

Chapter 6

Peer-Assisted Learning Strategies (PALS): A Validated Classwide Program for Improving Reading and Mathematics Performance



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The best thing about PALS is being respectful to people that may not be as strong a reader as you. My reading improved during PALS. In PALS, when your partner makes a mistake, you're taught how to encourage him to do it again. Also you can tell him 'good job' when he does good after he rereads the sentence. I really hope we can do PALS again because it was really fun.

—Merri, a second grader.

In this chapter, we provide an overview of Peer-Assisted Learning Strategies, widely known as PALS, a suite of validated, universal-tier programs, conducted by the classroom teacher in the general education classroom, with the primary goal of improving reading and mathematics outcomes for all learners in the general education classroom. In this chapter, we begin by describing PALS's purpose, structure, and goal, as well as the processes by which PALS is designed to accomplish that goal. Then we explain PALS's essential components and describe what research studies tell us about the effects of PALS on reading and math achievement and on social standing. Next, we explain considerations for implementing and draw conclusions.

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Purpose, Structure, Goal, and Processes for Accomplishing That Goal

PALS is used as a supplement to the adopted core reading or mathematics program. With PALS, the teacher organizes her class of students in pairs to work together 2–4 times per week for 20–30 minutes per session. Pairs work on a highly structured set of activities that provide guided instruction and practice on academic content, including foundational-level skills and higher-order strategies.

The goal is to establish a classroom routine that benefits students' academic learning and that encourages productive academic behavior and supports socio-emotional growth via two related processes. First, intensive one-to-one peer interactions permit many opportunities for students to ask and respond to questions, to receive immediate corrective feedback, to experience high doses of academically engaged time, and to participate in constructive, supported peer-to-peer social interactions. The second process by which PALS improves outcomes is by establishing a routine classroom structure by which teachers can differentiate instruction. With the PALS structure, teachers assign different pairs to simultaneously work on different levels of text or different mathematics skills, sometimes using varying levels of scaffolds or supports.

Essential PALS Components

PALS Manuals and Training

A different PALS manual is provided for each grade within each content area (reading vs mathematics). Manuals explain the structure of the PALS program for that content area/grade. They also provide the necessary materials for implementing PALS, as well as detailed, scripted lessons for the classroom teacher to use in training her class to conduct PALS in a productive and orderly fashion. As procedures/activities are taught, they are incorporated into the PALS sessions. New activities are gradually added as students gain experience with the previously introduced activities. Training is completed over 4–6 weeks, depending on grade/content area. For information on obtaining PALS manuals, go to www.peer-assistedlearningstrategies.net.

Coach and Player Roles

The teacher pairs the students in her class to place a higher-performing student with a lower-performing student. Pairs are reassigned every 2 weeks in Math PALS, and every month in Reading PALS. Tables 6.1a and 6.1b shows procedures for pairing

Table 6.1a Reading pairing scheme

Pair	First coach	First player
A	Student 1	Student 10
B	Student 2	Student 11
C	Student 3	Student 12
D	Student 4	Student 13
E	Student 5	Student 14
F	Student 6	Student 15
G	Student 7	Student 16
H	Student 8	Student 17
I	Student 9	Student 18

Table 6.1b Math pairing scheme

Pair	First coach	First player
A	Student 1	Student 18
B	Student 2	Student 17
C	Student 3	Student 16
D	Student 4	Student 10
E	Student 5	Student 11
F	Student 6	Student 12
G	Student 7	Student 13
H	Student 8	Student 14
I	Student 9	Student 15

students, which is based on the teacher's rank ordering of the students' skill level. This procedure differs in reading and math.

Also, in Reading PALS, one student in each pair is designated first reader, the other as second reader; students reverse roles halfway through each activity. In math PALS, the students are referred to as Coach and Player; students switch roles halfway through the Coaching component (see Table 6.2b). For ease of communication in this overview, we refer to the "tutor" role as Coach and to the "learner" role as Player. The Coach helps the Player work step by step through the lesson's activities, structuring the Player's thinking via guided questions and providing corrective feedback for each error and praise for correct responding.

The PALS program is explicitly scripted for the Coach and the Player so students have clear guidelines for their roles in the learning process (see Fig. 6.1 for how explicit feedback is structured, using as an example the Paragraph Shrinking Activity in PALS Reading at Grades 2–6). Typically, in PALS Reading, the higher-performing student starts as Player and the lower-performing student as Coach. This permits the higher-performing student to model correct reading for the lower-performing student. In PALS Math, the higher-performing student begins as Coach to model correct execution of the procedure or strategy and to model productive methods for giving feedback and providing strong explanations.

"My dear Mr. Bennet," said his lady to him one day, "have you heard that Netherfield Park is let at last?" Mr. Bennet replied that he had not. "But it is," returned she; "for Mrs. Long has just been here, and she told me all about it." Mr. Bennet made no answer. "Do you not want to know who had taken it?" cried his wife impatiently. "You want to tell me, and I have no objection to hearing it." This invitation was enough.

Austen (1813)

Name the most important who or what.

Mr. Bennet's wife!

Tell the most important thing about the who or what.

Mr. Bennet's wife had just talked to Mrs. Long. She had just learned someone had rented Netherfield Park and she really really wanted to tell Mr. Bennet the details.

Say the main idea in 10 words or less.

Mr. Bennet's wife wanted to tell Mr. Bennet the details about someone renting Netherfield Park.

Shrink it!

Mr. Bennet's wife wanted to explain about someone renting Netherfield park.

Fig. 6.1 Illustration of the PALS reading paragraph shrinking activity

PALS Motivation and Behavior Management

PALS incorporates a point system designed to maintain motivation and encourage positive pair interactions and productive academic behavior. Pairs are responsible for awarding each other points in each PALS lesson for correct responses to problems and questions. They record points on a pre-numbered score card. At the end of each session, the teacher identifies the pair who earned the most points that day; that pair collected the PALS folders. To create both a competitive and cooperative motivational framework, teachers assign pairs to two teams. At the end of each week, the teacher sums up each team's points, and the class applauds the winning team.

Teacher's Role

In PALS, the teacher conducts the PALS training lessons during the first 4–6 weeks. Then, as PALS is implemented, she oversees each session. She announces the start of the PALS lesson and directs students to move to sit next to partners (using a simple, quiet procedure taught during training). At grades K-1, she next conducts a scripted overview of the lesson, in which the day's focus, skill, or strategy is explained, and she provides whole-class practice on that lesson's paired activities. During all paired activities, regardless of grade, the teacher circulates to answer student questions, listen to pairs, and provide help or feedback as needed, and award bonus points to pairs for strong PALS interactions and explanations. The teacher also announces times at which students to switch PALS activities and roles, and she closes out the session by praising groups for strong PALS interactions or explanations and by attending to total point earned that day or week.

PALS Activities, Content, Session Duration, and Number of Lessons

PALS shares a basic organizational structure across the grades and across reading and mathematics. However, the activities differ by grade level and content area. Tables 6.2a and 6.2b outlines the activities by content area and grade. Tables 6.3a and 6.3b outlines the content, duration of lessons, and number of lessons addressed by for reading by grade within reading versus math.

Summary of PALS Research

Scores of studies have been conducted examining PALS efficacy on students' reading and mathematics outcomes, as well as the effects on the social standing of students with disabilities who participate in PALS. In Table 6.4, we provide references

Table 6.2a PALS reading activities

Grade	Instruction	Activities per session
K	Teacher-led instruction and paired activities	1 Sound play: This teacher-directed activity provides phonological awareness and decoding instruction and introduces the lesson's activities.
		2 Lesson: The class practices this activity together; then the activity is practiced in Coach/Player pairs. The higher-performing student starts as the Coach, but the pair switches roles halfway through. Activities include grapheme-phoneme correspondence, sight word recognition, decoding, and reading sentences with fluency.
		3 Partner reading: This activity is introduced about halfway through the program and is completed in pairs with teacher-selected texts matched to instructional level of the lower-performing student in each pair. Higher-performing students read text first; then lower-performing students re-read.
1	Teacher-led instruction and paired activities	1 Hearing sounds and sounding out: This teacher-directed activity provides phonological awareness and decoding instruction and introduces the lesson's activities.
		2 Paired lesson: Activities are completed in the Coach/Player pairs. The higher-performing student always starts as Coach; halfway through each session, students switch roles. Activities include grapheme-phoneme correspondence, decoding, sight word recognition, and passage reading fluency.
		3 Speed game: This activity is completed individually, while the teacher leads the session. Students read words in the Sight Words or Stories activity as quickly as possible for 30 seconds three times. The goal is to read more words the second or third trial.
		4 Partner reading: This activity, which is introduced about halfway through the program, is completed in pairs with teacher-selected texts matched to the instructional level of the lower-performing student in each pair. Higher-performing students read text first; then lower-performing students re-read.
2–6	Paired activities	1 Partner reading: With teacher guidance, pairs select text to match lower-performing students' instructional levels. Higher-performers read first, while lower performers corrects errors. Halfway through, they switch roles.
		2 Retell: Lower performers re-tell what was read during Partner Reading; higher-performers provide corrective feedback.
		3 Paragraph shrinking: Higher-performer reads a paragraph. The lower-performing student asks Paragraph Shrinking questions; the higher-performing student answers questions; the lower-performing student provides corrects errors. They continue through paragraphs until the teacher announces it's time to switch roles, as pairs continue on to new paragraphs.
		4 Prediction relay: Higher-performers make a prediction, read half a page, and say whether the prediction came true, while lower-performers correct reading errors, ask Prediction Relay questions, and provide corrective feedback. They continue through half-pages until the teacher announces it's time to switch roles, as pairs continue on to new paragraphs.

Table 6.2b PALS math activities

Grade	Instruction	Activities per session	
K-1	Teacher-led instruction and paired activities	1	Classwide skill introduction/review: The teacher introduces or reviews a skill, as she introduces the game board for that lesson. The teacher takes this time to review important concepts or terminology and helps the students understand how each pair will use game board to structure the pair's practice on that lesson's skill.
		2	Paired practice: Students break into pairs and work on their game boards, taking turns as Coach and Player.
2-6	Paired activities	1	Coaching: Students take turn coaching each other in highly structure ways, using guided worksheets
		2	Practice: Students individually complete a timed practice sheet. At the end of the 5 minutes, pairs of students switch practice papers and check each other's work.

Table 6.3a PALS reading program details

Grade level	First coach/ player	Lessons	Skills addressed	Minutes per lesson	Days per week
K	Lower/higher	72	Phonological awareness, grapheme-phoneme correspondence, decoding, sight word recognition, reading fluency	25-30	3-4
1	Lower/higher	70	Grapheme-phoneme correspondence, decoding, sight word recognition, reading fluency	40-45	3-4
2-6	Lower/higher	12	Reading fluency, reading comprehension strategies (summarizing, retelling, predicting)	35-45	3-4

for a sample of PALS studies. This bibliography is limited to research conducted by the Fuchs Research Team. It is important to note, however, that studies have been conducted by numerous faculty across the United States, Canada, Iceland, Britain, Finland, Norway, as well as other countries.

In a typical efficacy study, classrooms are randomly assigned to PALS versus non-PALS conditions. Across conditions, the core program is the same. The difference is that in the "experimental" condition, PALS is conducted during part of the core instructional block (usually substituting for independent work time). In this way, total instructional time is held constant across PALS and non-PALS conditions.

In each classroom, the researchers identify a subset of students for pre- and post-testing in the study. The sample systematically includes students with learning disabilities as well as other students who at the start of the year demonstrate low academic performance, those with average performance, and students with high performance in the relevant academic domain. The researchers administer pretests and posttests of academic performance to these research participants. In some

Table 6.3b PALS math program details

Grade level	First coach/ player	Lessons	Skills addressed	Minutes per lesson	Days per week
K	Higher/lower	32	Number recognition, number magnitude, number principles, adding and subtracting concepts and operations	20	2
1	Higher/lower	36	Number concepts, principles, magnitude, addition and subtraction concepts and procedures, place value, missing addends	20	3
2	Higher/lower	68	<i>Calculations:</i> adding basic facts, adding with and without regrouping, subtracting basic facts, subtracting with and without regrouping <i>Applications:</i> applied computation, charts and graphs, counting, fractions, measurement, money, number concepts, names of numbers, word problems	30	2
3	Higher/lower	84	<i>Calculations:</i> adding, subtracting, multiplying basic facts, multi-step multiplication, dividing basic facts <i>Applications:</i> applied computation, charts and graphs, counting, decimals, fractions, measurement, money, number concepts, number names, word problems	30	2
4	Higher/lower	88	<i>Calculations:</i> adding, subtracting, multiplying basic facts, multiplying, dividing basic facts, dividing, adding and subtracting fractions <i>Applications:</i> area and perimeter, charts and graphs, decimals, fractions, grid reading, measurement, number concepts, number names, word problems	30	2

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Table 6.3b (continued)

Grade level	First coach/player	Lessons	Skills addressed		Minutes per lesson	Days per week
5	Higher/lower	76	<i>Calculations:</i> adding, subtracting, multiplying, dividing, reducing/renaming fractions, adding and subtracting fractions, adding and subtracting decimals	<i>Applications:</i> applied computation, charts and graphs, geometry, decimals, fractions and factors, measurement, money, numeration, word problems	30	2
6	Higher/lower	80	<i>Calculations:</i> adding, subtracting, multiplying, dividing with whole numbers, common fractions, and decimals	<i>Applications:</i> applied computation, charts and graphs, geometry, measurement, numeration, percentages, proportions, ratios and probability, variables, word problems	30	2

studies, the researchers also administer measures of students' social standing in the classroom.

Findings favor the academic learning of students in PALS classrooms improves over students in control classrooms. This is true for all four learner types: students with learning disabilities, as well as other students who began the year with low, average, or high levels of academic performance. Thus, PALS appears to benefit all types of student learners. Additionally, students with learning disabilities are better known, are better liked, and have more friends in PALS classrooms than in non-PALS classrooms.

Considerations for Implementing PALS

High-quality and experienced trainers are available to help states, districts, or schools learn how to implement PALS. This can be accomplished in 1-day training session or multi-day workshops (depending on how many academic areas and grade

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levels are being adopted), and schools can arrange for trainers to provide follow-up observations and corrective feedback to ensure optimal implementation.

School personnel should also be mindful that to achieve strong engagement, ensure optimal effects on reading and math, and enhance students' social standing, teachers must allocate the time needed to carefully prepare their students to implement PALS according to plan and that teachers must implement PALS according to the designated schedule. Once classrooms are trained in using PALS, teachers need to be vigilant in keeping students in motivating text of appropriate difficulty (for grades 2–6 Reading PALS) and in attending to photocopying demands (for keeping Math PALS filled with the required materials). Also, although the vast majority of children easily learn how to be helpful, kind learning partners, teachers should be prepared for the occasional student who requires special attention to maintain appropriate PALS behavior. This can sometimes require an individualized behavioral contract or dedicated use of the most proficient and understanding classroom peers to serve as these students' partners.

Conclusions

PALS is a classroom-based intervention with strong evidence for strengthening reading and math outcomes, achieving strong engagement, and enhancing students' social standing improving. PALS can be used to supplement a broad array of core programs and, as shown in research, PALS provides an academic "safety-net" for students who require additional structured practice to achieve reading and math benchmarks. Teachers and students alike enjoy using PALS. Teachers report that PALS is easy to implement. Students report that PALS is fun, and the level of student engagement in PALS classrooms is notable. Due to its demonstrated effects within high-quality randomized control trials, its affordability, and its ease of use, PALS has become a very popular educational innovation, used widely throughout the United States, and it has been translated into a variety of languages for implementation in many countries across the globe.

Resources/for More Information

PALS manuals, which provide all materials for implementing PALS (except library reading material) and scripted lessons for teachers to prepare classrooms to implement PALS) are available for kindergarten, grade 1, and grades 2–6 in reading and in math. For information on obtaining PALS manuals, go to www.peerassistedlearningstrategies.com or contact lynn.a.davies@vanderbilt.edu. The website also provides additional information on PALS as well as manuals for conducting validated supplementary, small-group reading and math interventions.