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## ***Peer- Assisted Learning Strategies in Reading for Students With Different Learning Needs***

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### **Abstract**

This paper provides an overview of the classwide peer-tutoring strategy known as Peer-Assisted Learning Strategies (PALS) for reading. Specific activities and research supporting PALS for Kindergarten, First Grade, Grades 2 through 6, and High School are described. Then, research addressing the characteristics of students who have not responded to PALS, as well as approaches to identification and further intervention for PALS nonresponders, is summarized. Current efforts to examine PALS when taken “to scale” are briefly described followed by ways to obtain PALS materials and training.

**Key words:** peer-tutoring, reading, and diversity

No Child Left Behind (NCLB; 2002) requires states to raise the achievement not only of the easy-to-teach, but that of *all* children, including children with disabilities, minority children, English language learners (ELL), and children from low-income families. The expectation is that by the year 2014, all students will show evidence of proficiency in reading, math, and science. To ensure that schools make steady progress towards meeting the 2014 goal, teachers are being held to an evidence-based education standard. NCLB stipulates that teachers move beyond relying on experts, tradition, personal judgment, and anecdotal reports of successful programs as they select instructional practices. The NCLB expectation is that teachers will implement “scientifically based” instructional practices.

The “gold standard” for deeming a practice scientifically based is the randomized controlled trial (RCT), a research design that is difficult to implement, as it must be

conducted on a large scale, requiring substantial resources and school support (Institute of Education Sciences, 2003). Moreover, persuading schools and districts to participate in RCT can be challenging because they often desire all children to receive access to the intervention being examined. This is especially true when the intervention may benefit low-performing students. Consequently, among the practices validated through RCT, only a handful have been demonstrated to show promise for students with different learning needs, particularly in general education classrooms. One such intervention, Peer-Assisted Learning Strategies for Reading (PALS-R), is the focus of this article.

Thus, the purpose of this article is to provide an overview of PALS and the research base that addresses its effectiveness in improving the reading performance of students with different learning needs in general education classrooms. We begin by providing a brief history on the development and origin of PALS. Then, we provide an overview of the important features of PALS across grade levels. Third, we describe specific PALS activities and research supporting PALS Kindergarten, First Grade, Grades 2 through 6, and High School. Fourth, we discuss implications for practice and implementation. Fifth, we discuss briefly current efforts to bring PALS “to scale” (i.e., to explore ways to effectively implement and sustain PALS in today’s classrooms). Last, we provide information for accessing PALS materials and training.

## **History and Origin of PALS**

Since its inception, PALS was developed as a method for helping teachers accommodate students with different learning needs in general education classrooms (Fuchs, Fuchs, Mathes, & Simmons, 1997). Given this focus, an explicit emphasis of PALS research has been to examine benefits to all children, including low-, average-, and high-achieving students and students with disabilities (e.g., Fuchs et al., 1997; Fuchs, Fuchs, Thompson, Al Otaiba et al., 2001; Simmons, Fuchs, Fuchs, Hodge, & Mathes, 1994). Over the years, PALS has consistently yielded positive reading outcomes for students with different learning needs in general education classrooms. Because of this, PALS has been approved by the U.S. Department of Education's Program Effectiveness Panel for inclusion in the National Diffusion Network on effective educational practices.

PALS was developed in the early 1990s by Doug Fuchs and Lynn Fuchs and their colleagues at Vanderbilt University (see Fuchs & Fuchs, 2005; Fuchs et al., 1997; Fuchs, Fuchs, Thompson, Al Otaiba et al., 2001; Mathes, Howard, Allen, & Fuchs, 1998) who modeled PALS after Classwide Peer Tutoring (CWPT). CWPT was developed by Delquadri and colleagues (e.g., Delquadri, Greenwood, Whorton, Carta, & Hall, 1986) at the Juniper Gardens Children’s Project at the University of Kansas. The basic tenets of CWPT include the notion of increased academic engagement, immediate correction and feedback, high mastery levels, and sufficient content coverage (Greenwood, Delquadri, & Hall, 1989). Researchers have demonstrated that CWPT can improve students’ performance in reading, spelling, and math (e.g., Fantuzzo, King, & Heller, 1992; Greenwood et al.) at both the elementary (e.g., Greenwood et al.; Maheady & Harper, 1987) and secondary levels (Maheady, Harper, & Sacca, 1988). PALS extends research on CWPT by examining effects for low-performing students with and without disabilities, as well as the incidental benefits to average- and high-performing students (e.g., Fuchs & Fuchs, 2005; Fuchs et al., 1997; Fuchs et al., 2001; Mathes et al., 1998).

PALS has also been explored in high-poverty, Title I schools and middle-class, non-Title I schools, and schools in urban and suburban districts. In addition, PALS has been examined across a variety of grade levels, resulting in PALS for Kindergarten, First Grade, Grades 2 through 6, and High School.

An important and unique aspect of PALS has been the close involvement of classroom teachers in its development and implementation (e.g., Fuchs & Fuchs, 1998; Fuchs, Fuchs, & Burish, 2000; Fuchs, Fuchs, Thompson, Al Otaiba, et al., 2001). An explicit purpose of working closely with teachers to design PALS has been to develop a strategy for helping teachers accommodate students with different learning needs in general education classrooms (Fuchs et al., 1997). The outcome of this collaboration has been increased teacher buy-in, particularly given that PALS shows promise for students with different learning needs. Moreover, with teacher input, PALS has been designed to be efficient and easy to implement thereby increasing its practicality, a feature often lacking in school-based interventions.

Although PALS has consistently led to positive student outcomes, a small proportion of students who participated in PALS have not made sufficient reading progress (Al Otaiba & Fuchs, 2006; Fuchs, Fuchs, Thompson, Al Otaiba, Yen, Yang et al., 2002; McMaster, Fuchs, Fuchs, & Compton, 2005). Researchers are continuing to work on the best ways to identify students for whom PALS is not beneficial and to increase its effectiveness. In addition, researchers are continuing to examine the effects of PALS when taken to scale (e.g., Fuchs et al., 2006). In the next section, we describe the important features of PALS across grade levels.

### **Important Features of PALS**

Several critical PALS features are common across each grade level. First, PALS tutoring roles are reciprocal. Every student in a classroom is paired with another student, and each pair consists of a higher- and a lower-performing student. Students in each pair are assigned the roles of “Coach” (tutor) and “Reader” (tutee). These roles are reciprocal, so that both students in a pair serve as Coach and Reader during each session. The teacher determines pairs by rank ordering all students from the strongest to the weakest reader. The teacher then divides the rank-ordered list in half, pairs the strongest reader from the top half with the strongest reader from the bottom half, and so on until all students are paired. Pairs change at least every 3 to 4 weeks.

Second, PALS incorporates frequent verbal interactions between partners, increasing students’ time on task and opportunities to respond (e.g., Delquadri et al., 1986; Greenwood et al., 1989). The Coach’s role is to provide immediate, corrective feedback to the Reader when needed. These features increase many students’ chances of success during PALS reading activities.

Third, PALS activities comprise supplemental practice of skills taught in the core reading curriculum. PALS activities emphasize important reading skills (e.g., decoding, fluency, and comprehension) that are presumably addressed in the core curriculum but require extensive practice to ensure student mastery and growth. These activities are implemented for 30- to 40- min sessions, three to four times per week.

Fourth, PALS consists of a set of structured activities, which students are trained to implement with their partners. Teachers use a set of brief scripted lessons to train all students. The training lessons for each activity last 30 to 60 min per session and take 2 to 4 weeks to implement. These lessons include scripted teacher presentations, student practice, and teacher feedback. Once the students are proficient with the PALS procedures, they can devote their full attention to the actual content of the lessons. In the next section, we describe the specific activities for each grade level, as well as the research supporting their use. We begin with PALS for kindergarten and first grade.

## **Kindergarten and First Grade PALS**

The most recently developed PALS activities have focused on beginning reading skills critical for early literacy acquisition (Fuchs, Fuchs, Thompson, Svenson et al., 2001). Specifically, Kindergarten PALS (K-PALS) and First Grade PALS activities address phonological awareness, beginning decoding, and word recognition, all skills that researchers have demonstrated to be important for successful beginning reading programs (see National Reading Panel, 2000).

### *Kindergarten PALS*

Teachers prepare their children for PALS by modeling the activities in a whole-class format. The teacher acts as the Coach and the students are the Readers during eight introductory lessons. Gradually, individual students take turns assuming the role of Coach for the whole class. Then, the students tutor each other, alternating as Coach and Reader. The higher-performing student is always the Coach first. The teacher circulates among the student pairs, monitoring their progress and providing corrective feedback. K-PALS is conducted three times per week, for 20 min per session. Two types of activities are incorporated into PALS: *Teacher Directed Sound Play and Sounds and Words*.

*Teacher-Directed Sound Play.* Teacher Directed Sound Play includes five phonological awareness “games” that address rhyming, isolating first sounds, isolating ending sounds, blending sounds into words, and segmenting words into sounds. Each lesson sheet shows pictures of common animals and objects. For example, the “First Sound” game shows three rows of four pictures. Three of the pictures in each row start with the same initial sound and one with a different sound (e.g., tub, teeth, cap, turkey). The teacher would point to the first two pictures on the lesson sheet and say, “tub, /t/, teeth, /t/.” Then she would point to the other two pictures and say, “Which one starts with /t/, cap or turkey?” The Reader should reply, “Turkey, /t/.”

*Sounds and Words.* Sounds and Words always immediately follows the Teacher Directed Sound Play game. Sounds and Words is made up of four activities: *What Sound?*, *What Word?*, *Sound Boxes*, and *Reading Sentences*. All activities are printed on one side of a lesson sheet. After the Reader has completed an activity one time, the Coach marks one of four happy faces printed at the end of the activity. The students then switch jobs, and do the activity again.

The first activity, called “*What Sound?*,” displays rows of letters that the students read from left to right. A new letter sound is introduced in every other lesson. This new letter is in a box along with a picture of an animal or object that starts with that sound. The new letter sound is introduced by the teacher. Then the Coach points to each letter and asks, “What sound?” The Reader says each sound. Stars are interspersed among the letters to prompt the Coach to praise the Reader (e.g., “Great job!”). When the Reader makes an error, the Coach says, “Stop, that sound is \_\_\_\_\_. What sound?” The Reader says the sound, and the Coach says, “Start the line again.”

The second activity, “*What Word?*,” displays common sight words in rows on the lesson sheet. A new sight word is introduced in every other lesson, and the words build cumulatively across lessons. The teacher introduces the new sight word to the class at the beginning of the lesson. The Coach points to each sight word and asks, “What word?” The reader reads the words, and the Coach corrects errors, just as in the “What Sound?” activity.

The third activity is called “*Sound Boxes.*” Students read decodable words comprised of letter sounds practiced in earlier lessons. The words in each lesson are presented in word families, such as “at,” “mat,” and “sat.” Again, words build cumulatively across the lessons. Each letter of a word is in a “sound box.” The Coach says, “Read it slowly,” and the Reader sounds out the word, pointing to each box. Then the Coach says, “Sing it and read it.” This prompts the Reader to blend the sounds together, and then read the word. The Coach corrects errors and praises the Reader for appropriate responses.

The fourth activity is “*Reading Sentences.*” After the Sound Boxes activity, the students read sentences comprised of sight words and decodable words practiced in earlier lessons. The Coach says, “Read the sentences,” and provides corrective feedback for any errors as the Reader reads. At the end of the lesson, the students count the happy faces they have marked, and record this number on point sheets.

#### *Research Findings for Kindergarten PALS*

Results of large-scale experimental research show that K-PALS can have a substantial positive impact on the beginning reading skills of many children, and that the K-PALS decoding activities provide an added value over phonological awareness training alone. Fuchs, Fuchs, Thompson, Al Otaiba et al. (2001) reported a study in which 33 classrooms were assigned randomly to three groups: control, phonological awareness training, and phonological awareness training with the K-PALS decoding activities. After approximately 20 weeks, the phonological awareness group and the phonological awareness with K-PALS group outperformed controls significantly on measures of phonological awareness. Moreover, the K-PALS group outperformed the other two groups reliably on measures of beginning reading skill. Fuchs, Fuchs, Thompson, Al Otaiba et al. also showed K-PALS to be effective in schools with large percentages of minority children and children living in poverty, as well as in schools with predominantly white, middle-class student populations. Furthermore, Fuchs, Fuchs, Thompson et al. (2002) demonstrated that, as a group, kindergartners with disabilities who participated in K-PALS outperformed kindergartners with disabilities in control classrooms. However, a

number of kindergartners with disabilities who have participated in K-PALS have not improved their reading skills, a point to which we will return.

### *First-Grade PALS*

The First Grade PALS program was developed based on the work of Mathes et al. (1998). As in K-PALS, the First Grade activities emphasize beginning decoding skills and word recognition. In addition, First Grade PALS includes a fluency component designed to include the speed and accuracy with which students read. For two weeks, teachers train students to follow PALS rules and work cooperatively to complete the PALS activities. Following training, PALS is conducted three times per week, for 35 to 40 min per session.

Each PALS lesson begins with a brief teacher-led introduction. The teacher introduces new letter sounds and sight words, and then leads the students in segmenting and blending words that they will later decode in the lesson. The teacher says a word, and the students say the sounds in the word, holding up a finger for each sound. The teacher then shows them the word, and they blend the sounds together and read the word. First Grade PALS activities are comprised of two main parts: *Sounds and Words* and *Partner Reading*. *Sounds and Words* is made up of four activities. As with K-PALS, all activities are printed on a lesson sheet.

*Saying Sounds.* The first activity, “Saying Sounds,” is similar to the “What Sound?” activity in K-PALS. The lesson sheet displays rows of letters that the students read from left to right. The Coach points to each letter on the lesson sheet and says, “What sound?” and the Reader says each sound. The Coach praises the Reader and provides corrective feedback. When the Reader has said all of the sounds, the Coach marks a happy face and five points on a point sheet. The students then switch roles.

*Sound It Out, Read It Fast.* The second activity is a blending task using the words the teacher presented at the beginning of the lesson. The lesson sheet displays rows of words with an arrow printed under each and small dots printed under each phoneme. The Coach points to the first word and says, “Sound it out.” The Reader points to each dot and says the sounds. Then the Coach says, “Read it fast.” The Reader slides her finger along the arrow and reads the word fast. If the Reader makes an error, the Coach models sounding out the word and reading it fast; the Reader repeats the word and starts the line over. Again, the Coach marks a happy face and points, and the students switch roles.

*Read the Words.* The third activity is called “Read the Words.” Common sight words are presented in rows on the lesson sheet. The Coach says, “Read the words,” and the Reader points to each word and reads them. Many of the sight words are grouped into phrases. This prompts the Reader to read words in chunks, rather than in isolation. In addition, at the end of each PALS lesson, students read the sight words in a “Speed Game” format. During the Speed Game, the teacher times the Readers for 1 min as they read the sight words. The Readers then have two chances to try to read more words in 1 min than they did the first time. Then the Coaches play the Speed Game. When students beat their times, they mark a star on a “Star Chart” which, when completed, can be exchanged for small prizes, such as bookmarks or pencils.

*Reading Stories.* Next, students read short stories composed of the sight words and decodable words they have already practiced. Before the students read the story, the teacher introduces “rocket words” that have been added to make the stories more interesting. The teacher reads the story, providing a fluent model. The Readers then read the story. If the Reader makes a mistake, or hesitates on a word for 3 s, the Coach says the correct word, and the Reader repeats it and continues reading. Happy faces and points are marked, and the students switch roles. The Speed Game format is used with the story when the stories become long enough for timed readings.

*Partner Reading.* After First Grade PALS has been conducted for 4 to 6 weeks, Partner Reading is introduced. This activity is conducted for 10 min in each PALS session, immediately following the Sounds and Words activities. During Partner Reading, students use the decoding and word recognition skills that they have practiced during PALS to read books. Teachers select books that are appropriate to the reading level of the lower-performing student in each pair. The Coach reads the title of the book, pointing to the words, then the Reader reads the title. Then the Coach reads a page, pointing to the words, and the Reader repeats the same page. When the partners finish the book, they mark five points, switch roles, and read the book again. Each book is read four times before the pair receives a new book to read.

### *Research Findings for First-Grade PALS*

A major focus of PALS research at the first-grade level has been the exploration of the importance of including fluency-building skills in a beginning reading program. This is in light of increasing concern that reading fluency does not develop naturally in all students (see National Reading Panel, 2000) and is critical for reading comprehension (e.g., LaBerge & Samuels, 1974; Stanovich, 1980; Schreiber, 1987). Fuchs, Fuchs, Thompson et al. (2002) reported preliminary results of a study in which 33 first-grade classrooms were assigned randomly to one of three groups: First Grade PALS without fluency activities, First Grade PALS with fluency activities, and control. After approximately 20 weeks, students in both PALS groups outperformed controls significantly on phonological awareness and alphabetic measures. Only the students who participated in the PALS fluency activities also outperformed controls on measures of fluency and comprehension. As in previous PALS research, the benefits of First Grade PALS appear not to be mediated by student learner type (low-, average-, or high-performing), disability, or by type of school (Title I vs. non-Title I).

## **PALS for Grades 2 through 6 and High School**

### *Grades 2 through 6 PALS*

PALS for Grades 2 through 6 consists of three activities that are conducted during each PALS session: Partner Reading with Retell, Paragraph Shrinking, and Prediction Relay. Partners share books or other texts selected by the teacher. These texts should be at an appropriate level for the lower-performing reader in each pair, and so can (and should) be different for each pair. For each activity, the higher-performing reader is the first Reader,

and the lower-performing reader is the first Coach (and second Reader). After 5 min, they switch roles.

*Partner Reading with Retell.* The first activity is Partner Reading with Retell. The first Reader reads for 5 min, and then the second Reader reads the SAME text for 5 min. Whenever the Reader makes an error, the Coach says, “Stop, you missed that word. Can you figure it out?” If the reader does not figure out the word in 4 s, the Coach says, “That word is \_\_\_\_\_. What word?” The Reader says the word and continues reading. After both students have read, the lower-performing reader retells the sequence of events just read for 2 min. Students earn 1 point for each sentence read correctly, and 10 points for the retell.

*Paragraph Shrinking.* The second PALS activity is Paragraph Shrinking. This activity is designed to develop comprehension through summarization and main idea identification. Students use a questioning strategy to direct their attention to the important ideas or events they are reading about (e.g., Jenkins, Heliotis, Stein, & Haynes, 1987). During Paragraph Shrinking, the students continue reading orally, but they stop at the end of each paragraph to identify the main idea. Again, the higher performer is the first Reader, and the lower performer is the first Coach. The Coach asks the reader to identify (a) who or what the paragraph is mainly about and (b) the most important thing about the “who” or “what.” Then, the Reader must condense, or “shrink,” this information into 10 words or less. If the Coach deems the Reader’s answer incorrect, she says, “That’s not quite right. Skim the paragraph and try again.” After the Reader provides a new answer, the Coach decides whether the answer is correct. If so, she gives 1 point each for correctly identifying the “who” or “what,” for stating the most important thing, and for using 10 words or less to state the main idea. If the Coach determines that the answer is incorrect, she provides a correct answer, and the pair continues reading. After 5 min, the partners switch roles.

*Prediction Relay.* The last activity, Prediction Relay, requires students to make predictions and then confirm or disconfirm them. This activity is included in PALS because making predictions is a strategy associated with improvements in reading comprehension (e.g., Palincsar & Brown, 1984). Prediction Relay consists of four steps. The first Reader (a) makes a prediction about what will happen on the next half page to be read, (b) reads the half page aloud, (c) confirms or disconfirms the prediction, and (d) summarizes the main idea. If the Coach disagrees with the prediction, she says, “I don’t agree. Think of a better prediction.” Students earn points for each reasonable prediction, for reading each half page, for accurately confirming or disconfirming the prediction, and for identifying the main idea in 10 words or less. Again, the students switch roles after 5 min.

*Teams.* Each pair is assigned to one of two teams for which they earn points during PALS. These points are awarded for correct responses during the activities. Each pair marks their points by slashing through numbers on a score card. Teachers also circulate among the pairs during PALS to monitor performance and award bonus points for cooperative behavior and for following the PALS procedures. At the end of each week, the pairs report the number of points they earned for their teams, and the teacher adds



them up to determine the winning team. The teacher creates new pairs and teams every 4 weeks.

### *Research Findings for Grades 2 through 6*

Researchers have reported positive academic and social outcomes of PALS. In a large-scale experimental field trial (Fuchs et al., 1997), 12 schools in urban and suburban districts were stratified by student achievement and socioeconomic status, and assigned randomly either to implement PALS or to serve as no-treatment controls. PALS was implemented for 15 weeks in 20 classrooms as part of the reading curriculum, while 20 classrooms continued with their regular reading programs. At the beginning of the study, the PALS and control classrooms did not differ significantly in terms of demographics, teacher experience, or student reading achievement. After 15 weeks, however, students in PALS classrooms outperformed their control counterparts significantly in terms of growth on the Comprehensive Reading Assessment Battery (CRAB; Fuchs, Fuchs, & Hamlett, 1989), a measure of reading fluency and comprehension, with effect sizes ranging from .22 to .56. These effects held true for average and low-performing readers, including students with learning disabilities who had been mainstreamed in general education classrooms. In another small scale RCT on the effects of PALS for native-Spanish speaking ELL from high-poverty schools (Sáenz, Fuchs, Fuchs, 2005), results indicated that low-, average-, high-achieving students and students with disabilities who participated in PALS outperformed their control counterparts on reading comprehension as measured by the CRAB, with effect sizes ranging from .60 to 1.02. With respect to social benefits, Fuchs, Fuchs, Mathes, and Martinez (2002) found that students with learning disabilities in PALS classes enjoyed greater social acceptance than students with learning disabilities in non-PALS classes, suggesting that PALS has social as well as academic benefits.

### *High School PALS*

In light of the effectiveness of PALS for Grades 2 through 6, and because reading problems persist well beyond the elementary school years, PALS researchers extended PALS upward to high school (Fuchs, Fuchs, & Kazdan, 1999). High School PALS includes the three activities described above (Partner Reading, Paragraph Shrinking, and Prediction Relay). However, High School PALS differs from PALS for Grades 2 through 6 in three ways. First, students switch partners every day instead of every 4 weeks. This accommodates the more frequent absences of high school students, which makes partner consistency difficult. High school students also often prefer interacting with different classmates. Second, the motivational system is based on a “work” theme. Pairs earn PALS dollars, which they deposit into checking accounts. They maintain these accounts and write checks to order items from a PALS catalog, such as CDs, fast-food coupons, and sports apparel that have been donated by local businesses. Third, High School PALS students typically read from expository rather than narrative text selected to address issues pertinent to their lives, such as work and social relationships.

### *Research Findings for High School PALS*

High School PALS has been demonstrated to be a promising strategy to promote literacy among seriously reading-delayed adolescents (Fuchs et al., 1999). In a study in which students in nine High School PALS classrooms were compared to students in nine Control classrooms, PALS students grew more on reading comprehension (with an effect size of .34) and reported more positive beliefs about working hard to improve reading. However, PALS and Control students did not differ significantly on reading fluency growth or beliefs about being and wanting to become better readers.

### **Limitations of PALS Benefits**

Whereas PALS appears to benefit many students, including students with disabilities, some children do not make adequate achievement gains despite participating in PALS activities. An estimated 20% of low-achieving nondisabled students (Mathes et al., 1998), and more than 50% of students with disabilities (Fuchs, Fuchs, Thompson et al., 2002) have not responded to PALS, as measured by growth on tests of phonological awareness, decoding, and word recognition. Researchers have attempted to describe characteristics of PALS “nonresponders” (Al Otaiba & Fuchs, 2006) as well as to determine the best ways to identify and provide further intervention for these students (e.g., McMaster, Fuchs, Fuchs, & Compton, 2005).

Al Otaiba and Fuchs (2006) conducted a study with 104 children, including 7 with disabilities. These children participated in PALS in kindergarten only, in first grade only, in both kindergarten and first grade, or in neither grade. Kindergarten students were identified as responsive to intervention if their performance was above the 30<sup>th</sup> percentile of intervention students on the amount of pre- to posttreatment letter-sound and segmentation fluency growth. First graders were identified as responsive if their posttreatment performance was 40 words or more read correctly on an oral reading fluency measure. Students were further classified as “always responsive” (they met the above criteria in both years), “sometimes responsive” (they met the criteria in one year) or “nonresponsive” (they did not meet the criteria in either year). These three groups of students were reliably different from each other on measures of problem behavior, verbal memory, syntactic awareness, vocabulary, naming speed, and segmentation skills. A combination of rapid naming speed, vocabulary, working memory, behavior, and amount of intervention (PALS) received over the 2 years predicted 82% of nonresponsive, 30% of sometimes responsive, and 84% of always responsive students. A subset of these students ( $n = 50$ ) were tested again at the end of their third grade year. Of those who had participated in PALS, only one student was receiving special education services with IEP goals addressing reading.

McMaster et al. (2005) explored ways to identify and provide further intervention to students unresponsive to PALS. The primary purpose of this study was to determine the level of service delivery that was most beneficial to students whose reading difficulties were difficult to remediate. To do this, McMaster et al. compared the effects of (a) PALS, (b) a modified version of PALS, and (c) one-to-one pull-out tutoring provided by an adult on the reading achievement of students who were not responding to PALS.

First, students were identified as “at risk” for unresponsiveness to First Grade PALS based on poor letter naming performance in the fall of first grade and teacher judgment. Then, these students’ progress was monitored during 7 weeks of PALS implementation using weekly word-level curriculum-based measures. Next, students were identified as unresponsive based on performance levels and growth rates significantly below those of average-performing peers. These nonresponders represented about 16% of PALS participants. Finally, the nonresponders were assigned randomly to (a) continue in PALS, (b) receive a modified version of PALS, or (c) receive one-to-one tutoring from an adult outside of the regular classroom.

After 13 additional weeks of these interventions, the rate of student unresponsiveness was reduced to 9%. However, of the students identified as nonresponders, 81% of those who continued with PALS remained unresponsive, 75% of those who received modified PALS remained unresponsive, and 50% of those who received one-to-one tutoring remained unresponsive. These results suggest that (a) simply providing students with more time in PALS is not likely to improve their response to instruction; (b) modifying the curriculum is also not likely to improve many students’ response to instruction; and (c) our one-to-one tutoring alternative was beneficial for some, but not all students. Clearly, more work is needed to best understand what needs to be in place for students for whom PALS is not beneficial.

### **Implications for Practice and Recommendations for PALS Implementation**

Teachers and researchers have worked hard to develop PALS into an effective and practical classroom-based approach that can benefit students with different learning needs (e.g., Fuchs & Fuchs, 1998; Fuchs et al., 2000; Fuchs, Fuchs, Thompson, Al Otaiba et al., 2001). A particular strength of this research is that classroom teachers, rather than researchers, implemented PALS with their students. Results of the large-scale studies reviewed in this article demonstrate that PALS can be used with success by teachers. A key to this success is that teachers have implemented the program with fidelity; that is, they have conducted the activities accurately according to the procedures established during PALS development.

We should note several features that were in place that likely contributed to teachers’ fidelity of PALS implementation. First, teachers collaborating in PALS research participated in day-long training workshops. This training provided teachers with the opportunity to see demonstrations of PALS, practice the activities with guidance and support, and ask questions before implementing the program in their classrooms. Although PALS can be conducted using information from the PALS manuals, it is recommended that teachers who wish to use the program participate in a training workshop.

Second, teachers were provided with on-site technical support from research staff who made weekly classroom visits to observe, answer questions, and trouble-shoot problems that arose. Such support is not typically available to classroom teachers. Teachers using PALS may wish to videotape the activities periodically or have a peer trained in PALS observe their implementation to determine whether they are following the procedures. Third, PALS must be implemented at least three times per week for 15 to 20 weeks (and

four times per week in K-PALS classrooms in Title I schools). Whereas this may represent a significant time commitment, teachers have reported that PALS is practical, efficient, and fits well with their existing instructional programs (Fuchs et al., 2000).

Finally, and perhaps most importantly, teachers should know that PALS will not necessarily benefit all students. As with any instructional approach, it is critical to monitor students' progress frequently to determine whether they are making sufficient progress in reading. When progress monitoring results indicate that a student is not making progress, the teacher should consider modifying the activities or attempting alternative instructional strategies that address the student's individual needs.

### **Scaling Up PALS**

Currently, researchers (e.g., Fuchs et al., 2006) from three universities across the United States are collaborating on a 5-year investigation of how to take PALS to scale effectively. The three institutions involved in this research are Vanderbilt University, the site where PALS was developed; The University of Texas-Pan American, located in a high poverty area on the southern-most tip of Texas along the U.S.-Mexico border where teachers have no experience with PALS; and the University of Minnesota, located in a diverse region of the country where teachers have some experience with PALS.

These researchers are examining several questions related to effective scaling up of PALS. Of these questions, four are the most important and, therefore, worth mentioning here. The first question is related to the external validity of PALS: Will PALS effects continue to be positive when PALS is examined in areas far from its developers (i.e., Vanderbilt researchers)? This question is important, particularly given that PALS research has been conducted mostly by the Vanderbilt group. A second question is related to the context of successful or unsuccessful PALS implementation: What kinds of schools, teachers, and students respond favorably to PALS? A third question is related to fidelity of implementation: What kinds of teacher support leads to less or greater implementation fidelity? In prior research, teachers have had on-site support; therefore, the question of whether teachers can successfully implement PALS with and without this support is important. A fourth question is related to sustainability of PALS: What are the conditions under which teachers continue or discontinue using PALS after their participation in the research is complete. Findings from this research are expected to inform school administrators and teachers of the most effective ways to adopt PALS as a supplement to their core reading curricula.

### **Summary and Ways to Access PALS Materials**

PALS has shown great promise as an effective supplement to traditional reading instruction and has yielded positive results for students with different learning needs. PALS makes use of one of the greatest resources in our schools, the students themselves. For more information about PALS research, training workshops, and access to materials, visit the PALS website at <http://www.kc.vanderbilt.edu/pals/>.

## References

- Al Otaiba, S. & Fuchs, D. (2006). Who are the young children for whom best practices in reading are ineffective? An experimental and longitudinal study. *Journal of Learning Disabilities*, 39(5), 414-431.
- Delquadri, J., Greenwood, C. R., Whorton, D., Carta, J. J., & Hall, R. V. (1986). Classwide peer tutoring. *Exceptional Children*, 52, 535-542.
- Fantuzzo, J. W., King, J. A., & Heller, L. R. (1992). Effects of reciprocal peer tutoring on mathematics and school adjustment: A component analysis. *Journal of Educational Psychology*, 84, 331-339.
- Fuchs, D., Berends, M., Sáenz, L., & McMaster, K. L. (2006, June). *Scaling-up Peer-Assisted Learning Strategies: A longitudinal, multi-site randomized control trial to determine necessary on-site technical assistance to teacher implementers*. Poster presented to the Institute for Education Sciences Research Conference, Washington, DC.
- Fuchs, D., & Fuchs, L. S. (2005). Peer-assisted learning strategies: Promoting word recognition, fluency, and reading comprehension in young children. *Journal of Special Education*, 39(1), 34-44.
- Fuchs, D., & Fuchs, L. S. (1998). Researchers and teachers working closely together to adapt instruction for diverse learners. *Learning Disability Research and Practice*, 13, 126-137.
- Fuchs, D., Fuchs, L. S., & Burish, P. (2000). Peer-Assisted Learning Strategies: An empirically-supported practice to promote reading achievement. *Learning Disabilities Research and Practice*, 15, 85-91.
- Fuchs, D., Fuchs, L. S., Mathes, P. G., & Martinez, E. (2002). Preliminary evidence on the social standing of students with learning disabilities in PALS and No-PALS classrooms. *Learning Disabilities Research and Practice*, 17(4), 205-215.
- Fuchs, D., Fuchs, L. S., Mathes, P. G., & Simmons, D. C. (1997). Peer-assisted learning strategies: Making classrooms more responsive to diversity. *American Educational Research Journal*, 34, 174-206.
- Fuchs, D., Fuchs, L., Thompson, A., Al Otaiba, S., Yen, L., Yang, N., et al. (2001). Is reading important in reading-readiness programs? A randomized field trial with teachers as program implementers. *Journal of Educational Psychology*, 93, 251-267.
- Fuchs, D., Fuchs, L. S., Thompson, A., Al Otaiba, S., Yen, L., Yang, N., et al. (2002). Exploring the importance of reading programs for kindergartners with disabilities in mainstream classrooms. *Exceptional Children*, 68, 295-311.
- Fuchs, D., Fuchs, L. S., Thompson, A., Svenson, E., Yen, L., Al Otaiba, S., et al. (2001). Peer-assisted learning strategies in reading: Extensions for kindergarten, first grade, and high school. *Remedial and Special Education*, 22, 15-21.
- Fuchs, L. S., Fuchs, D., & Hamlett, C. L. (1989). Monitoring reading growth using student recalls: Effects of two teacher feedback systems. *Journal of Educational Research*, 83, 103-111.
- Fuchs, L. S., Fuchs, D., & Kazdan, S. (1999). Effects of Peer-Assisted Learning Strategies on high school students with serious reading problems. *Remedial and Special Education*, 20, 309-318.
- Greenwood, C. R., Delquadri, J. C., & Hall, R. V. (1989). Longitudinal effects of classwide peer tutoring. *Journal of Educational Psychology*, 81, 371-383.

- Institute of Education Sciences. (2003). *Identifying and implementing educational practices supported by rigorous evidence: A user friendly guide*. Retrieved April 9, 2007 from [http://ies.ed.gov/ncee/pubs/evidence\\_based/evidence\\_based.asp](http://ies.ed.gov/ncee/pubs/evidence_based/evidence_based.asp)
- Jenkins, J. R., Heliotis, J. D., Stein, M. L., & Haynes, M. C. (1987). Improving reading comprehension by using paragraph restatements. *Exceptional Children*, 54, 54-59.
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 2, 293-323.
- Maheady, L., & Harper, G. (1987). A classwide peer tutoring program to improve the spelling test performance of low-income, third- and fourth-grade students. *Education and Treatment of Children*, 10, 120-133.
- Maheady, L., Harper, G. F., & Sacca, M. K. (1988). Peer-mediated instruction: A promising approach to meeting the diverse needs of LD adolescents. *Learning Disability Quarterly*, 11, 108-113.
- Mathes, P. M., Howard, J. K., Allen, S. H., & Fuchs, D. (1998). Peer-assisted learning strategies for first-grade readers: Responding to the needs of diversity. *Reading Research Quarterly*, 31, 268-289.
- McMaster, K. L., Fuchs, D., Fuchs, L. S., & Compton, D. L. (2005). Responding to nonresponders: An experimental field trial of identification and intervention methods. *Exceptional Children*, 71(4), 445-463.
- National Reading Panel. (2000). *Teaching students to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Bethesda, MD: National Institutes of Health, National Institute of Child Health and Human Development.
- No Child Left Behind Act, Public Law No. 107-110, 115 Stat. 1425, 2002 U.S.C. (2002).
- Palincsar, A. M., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 2, 117-175.
- Sáenz, L. M., Fuchs, L. S., & Fuchs, D. (2005). Peer-assisted learning strategies for English language learners with learning disabilities. *Exceptional Children*, 71, 231-247.
- Schreiber, P. A. (1987). Prosody and structure in children's syntactic processing. In R. Horowitz & S. J. Samuels (Eds.), *Comprehending oral and written language*. New York: Academic Press.
- Simmons, D. C., Fuchs, D., Fuchs, L. S., Hodge, J. P., & Mathes, P. G. (1994). Importance of instructional complexity and role reciprocity to classwide peer tutoring. *Learning Disabilities Research and Practice*, 9, 203-212.
- Stanovich, K. E. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading Research Quarterly*, 16, 32-71.

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## **Résumé**

### ***Stratégies d'apprentissages assistés par des pairs en lecture chez des élèves ayant des besoins d'apprentissage différents***

Cet article fournit une vue d'ensemble de la stratégie pédagogique très répandue de tutorat entre pairs, désignée par les termes « stratégies d'apprentissage assistée par les pairs » (PALS) dans le domaine de la lecture. Des activités spécifiques et une recherche portant sur les PALS sont décrites pour l'école maternelle (jardin d'enfant) la première année d'école primaire, les quatre années suivantes et le lycée. La recherche porte également sur les caractéristiques des étudiants qui n'ont pas bénéficié des apports des PALS et résume les approches permettant d'identifier les élèves qui ne profitent pas des PALS pour les interventions futures. Les efforts faits actuellement pour étudier les PALS à une plus grande échelle sont brièvement décrits, description suivie par les différentes manières d'obtenir les contenus des PALS et l'entraînement lui-même.

## **Resumen**

### ***Estrategias de Aprendizaje Asistido entre Iguales en Lectura en Estudiantes con Diferentes Necesidades de Aprendizaje***

Este artículo proporciona una amplia revisión de conjunto sobre el conocimiento de estrategias de tutorización entre iguales, así como de las Estrategias de Aprendizaje Asistido entre Iguales (PALS) en relación con la lectura. Se describen específicas actividades e investigación en apoyo de la utilización del PALS en escuelas infantiles, en primaria (primer grado, segundo y sexto) y en la enseñanza secundaria. Se resume la investigación teniendo en cuenta las características de los estudiantes que no respondieron al PALS, e igualmente los enfoques para la identificación e intervención adicional para los alumnos que no respondieron al PALS. Igualmente se describen brevemente los actuales esfuerzos para revisar el PALS cuando es aplicado para mejorar (when taken "to scale"), seguido de los modos de obtener materiales PALS y entrenamiento.

## **Zusammenfassung**

### ***Strategien des "Peer-Assisted Lernens" im Bereich Lesen für Schüler mit unterschiedlichen Lernbedürfnissen***

Diese Arbeit liefert einen Überblick über die Strategie der Unterstützung durch Peers im Klassenverband, die als "peer-assisted" Lernstrategie (PALS) bekannt ist. Es werden spezifische Aktivitäten und Forschungen beschrieben, die die Anwendung von PALS für den Kindergarten, die erste Klasse, die Klassen 2 bis 6 und den High-School-Bereich beschreiben. Anschließend werden Forschungsergebnisse zusammengefasst, die die Charakteristika von Schülern, die von PALS nicht profitieren, sowie Ansätze zu deren Identifikation und weitere Interventionen für diese Schüler zusammengefasst. Aktuelle Bemühungen, PALS bei maßstäblicher Durchführung zu untersuchen, werden beschrieben, gefolgt von Zugängen zur Erlangung von PALS-Materialien und Training.

## **Abstract Italiano**

### ***Strategie Peer-Assisted di apprendimento della lettura per studenti con differenti bisogni di apprendimento***

Questo articolo fornisce uno sguardo d'insieme sulla strategia di Peer Tutoring meglio nota come Peer-Assisted Learning Strategies (PALS) per la lettura. Vengono descritte le attività e la ricerca sul PALS nelle scuole d'infanzia, elementari, medie e superiori. Viene poi presentata la ricerca sulle caratteristiche degli studenti che non hanno risposto al PALS e per questi fornisce indicazioni su interventi ulteriori. Sono brevemente descritti gli attuali sforzi per esaminare il PALS quando viene accolto e vengono fornite indicazioni su come ottenere materiali e corsi di training PALS.