WHAT ARE THE EFFECTS OF PEER ASSISTED LEARNING STRATEGIES ON
READING ACHIEVEMENT IN ELEMENTARY STUDENTS IN AN URBAN AREA?

by

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Abstract

Educators today struggle to provide remedial and supplementary reading instruction, as an intervention, at all reading levels, to address the wide range of reading abilities and needs within the classroom. Peer Assisted Learning Strategies (PALS) has undergone extensive experimental research within large groups of diverse students who possess wide ranges of academic ability. Peer Assisted Learning Strategies (PALS) has been demonstrated to be an effective supplementary reading intervention that helps educators successfully meet the needs of our diverse student population. This paper describes how PALS is administered, its benefits and results from research studies. It also provides recommendations for improving the effectiveness of PALS and areas for further research.
Chapter 1: Introduction

This paper deals with the effectiveness and application of the PALS programs. This program would be beneficial to teachers, those who employ, train, consult, and evaluate teachers. The research presents in a clear format the history, theory, and application of the PALS program.

Beginnings

PALS is an acronym for peer-assisted learning strategies which was developed approximately 15 years ago at Peabody College of Vanderbilt University as a supplemental, class- wide peer-mediated reading program implemented by classroom teachers. However, PALS has a long and rich history dating back to such notable philosophers as Socrates, Plato, and Aristotle. The Greeks argued for the effectiveness of a program similar to PALS in that they advocated for work done in small groups or pairs. Students of notable psychologists such as Piaget, Rogoff, and Vygotsky have also contributed to the modern beginnings of the program indirectly as their followers employed theories that are now in place within the program.

Its purpose is to help children improve key reading skills which include reading with fluency and comprehension. The PALS reading strategy has been researched in experimental and quasi-experimental studies. Research indicates by a wide margin that the PALS students raised their performance levels in comparison to non-PALS students in several reading measures (Fuches et al., 2001; Mathes, Howard, Allen & Fuchs 1998; McMaster, K., Fuchs, D., & Fuchs, L. 2007; Morgan et al., 2006). It is recognized as an effective practice by the U.S. Department of Education and also by the What Works Clearinghouse. The original PALS programming guide
was revised in 2008. Major contributors include Douglas Fuchs, Ph.D., Lynn s. Fuchs, Ph.D., Deborah C. Simmons, Ph.D., and Patricia G. Mathes, Ph.D. (Fuchs)

A brief introduction of the methods and implementation of PALS follows and is necessary to better understand the program before becoming explicit about the specifications in the program. This larger overview of the program would provide a model for how one could set up the program within a 2-6 grade classroom.

First of all, PALS is simply students working together in pairs to read stories and then answer questions through different reading activities provided in the program. PALS is implemented 3 times a week in 35-45 minute sessions. The students work in pairs to improve and motivate each other during reading. The teacher monitors, provides assistance, and feedback where necessary. Students earn “points” which is a part of the motivation factor for completing activities.

Paired teams are not assigned randomly but rather high-achieving students are paired with average-achieving and likewise average-achieving with struggling readers.

The pairs of students read at the lower reader’s reading level rather than the higher level. The pairs are then further divided into two teams. Every four weeks the membership of the teams changes. The pairs of students earn points that contribute to the team total. Each week the PALS points are totaled and the higher earning team announced. The point tallying earns applause for the “second place” team and the winning team earns applause and bows. (Fuchs, Reading Methods, pg. vii)

There are four main activities utilized for this program. Partner reading, retell, paragraph shrinking, and prediction relay are the activities suggested for improving reading fluency and comprehension within the program.
Partner reading is the process of timed five minute readings where the partner readers take turns coaching, monitoring, fixing mistakes, and awarding points. The special “correction procedure” helps reader fix their mistakes.

Retell occurs in 2 minute intervals where the second reader retells text and the first reader uses a question card prompt. The partners chose how many points they earn for this activity.

Paragraph shrinking is a process lasting five minutes where the first reader only reads 1 paragraph at a time and the second reader prompts to find main idea statements for each paragraph. The readers use the special correction procedure and prompts throughout the readings. They then switch places as prompter and reader.

Prediction relay is where the first reader makes prediction and then reads half a page to check for correct answers, for five minutes this process continues. The second reader provides prompts. The second reader then has a chance to perform. Points are awarded for correct answers to prompts.

Many different activities and methods are used at various grade levels. The focus at different grade levels varies as well. The curriculum is designed for Pre-school throughout high school. PALS is a peer-mediated and structured program. The other consideration is the subject matter. The PALS Program is used successfully for math and reading strategies/methods, although only reading is addressed in this document. They are broken down by grade level as follows:

Preschool - letter-naming, letter-sound correspondence, phonemic awareness, initial letter sounds, and vocabulary development.
Kindergarten - letter-sound correspondence, phonemic awareness, early decoding, and word identification.

Grade 1 - letter-sound correspondence, phonemic awareness, early decoding, word identification, sentence and story reading, and fluency-building activities.

Grade 2 - decoding, word identification, fluency, and comprehension of narrative texts.

Comprehension activities introduce critical reading strategies used by successful readers, including paragraph summaries and predicting future text.

Grade 3 - 6 - fluency, comprehension strategies with three activities: partner reading with retells, paragraph shrinking, and prediction relay. Vanderbilt University (2003).

The procedures for implementing PALS are briefly described within this review. Children are paired with each other within their own classrooms. Each pair of students then simultaneously performs a tutoring session taught carefully by the teacher prior to the sessions. Pairs are assigned to 1 of 2 teams, for which they earn points for not only academic processes but also cooperative behavior during tutoring. Each pair of students reports their points to the teacher at the end of each instructional week. The points are tallied up and the winning team announced. These sessions run 35-40 minutes and are composed of 2 tutoring routines 2-4 times a week (Mathes, 1998).

Statement of the Problem

The national center for educational statistics reported that more than 75% of all 4th and 8th graders scored below reading proficiency on a recent National Assessment of Educational
Progress (Donahue, 1999) and the further breakdown per grade level was respectively, 62%, 74%, and 77% (U.S. Department of Education, 1999).

According to USA Today, the reading success percentages were still discouraging in 2010. The reading scores did not change their overall success rate in 2009 and in 2010 and only increased one percentage point in 8th graders and remained the same in 4th graders as measured by the NAEP (National Assessment of Educational Progress). Out of a possible 500 points the fourth graders scored a 221 score and the eighth graders a 263 score on the NAEP. (USA Today)

There has also been specific research done targeting urban areas in addition to the research from national scores. Scores in large urban schools are especially dismal and apparently stalled at this point in time as highlighted by an article in The Wall street Journal. The journal states that, “Students in large U.S. inner cities are struggling to improve their reading ability, especially at middle-school levels, according to results from a national reading test released Thursday.” Urban schools generally fell far below the national reading average on the NAEP test. President Barack Obama has put a special emphasis on the improvement of literacy scores for children in urban areas. This is a major part of his new educational reform. (The Wall street Journal, 2010)

Low reading scores and low reading proficiency in schools have shown a need for new programs that meet individual and group need. (Fuchs, & Fuchs, 2008). NCLB did not fill the educational reading gap for our children as promised by the Bush administration. The scores have continued to remain at approximately the same levels with little growth, again highlighting the need for changes in our current reading methodology and instruction.

These figures listed above suggest that many students are not benefiting from traditional instructional and traditional reading curricula (Carnine, Silbert, & Kameenui, 1997). The need
for additional or different curricula and instructional strategies is highlighted by the stagnancy of the current system. The current research and testing continues to point to specific problem areas within the basic core curriculum in America. Reading is one of the most important and basic curriculums taught throughout a student’s education. Reading impacts every other subject, as well, including math, science, and even sociological considerations. Reading is one of the main cornerstones of learning and needs to be treated as such. Reading is the core of all learning and needs to be our priority, especially now, with our changing society, and our insufficient reading scores. Students who are illiterate will have a tougher time graduating from high school, let alone furthering their education at a college or vocational school, not to mention, the lack of a satisfying job or career in their lifetime.

**Research Questions**

What are the effects of Peer-Assisted Learning Strategies on the achievements of urban elementary students? How do the effects of PALS compare with those of traditional curricular reading programs?

This review of literature will strive to answer these questions and more. First, the theoretical model that was used to develop this program will be reviewed. Then the factors of diversity in learning and learners that contribute to the program. Next methods and activities that are utilized at various grade levels are discussed, specifically in elementary schools. The research findings that support or negate PALS are reviewed and finally the summary and implications for further research are indicated.
**Definition of Terms**

Terminology important to this study begins with the acronym PALS, which is the abbreviation for peer assisted learning strategies. Peers are generally close in age, abilities, qualifications, background, and social status. They can relate to each other on a similar level, explaining or defining learning in a way that is perhaps more understandable than even a skillful teacher could present. (Topping) To assist is to give support or aid to others, or to help. According to Wikipedia, learning is acquiring new, or modifying existing, knowledge, behaviors, or skills. Lastly, strategies are combining and employing or executing the skills learned.

*PSF: *Phoneme segmentation fluency, which is simply the ability to segment words into their sound parts.

*NWF: Nonsense word fluency, which is the ability to sound out nonsense words correctly.

*ORF: Oral reading fluency, which is the reading rate of a student. It answers the question of how fast a student can orally read words on a timed reading test.

*DIBELS test: Dynamic Indicators of Basic Early Literacy Skills
Chapter 2: Review of Literature

The purpose of this literature review is, first and foremost, to define and describe the PALS program including how PALS was developed and implemented and secondly, to provide some of the research analysis that has been conducted in reviewing the effectiveness of PALS. The review will strive to provide a clearer picture of this program in order to make an informed decision regarding the use of this supplemental program in an elementary reading classroom.

Research Studies on Pals Effectiveness

The original program model was called CWPT or Class Wide Peer Tutoring. CWPT was developed at the Juniper Garden’s Children’s Project in Kansas in the late 1970's as a type of peer mediated instruction for improving children’s basic learning skills in urban schools (Mathes, Howard, Allen, & Fuchs, 1998). CWPT was developed to increase students’ opportunities to engage in instructional time.

Building on this base, the researchers at Peabody College of Vanderbilt University developed and validated Peabody PALS for use in reading at the upper elementary grades. They utilized the basic classroom structure of CWPT and expanded it to engage students in strategic reading activities (Mathes, 1998). The follow up to the Peabody PALS program was first grade PALS, which was developed as a downward extension of Peabody PALS (Mathes, 1998). The main reason for the downward extension was to prevent or reduce non-readers after first grade.

The theory behind this model is based on research from more than one reputable source. The three dominant theories on curriculum are as follows: 1) Curriculum One is for the individual student where knowledge and skills are transmitted to students via the teachers’
instruction. Curriculum One is based on the public curriculum of scope and sequence of skills and concepts mandated by state, school, and government. Curriculum One is found in basal readers and teaching manuals. 2) Curriculum Two is again for the individual student. Curriculum Two is child-centered and the opposite of the first curriculum. Curriculum Two stresses creativity not conformity, active exploration, not passive absorption and interaction between the teacher and students to create the learning structure and environment. This curriculum is similar to the Whole Language approach. 3) The last curriculum is designed for groups, not individuals. Curriculum three is called Social Transaction Curriculum. Based on socio-cultural theory (Moll & Rogoff, 1990), this theory strives for the interdependence of individuals and society and each creates and is created by the interaction of the two. The social nature of learning would be manifested as a collaboration of learners with the teacher providing guidance and not the fountain of all knowledge (Richardson & Anders, 1998). The PALS program follows a combined effort for dealing with the individual/group dilemma through peer tutoring, which is in line with curriculum three as explained in the previous paragraph.

Another useful theory, motivational theory, plays a role in the development of this program and is based on goals, structures and motivation in classrooms. Classroom structures are described in terms of how they make achievement goals possible as a result of motivational factors. Tasks, evaluation, and authority influence children’s motivation and movement toward achieving goals (Ames & Ames, 1984). Researchers have long realized the cognitive basis of behavior, but recently the achievement goal has been combined with cognitive, affective and goal-directed behavior (Ames, 1992). Motivation, high intrinsic interest in activities, and participation in the decision making process have also influenced the program. The focus of
motivational theory is on individual improvement, progress, and mastery of materials with and interdependency among these classroom structures.

In addition to the above research theories, Fuchs has based the PALS Program on research based concerns. The three main concerns that Fuchs has addressed with the PALS Program are: 1) meeting the needs of all learners not just a few, 2) an ease of implementation that allows teachers to maintain a comfortable degree of control and provides supplemental materials rather than replacement of curriculum, and 3) encourages students to take more responsibility for themselves and their learning goals, and to identify strategies for accomplishing these goals and for acting on them later and also helping their classmates learning as well (Fuchs, Fuchs Bentz, Phillips & Hamlett, 1994).

Several studies have been conducted to examine the efficacy and effectiveness of the PALS program. Current research supports the benefits of PALS as a supplementary program for reading within the school and studies follow to evidence the research regarding reading achievement in correlation with PALS.

This study used randomized controlled trials and began with 150 first-grade students but the final analysis changed with 130 students (61 PALS, 20 PALS plus ML, and 49 in the control group) and 28 teachers. The mean age of the students was 6.9 years old, with 47% female, 39% African-American, 59% Caucasian, and 32% special needs (Mathes, Babyak, 2001). The contributing facilitators were thirty first-grade teachers from five schools matched on demographic characteristics (southeastern, medium sized, student norm referenced reading scores) who were selected to form a sample and were randomly assigned to one of three groups: Peer-Assisted Learning Strategies (PALS: 10 teachers), Peer-Assisted Learning Strategies plus Mini-Skills Lesson (PALs plus ML; 10 teachers), or and the control group (10 teachers). In
addition to the above, the teachers then rank-ordered their students by reading ability from high to low achieving, within the classroom and chose one high-achieving student, one average-achieving student, and three low-achieving students to participate in the sample. The high and average achieving students didn’t participate in the mini-lessons (Mathes, Babyak, 2001).

The study included two different intervention conditions as explained above; PALS and PALS with ML. This method was implemented with the whole class 3-4 times a week, in 35 minute durations, for 14 weeks total sample. The control group used their regular reading curriculum.

PALS teachers collected samples of student growth which consisted of measures taken on the CPM (Continuous Progress Monitoring). The progress was graphed and provided to the teachers however; they didn’t receive any additional training or feedback. Another comparison method for the data was the Pre and Posttest as measured using the Woodcock Reading Mastery Test.

The findings support the use of PALS or PALS with ML to enhance reading performance of all students. The greatest gains were made by the low and average readers. Average effect sizes between 1st grade PALS and control groups for growth from pre to posttest include growth by phase 4 on the CPM measures which were 0.67, 0.90, and 0.60 for LA, AA, and HA respectively (Mathes, Babyak, 2001). AA students made great gains on the WRMT-R with greater growth in phoneme segmentation fluency and oral reading fluency. These children read almost twice as many words per minute and over 1 standard deviation greater growth in words per minute than the AA students in the control group (Mathes, Babyak, 2001). High achieving students didn’t realize any significant results.
There are several programs available that focus on “help giving” in reading groups within the classroom. Four validated collaborative reading program examples rise to the surface when considering available programs; these are Class-Wide Peer Tutoring developed by Greenwood, Peer-Assisted Learning Strategies developed by Fuchs, Cooperative Integrated Reading and Composition developed by Stevens, and finally, Reciprocal Teaching developed by Palincsar & Brown. For the purpose of this study, only PALS will be evaluated for effectiveness with and without training in “help giving”.

This study uses randomized controlled trials and is conducted in 24 general education classrooms within one district in the United States. There were 15 second and third grade teacher participants and nine fourth grade teachers. The group was then further divided up into two intervention and one comparison group. Each teacher identified three students within their classroom to participate including: one at-risk student (defined as struggling reader with social/behavioral problems), one student with average reading achievement, and one student with high reading achievement for a total of 72 students (Fuchs, Fuchs, Kazdan, & Allen, 1999).

Teachers were divided into two experimental groups for the study, the PALS learning strategy group and PALS with the inclusion of preparation in help-giving strategy along with the control group. The control group used the same reading curriculum and same books as the intervention groups. This study was conducted for 21 weeks in 35 minute sessions three times a week during the regular reading time in the classrooms. The PALS plus HG condition is basically the same as PALS with, the pairing of students and activities (partner reading, retell, paragraph shrinking, and predicting), the only difference being the inclusion of strategies for students to determine the correct responses rather than a partner telling the correct response.
Teachers were trained in both PALS and PALS with HG and given support every 1-2 weeks from an intervention specialist (Fuchs, Fuchs, Kazdan, & Allen, 1999).

Measures of student learning were obtained pre and post PALS and PALS with HG. The Third edition of the Stanford Diagnostic Reading Test, further, the reading comprehension subtest was used, form G: the red level at grade 2 and green level at grades 3 and 4. The testing revealed growth across the boards for the PALS and PALS with HG students. The testing revealed the following data pre to post, at the 2-3 grade level: PALS, at-risk (28.80-38.00, growth of 9.20), PALS, average achieving, pre to post data (32.00-42.60, growth of 10.60), PALS, high achieving (43.80-45.00, growth of 1.20), across PALS student growth (34.87-41.86, 7.00), next PALS-HG, at-risk (33.60-33.20, growth of -.40), PALS-HG, average achieving (39.20-44.00, growth of 4.80), PALS-HG, high achieving (46.20-46.60, growth of .40), PALS-HG, across student growth (1.60), finally control group, at-risk (32.40-36.00, growth of 3.60), average achieving (35.80-38.40, growth 2.60), high achieving (45.60-45.60, growth .00), across student type (37.93-40.00, growth 2.07). Pre to post test data follows for PALS and PALS- HG at grade 4: PALS, at-risk ( 30.67-38.67, growth 8.00), PALS, average achieving (42.33-42.33, growth .00), PALS, high achieving (46.67 to 47.33, growth .67), across student type (39.89-42.78, growth 2.89), PALS-HG, at-risk (35.00 to 47.00, growth 12.00), PALS-HG, average achieving (41.33-46.00, growth 4.67), PALS-HG, high achieving (46.00-47.67, growth 1.67), PALS-HG, across student type (40.78-46.89, growth 6.11), control group, at-risk (25.67-24.33, growth -1.33), control group, average achieving (40.33-42.33, growth 2.00), control group, high-achieving (45.33-44.00, growth-1.33), control group, across student type (37.11-36.89, growth -22) (Fuchs, Fuchs, Kazdan, & Allen, 1999).
This research supports that reading achievement results improved regardless of student’s achievement status, grade, or PALS versus PALS-HG. PALS either with or without the “help giving” is useful for diverse sets of learners within a classroom; all students can benefit. The only consideration is with high-achieving students who show a smaller degree of growth as detailed in both research studies.

The following data was collected from 20 first grade teachers and 96 students from 6 schools. The school demographic was urban in the southeastern United States. The ranges of achievers are five students from each class including three low achieving, one average achieving, and one high achieving. Four students leave the sample during the interrum. The 20 classes are broken down to 10 with PALS and 10 without PALS treatment. Teachers are trained in PALS in a one day workshop (Mathes, P., Howard, J., Allen, S., & Fuchs, D., 1998).

The intervention is PALS and used with the entire class for 16 weeks, three times a week, in 35 minute sessions. Other reading instruction was not changed and the control group continued with the typical reading instruction (Whole Language) for this district. The study uses a quasi-experimental design. The researchers included Patricia Mathes, the first author, and three graduate students (Mathes, P., Howard, J., Allen, S., & Fuchs, D. 1998). The measurement device used to compare data was the Woodcock Reading Mastery Test-Revised, Test of Early Reading Ability 2, and the Comprehensive Reading Assessment Battery-Revised. The testing devices were used pre and posttest. Three subtests of the WRMT were given including word identification, word attack, and passage comprehension. The TERA-2 measures a child’s concepts of print, defined as a) ability to construct meaning from print, b) alphabet knowledge, and c) knowledge about the conventions of print. The CRABR test was
used to measure oral reading fluency and comprehension of story content (Mathes, P., Howard, J., Allen, S., & Fuchs, D., 1998)

WRMT-R testing revealed a statistically significant change for LA students between the First-Grade PALS and the control group on all subtests administered. AA students had significant differences between groups on the passage comprehension subtest. No significant data was detected for HA. CRAB-R testing revealed no significant change. TERA-2 testing was only done on the LA students and the scores revealed that the First-Grade PALS experienced significantly more change than the control group.

The researchers then tested the students on a timed series of phonological awareness and reading fluency data. The pre and post measures of concepts of print, decoding, fluency and comprehension yielded gains for all types of learners, with the greatest gains being achieved by the struggling low achieving learners (Mathes, Howard, Allen, & Fuchs, 1998).

Factors of Diversity in Learning

Several factors contribute to learning success. Key research points to the diversity of groups that are addressed in the PALS Program. A study of PALS would be remiss without addressing all of the diverse groups that are discussed and the resulting research findings in support of the PALS Program. PALS programs address the needs of many different students and learners. The PALS research categories include the following considerations: a) cultural and racial factors, b) language or linguistic factors, c) gender factors, d) age and grade factors, e) reading or math levels of students, f) special needs students or regular education, g) social behavior, and h) low, moderate or high achieving students.
Cultural and Racial Factors

The ability to read has lifelong impacts on being able to access knowledge and even effects economic success. Reading achievement studies show that there is a marked difference between socioeconomic classes and ethnic groups. Twice as many Hispanics as white students cannot read at a basic level, they are retained more often (Shepard, 2000), and are also three times more likely to drop out of school than white students. Data indicates that more than 2 million students come from non-English speaking backgrounds (Hopstock, 1993). By 2020, this number will reach 6 million (Pellas, 1989). The largest subgroup in American schools is Spanish. Spanish speakers make up 75% of ELL student population and the numbers continue to rise (Baca & Valenzuela, 1998).

In light of the above data, new considerations need to be made and implemented as interventions for these students. It is vitally important to improve the achievement and retention, along with lowering the overrepresentation in special education programs for these students. Prevention is one of the goals emphasized in the No Child Left Behind (NCLB, 2001) and the amendments to the Individuals with Disabilities Education Act (2004). They both require children regardless of at risk potentials to receive reading instruction that is evidence based however the preventive part of the equation has encountered many difficulties. As a result, struggling readers need more intervention methods, which is where PALS comes into play.

PALS was tested to examine the effectiveness of supplemental peer tutoring reading on phonological and reading fluency skills of first graders who additionally were in mostly Hispanic Title 1 classrooms. In the classrooms, the classes consisted of 68% Hispanic and 32% Anglo English and all English speaking in order to rule out language learning (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006 ).
Three Title 1 elementary schools in a New Mexico border town were included in the study. There were six classrooms and 96 first grade participants along with 6 teachers. There were two groups the PALS group and the control group. In addition, the data was compared between gender, years retained, special education label, and ethnicity. Teachers were trained in PALS during a one day workshop. PALS was then incorporated for a length of 20 weeks, three times per week in sessions lasting 30-35 minutes. The control group used the regular core reading instruction used in their district whereas the PALS groups used the regular core reading instruction along with supplementing PALS (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

The measure for pre and posttest was three subtests from the DIBELS (Dynamic Indicators of Early Literacy Skills). The three subtests selected were Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), and Oral Reading Fluency (ORF). Oral Reading Fluency measures the number of words a student can read correctly in 1 minutes in connected text. Finally, a questionnaire was provided to address the social portion of PALS and how satisfied the teachers were regarding the benefits of PALS; students had a questionnaire to complete for satisfaction as well.

The results of the study found that PALS students show more growth than control students on two measures of the test including PSF and NWF. The ORF showed no significant gains. The growth on the DIBELS PSF was 24.58 from Fall to Spring in the PALS group and 10.67 in the control group, the NWF showed growth of 50.43 in the PALS group and 36.75 in the control group, and the ORF showed 16.04 in the PALS group and 16.05 in the control group (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).
The other question the study answered was if the PALS program helped Hispanic students considered at risk to achieve a relatively higher percentage due to the program. The findings were measured by ethnic group and effect size comparisons on a graph format. A relatively higher measure of PALS at-risk Hispanic students performed on grade level on all 3 DIBELS subtests in the spring however; the at-risk non-Hispanic students showed a reverse effect and the students who were in the control group scored higher grade level performances in the spring. Amongst students who were AA they remained on grade level regardless of the PALS group regardless of ethnicity (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

PALS teachers and students reported positive results on the questionnaires. They teachers and students were very satisfied with the program and their perceptions of PALS was also positive. Teachers felt that the program raised reading achievement and students felt it helped them read better, was fun, and that they liked working with partners (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

The results indicate that the PSF and NWF were improved for first graders in the PALS program however; the ORF needs to be monitored in order to better individualize interventions for particular students. The overall picture is positive and appears to decrease the proportion of Hispanic students at risk for special education in reading by bringing up their scores. These results are consistent with prior studies of first-grade PALS, which have demonstrated that, on average, PALS accelerate student reading achievement significantly more than typical classroom instruction.” (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

The limitations to consider for this study is the small sample size, the large number of students in the control group with a language disability, and the ability of the assistant
researchers to provide top notch services due to lack of resources or funding as it was a Title 1 school (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

**English Language Learners**

One particular study highlighted the positive effects of PALS with English Language Learners. It was conducted by Saenz, L., Fuchs, L.S., and Fuchs, D. The setting is in Texas and the students here were enrolled in bilingual education classrooms in grades 3-6. The study sample used 12 classrooms with 108 total Spanish-speaking students and the classrooms were then randomly assigned PALS or control group. The classrooms were composed of all English language learners and within the classroom at least 2 learning disabled students for comparison data of achievement. Eleven students from each class were tested including: two students with LD, three low-achieving (LA), three average-achieving (AA), and three high-achieving (AA).

The method used in the study was PALS which was conducted three times a week for a fifteen week period. Each PALS session lasted between 25-35 minutes and was completed during the regular reading instruction times. Lesson plans were reviewed twice during the study to ascertain the instruction being provided. Teachers of the PALS group used peer-mediated instruction more often and used teacher directed instruction less. The control group conducted reading with the regular school reading curriculum.

The measurement device used to determine achievement were the three subtests of the Comprehensive Reading Assessment Battery (CRAB), with subscales of Word Correct, Maze Choices Correct, and Comprehension Questions Correct. The scores were then considered in relation to between-subjects factors with PALS versus control group and within-subjects factors which was LD, LA, AA, and HA. ANOVA or analysis of variance was applied for each CRAB score, calculated by the difference between mean improvement scores divided by $\frac{sd}{\sqrt{2(1-$
The most significant score was on the comprehension measure of the test. The ELL students whom were also LD with the PALS intervention exceeded 1 standard deviation on CRAB questions answered correctly, the LA, AA, HA were also strong, .86, .60, and 1.06 respectively (Saenz, L., Fuchs, L., & Fuchs, D. (2005).

Findings from this study corroborate the increase in achievement associated with the use of PALS. Reading Comprehension is a developmental milestone especially at grades 3-6. It is especially useful as all student groups within the ELL classes showed gains regardless of LD, LA, AA, or HA. The implication for practice clearly is that PALS is an effective practice for promoting reading comprehension among ELL students on various levels (Saenz, L., Fuchs, L., & Fuchs, D. (2005).

**Learning Disabled Students**

Educators are constantly searching for a way to enhance all students learning. Learning disabled students and Low Achieving students present special challenges. There is constant pressure for these students to perform at grade level as indicated by various rigorous test standards. Simmons, Fuchs, L., Fuchs, D., Mathes, and Hodge attempt to address this in their study on the effects of explicit teaching and peer tutoring in LD and LA students.

Participants included 24 regular classroom teachers in grades 2-5 from five schools in a southeastern suburban area. The groups included explicit teaching, explicit teaching plus peer tutoring, and the control group. There were 14, 11, and 19 LD students respectively in the explicit teaching, explicit teaching plus PALS and the control group. The number of low performing (LP) students was seven in ET, seven in ET plus peer tutoring, and 10 in the control group.
The intervention included explicit reading teaching during routinely scheduled reading instruction with LD and LP students for a time period of 16 weeks in the ET and ET plus PT groups. The teachers were trained in this technique during a one day workshop. Peer tutoring began after the eighth week of ET and continued for the last eight weeks. The control teachers continued with the traditional reading instruction within their school district (Simmons, D. C., Fuchs, L. S., Fuchs, D., Mathes, P., & Hodges, J. P., 1995).

Data collection was done using DOBI (direct observation), CRAB and SAT reading comprehension scores. There were pre and posttest measures taken from these tests. The important finding garnered from the research was in relation to the effects of peer tutoring on fluency, comprehension, and maze measures which showed statistically significant gains for the LD and LP students alike. This finding suggests that explicit teaching with peer tutoring can be implemented successfully to improve reading performance among low performing and learning disabled students (Simmons, D. C., Fuchs, L. S., Fuchs, D., Mathes, P., & Hodges, J. P., 1995).

**Other Considerations/Conclusions**

Pals, in effect, allows teachers to oversee many lessons at once while addressing a broader range of students educational needs, including many diverse learners, such as English language learners, and learning disabled students (Fuchs & Fuchs, 2005). Many EL students struggle to learn to read and lag behind their English speaking peers. In 2005, 27% of 4th grade EL’s performed at or above basic reading level, only 7% at or above the proficient level, whereas 67% of non-EL’s performed at or above basic level with 34% at or above the proficient level (McMaster, King, Han, & Cao, 2008).
Chapter 3: Results and Analysis Relative to the Problem

Advantages of PALS

In general, there are many advantages to implementing the PALS program. Some of the advantages according to Toppings include the following. It complements traditional teaching instead of replacing it. The traditional or independent studies are often times not enough. PALS is a supplemental program adding positive feedback and an alternate option for didactic or direct teaching. PALS helps to prepare children for the vocational or occupational opportunities that are available in our new and changing world. It teaches children to think critically and independently while also learning to interact successfully as a team player or cooperative, contributing member of society. (Topping)

Many studies are available to date which support the Pals Program. The data and research that reflects on Pals has a mostly positive stance. The before mentioned research while not exhausting gives a good idea of the literature available and the feedback regarding this supportive resource in the classroom.

The data documenting achievement in reading is compelling but the following is one of the more engaging studies that looked into the social effects of PALS. The socio-metric data was taken from thirty nine 2nd-6th grade classes in 12 elementary schools near Nashville, TN. Twenty two classes were in PALS and twenty two in No-PALS programs and four children from each of the thirty nine classes participated in the study. Finally, the subjects were further broken down to one low achieving, one high achieving, and one learning disabled and one average student.
The study implemented PALS with the participants for a period of 15 weeks at a rate of 3 times per week for 25-40 minute sessions. The control group (No-PALS) group utilized their regular reading instruction and conducted reading activities for the same amount of time as the PALS group. In this study, PALS was used as a replacement of independent seatwork.

Researchers used a group socio-metric measure, HIFTO, How I Feel Toward Others. It was developed to specifically discover attitudes and social status of students regardless of nondisabled, learning disabled, behavior disorders, and mild mental retardation in elementary-level classrooms. The measure has a class roster with four circles next to each student, the child rates other children in the class with a question mark, smiling face, straight-mouthed face, or frowning face. The ratings the child receives from their peers indicates their level of social acceptance. Neutrals and unknowns are not calculated into the formula. The scores, for example, tabulated in a class of 26 students, whereby smiles received=5/(26-1)=20%; neutrals received = 8/26-1) = 32%; frowns received = 8/(26-1)=32%; and unknowns received = 4/(26-1) = 32%; and unknowns received = 4/(26-1) = 16%. Three more scores were calculated including social preference, social impact, and reciprocal smiles.

The study clearly showed a correlation between student type and PALS and No-PALS classrooms. The LD students were rated lower in both groups then the LA, AA, and HA peers for the social impact portion of the test which was calculated by adding the number of smiles received to the number of frowns received and dividing by the number of raters minus one. Further, a low social-impact percentage could potentially identify a student as unknown as fewer students rated them, or; a high percentage on this part could indicate either highly accepted or rejected students within the group. The other areas of the test indicated that the LD students in PALS classes received the same number of smiles, reciprocal smiles, and frowns as their non-
disabled peers. The No-PALS classrooms had a greater percentage of frown received to smiles and therefore had a negative social-preference index (Fuchs, D., Fuchs, L. S., Mathes, P. G., & Martinez, E. A., 2002).

The findings substantiated the conclusion that the learning disabled students in PALS Classes were more socially accepted then in non-PALS Classes and they also enjoyed the same class social standing as their non-learning disabled counterparts (Fuchs, D., Fuchs, L. S., Mathes, P. G., & Martinez, E. A., 2002).

Three commonly cited reasons for the program being well-received and successful are as follows: 1) PALS demonstrated high fidelity, 2) PALS is implemented with ease, 3) PALS has high levels of satisfaction not only with the teachers but the students as well.

Keith Topping, citing a study done by Bloom (1984), states that the average student will improve his or her reading score by two standard deviation points after receiving one on one tutoring from a peer. This is evident when those student’s scores are compared to those of a student being taught using the traditional teaching method. (Pg. 3)

Another study cited by Topping was done by Annis (1983), which highlighted the difference that implementing an additional learning strategy can make. Three groups of students were used in the study. The first only read the material, the second group read the material with the understanding that they would need to teach it to a peer, and the third group read it with the understanding that they would need to teach it to a peer and then actually taught it. The outcome measure was based on a 48 question competence test. The third group performed the best. (Topping, pg. 13)

One particular study highlighted the effect of PALS on a group of students who were mostly of Hispanic origin. Included in the study was a table that analyzed the effect of the
program on the reading scores of students. The study substantiated the effectiveness of a PALS program. The researchers determined that “PALS students, overall, showed statistically more growth than control students on measures of PSF and NW” (Calhoon, M. B., Otaiba, S. A., Greenberg, D., King, A., & Avalos, A. 2006).

**Negative research findings for Pals**

Much research about the PALS Program is available to the consumer. Overall, the majority of the research has a positive slant with gains for student learning at all levels. However, another side to the research has a negative context for students. The main curricula area that has problems is found in reading fluency. Apparently, PALS does not provide significant gains for all learners and actually no gains for some learners in reading fluency in some reading situations within certain demographic areas and grades. The main type of learner affected is the low garden variety poor or struggling reader at least according to some research. Reading gains for high incidence disabilities are not strong in reading fluency according to this study by Saenz. (Saenz, 2005)

There were some points made by Richardson and Anders that highlighted negative aspects of the program including the fact that the program deals with group/individual dilemmas by engaging in tutoring role that may cut off important conversations leading to changed concepts. They felt there was not an opportunity for learning from errors, as students perceive learning as less important when learning is not teacher led. Also, the teacher may not feel as responsible for learning in this situation and may miss instructional opportunities. Lastly, the hidden curriculum may work to ignore students’ authority and limit their subsequent risk-taking behavior in relation to their tutoring. (Richardson & Anders, 1998)
Conclusions

The beginning research questions asked in this paper were, “What are the effects of Peer-Assisted Learning Strategies on the achievements of urban elementary students? How do the effects of PALS compare with those of traditional curricular reading programs?” Both questions were answered by the research studies within this paper. The effects of PALS on urban elementary students across different student group with cultural, ethnic considerations, language disabilities, learning disabilities, and other considerations were all positive with significant statistical growth on varied test measure (McMaster, King, Han, & Cao, 2008)

Chapter 4: Conclusion

Recommendations

There is solid evidence supporting the use of this program for elementary classrooms in urban areas, however. PALS is advantageous for students, teachers, and the educational system in general and ultimately for society. It is cost effective in that it conserves schools financial resources which can be applied in many areas to further the learning of our children. It is easily implemented within classrooms with a minimum of teacher training hours. In addition there is also a minimum number of resources are necessary to execute the program. PALS has been proven to raise reading scores in all students, regardless of age, ethnicity, demographics, or social class. We want to help our children to achieve a better future by providing the foundation from which they can build.

The use of PALS needs to remain supplemental with traditional curricular reading programs still in place. The use of direct and explicit teaching is still necessary and valuable as a starting point for teaching reading. The big ideas of early literacy which are phonemic
awareness, phonics, vocabulary, fluency, and comprehension need to remain as our focal point while developing and implementing strategies to enhance achievement.

**Areas for Further Research**

There were 97 studies that were researched by the WWC (Department of education). Most of the findings had validity issues as reported by the WWC but still provided valuable information and data. Therefore the data needs to be interpreted with reservations but still gives educators a clear picture of the ramifications for future learning especially in regards to using PALS in the classroom.

The author of this paper recently attended a whole day workshop training in PALS. It was well attended with participants from several neighboring counties attending in the Copper County. The workshop clearly provided the expectations for the training along with the agenda. It covered the PALS research and development, program features and overview, set-up, activities, and finally putting it all together for an implementation plan.

We had the opportunity to work hands on while learning about the PALS program from set up to scoring within the large group environment. Teachers then broke up into pairs from different school systems to practice the different parts of the PALS program: partner reading, retell, paragraph shrinking, and finally prediction relay. We discussed different reading situations that may need to be addressed, such as a triad when there are uneven numbers of students and implementation of mini-lessons when needed for reinforcement.

Finally, we discussed the implementation of the program within our various schools. Our school district is implementing PALS within my second grade classroom as a pilot program to determine the effectiveness of the intervention. The measures being used to test the students are
the STAR test and the DIBELS. The program has been implemented for four months at this time and the students will be tested at the end of April 2013. There is a control group as there are two second grade classrooms. If the findings indicate that PALS was an effective intervention within our school, then the school will adopt PALS and provide training of the other elementary teachers in PALS along with the materials and support. Further research will be provided by the experimental group versus the control group. We’re hoping to add that missing ingredient that will help all student groups achieve success in reading.

Summary and Conclusion

In summary, the PALS Program is a program designed to supplement an existing reading program. The PALS program is well designed following current theoretical models. PALS takes into account the different diversity in students from their learning styles to their learning abilities. PALS bridges an important gap in learning to read for children. The research findings from studies conducted on the PALS Program are favorable with an increase in reading proficiency and comprehension in correlation with the use of this program. Essentially, “Practice consolidates a skill, promotes fluency, and minimizes forgetting. As John Dewey always stressed, “we learn by doing!” The more you do it, the better you get and the more you want to do it.” (Topping)

The three important points in regards to the use of the PALS Program is 1) to implement with high fidelity, 2) PALS will be more beneficial when used with a beginning reading program and used as a supplement, and 3) lastly remember that PALS won’t be successful for all students all of the time (McMaster, Fuchs, & Fuchs, 2005).
One thing that could be useful when assigning paired partners is simply taking a list of the class categorized from high-achieving to struggling and folding the paper in half. The high-achieving is then placed with average-achieving and average-achieving with struggling readers in a hierarchical fashion.

PALS is extremely cost effective, because it helps us to do more with less, while improving teaching quality. This program requires very minimal resources or training to implement. The cost involved in obtaining resources for PALS includes: The manual for each grade-level reading version of Peer-Assisted Learning Strategies, which costs from $40 to $44, along with optional DVD materials, for $15. (WWC)

Peer tutoring is beneficial to not only the learner but the tutor as well; the tutor learns the information twice and benefits from the additional time. The cognitive processes of the peer helper are enhanced due to the fact that attention and motivation to learn are increased by the necessity to learn the information to present to their peer. (Topping) Another result of this type of learning is higher self-esteem and a sense of ownership of one’s own leaning. It has also been shown to decrease anxiety for participants. There is an increased amount of time on task. As a result of these factors, there has been a surge of interest among the teaching community, regarding this program.
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