Sustaining Research-Based Practices in Reading

A 3-Year Follow-up

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ABSTRACT

This study examined the extent to which the reading instructional practices learned by a cohort of teachers who participated in an intensive, yearlong professional development experience during the 1994-1995 school year have been sustained and modified over time. Teachers learned three multileveled practices—partner reading, collaborative strategic reading, and making words—that promote gains in reading for students from a wide range of achievement levels. Teachers were observed and interviewed 3 years later to determine the extent to which they continued to implement the practices, the ways in which they modified them, and factors that influenced their sustained use of the practices. With the exception of one teacher, all the teachers sustained one or more of the three practices at a high rate.

As the number of students with learning disabilities educated alongside their nondisabled peers in general education classrooms increases, there is a corresponding need to identify research-based practices that are appropriate for heterogeneous classrooms. Various studies of the reading instruction in general education classrooms have indicated that most instruction is geared for the class as a whole, with little or no differentiated instruction that meets the needs of special learners (e.g., Baker & Zigmond, 1995; Schumm et al., 1995; Zigmond & Baker, 1990). Teachers consider instructional practices suitable for students with special needs to be highly desirable, but not often feasible, given the multiple demands these teachers face (Schumm & Vaughn, 1991). Even when teachers are presented with innovative practices designed to support the learning of students across a range of achievement levels, they do not necessarily use them (Gersten, Vaughn, Deshler, & Schiller, 1997; Gersten & Woodward, 1990). Some teachers seem to catch on to particular practices and implement and adapt them easily, whereas other teachers struggle with the implementation and adaptation of many instructional practices (Vaughn, Hughes, Schumm, & Klingner, 1998). Furthermore, some teachers seem to be eager to implement new practices and others more reluctant. That teachers vary considerably in the extent to which they implement new practices is well documented (e.g., Englert & Tarrant, 1995; Gersten, Morvant, & Brengelman, 1995; Jenkins & Leicester, 1992; Vaughn et al., 1998). This is not surprising because sustaining practices in other disciplines such as health is also routinely very low (Vaughn, Klingner, & Hughes, in press). Considerably less well understood are the real and perceived barriers and facilitators to the *sustained* use and adaptation of instructional practices.

In this study we were interested in the ways in which teachers adjusted research-based practices to fit their routines, personal styles, and teaching dilemmas. From previous work, we know that teachers are influenced by many environmental, school, personnel, and cultural factors, as well as their personal beliefs about the effectiveness of instructional practices. For example, teachers' perceptions regarding the amount of planning time, compensation, administrative issues, and the extent to which they view themselves as positively regarded in the school setting can create a school culture that markedly affects what a teacher chooses to do or actually can do in the classroom relative to the adoption and implementation of educational innovations derived from research (Little,

1990; McLaughlin, 1990; Rosenholtz, 1989). Teachers describe time constraints and lack of administrative support as major obstacles to implementation (Ayres, Meyer, Erevelles, & Park-Lee, 1994).

Our previous professional development efforts began in 1992 as part of the Restructuring Education for All Learners (REAL) Project (Schumm & Vaughn, 1995a; Vaughn et al., 1998). REAL was designed to support three elementary schools' efforts to restructure their service delivery models for students with high-incidence disabilities. During our professional development efforts of the first 2 years of the project, teachers frequently requested information on feasible activities that would promote learning for students representing a wide range in achievement levels, particularly in the area of reading. Thus, during the third year of the project (1994–1995) we provided an intensive, yearlong collaborative professional development program that included instruction in three research-based, multilevel instructional practices that were associated with enhanced reading outcomes for students and feasible for general education teachers to implement within the ongoing demands of the classroom. We sought practices that would actively involve all students, would not involve extraordinary expenditures of materials and equipment, and could be used to enhance instruction regardless of the core reading program implemented by the teacher. Each was selected to supplement instruction in word study, decoding, fluency, or comprehension. The first practice was partner reading, adapted from classwide peer tutoring (CWPT; Delquadri, Greenwood, Whorton, Carta, & Hall, 1986) and peer-assisted learning strategies (PALS; Mathes & Fuchs, 1993; Mathes, Fuchs, Fuchs, Henley, & Sanders, 1994). The second practice was collaborative strategic reading (CSR; Klingner & Vaughn, 1996; Klingner, Vaughn, & Schumm, 1998), followed by making words (Cunningham & Cunningham, 1992; Cunningham & Hall, 1994a, 1994b).

The design of the yearlong professional development program incorporated what we had learned from previous schoolwide professional development efforts (see, for review, Schumm & Vaughn, 1995b). We sought to achieve an optimal balance between developing a collaborative community of learners and providing sufficient content and support. When we had focused extensively on developing a community of learners in a previous endeavor, teachers had shared that although they had enjoyed the experience, they felt that they had not learned enough about practices they could actually use in their classrooms. Thus, in our next professional development effort, we provided a great deal of content. However, the participants thought this experience was too much like a university seminar. Subsequently, during the 1994–1995 yearlong effort, we felt that we had achieved a better balance between content and community. In this third professional development, we included the following key components (explained in Schumm & Vaughn, 1995b): (a) All participating teachers volunteered to be involved in the program; (b) only a few concrete, usable instructional practices were taught (rather than a long menu of approaches); (c) opportunities to explore and understand the conceptual aspects underlying the research-based practices were provided (Gersten, Brengelman, & Unok, 1996); (d) ongoing coaching was provided in classrooms by a member of the research team (Gersten, Morvant, & Brengelman, 1995); (e) demonstration lessons in classrooms were offered (Vaughn & Schumm, 1996); and (f) regular meetings with other teachers implementing the practices were conducted (Englert & Tarrant, 1995; Little, 1990).

The cohort of seven general education and five special education teachers who participated in the yearlong professional development experience committed to try each instructional approach in their classrooms for 9 weeks. They were encouraged, but not required, to continue using the practices after that period. Vaughn et al. (1998) described the implementation of the target practices by the seven general education teachers during the initial year they learned the practices and during the following year. All but two of the seven teachers partially or completely implemented the practices during the obligatory 9-week period. Sustained implementation during the remainder of the school year was maintained by four of the seven teachers. Three of the teachers continued to implement the instructional practices at high levels during the next year. Summative findings from the Vaughn et al. (1998) study indicated that (a) teachers desired instructional practices that can be used with the class as a whole, enhance learning for all students, and are easy to implement; (b) teachers' commitments to implement the instructional practices for at least 9 weeks, demonstration lessons in their classrooms, and follow-up meetings enhanced implementation; (c) teachers learned the global features of the practices, but not necessarily how to maximize their effectiveness with special learners; (d) standardized, high-stakes testing influenced teachers' implementation levels; (e) some teachers did not implement the practices regardless of the support available; and (f) lack of time was a nagging problem.

The purpose of the study described in this article was to examine the extent to which teachers who participated in a yearlong professional development program during the 1994–1995 school year have sustained and modified the instructional practices they learned. The study followed the teachers 3 years later to determine (a) how often they have continued to use partner reading, CSR, and making words; (b) the ways in which they have adapted or modified the three instructional practices; (c) their reasons for adapting or modifying the practices; and (d) the factors that they perceive have facilitated or impeded their implementation of the practices.

Method

Participants

All seven teachers who had participated in the yearlong professional development effort 3 years previously and who were still teaching at one of three target schools agreed to participate in this follow-up study of the sustainability of the instructional practices they had learned. Four of the participants

currently serve as general education teachers, two as special education teachers, and one as a part-time enrichment teacher, whose role is to instruct other teachers in the building in the use of the three instructional practices. Table 1 provides a summary of the descriptive characteristics of the teachers in this study.

The seven participants teach at three schools located in a large metropolitan school district in the southeastern United States. The first school has about 1,000 students: 96% are Hispanic, 3% are White, and 1% are Black; 76.5% receive free or reduced-cost lunch. The second school has almost 1,500 students: 92% are Hispanic, 5% are White, 2% are Black, and 1% are Asian/Indian or multiracial; more than 80% receive free or reduced-cost lunch. The third school has about 1,000 students: 60% are Hispanic, 25% are Black, 10% are White, and 5% are Asian/Indian or multiracial. More than 75% of the students receive free or reduced-cost lunch.

Procedures

Over the past several years, each of the participating schools has been involved in restructuring their special education programs. The schools shared the goal of better meeting the needs of their students with disabilities in more inclusive settings. As a result of these restructuring efforts, teachers were provided professional development in three multilevel activities that promote gains in reading for students from a wide range of achievement groups. Brief descriptions of these instructional practices follow.

Partner reading was adapted from CWPT (Delquadri et al., 1986) and PALS (Mathes & Fuchs, 1993; Mathes et al., 1994). It is a multilevel activity that is ideal for large, heterogeneous, inclusive classrooms. The effectiveness of this instructional practice in general education and special education classrooms has been well established (Delquadri et al., 1986; Mathes & Fuchs, 1993; Mathes et al., 1994). Students read together in pairs, building fluency and comprehension. During partner reading sessions (which last approximately 30 minutes), partners take turns in the roles of reader and "coach" (tutor). Activities include partner reading, retelling, paragraph shrinking, and prediction relay.

CSR has been applied with positive outcomes for students with and without disabilities in general education and special education classrooms (Klingner & Vaughn, 1996; Klingner et al., 1998). Students of mixed achievement levels apply comprehension strategies while reading content-area text in small cooperative learning groups. The primary goals of CSR are to improve students' reading comprehension and increase their conceptual learning.

Making words (Cunningham & Cunningham, 1992; Cunningham & Hall, 1994a, 1994b) is a teacher-guided learning activity that helps students become more aware of common word patterns and improves spelling and decoding skills. During a making words lesson (which lasts approximately 30 minutes), students form 12 to 15 words, each using his or her own sets of individual letters. The teacher guides students through the lesson by directing them to spell different words, modeling correct spelling using large letters and a pocket

TABLE 1. Descriptions of Participant Teachers

Teacher	Highest degree	Years taught	Certification	Current role/grade	1994–1995 role/grade	Current students in ESE
Leigh	MS	8	Elementary education and reading	General education teacher/3	General education teacher/3	5
Collin	BS	7	Elementary education	General education teacher/4	General education teacher/4	4
Angie	SP	>30	Elementary education	General education teacher/6	General education teacher/6	7
Kelly	BS	4	Elementary education and ESE	General education teacher/3	Special education teacher/5	1
Rita	BS	6	Elementary education	Enrichment teacher/1–5	General education teacher/5	Varied
Janis	SP	18	ESE, ESOL, and reading	Special education teacher/2, 3, 5	Special education teacher/3, 5	24
Heidi	SP	23	ESE	Special education teacher/3, 5	Special education teacher/4, 6	24

Note. MS = master of science; BS = bachelor of science; SP = specialist; ESE = exceptional student education; ESOL = English for speakers of other languages.

chart, and assisting students in recognizing different spelling patterns.

Measures

Data were collected from February through June of the 1997–1998 school year. Data were drawn from both qualitative and quantitative sources (Yin, 1989). Multiple sources were used to provide evidence for convergence of findings and the opportunity to pose alternative explanations (Strauss & Corbin, 1990). Measures included individual and group interviews, Likert-type scales, and classroom observations.

Focus group interviews (Vaughn, Schumm, & Sinagub, 1996) provided a forum for sustained conversations among participants. The traditional focus group format was altered slightly for the purposes of this study to (a) reduce the role of the moderator, who served as a facilitator and prompter; (b) increase interaction between and among group participants; and (c) increase time to allow for full responses and elaboration on points by participants. These modifications were implemented because the members of the group were familiar with each other (they had worked together in a year-long professional development group) and had shared an intensive common experience (Vaughn et al., 1998). Perhaps because of this familiarity, participants seemed to feel comfortable providing honest comments (e.g., "Now do you want to know what I really think?").

The seven teachers participated in three focus group interviews (one per instructional practice). Each interview was approximately 90 minutes long. Each of the three principal investigators acted as the moderator for one of the interviews. Questions were used as a guide to assist the moderator in directing the interview (e.g., "How have you adapted the instructional practice?" "What barriers have affected your implementation of the instructional practice?" "What has facilitated your implementation of the instructional practice?"). However, these served more as a mental checklist of issues to cover than a rigid interview protocol, and they enabled us to probe and to conduct member checks. Participants were encouraged to share their opinions and insights, using a conversational style. Focus group interviews were audiotaped and later transcribed. Graduate assistants were present to take notes and supervise the tape recording.

Classroom observations and Intervention Validity Checklists (IVCs) (Vaughn et al., 1998) assessed the extent to which teachers maintained the practices over time. IVCs were completed three times per instructional practice for each teacher (for a maximum of nine observations each). The IVCs provided an objective assessment of the extent to which teachers implemented specific components of the instructional practices. A separate IVC was developed for each of the three instructional practices: partner reading, CSR, and making words. Each IVC consists of a list of 16–19 statements that address the major components of the instructional strategy. For each statement, the observer indicated the extent to which the teacher implemented that aspect of the instructional practice, using the following choices: Does Not Implement, Implements, Modified, Not Applicable. In addition, researchers took extensive notes during each of the observations about the types and quality of the interactions between students and teacher and among students, as well as specific information about the ways in which teachers adapted the practices. Observations were scheduled at times convenient for the teacher; teachers were aware that we wanted to observe their implementation of a target practice.

The Facilitators and Barriers Checklist was designed to elicit teachers' perceptions of what helped or impeded their implementation of each of the instructional practices (Vaughn et al., 1998). The checklist consists of 24 items that represent a wide range of potential facilitators and barriers, including time, student, and personal factors. Teachers were asked to identify the 5 items that assisted their implementation of the instructional practice and the 5 items that hindered their implementation of the practices. Extra space was provided for any additional items that were not listed in the checklist. Teachers were also asked to indicate the items that most hindered and helped their implementation of the instructional practice. Each teacher completed one checklist per instructional strategy.

Follow-up individual interviews were conducted as needed to corroborate and/or clarify information gathered through other sources and to fill in gaps of missing data. At least one individual interview was conducted with each teacher. Before developing interview questions, the researchers entered all data from focus group interviews, observations, and checklists into matrices, one per teacher per instructional practice. This process enabled us to organize our data and to detect emerging themes in our findings, as well as to determine where more data would be useful. Together the research team developed possible follow-up interview questions. Each researcher next compiled an individualized set of questions for each of the teachers she would be interviewing, based on missing or unclear information in that teacher's matrix (e.g., "You mentioned that time constraints make it difficult for you to implement CSR. Can you tell me more about that?"). As a last step, a second researcher conducted a final review of all the follow-up interview questions. Follow-up interviews were conducted at the schools and were from 10 to 30 minutes in duration.

Data Analysis

The data collected for this study were a result of focus group and individual interviews, observations, and checklists. Data from checklists were compiled into descriptive tables. Three flows of analysis were applied to analyze the qualitative data (Miles & Huberman, 1994). The first flow occurred during data collection and involved four activities: (a) transcribing interview tapes; (b) generating categories for the purpose of data coding; (c) coding data "chunks" and establishing intercoder agreement; and (d) meeting weekly to discuss organizational frameworks and whether further data were needed. This process continued throughout the project.

Using the transcriptions from focus group and individual interviews, two researchers independently conducted examinations of one randomly selected data set (i.e., transcripts from partner reading, CSR, or making words) and generated and defined categories for analysis. For each issue or question raised during an interview, researchers individually searched responses for common ideas and themes that they used to develop an initial list of categories (Strauss & Corbin, 1990). The researchers then met to negotiate a mutual set of categories, with examples for each.

The researchers next coded the data, using coder-determined chunks of discourse (Evertson & Green, 1986). A *chunk of discourse* is defined as a sentence, paragraph, or larger segment of discourse that provides evidence of a particular category or theme. After coding samples of data sets using the defined categories, the two researchers conferred to compare responses, further revise, and resolve differences in coding (Vaughn, Schumm, Klingner, & Saumell, 1995). Two independent researchers who were experienced in developing coding systems reviewed the final coding scheme. *Intercoder agreement* was defined as the number of hits (i.e., both researchers coded the teacher's responses or chunks in the same category) over the total number of responses. Intercoder agreement was no less than .80 between the two researchers.

The second flow of analysis included the development of data summaries and displays. Using matrices, the researchers summarized key findings by teacher and by instructional practice around themes generated by the research team. The researchers met to discuss the matrices and areas in which there were gaps of information. Based on these gaps, the researchers developed follow-up interview questions.

The third flow of analysis involved drawing conclusions and subsequently verifying them by cross-checking findings. Conclusions were deduced over time and reported if they were found to be "explicit and grounded" (Glaser & Strauss, 1967). Verification was conducted through the group process, by member checking, and through healthy skepticism stemming from ongoing examination of data sources.

Results

We present our results in two sections. First, we describe teachers' ongoing implementation of the instructional practices and portray the types of changes they have made. This section helps understand what might be expected from teachers who have participated in an extensive, comprehensive professional development effort and received substantial support. Second, we discuss the factors that teachers indicated have most helped or hindered their sustained use of the practices.

Teachers' Use of Instructional Practices

In this section we compare teachers' levels of implementation of the target practices during previous years with their usage during the current school year. First, we present results for the group as a whole. Second, we describe individual teachers' implementation of the instructional practices.

Table 2 portrays teachers' use of the three target practices over a 5-month period during the 1997–1998 school year. Also included in this table is a summary of teachers' use of the practices during the 1994–1995 and 1995–1996 school years. All the teachers continued to implement at least one of

TABLE 2. Implementation of the Instructional Practices over Time

	CSR			Partner reading			Making words		
Teacher	1995	1996	1998	1995	1996	1998	1995	1996	1998
Leigh	H	H	L	H	H	H	H	H	M
Collin	M	L	L	H	M	M	M	L	L
Angie	H/M[a]	H	M	H	H	H	H	L	L
Kelly	L	L	L	H/L[a]	L	H	H	H	L
Janis	H	H	L	H	H	H	H	H	H
Heidi	M	M	H	H	H	H	M	L	H
Rita	H	H	H	H	H	H	H	H	H

Note. H = high frequency of implementation; M = moderate frequency of implementation; L = low frequency of implementation. CSR = collaborative strategic reading.
[a]The first letter indicates the frequency of implementation during the initial 9-week period when the teacher learned the instructional approach. The second letter indicates frequency of implementation during the remainder of the year. These were the only two teachers who changed in frequency of implementation during the 1995 school year.

the instructional practices some of the time (at least 6 times during the 5-month period); all but one of the teachers (Collin) frequently implemented at least one of the practices (at least 16 times in the 5-month period); and two of the teachers (Heidi and Rita) frequently implemented all three of the practices. Partner reading was the most frequently used approach during previous years, and continued to be the instructional practice used most often by teachers during 1997–1998 (with all seven teachers using it, each at least six times). Teachers consider partner reading to be applicable across the widest range of grade levels. Making words was applied regularly by teachers across grade levels during the first year teachers learned the practices; during subsequent years intermediate-level general education teachers discontinued its use (with four teachers using it 16 times or more during 5 months of the 1997–1998 school year). CSR was never implemented by all the teachers in the cohort, and continued to be used by fewer teachers than the other practices (with two teachers using it at least 15 times in 1997–1998 and one teacher using it between 11 and 15 times).

Leigh currently uses partner reading with her class twice per week as one of the centers students rotate through during language arts. She has implemented partner reading consistently over the years since she learned the practice. She has modified the approach slightly to save time, combining paragraph shrinking and prediction relay. Leigh has also used making words every year since she learned it. The year after the professional development experience, she implemented making words for the full year. This year she again used making words in the fall, but completely set it aside after the winter break because students "didn't need it anymore." Leigh no longer implements CSR. She insists that she likes the approach, however, and that she did not consciously stop using it. "I need a refresher," she said. Leigh has been providing whole-class reading comprehension instruction instead of asking students to work in cooperative groups as with CSR.

Collin does not implement any of the instructional practices regularly. Businesslike, well organized, and task oriented, he prefers traditional, teacher-led approaches to the three instructional practices. Partner reading is his favorite of the three practices. Collin reported that he implemented partner reading at the beginning of the year for about 6 weeks and then set it aside to prepare for high-stakes testing. He has made only a few adaptations to the practice. Making words, he feels, is too easy for the majority of his students and so he no longer implements it. Collin reported that he occasionally implements CSR, yet while observed implementing the practice neither he nor his students seemed very familiar or comfortable with it. He frequently interrupted students working in cooperative groups and restated what they were reading in his own words.

Angie currently implements partner reading (her favorite of the three instructional practices) and CSR on a weekly basis for part of the year. Angie has made some adaptations in partner reading to fit students' preferences and her own teaching style. She omits prediction relay because "I don't like it; it's boring," and rereading, because "students get bored." While they were observed using partner reading, Angie's students were actively involved and on task. Angie has not adapted CSR. Throughout classroom observations, students were thoroughly engaged in the activity. Angie continually monitored their progress and provided assistance when needed. She has not implemented making words since the year she learned it because she believes it is not appropriate for her sixth graders, "It was too simple, the kids were too bored, and I could see them building houses and doing all sorts of things with the (letter) tiles."

Kelly implements only partner reading (but calls it "buddy reading" instead). She has made so many changes to the approach that it is not clear whether she is doing partner reading or a different instructional practice. Students often read content-area textbooks instead of trade books at their level, sometimes omit partner reading and rereading, and are placed in groups of three rather than two. Kelly found it difficult to implement CSR after switching from teaching fifth grade to second grade. She felt it was too difficult for her primary-grade students. Since then she has forgotten the strategy's key components. She continued using making words after the first year she learned it, but has since discontinued its use.

Janis knows well and likes all three of the instructional practices. This year she used only partner reading and making words on a regular basis, but, as she is quick to point out, the reason she does not use CSR is that she is not in classrooms while students are studying the content areas (when CSR is typically implemented). Janis has made some adaptations in the practices. Like Leigh, she implements them in centers. With partner reading, when time is short, she leaves off prediction relay. With her lowest functioning students, she usually serves as the "first reader" and takes a turn with each student. This enables her to hear them read and provide assistance and modeling. With making words, she sometimes skips the easiest words so that students have more time for the more challenging aspects of the lesson. If students run out of time, they do making words quickly for homework rather than in class.

Heidi regularly implements all three instructional practices. During observations, it was clear that her students are experts in the procedures involved in each strategy. All students—including those with LD and those with autism—were on task, engaged, and discussing the material at hand. In both of Heidi's classrooms there are many references to all three strategies (e.g., posters, charts, and so on). Heidi has adapted each of the practices to some extent, making them more gamelike to match her teaching style. While doing making words, students sometimes throw a ball to each other when saying the letters in a word. With partner reading, Heidi omits prediction relay, relying on CSR for teaching comprehension strategies. She has added a follow-up writing activity in which students summarize what they read. For CSR, she uses cue cards rather than cue sheets for each role, because "the cards give each child a script to follow. Nobody is off

task because they have the cards, which makes it a game, and everybody is a part of it and is successful."

Rita is a strong supporter of all the strategies, but prefers different ones depending on the grade level and/or reading ability of the students. She has made several adaptations in CSR and partner reading, and a few in making words, mainly to simplify the use of the practice in a given class or to structure the practice to focus more on an area in which she feels it is weak. She has added preteaching and follow-up reinforcement activities to all three practices. Like Heidi, Rita uses cue cards with CSR. She provides more direct teacher guidance with some classes than with others. For partner reading, she omits paragraph shrinking and prediction relay, and has added cue cards that prompt students to answer a series of questions during retelling. She explained, "I thought that the retelling of the original version only gets to a basic level of understanding. . . . I found a lot of times they were not using their reading comprehension, they were looking at pictures, which is fine for younger students; but older students should be able to do a more in-depth retell . . . that is why I chose to add the questions."

Factors That Facilitated Sustained Use

In Table 3 we list the top factors that facilitated the sustained implementation of the instructional practices, as indicated by teachers on the Facilitators and Barriers Checklist during the year they first learned the practices and again 3 years later.

In text, we present a themed discussion of the many factors that teachers described as facilitating their use of the instructional practices.

A support network was discussed by teachers as affecting the sustainability of the practices at two of the target schools. Teachers described this support as coming from a variety of sources: other teachers, paraprofessionals, Rita in her role as enrichment teacher, and the university's professor-in-residence. Schoolwide implementation of the strategies made it easier for teachers to continue using the strategies. As Collin noted, "When you have support, be it from the whole staff or from another teacher that comes into your room, it makes a big difference. One of the reasons this program has been so successful is because we are all doing it." Angie (the sixth-grade teacher) added, "I reap the benefits of these children going through all these strategies in the lower grades. They are going on in all the classrooms, so when I get them they don't say, 'I don't want to work in a cooperative group.' This is old habit to them." Being able to talk with others about strategy implementation is also important, she said: "When we were first learning the strategies, we always had this group to come back to and just like today [at the focus group interview], you hear different ideas. I mean, we're all in our own little cave doing our own little thing, and we need to come up for some light every once in a while." Angie noted, "I have to also say that having [the professor-in-residence] on campus one day a week is such a blessing to all of us. If there is anything we need to ask about, she not only would help us there on the spot, but she's willing to come into the classrooms and demonstrate. That's very reassuring, although I've been doing this, what, 3 years now." Leigh referred to the classroom partner who had helped her learn the practices three years ago, "I think what helped me a lot was . . . having a facilitator [classroom partner] come here and work with me on how to make adjustments and how to change things. Even that really helps a lot."

Administrative backing was also identified by teachers as important. Janis explained that she thinks the principal's

TABLE 3. Teachers' Perceptions of the Top Three Facilitators of Implementation

	CSR		PR		MW	
Facilitator	1995	1998	1995	1998	1995	1998
Students' acceptance of strategy	✓	✓		✓[a]	✓[a]	✓[a]
Lessons demonstrated in class	✓	✓[a]			✓	✓[b]
Access to materials		✓[b]		✓	✓[b]	
Instructional needs of students				✓		✓[b]
Classroom partners			✓		✓[b]	
Ability to adapt/modify	✓[a]		✓[a]			
Adequate training		✓[b]				
Time for instruction					✓[b]	
Personal teaching style						✓[b]

Note. CSR = collaborative strategic reading; PR = partner reading; MW = making words.

[a]Indicates the top-ranking facilitator or barrier (determined by calculating the number of teachers to mention the factor as well as whether teachers indicated that the factor was the most influential facilitator or barrier). [b]Indicates a tie in ranking.

support has made a substantial difference, "because she has gone in to visit rooms during observations, and she has said 'this is going to be throughout the school,' and she goes to meetings and she says 'you all have to do this, you get inservices.' I think a lot has to do with her. Some of us teachers now do it because we really like it. Others are doing it just because administration says 'you use this strategy.'" Collin agreed, "The administration supports what we are doing. That means a lot. Because if neither one of them had been supportive and they would have only left it to our own devices, and we didn't get this message that it was important to continue to see if this would work, to give it an honest try, probably only half of us might have continued." Angie confirmed this, "We could have been taught all these wonderful strategies and just [used them] for a year, and then because there were a few barriers the next year [stopped implementing them]. But that didn't happen to us because there was [our principal] pushing, pushing—usually fairly gently, but if a gentle push didn't work there was strong pushing—and after she had the original group doing this, she would free us to go and help others get started." Rita described a somewhat different approach at her school: "[The principal] said, 'I really want you to try to push these strategies.' Well, two teachers coming with a new principal trying to push the strategies, it wasn't going to work. So [the principal] put up a sign-up sheet that said 'anybody interested,' and the whole sign-up sheet was filled up in two days. People got interested by word of mouth. She has not pushed it. She's provided the training." The principals at two of the schools continued to provide teachers with the resources needed to implement the practices. The third school was the only one of the three to change principals.

Student benefits were identified by teachers as influencing the sustainability of practices. When we conversed with teachers, they were quick to share what they perceived to be the benefits of their favorite practices. Kelly claimed that having students tell a main idea in 10 or fewer words has been the most effective way she has found to teach this skill. Janis was convinced that all three instructional practices helped students and viewed them as high-quality additions to her teaching repertoire (e.g., "more tools for my bag"). Regarding partner reading, Collin enthusiastically exclaimed, "It is incredibly effective—so effective I couldn't just tell anybody how effective." Teachers stressed that they see a lot of transfer from what students learn in making words to their reading and writing. Also, it builds their self-esteem and increases their confidence. Rita noted, "It gives everybody a chance to be successful." Leigh agreed that it is especially effective as a remedial technique for students with learning disabilities: "The ones that are having a hard time learning how to read, when they do this, it is like, 'I am taking a little step forward now and I am not there yet but I am starting to take the right path.'"

Students' acceptance of an instructional practice was identified by teachers as affecting the extent to which they implemented the practice in their classrooms. Leigh shared that she is quite influenced by students' opinions. Referring to partner reading, she noted, "I think number one, the children like to do it and they are very receptive to it. They enjoy doing it and they are willing to do it." Others agreed. Janis and Heidi emphasized that when students like an instructional approach and perceive that it is fun, they participate more, stay focused longer, and learn more.

Being able to adapt or modify a practice was described by teachers as influencing the long-term sustainability of instructional practices. Leigh noted that it was important for teachers to perceive that it was permissible to make adaptations. Teachers revealed that they felt torn when it seemed there was a conflict between experts' expectations and their own beliefs about how to teach. Teachers reported that they made adaptations for a variety of reasons. All the teachers in our cohort said that they adjusted how they implemented the instructional practices to fit their students' needs and time constraints. Angie and Collin added that teachers also made adaptations to fit their teaching styles and to make instructional practices easier to implement.

Having materials already prepared or available was an effective facilitator. The university research staff prepared all the materials for making words during the initial professional development year. Rita explained, "We had a whole class set of letters laminated and cut for the teachers. It makes it a whole lot easier to get started." Each school has provided teachers with an extensive classroom library for partner reading. At one school, the resource teacher and support staff have prepared CSR kits for each classroom. Resource teachers and paraprofessionals at two of the schools have continued to help prepare materials.

Additional variables that have supported the sustainability of the practices included (a) recommendations from peers (e.g., hearing another teacher's enthusiasm; Angie); (b) having a university intern in the room to provide assistance (Collin, Janis, and Leigh); and (c) a match between teaching philosophy and a practice (Janis).

Factors That Impeded Sustained Use

In Table 4 we list the top factors that impeded the sustained implementation of the instructional practices, according to teachers' responses on the Facilitators and Barriers Checklist during the multiple times they completed the measure.

Teachers shared with us many barriers that have kept them or someone else from sustaining usage of an instructional practice. We discuss these next.

High-stakes achievement testing greatly influenced teachers in this study (as it had 3 years previously; Vaughn et al., 1998). Janis articulated the pattern of many teachers when she said, "we only do [making words] for a couple months, and then we switch over to different things that they need for the SAT." Teachers indicated that they felt intense pressure to prepare their students for test taking, and were compelled to use "test ready" booklets for several weeks prior to the examination. Almost everything else seemed to be put on hold. Collin expressed the anxiety felt by many: "I really

TABLE 4. Teachers' Perceptions of the Top Three Barriers to Implementation

Barrier	CSR		PR		MW	
	1995	1998	1995	1998	1995	1998
Range of achievement levels	✓[a]	✓	✓[a]		✓[b]	✓[a]
Preparation for standardized tests	✓[a]	✓[b]	✓[a]		✓[b]	
Lack of planning time			✓[a]		✓	✓[b]
Class size			✓[a]		✓[a]	✓[a]
Special events	✓[a]				✓[a]	
Lack of instructional time		✓				✓[a]
Time class spends together as a whole						✓[a]
Instructional needs of students					✓[a]	
Access to materials			✓[a]			
Time needed to prepare for strategy				✓		

Note. CSR = collaborative strategic reading; PR = partner reading; MW = making words.
[a]Indicates a tie in ranking. [b]Indicates the top-ranking facilitator or barrier (determined by calculating the number of teachers to mention the factor as well as whether teachers indicated that the factor was the most influential facilitator or barrier).

want to get anything and everything done that I can to get those (test scores) to look good. I'm going to be compared with her and him and everybody else, and my school will be compared within the region, and my region will be compared within the district, and my district will be compared with others within the state." Teachers perceived that they were being evaluated when their students were assessed, and therefore sacrificed possible long-term gains (e.g., in reading comprehension) in hopes of gaining short-term advantages. Although many teachers said they discontinued using the instructional practices to get ready for standardized testing, other teachers countered that the practices actually helped students prepare and that "test scores have gone way up" because of the practices. Heidi was one of this latter group of teachers. She elaborated, "[From CSR], they have vocabulary that they didn't have, they have technical vocabulary that they didn't have, and all these things help on the [SAT]—where you have to read a passage about something technical or something scientific, they come back and they can pick this vocabulary out of the passage."

An emphasis on content coverage was another key dilemma with which teachers struggled. Teachers acknowledged that they felt a lot of pressure to cover content, to get through a chapter or book, regardless of how well students learn the material. They affirmed that with CSR students learn the material well, but that the time to cover a topic in this much depth was a luxury they could not always afford. Rita explained, "I think that teachers perceive that content coverage is the most important thing—that you need to cover all the social studies book, all the science book. And with CSR I don't think that you can cover as much as teachers would like to get covered. Even though you are covering it well with CSR, I think that most teachers think that the important thing is to get through the whole book." Heidi added, "I think that the barrier to implementing CSR might be teachers' perceptions of quantity versus quality—and perhaps limited understanding as to the benefits to students, short term and long term."

Time constraints were reported by teachers as a persistent theme influencing their decision making. Although lack of time did not appear to prevent teachers from using partner reading or CSR, tight schedules affected how the approaches were implemented. Many teachers set aside 30 minutes for partner reading, whether they used it as a center or with the whole class. This would hardly have been enough time for full implementation in the best circumstances, but exacerbating the situation were *frequent interruptions*. A 30-minute block typically became squeezed, and then some aspect of the strategy had to be cut. Janis explained, "We've only had time to get up to paragraph shrinking because of the time restraints. Our centers are a half hour, and usually they end up being 20 or 25 minutes because, you know, they had to go downstairs because there was a magnet school coming or something. So we usually have 20 minutes by the time we get into our groups and get the folders out." Angie explained how time constraints have influenced the way she implements CSR: "We're pressed for time, so I don't take the time to write down the gist because it is not important enough to have it in writing that I would want to spend all that time with it."

A mismatch between teaching style or personality and a practice affected strategy implementation. For example, Collin, who did not like CSR because it requires cooperative groups, confided, "It doesn't click with my personality." He indicated that he was most comfortable when students worked on their

own quietly, and what might seem to others as normal noise when groups work together seemed like chaos to him. He noted that for cooperative groups to work, the teacher must be able to trust that the children can indeed teach each other and learn on their own, and that he has difficulty trusting this. Heidi added, "I think you have to take into account styles. Some of us have more of a 'stand and deliver' style, and some of us have styles that are more facilitative, and some of us are somewhere in between, and I think that we have to consider that there are going to be adaptations made based on styles."

Forgetting affected sustainability, even in a setting where support was available. When asked why she no longer uses CSR, Leigh shrugged and said, "It just faded away." Each of the past 2 years she has intended to implement CSR after the round of high-stakes testing in March, but has not gotten around to it. She said that she has forgotten how and she needs a refresher. Kelly said that it has been difficult to sustain use of the instructional practices because she changed grade levels and because she no longer has the support of a co-teacher (because she no longer teaches in an inclusion class). She said, "With so much change, you forget."

Not having an in-depth understanding of a practice made implementation a challenge for some teachers. Rita reported that CSR was the most difficult of the approaches for teachers to learn. She explained, "I think that one of the confusing parts about CSR is that teachers know how to do the actual (reading comprehension) strategies, but they don't know how to put it together within cooperative groups." Heidi noted that some teachers seem to have a "limited understanding of (the importance of) ownership of information—how we learn and how we hang on to what we learn." At times it was apparent during an observation of a teacher implementing an instructional practice that he or she lacked understanding of the critical components of the practice and how to implement these (as with Collin and CSR). As we found with our previous research (Vaughn et al., 1998), when teachers did not fully understand a practice, they had more difficulty adapting it for their students with special needs in ways that kept the critical features of the approach intact.

Other barriers mentioned by teachers included (a) feeling isolated (underscored by Kelly, who was the only teacher remaining at her school who had been part of the original cohort to learn the practices); (b) a lack of commitment or enthusiasm on the part of the teacher (Angie, Collin); (c) getting bored with an instructional practice (Angie, Rita); (d) believing the practice is more suitable for younger students (Collin, Angie); (e) competition from other instructional approaches "peddled" by the school district (Collin); and (f) having a university intern (student teacher) who is not proficient in the instructional practice (Angie).

Discussion

Two compelling issues have influenced public policy in education. First is the belief that elementary students in the United States are not progressing at acceptable rates (National Commission on Excellence in Education, 1983). Second, and related to the first, is the general concern that public school teachers are not providing the quality of instruction that reflects what is known from research, and thus share much of the burden of responsibility for the poor outcomes of many students (Cooper, 1996). Recent trends in special education have made these two issues highly relevant. The reauthorization of IDEA (Individuals with Disabilities Education Act of 1990) requires that students with disabilities be provided access to the general education curriculum to the extent possible, and increasing numbers of students with disabilities are receiving most if not all of their education within general education settings (Heumman & Hehir, 1997). Thus, the issue of the extent to which students with disabilities are provided the most effective practices has been the topic of considerable research and discussion (e.g., Gersten et al., 1997).

This study sought to better understand the extent to which a cohort of teachers who were provided extensive professional development, in-class coaching, and yearlong opportunities to discuss the implementation of effective practices continued to implement these practices over time, the ways in which they have modified them, and factors that have influenced the sustained use of the practices. Overall, how sustained were the practices? With the exception of one teacher, Collin, all the teachers sustained one or more of the three practices at a high rate. Not surprisingly, teachers were more likely to sustain implementation of practices that they had implemented at high levels 3 years previously, with no teacher who had at first demonstrated low levels of implementation improving to higher levels with that instructional practice. However, teachers who had demonstrated moderately high levels of implementation of target practices moved in both directions over time, with some demonstrating higher levels of implementation in this study and others reducing to low levels of implementation. The lesson may be that the practices that are likely to be sustained over time are those implemented at least at moderate levels during ongoing professional development.

Of the three instructional practices, partner reading demonstrated the highest levels of sustained implementation over time. There are numerous possible explanations for this finding. First, partner reading was the instructional practice with the highest initial implementation rates; thus, teachers took to it from the beginning. Second, partner reading has the most precise routine associated with implementation. Because partner reading provides a framework for peer teaching, the teacher's role is to provide the organizational structure for implementation (e.g., pair students, furnish materials to read) but not to provide instruction. Third, partner reading is perceived by teachers to be applicable across the widest range of achievement and grade levels.

Limitations

First, not all participants from our original cohort were available to participate in this study because they had moved on to

other schools or were no longer teaching. We would have preferred to be able to determine the levels of sustained use by all 12 of the original teachers. Second, we relied on teachers' reports of how often they implemented each of the practices, and they may have felt pressure to exaggerate their levels of implementation. However, because we observed teachers using the practices in their classrooms, we were able to determine whether teachers and students seemed familiar with a practice (and in only one case did we question a teacher's assertion that the practice had been implemented regularly). Third, teachers who participated in this study and their schools have been the beneficiaries of an extensive professional development program—more than would typically be provided. On the one hand, this enabled us to answer our question, "What might be expected when extensive support is provided?" On the other hand, this may make our findings more optimistic and somewhat limit their generalizability.

Implications for Practitioners

What should school leaders consider if they want to sustain effective instructional practices over time and have them become embedded within the instructional routines of teachers? To the extent that the findings from this study generalize to other settings and teachers, the following considerations are relevant: First, teachers are more likely to maintain a practice if they are part of a support network that enables them to discuss the practice and get ideas about its continued implementation, as well as have the knowledge and perhaps even expectation from their peers that maintaining the instructional practice is valuable. This network of professionals provides an ongoing reminder that the practice is important and relevant. Second, ongoing administrative backing for instructional practices is key to their sustained use. School leaders who shift their attention to new and different instructional principles on a yearly basis are unlikely to develop teachers who are building on what they know, but more likely are waiting for the current new idea to pass. Similarly, when school districts rotate principals from school to school every few years, schools are less likely to maintain the consistency in leadership that seems to promote sustainability. Third, teachers are influenced by the responses of their students. If they perceive that their students are benefiting from the practice and/or like the practice, they are more likely to sustain its implementation. Fourth, teachers who sustain practices at high levels believe that teachers who have a limited understanding of a practice and/or how children learn are less likely to sustain a practice or know how to adapt it to make it work in their classrooms. It is not enough to learn the steps involved in carrying out a practice; understanding the theory behind the practice is essential. Fifth, what issues are thought by teachers to impede the sustained use of instructional practices? The factors most often identified by teachers are external pressures that they perceive to be beyond their control, namely the extent to which they have adequate time to implement the practice, cover the content mandated by curriculum requirements, and prepare students for the high-stakes assessments used in the school district. Simply put, teachers are unwilling to invest in the long-term instructional practice that does not provide immediate return on the high-stakes assessment by which they perceive they will be evaluated. Thus, instructional practices that require the acquisition of instructional strategies that might pay off in the long run (e.g., CSR) may be difficult for teachers to justify if they are not confident that students will cover all the necessary content and score higher on the next high-stakes assessment. Yet factors internal to teachers clearly affect the sustainability of innovative practices as well. Not surprisingly, teachers have personal instructional styles that are more or less suited to instructional principles to varying degrees. If a teacher is reluctant to have students serve as guides and teachers for other students, then practices that include this process are unlikely to be sustained over time.

Because there is so much to lose if children with learning disabilities are not provided the most effective instruction, considerable attention has focused on ways to link research-based practices to classroom implementation (Carnine, 1997; Gersten, Morvant, & Brengelman, 1995). Unfortunately, much of the dialogue about this important issue has sounded like a "blame the teacher" or "blame the researcher" orientation—neither of which are accurate or provide guidance about how to make improvements (Fuchs & Fuchs, 1998; Gersten et al., 1997; Malouf & Schiller, 1995; Richardson, 1990). There is a growing body of knowledge about procedures that enhance or inhibit the sustainability of effective practices by teachers and school systems. Teachers perceive that many of the factors that affect their sustained use of practices are largely out of their control, including the ever-changing focus of the schools and district, emphasis on high-stakes assessment, time for planning and materials development, and opportunities to interact in professionally satisfying ways with their colleagues about the implementation and use of instructional practices. Three years following professional development on the implementation and use of three targeted practices, the teachers in this cohort demonstrated overall high use of these practices. Furthermore, teachers had adjusted these practices to suit their instructional styles and the needs of the students in their classrooms. Given the demands of teaching and the ever-shifting focus of schools and districts, we were surprised by how well and how long these teachers continued to be influenced by their professional development experience 3 years previously. ■

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