework.

- In addition to working within grades, school agree to get involved in cross grade and role collaboration (e.g., regular ed, special ed, ESL teachers working together)

- In addition to improving classroom reading instruction and the school reading program, the school agrees to work on developing and implementing a plan for involving parents as partners.

- In addition to improving classroom instruction, a school must have interventions in place for children in grades K-3 as needed.

- Each school will have a 40% time external facilitator (with extensive elementary experience) who will work with the Leadership Team (the principal, a lead teacher/literacy coordinator, and 3-5 other teacher leaders). Together this group will lead study groups, monitor the implementation of new instructional techniques in classrooms, provide support to teachers, solve problems, keep the reform effort moving along successfully. The lead teacher should have from 50-100% of her time devoted to the role of literacy coordinator.

- Schools should meet regularly in study groups. The parts of this process include the following:

    1) Schools look at data (e.g., self-study questionnaire, interviews, classroom observations, student assessments) to decide where to focus. The leadership team may wish to do some of this work in the summer to prepare for initial fall meeting.
    2) Teachers meet 3 times a month in study groups to learn research-based instructional techniques, to reflect on their instruction, to examine

student work and to improve their teaching; 1 time/month as whole school. An optimal study group size is 4-6 members. Study groups set action plans and look at data on their students and on their own teaching to assess their progress toward their goal. Study groups get support from an external facilitator and from the internal leadership team. Although leadership for study group meetings should rotate, it is recommended that each study group have a representative who is a member of the leadership team.

3) Study groups turn to the school change modules or other research-validated practices to guide their actions. Modules include text, short readings, research references, and suggested study group activities.
4) The leadership team meets at least once a month, to talk about progress and problems in the various study groups. Steps to take to maximize the success of study groups are discussed and plans for action agreed upon.

Appendix B

Assessments Used in 2003-2004

Assessment Tool	Description	Fall	Spring
Letter Names	Letter Name subtest from Pikulski Emergent Literacy Survey, Houghton Mifflin. Students identified both lower and upper case letters.	K	K
Letter Sounds	Letter sounds subtest from CIERA School Change Project	K-1	K-1
Letter Naming Fluency	Students say as many letter names in a minute as they can from a random list	1	
Phonemic Awareness	Classroom Segmentation and Blending Test (Taylor). Children were given 6 words to blend, "What is /c/ /a/ /t//? Then they were given 6 words and asked to identify the first, middle, and last sound they heard in each word. Research has shown that children scoring 5 or lower in fall of grade 1 are at risk of failing to learn to read in grade 1 without a research-based reading intervention program.	1	K
Fluency	Words correct per minute on passage from QRI - #. In fall sand spring students read for one minute from a passage that was at grade level.	2-3	1-3
Standardized Decoding Test	Gates-MacGinitie Reading Test. Students give the word that goes with the picture in the box. (administered in a group)		1
Standardized Reading Vocabulary Test	Gates-MacGinitie Reading Test. Child chooses among 4 choices the word that fits a picture based on meaning (administered in a group).	2-3	2-3
Standardized Reading Comprehension Test	Gates-MacGinitie Reading Test. Students read short passages and answered multiple choice questions (administered in a group).	2-3	1-3
Retelling	Retelling of QRI passage (based on 4-pt. rubric). Administered to a random selection of students who could decode at 90% accuracy or greater.	2-3	1-3

Appendix C

Description of Categories Used in Data Analyses of Classroom Practices

Variable	Description
Whole Class or Large Group*	All of the children in the class (except for 1 or 2 or individuals working with someone else), or a group of more than 10 children. If there are 10 or less in the room, code this as a small group.
Small Group*	Children are working in 2 or more groups. If there are more than 10 children in a group, call this whole group.
Phonemic Awareness Instruction	Students are identifying the sounds in words or blending sounds together (an oral activity). The purpose is to develop phonemic awareness, not letter-sound knowledge.
Phonics Instruction**	Students are focusing on symbol/sound correspondences (p1) or letter-by-letter decoding (p2) or decoding by onset and rime or analogy (p3) ,but this is not tied to decoding of words while reading. If students are decoding multisyllabic words, code as p4. The total number of phonics activities out of total number of times reading was coded at level 3 was calculated.
Word Recognition Strategies **	Students are focusing on use of 1 or more strategies to figure out words while reading, typically prompted by the teacher.
Lower Level Text Comprehension (talk or writing about text)**	Students are engaged in talk (m1) or writing (m2) about the meaning of text that is at a lower level of thinking. The writing may be a journal entry about the text requiring a lower level of thinking or may be a fill-in-the blank worksheet that is on the text meaning (rather than on a comprehension skill or vocabulary words). The total number of "low level text comprehension" activities at level 4 out of the total number of times reading was coded at level 3 was calculated.
Higher Level Text Comprehension (talk or writing about text)**	Students are involved in talk (m3) or writing (m4) about the meaning of text that is engaging them in higher level thinking. This is talk or writing about text that is challenging to the children and is at either a high level of text interpretation or goes beyond the text: generalization, application, evaluation, aesthetic response. Needless to say, a child must go beyond a yes or no answer (e.g., in the case of an opinion or aesthetic response). The total number of "high level text comprehension" activities at level 4 out of the total number of times reading (as the major focus) at level 3 was coded.
Percent of Higher Level Questions	The percent of HLQ was calculated by taking the total number of HLQ observed divided by the total number of HLQ and LLQ observed.
Comprehension Skill Instruction**	Students are engaged in a comprehension activity (other than a comprehension strategy) which is at a lower level of thinking (e.g., traditional skill work such as identifying main idea, cause-effect, fact-opinion)

Comprehension Strategy Instruction**	Students are engaged in use of a comprehension strategy that will transfer to other reading and in which this notion of transfer IS mentioned (e.g., reciprocal teaching, predicting. If predicting were done, but transfer was not mentioned, this would be coded as c).
Vocabulary Instruction**	Students are engaged in discussing/working on a word meaning(s).
Reading Text**	Students are coded as reading (not reading turn-taking) at level 7.
Narrative Text*	The number of segments in which a narrative textbook (n) or narrative trade book (n) was coded out of the total number of segments coded.
Informational Text*	The number of segments that an informational textbook (i) or information trade book (i.) was coded as being used out of the total number of segments coded.
Teacher-Directed Stance	The number of times telling and recitation were coded out of the total number of codes for the following: telling, recitation, modeling, coaching, listening/giving feedback.
Student-Support Stance	The number of times modeling, coaching, and listening/giving feedback were coded out of the total number of codes for the following: telling, recitation, modeling, coaching, listening/giving feedback.
Telling*	The number of times telling is coded out of total number of segments coded.
Recitation*	The number of times recitation is coded out of total number of segments coded.
Modeling*	The number of times modeling is coded out of total number of segments coded.
Coaching*	The number of times coaching is coded out of total number of segments coded.
Listening/Watching/ Giving Feedback	The number of times listening/watching/giving feedback is coded out of total number of segments coded.
Active Responding***	Children are engaged in one or more of the following level 7 responses: reading, writing, oral responding, manipulating. The total number of "active responding" codes coded out the total number of level 7 responding codes coded was calculated.
Passive Responding***	Children are engaged in one or more of the following level 7 responses: reading-turn taking, oral responding-turn taking, listening. The total number of "passive responding" codes coded out the total number of level 7 responding codes coded was calculated.
Time on Task******	At the end of the 5-minute note-taking segment, the observer took a count of the number of children in the room who appeared to be engaged in the assigned task out of all the children in the room. If a child was quiet, but staring out the window or rolling a pencil on his desk, this was not counted as on task.

*Percent of time (5-minute segments) coded
**Percent of all reading segments coded
***Percent of all codes for student responding
**** Mean time on task count (taken every 5 minutes)