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ABSTRACT

It has been documented that in children's learning to read, it is the teacher, not the method, that makes a difference. The South Carolina Reading Initiative (SCRI) invested in teachers' knowledge as the most effective way to impact children's reading achievement. This paper presents the findings after the first year of an intensive professional development program based on this principle. The paper states that in an overview of the literature on the development of the reading process, two emphases were consistently discussed: helping teachers observe and address cues used during reading and teaching, and helping teachers observe and teach for strategies. It explains that quantitative and qualitative data were collected and analysis of data was conducted in three stages: factor analysis, correlations among variables, and differences in cues and strategies used by SCRI and non-SCRI students. The paper finds that the data provide insights into the nature of reading strategies and the impact of the first year of professional development in the SCRI on students' developing strategies. It notes that factor analysis showed there was merit in studying the construct of "strategic-ness" in reading, with strategies or behaviors like reading with attention given to syntactic or grammatical phrases, looking for spelling patterns within words to aid in problem solving--the other two clusters of reading behaviors or strategies that cohered with the "strategic-ness" factor were monitoring and rereading. It also found children of SCRI teachers had significantly higher scores on all strategies evaluated at the end of the year, and for first graders, they were significantly more strategic at the end of first grade. (Contains 24 references, 6 tables, and 1

figure.) (NKA)

Technical Report #002
Changes in Children's Cue and Strategy Use During Reading: Findings from the First Year of Professional Development in the South Carolina Reading Initiative

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Changes in Children's Cue and Strategy Use During Reading: Findings from the First Year of Professional Development in the South Carolina Reading Initiative

Teachers play a significant role in children's learning to read (Pressley, Allington, Wharton-MacDonald, Collins-Block, & Morrow, 2001; Pressley et. al., 2001). It has been documented that it is the teacher, not the method, that makes a difference (Allington, 2001; Darling-Hammond, 1997). A teacher's knowledge about the reading process, for example, will influence the strategies children use and their perceptions of reading (DeFord, 1981; Rasinski & DeFord, 1988). The South Carolina Reading Initiative (SCRI) invested in teachers' knowledge as the most effective way to impact children's reading achievement. This paper presents the findings after the first year of an intensive professional development program based on this principle.

Background

In an overview of the literature on the development of the reading process, two emphases were consistently discussed: 1) helping teachers observe and address cues used during reading and teaching; and 2) helping teachers observe and teach for strategies.

Cue Use. Readers utilize cues, or sources of information, while reading. Cues are generally described as phonographic, syntactic, and semantic sources of information (Clay,1991; Goodman,1976; Smith, 1988). These three subsystems of language--the phonographic, syntactic, and semantic cues--guide a reader's problem solving during reading. With expert teaching, readers' knowledge and expectations expand about how each of these systems of language work in what Clay refers to as "a working system." (Clay, 2001) These expectations and sources of information inform strategies-- predicting, monitoring, searching, and correction—in the working system. Children must gain more control over these systems as a part of learning to read (Goodman, 1994). For the teacher, the analysis of the reader's use of cues is instructive for professional development (Goodman, 1976). Proficient and less proficient readers differ in their use of cues. Good readers have a balance in cues, reading flexibly in light of the text demands--they sample just enough print to confirm predictions. Inefficient readers, on the other hand, are often misled by print, which impedes their progress (Watson, 1976). A child's use of or neglect of certain cues provides valuable information to the teacher about a child's reading progress. By closely studying what children do when they read, and learning how to better assess students' ongoing use of the reading process, the teacher can make instructional decisions appropriate for individual children.

Analyzing the patters of cues used will also help teachers understand the strategies a reader is using. Strategies, the "in-the-head mental activities" readers use to get meaning from text (Clay, 1991) are "deliberate actions" on the part of readers (Paris, Lipson & Wixson, 1994). Children need guidance and support from teachers if they are to become strategic readers (Clay, 1991). Effective teachers help children learn to monitor their own reading (Brown, Palincsar, & Armbruster, 1994). Knowledge of how

and why the strategy works also helps students take on the strategy themselves (Clay, 1991; Wood, 1988; Paris, Lipson, & Wasik, 1994). Good readers not only use more strategies, they use them more effectively than poor readers (Clay, 1991; Ryan, 1981). Children need to be able to predict, monitor, search, confirm, self-correct and repair their comprehension in order to become more effective readers (Clay, 1991; Goodman, 1994).

The South Carolina Reading Initiative (SCRI) is a three-year professional development program intended to broaden and deepen teachers' understanding of the reading process and professional literature. If teachers become more knowledgeable about reading and readers it will improve the decisions they make about reading instruction. By helping teachers understand the importance of using assessment to inform instruction and teaching for strategies, their students will become more strategic readers. This study examines the cue and strategy use of children who were taught by teachers receiving professional development through SCRI and those children whose teachers were not involved in the three-year project (non-SCRI). The study is part of a larger project aimed at understanding long-term professional development and its effect on teachers' beliefs and practices and children's performance in reading.

Research Design

Participants in this study were children throughout the state of South Carolina who were in schools involved in SCRI, a state-wide professional development offered by coaches in the South Carolina Reading Initiative. Students in the study varied in terms of race, socioeconomic status, and reading ability. Their classroom teachers varied in teaching experience (from 1-30 years), age, and ethnicity. The teachers volunteered to be part of SCRI, or to participate in the research even if they were not part of SCRI. In order to examine the impact of the professional development program on students' reading ability, a three-year research study[1] was initiated that encompassed both qualitative and quantitative data. The following research question guided the study: What are the effects of SCRI instruction on the development of reading skills and strategies of students as measured by criterion-referenced assessments tools?

In the first year (2000-2001), quantitative and qualitative data were collected on 2, 6, or 12 children in matched pairs, SCRI or non-SCRI classrooms. The pairs were matched on grade level, ethnicity, gender, socioeconomic status, and reading level at the beginning of the academic year. Principals in

[1] The research was funded by the Office of Educational Research and Improvement, Field Initiated Studies, Grant No. #R305T010185. The assertions made in this article are the responsibility of the authors, and to not reflect the position or policy of the Office of Educational Research and Improvement.

treatment schools were asked to keep children in SCRI classrooms throughout the three-year study; years 2000-2001, 2001-2002, and 2002-2003. Data were collected by regional and district coaches[2] as follows:

Year 1: 1st and 3rd grade children in SCRI classrooms ((N: F=266; S=302)
1st and 3rd grade children in non-SCRI classrooms (N: F=172; S=197)

Year 2: Whenever possible, the same children in SCRI classrooms now in 2nd and 4th grade
2nd and 4th grade children in non-SCRI classrooms

Year 3: Whenever possible, the same children in SCRI classrooms now in 3rd and 5th grade
3rd and 5th grade children in non-SCRI classrooms

Quantitative Data Collection, In Year One, a variety of assessment instruments were utilized, depending on the needs of the individual child. These assessments included the Observation Survey (Clay, 1993), Running Records (Clay, 1993), Miscue Analysis (Goodman, Y., Watson, & Burke, 1987) and the Developmental Reading Assessment (Beaver, 1997). In Year Two, the Dominie Reading and Writing Portfolio (DeFord, 2001, 2002) was added to the repertoire of assessments. Coaches assessed students in the fall and spring on assessment materials leveled texts (Fountas and Pinnell, 2001, 2002) targeted at appropriate instructional reading levels for each student.

Qualitative Data Collection. To assess changes in skills and strategies four rubrics were developed: 1) one for patterns of cue use; 2) one for correction; 3) one for strategies in use; and 4) one for retelling/comprehension (see Table 1). Students in SCRI and Non SCRI classrooms were compared across grade levels and years of the project. Running Records and/or Miscue Analyses completed by the coaches were used to rate each student with the rubrics (Cues Used, Cues Used for Correction, Strategies in Use, Correction Ratio, and Retelling/Comprehension). Each of these was a possible attribute of a construct in reading called "strategic-ness."

Demographic information, and quantitative and qualitative data gathered at the beginning and end of the year were entered into a web based data collection program. For the purposes of this paper, only the first year of data collection will be discussed.

Analysis

Analysis of the quantitative and qualitative data was conducted in three stages. 1) Factor Analysis; 2) Correlations amongst variables; and 3) Differences in cues and strategies used by SCRI and Non SCRI students.

[2] Regional and district coaches were employed either full time or part time. They received the same professional development. The numbers of students assessed by these coaches was determined by the nature of their job.; some could only assess students at grade levels other than what was called for in this design. When a student moved, they were directed to pick up another matched child or pair.

Table 1. Web Based Data Input

Text Reading Level	**Retelling Rubric**
Accuracy	(0=Not at All, 1=Somewhat, 2=Very Well)
Numbers of Miscues	**Strategies in Use**
Numbers of Words Read	(0=No, 1=Sometimes, 2=Yes)
Difficulty (0=Frustration, 1=Instructional, 2=Independent)	1 Sounds out words without considering meaning or syntax
Syntactic Acceptability	2 Reads slowly or word by word
Semantic Acceptability	3 Reads with attention given to syntactic or grammatical phrases
Grapho-phonemic Acceptability	4 Reads fluently most of the time.
Reading Rubric for Cue Use (Ordinal Set)	6 Skips words and reads on before coming back to make another attempt.
0 Relies mainly on visual/grapho-phonemic information	7 Skips words entirely
1 Relies mainly on syntactic/grammatical information	8 Inserts or omits words without seeming to notice
2 Relies mainly on meaning/semantic information	9 Looks at the picture to search for meaning
3 Relies on semantics and syntax	10 Substitutes words that have the same meaning
4 Relies on syntax and grapho-phonemic	11 Rereads part of the sentence or paragraph
5 Relies on semantics and grapho-phonemic	12 Looks for spelling patterns within words (notices root words, prefixes, etc.) to aid in problem solving
6 Integrates multiple cues	13 Gathers meaning to predict words, phrases, or events
Reading Rubric for Correction (Ordinal Set)	14 Pauses to think about the text
0 Corrects mainly using visual information	15 Reads headings, charts, captions, or other text features before, during or after reading
1 Corrects mainly using syntactic information	16 Self corrects miscues when meaning is changed or syntax is unacceptable
2 Corrects mainly using meaning	**Correction Ratio**
3 Corrects mainly using semantics and syntax	1:1
4 Corrects mainly using syntax and grapho-phonemic	1:2
5 Corrects mainly using semantics and grapho-phonemic	1:3
6 Corrects mainly using multiple cues	1:4, etc.

An exploratory Factor Analysis was conducted to see if common factors would "cohere" out of the collection of items in the strategy rubric (these items grew out of the domain of strategies found in the literature on reading strategies). This exploration of the factor structure let us see if there was strength in these strategy attributes, or combinations of strategy items, and how they clustered (cohered) so as to explicate the construct of "strategic-ness." A confirmatory analysis was conducted to test the strength of the resulting Strategic-ness Model.

In step two, the factors obtained in step one were used to see if strategic-ness was related to such variables as Text Level Read, Accuracy in Reading, Cue Use, Syntactic Acceptability, Semantic Acceptability, Grapho-phonemic Acceptability, Quality of Retelling, Cues Used in Correction, and Correction Ratio.

The third step was to see if there were differences in Cues used and Strategic-ness in the SCRI and Non-SCRI treatment groups on any of the above variables.

Findings

Factor Analysis. To explore the factor structure for reading strategy items (see Strategy Rubric, Figure 1), an exploratory factor analysis was first conducted with promax rotation (i.e., oblique rotation) because we believed there might be some correlations among factors. Results of the exploratory factor analysis initially identified five factors equal to or greater than Eigenvalue 1. After careful review of the items belonging to each factor, items showing lower factor loadings were removed.

The exploratory factor analysis was re-run to confirm the factor structure with only the reduced items (see Table 2). This iterative procedure identified three factors that were stable across 1st and 3rd grades (Factor 1: Fall a=.77; Spring a =.73; Factor 2: alpha Fall a =.58; Spring a =.59; Factor 3: Fall a =.41 Spring a =.51).

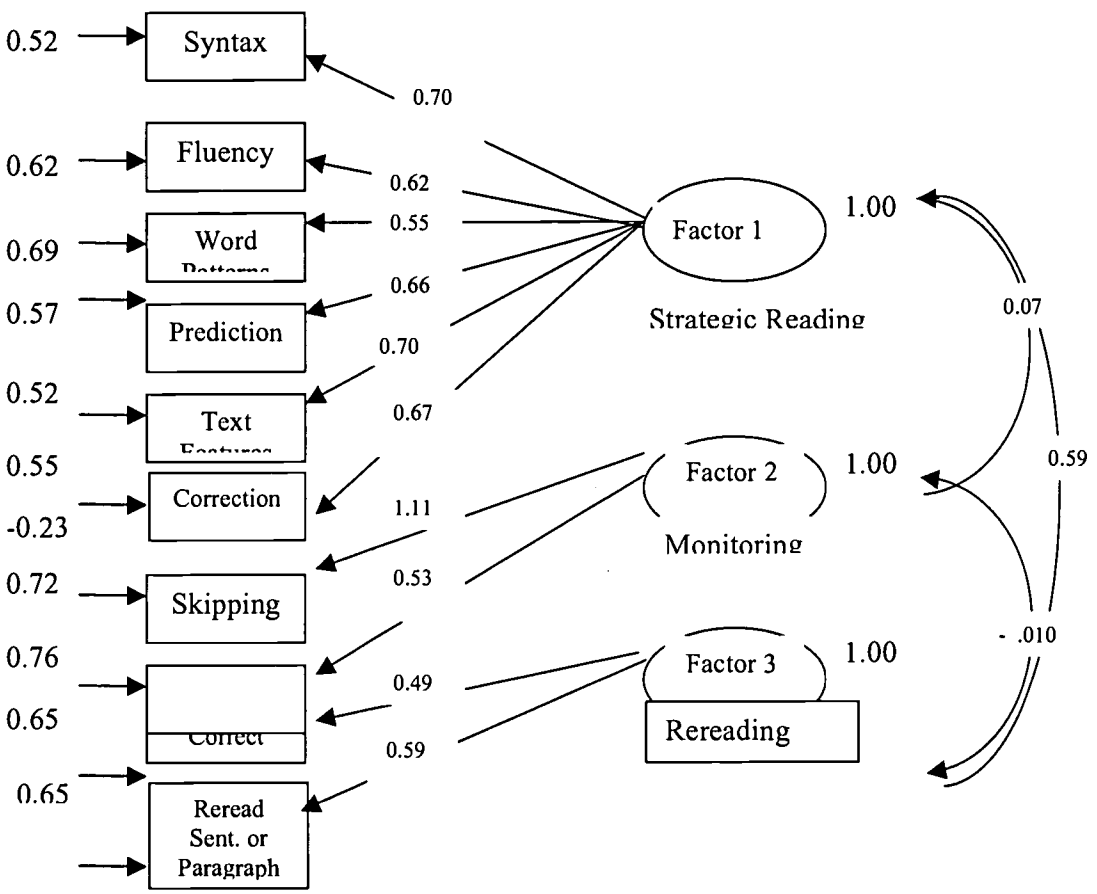
Table 2. Factor Analysis

Factor 1 Strategic Reading (alpha Fall=.77) (alpha Spring=.73)
• Reads with attention given to syntactic or grammatical phrases • Reads fluently most of the time • Looks for spelling patterns within words (notices root words, prefixes, suffixes, etc.) to aid in problem solving • Gathers meaning to predict words, phrases, or events • Rereads headings, charts, captions, or other text features before, during or after reading • Self corrects miscues when meaning is changed or syntax is unacceptable
Factor 2 Monitoring (alpha Fall=.58) (alpha Spring=.59)
• Skips words entirely • Inserts or omits words without seeming to notice
Factor 3 Rereading (alpha Fall=.41) (alpha Spring=.51)
• Skips words and reads on before coming back to make another attempt • Rereads part of the sentence or paragraph
Items removed from analysis
• Pauses to think about the text* • Looks at the picture to search for meaning* • Reads slowly or word by word • Substitutes words that have the same meaning • Sounds out words without considering meaning or syntax

*Items enter factors at times

This three-factor solution was analyzed using the LISREL 8.5 program to statistically confirm the factor structure. Because the data sets consisted of ordinal level items, a covariance matrix weighted by the asymptotic covariance matrix, as recommended by literature on structural equation modeling was utilized with the item parameters calibrated via a maximum likelihood estimation procedure (Joreskog, K. & Sorbom, D.,1997; Bollen, K.,1989). The results of the LISREL analysis suggested that a three-factor solution showed strong fit to the data, hence confirming the three-factor solution as a model of strategic-ness. (See Figure 1)

Figure 1. Sample Three Factor Solution Structural Equation Modeling



Chi-Square=68.50, df=32, P-value=0.00018, RMSEA=0.043

For the year 2000-2001, regardless of grade level, the correlations (see Table 3) between factor score 1 and 2 (0.022), Factor score 1 and 3 (0.286**), and factor score 2 and 3 (0.01) showed a significant correlation ($p<.01$) between Strategic-ness and Rereading in the Fall. For Spring of 2000-2001, the correlations between Factor score 1 and 2 (0.002), Factor score 1 and 3 (0.263**), and Factor score 2 and 3 (0.054) also showed a significant relationship between Strategic-ness and Rereading ($p<.01$). These three factors account for about 60% of the variance in the data (see Table 4)

Table 3. Correlations among factors at two points in time

Year 1 Fall	**Factor 1 Strategic Processing**	**Factor 2 Monitoring**	**Factor 3 Rereading**
Factor 1	1.00	0.022	0.286**
Factor 2	0.022	1.00	0.01
Factor 3	0.286**	0.01	1.00
Year 1 Spring	**Factor 1 Strategic Processing**	**Factor 2 Monitoring**	**Factor 3 Rereading**
Factor 1	1.00	0.002	0.263**
Factor 2	0.002	1.00	0.054
Factor 3	0.263**	0.054	1.00

*p<.05
** p<.01

Table 4. Total variance explained by three factors

Component	Extraction Sums of Squared Loadings			Rotation
•	Total	% of Variance	Cumulative %	Total
1	3.039	30.388	30.388	2.966
2	1.565	15.648	46.036	1.577
3	1.112	11.119	57.156	1.451

Extraction method: Principal Component Analysis

Factor Comparisons with Other Qualitative and Quantitative Variables. The factors of Strategic-ness, Monitoring, and Rereading were correlated with other variables such as Level of Text, Length of Text, Difficulty of Text, Accuracy, Cue Use, Cues Used for Correction, Quality of Retelling (the degree to which the student retelling represented the author's meaning), Correction Ratio, Number of Coded Miscues, and Syntactic, Grapho-phonemic, and Semantic Acceptability. This analysis addresses the interrelationships among the factors of strategic-ness, monitoring, and rereading to factors that may be related to or have an impact on reading. Analysis of first and third graders in Year One for SCRI (N: F=266; S=302) and Non-SCRI (N: F=172; S=197) were combined for this analysis. The results showed

significant correlations (See Table 5) on Factor 1, "Strategic-ness," for all readers related to Length of Text, (.282**), Difficulty of the Text (instructional or independent levels as compared to frustration, .335**), Accuracy (.245**), and Level of Text read (.425**). There were also significant correlations with Cues Used (.244**), Cues Used to Correct (.244**), Syntactic Acceptability (.209*), and Quality of Retelling (.368**) in both first and third graders. Factor 2, "Monitoring," was significantly correlated with Graphophonemic Acceptability (.317**) and Cues used for Correction (.170*). Factor 3, "Rereading," was significantly correlated with Numbers of Coded Miscues (.243**)

Table 5. Correlations among factors

Variable	Factor 1 Strategic-ness	Factor 2 Monitoring	Factor 3 Rereading
Text Reading	.425**	.068	.092
Significance	.000	.310	.268
(n)	165	224	227
Difficulty of Text	.335**	.0486	-.002
Significance	.000	.474	.979
(n)	219	227	228
Length of Text	.282**	.068	.191
Significance	.000	.310	.004
(n)	.214	224	225
Percentage Read	.245**	.039	-.021
Significance	.000	.565	.761
(n)	211	219	220
Number of Coded Miscues	-.063	-.040	.243**
Significance	.354	.554	.000
(n)	216	226	227
Semantic Acceptability	.006	.001	.012
Significance	.944	.995	.897
(n)	121	128	129
Syntactic Acceptability	.209*	.102	-.097
Significance	.021	.249	.274
(n)	122	129	130
Graphophonemic Acceptability	.139	.317**	-.144
Significance	.127	.000	.101
(n)	122	129	130
Rubric of Cue Use	.244**	.207	-.070
Significance	.001	.003	.318
(n)	197	207	208
Rubric for Cues Used in Correction	.244**	.170*	.110
Significance	.003	.038	.181
(n)	142	150	151

Retelling Rubric	.368**	.046	.120
Significance	.000	.541	.108
(n)	176	181	182
Correction Ratio	.073	.118	.110
Significance	.337	.113	.140
(n)	174	182	183

*p<.05
** p<.01, Pearson 2-tailed test

Group Differences in Cue and Strategy Use. This analysis addressed our need to determine the ways students who were taught by teachers in SCRI might perform as compared to students whose teachers were not attending the professional development sessions taught by SCRI coaches. For this analysis, samples of student reading were taken and analysis completed by coaches, not by the classroom teachers. Means for SCRI and Non-SCRI groups were computed and tested for significant differences by grade levels (1st and 3rd grades) for total strategy scores, levels of text read, rubric scores (Cues Used, Strategies or Skills Used, Cues Used for Correction, Correction Ratio, and Quality of Retelling), and factor scores for strategic-ness, monitoring, and rereading.

The results indicated (see Table 6) significant differences (p<.05) for total strategy scores between SCRI (N: F=266, S=302; Total Strategy Scores: F=25.87, S=29.09*) and Non SCRI (N: F=172, S=197; Total Strategy Scores: F=25.14, S=27.82), and for grade level. First grade SCRI (N: F=112, S=126; Total Strategy Scores: F=25.25, S=28.46*) and third grade SCRI (N: F=103; S=110; Total Strategy Scores: F=26.33, S=29.59*),groups performed significantly better than Non SCRI children in first grade (N: F=88, S=97; Total Strategy Scores F=24.78, S=27.16) and in third grade (N: F=64, S=67; Total Strategy Scores: F=25.47, S=27.89).

There were no significant differences in terms of text reading level in treatment groups or grade levels. However, the SCRI first grade students generally found the texts they read in the spring to be significantly easier to read, targeted much more comfortably in their instructional to independent reading levels (SCRI, N: F=136; S=149; Difficulty of Text: F=1.16m S=1.39*). While this may be a result of improved abilities on the part of coaches to select material that was more often at the appropriate level of difficulty, there may have also been an added benefit for these first graders. When the text difficulty was well within the instructional to independent range, it may also have contributed to their increased strategic-ness as readers (SCRI, N: F=113; S=127; Factor 1, Strategic-ness, F=7.87, S=10.09*), since the first graders showed significant gains from Fall to Spring in terms of this factor. First graders were significantly different on this factor in the Spring as compared to SCRI third graders and Non SCRI first

Table 6. Significant Group Differences in Year One for SCRI and non-SCRI students

Group	Fall 2000	Spring 2001
Total Strategy Score		
Total Group		
SCRI (N: F=266; S=302)	25.87	29.09*
Non-SCRI (N: F=172; S=197)	25.14	27.82
First Grade		
SCRI (N: F=112; S=126)	25.25	28.46*
Non-SCRI (N: F=88; S=97)	24.78	27.16
Third Grade		
SCRI (N: F=103; S=110)	26.33	29.59*
Non-SCRI (N: F=64; S=67)	25.47	27.89
Quality of Retelling (0=Not at all; 1=Somewhat; 2=Very Well)		
Total Group		
SCRI (N: F=253; S=286)	1.21	1.39*
Non-SCRI (N: F=155; S=183)	1.18	1.22
First Grade		
SCRI (N: F=92; S=115)	1.04	1.33
Non-SCRI (N: F=70; S=84)	1.17	1.21
Third Grade		
SCRI (N: F=99; S=106)	1.25	1.43*
Non-SCRI (N: F=63; S=66)	1.25	1.21
Difficulty of Text (Frustration=0; Instructional=1; Independent=2)		
Total Group		
SCRI (N: F=328; S=358)	1.29	1.37
Non-SCRI (N: F=214; S=245)	1.19	1.36
First Grade		
SCRI (N: F=136; S=149)	1.16	1.39*
Non-SCRI (N: F=104; S=116)	1.04	1.22
Third Grade		
SCRI (N: F=127; S=131)	1.44	1.47

Non-SCRI (N: F=82; S=87)	1.39	1.30
Text Reading Level		
Total Group		
SCRI (N: F=263; S=301)	16.67	20.21
Non-SCRI (N: F=170; S=187)	15.22	19.16
First Grade		
SCRI (N: F=93; S=119)	10.48.	16.19
Non-SCRI (N: F=72; S=81)	9.93	15.63
Third Grade		
SCRI (N: F=115; S=113)	20.20	22.95
Non-SCRI (N: F=72; S=72)	20.10	22.38
Factor One—Strategic Processing		
Total Group		
SCRI (N: F=268; S=309)	8.30	10.56*
Non-SCRI (N: F=175; S=200)	7.80	9.72
First Grade		
SCRI (N: F=113; S=127)	7.87	10.09*
Non-SCRI (N: F=88; S=99)	7.43	9.21
Third Grade		
SCRI (N: F=103; S=115)	8.62	10.81
Non-SCRI (N: F=66; S=67)	8.20	10.03
Factor Three—Rereading		
Total Group		
SCRI (N: F=281; S=316)	2.65	3.35*
Non-SCRI (N: F=182; S=209)	2.54	3.12
First Grade		
SCRI (N: F=115; S=133)	2.51	3.04
Non-SCRI (N: F=92; S=104)	2.47	3.08
Third Grade		
SCRI (N: F=111; S=116)	2.77	3.52*
Non-SCRI (N: F=67; S=71)	2.62	3.06

*p<.05
Note: Differences in numbers for total group membership existed due to coaches who collected data in grades other than first grade or third grade. This difference was related to contract stipulations within their positions as grade level specialists.

(Non-SCRI N: F=88; S=99; Strategic-ness score: F=7.43, S=9.21) and third graders (Non-SCRI N: F=66; S=67; Strategic-ness score: F=8.20, S=10.03). The benefits of coaches' improved abilities to select materials within the instructional to independent ranges and increased strategic-ness in first graders accounted for most of the total group gains for SCRI students on this factor (SCRI Total Group N: F=268, S=309; Strategic-ness score: F=8.30), S=10.56*) as compared to Non SCRI students (N: F=175; S=200; Strategic-ness score: F=7.80, S=9.72). The third graders in the SCRI group increased in strategic-ness from Fall to Spring, although these gains were not significant (SCRI N: F=103; S=115; Strategic-ness score: F=8.62, S=10.81).

There were significant differences for SCRI total group (N: F=281; S=316; Rereading: F=2.65, S=3.35*) and for SCRI third grade students on Factor 3, Rereading (N: F=111; S=116; Rereading score: F=2.77, S=3.52*), There were no significant differences for SCRI first graders (N: F=115; S=133; Rereading score: F=2.51, S=3.04)or Non SCRI first (N: F=92; S=104; Rereading score: F=2.47, S=3.08)or third graders (N: F=67; S=71; Rereading score: F=2.62, S=3.06) on their ability to reread parts of sentences when necessary, or skip ahead and then reread. There were also significant gains in Quality of Retelling for the SCRI total group (N: F=253; S=286; Quality of Retelling: F=1.21, S=1.39*), with SCRI third graders (N: F=99; S=106; Quality of Retelling: F=1.25, S=1.43*) showing the greatest improvement. SCRI third graders remained true to the authors meaning in retellings to a greater degree than did SCRI first graders (N: F=92; S=115; Quality of Retelling: F=1.04, S=1.33), although SCRI first graders did show gains. There were no significant differences for Non SCRI first (N: F=70; S=84; Quality of Retelling: F=1.17, S=1.21) or third graders (N: F=63; S=66; Quality of Retelling: F=1.25, S=1.21).

Discussion

The data from this study provide interesting insights into the nature of reading strategies and the impact of the first year of professional development in the South Carolina Reading Initiative on students' developing strategies. The factor analysis showed there was merit in studying the construct of strategic-ness in reading, with strategies or behaviors like reading with attention given to syntactic or grammatical phrases, looking for spelling patterns within words (notices root words, prefixes, suffixes, etc.) to aid in problem solving, gathers meaning to predict words, phrases, or events, rereading headings, charts,

captions, or other text features before, during or after reading, self correcting miscues when meaning is changed or syntax is unacceptable, and reading fluently serving as a cluster that described the most proficient readers. The other two clusters of reading behaviors or strategies that cohered with the strategic-ness factor were monitoring (attending to insertions or omissions) and rereading (skipping words and reading on before coming back to make another attempt and rereading part of the sentence or paragraph).

When these factors were compared with other variables that explored in this study, such as length of text, difficulty of the passages read, accuracy in reading, quality of retellings, etc., the following variables were found to have significant correlations in the first and third grade students in this study:

1. Children were more likely to be strategic when the text they read was at their instructional or independent level (more than 90% of the words read correctly)
2. Children were more likely to be strategic when they made good use of syntactic clues (what they know about language).
3. Children were more likely to be strategic if their cue system use was balanced (if they relied on all three cuing systems).
4. Strategic children read longer texts than not-so-strategic children.
5. Strategic children were better able to retell the story than not-so-strategic readers.

These data suggest that more strategic readers (at the end of first and third grade), as long as they read texts at their independent or instructional level, read longer texts, were more able to use their knowledge of language, had better cue system use in problem solving and correction, and better understood the story. Strategic readers reread more often, and attempt to address mismatches in print and meaning.

There were also significant differences in students' use of strategies as a result of SCRI, even after one year of instruction. The children of SCRI teachers had significantly higher scores on all strategies evaluated at the end of the year, and for first graders, they were significantly more strategic at the end of first grade. Third graders had made worthwhile gains as compared to their non-SCRI peers. Third graders in SCRI classrooms made significant gains in quality of retellings, and first graders made worthwhile gains by the end of the years. Improved use of strategies, and use of rereading to attend to mismatches in cues yielded improved comprehension. At this point in the three-year study, there were no group differences on the level of texts read between SCRI and Non SCRI groups.

Instructional implications of this study are related to how to best support children as readers. Teachers need to help children use a variety of strategies and use a balance of cue systems. This should help them read more difficult texts and better understand the story (as compared to less strategic

children). This study also provides evidence that selecting books for readers well in the range of instructional to independent levels of difficulty is key to supporting them to be more strategic as readers.

Limitations

The most critical limitation of this study has to do with the spread of SCRI beliefs and practices from teacher to teacher in this study. Because the non-SCRI teachers have contact with SCRI teachers on a daily basis, there is no way to truly have a comparison group within the buildings that the professional development is occurring. To that end, we will compare SCRI student achievement to that of students (matched schools, matched students) in buildings that do not have SCRI professional development. We will use the state proficiency test, Palmetto Achievement Challenge Test (PACT) as a standard measure.

This paper reports preliminary results of the first year of the study. We will report data from subsequent years in future publications. The research we need to do will address the following question: What is the relationship among (1) the reading skills and strategies of children who have been in SCRI classrooms, (2) their scores on a standardized test and (3) the degree to which their teachers are consistent with SCRI beliefs and practices?

Notes

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