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Peer-Assisted Learning Strategies: A "Tier 1" Approach to Promoting English Learners' Response to Intervention

KRISTEN L. MCMASTER

SHU-HSUAN KUNG

INSOON HAN

MARISA CAO

University of Minnesota

ABSTRACT: *This study determined the effectiveness of Kindergarten Peer-Assisted Learning Strategies (K–PALS) for English Learners (ELs). We compared 20 K–PALS ELs to 20 Control ELs and to 20 K–PALS non-ELs on early reading skill acquisition, using a pretest–posttest control group design with matched samples. We also compared proportions of ELs unresponsive to K–PALS to ELs unresponsive to traditional instruction. Teachers implemented K–PALS 4 times per week for 18 weeks. Following intervention, analyses of covariance on posttest measures indicated that K–PALS ELs performed reliably higher than Control ELs on measures of phonemic awareness and letter sound recognition, and they performed similarly to K–PALS non-ELs. Findings are discussed in terms of K–PALS efficacy for ELs in a response-to-intervention framework.*

Many English Learners (ELs) struggle to learn to read, and, as a group, lag far behind their native English-speaking peers. According to the National Center for Education Statistics, in 2005, 27% of fourth-grade ELs performed at or above the basic reading level, with only 7% at or above the proficient level, whereas 67% of non-ELs performed at or above the basic level with 34% at or above the proficient level. Severe difficulties in reading can lead to special education referral (Snow, Burns, & Griffin, 1998); indeed, as many as 80% of students with learning disabilities (LD) struggle primarily with reading (Lyon et al., 2001). How this relates to ELs is currently unclear. Disproportionate numbers of ELs are referred to special education, with many either over- or underidentified as having LD. Disproportionate referral rates have been attributed, at least in part, to difficulties in disentangling possible learning deficits from limited language proficiency (McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005).

Addressing both the literacy development of ELs and issues surrounding disproportionate

referral rates of ELs to special education are current educational priorities. In fact, both the study of reading interventions and LD identification issues were placed high on the agenda for EL–LD research by a symposium organized by the U.S. Department of Education and National Institutes of Health in October 2003 (U.S. Department of Education & U.S. Department of Health and Human Services). There is an especially urgent call for effective early intervention approaches targeting ELs (e.g., Gersten & Baker, 2000; Slavin & Cheung, 2005), with the view that inappropriate special education referral, school failure, and other negative academic outcomes could be prevented if strong, evidence-based practices are in place early on.

GENERAL AND SPECIAL EDUCATION REFORMS

Contributing to the urgency to ensure that effective early intervention is in place for ELs are current reforms that place heavy emphasis on evidence-based practice and accountability. Provisions of the No Child Left Behind Act (NCLB, 2002) stress that schools must work to close achievement gaps, improving outcomes for all learners. To achieve this, schools must show that subgroups of students, including ELs, are making "adequate yearly progress" as measured by state-defined academic achievement tests. Schools that do not meet accountability standards may face tough sanctions (Abedi, 2004).

Special education policy is increasingly aligning with these general education reforms. The recent reauthorization of the Individuals With Disabilities Education Improvement Act (IDEA, 2004) emphasizes early intervention and accountability, and indicates that disproportionate numbers of culturally and linguistically diverse students referred to special education must be reduced. Further, IDEA allows local education agencies to use response-to-intervention (RTI) models in place of discrepancy models for identifying students with LD. RTI involves early identification of students at risk, progress monitoring, and increasingly intensive intervention for students who continue to struggle. Only those students who do not make adequate progress despite intervention continue on to special education referral.

RESPONSE TO INTERVENTION: IMPLICATIONS FOR ELS

An RTI approach is proposed by some (e.g., Gerber et al., 2004; Klingner & Edwards, 2006; Linan-Thompson, Vaughn, Prater, & Cirino, 2006) as a possible alternative for ELs at risk of special education identification to traditional discrepancy models that rely on standardized achievement and intelligence tests. This is, in part, because few standardized tests have technical data supporting their reliability and validity for ELs, and provide little information as to what types of instruction will be most beneficial once a disability is diagnosed (Abedi, 2004). Moreover, it often takes several years for a discrepancy to emerge (Wagner, Francis, & Morris, 2005), which can result in persistent academic failure that becomes increasingly difficult to remediate. RTI may be a less biased, more instructionally relevant approach for ELs. Moreover, RTI proponents expect that this approach will lead to earlier identification and intervention, and, in the long run, help decrease proportions of ELs who are inappropriately referred to special education (Klingner & Edwards).

Special education policy is increasingly aligning with these general education reforms.

Yet, some of the same problems associated with traditional identification models may also emerge from an RTI approach (see Wagner et al., 2005). For example, many ELs may perform below RTI criteria established for non-ELs, leading to allocation of resources for more intensive instruction for (again) disproportionate numbers of ELs. Although some may argue that this is not a problem if intensive instruction is beneficial for ELs, an important question is whether general classroom instruction can be designed to meet the needs of many ELs, such that more intensive interventions are necessary for only the most severely struggling students.

In this study, we examined the effectiveness of a classroom-based beginning reading approach to boosting the early reading performance of ELs. First, we provide an overview of the RTI ap-

proach and review research on early reading intervention for ELs. Then, we propose Kindergarten Peer-Assisted Learning Strategies (K–PALS; D. Fuchs, Fuchs, Thompson, Al Otaiba, Yen, Yang, et al., 2001) as an evidence-based instructional approach that may be beneficial for many ELs beginning to learn to read.

EARLY READING INTERVENTIONS FOR ELS: HOW DO THEY FIT WITHIN AN RTI APPROACH?

A Tiered Model of Intervention

Two general models of RTI have been described in the literature to date (see L. S. Fuchs, 2003). One model conceptualizes RTI as response to intensive, preventative intervention. In this model, students identified as at risk immediately receive specialized intervention provided in small groups by a specialist (e.g., Torgesen et al., 2001; Vellutino et al., 1996). Those who continue to perform at low levels or make very little growth are deemed unresponsive to intervention and are candidates for special education. The second model is rooted in general education (L. S. Fuchs, 2003; Speece & Case, 2001) in that high-quality general classroom instruction is provided to at-risk students before the decision is made to implement more intensive intervention. We focus on this second model, with the assumption that implementing high-quality, evidence-based classroom instruction will meet the needs of many students, thus reducing proportions of students who will require more intensive, individualized instruction.

This second RTI model typically includes increasingly intensive "tiers" of intervention (e.g., D. Fuchs & Fuchs, 2006, Vaughn & Linan-Thompson, 2003). Tier 1 consists of general classroom practices that at least reflect sound pedagogy, and at best consist of evidence-based instruction implemented with integrity. Tier 2 is (a) provided to students for whom Tier 1 is not beneficial; (b) is more intensive in that it is typically provided in small groups; (c) includes explicit, skills-based instruction; (d) is conducted more frequently or for longer periods; and/or (e) is delivered by an expert such as a reading specialist. Subsequent tiers are implemented when Tier 2 does not result in sufficient progress, are even more intensive, and may either lead to special education referral or are provided within special education (D. Fuchs, Mock, Morgan, & Young, 2003; Klingner & Edwards, 2006).

If the early literacy needs of at-risk ELs are to be addressed within an RTI framework, it is critical that evidence-based instruction is available for ELs at each tier (Klingner & Edwards, 2006). Otherwise, it will be difficult to determine whether ELs who struggle to learn to read do so because appropriate instruction is not in place (L. S. Fuchs, 2003; Vaughn, Mathes, Linan-Thompson, & Francis, 2005) or because of language or learning deficits (McCardle et al., 2005). Whereas researchers have provided evidence of the general effectiveness of a number of early reading interventions (see National Reading Panel, 2000), it is inappropriate to assume that these interventions are effective for all students (Klingner & Edwards). Rather, it is critical to examine what types of interventions are effective for ELs at risk of reading failure. Several researchers have begun such examinations. Following, we briefly review studies targeting the early literacy development of ELs, characterizing the instruction provided as Tier 1 or Tier 2.

Tier 1 Instruction. As mentioned, in an RTI framework, Tier 1 involves evidence-based reading instruction provided within general education. Few have investigated outcomes for ELs participating in whole-class reading instruction, but existing evidence is promising. In a large-scale study, D'Angiulli, Siegel, and Maggi (2004) investigated whether a districtwide literacy curriculum had a differential effect on the reading achievement of ELs and non-ELs of varying socioeconomic status (SES). Kindergarten through fifth-grade students received instruction in phonemic awareness, alphabetic knowledge, and shared and independent reading and writing. At the lowest and highest ends of the SES distribution, significantly more ELs than non-ELs were proficient or improving to proficiency in word-level reading after participating in the curriculum. In the middle of the SES distribution, ELs and non-ELs achieved at similar rates. The authors attributed this to the curriculum; without it, the trajectories for ELs with the lowest and highest SES were expected to be similar to their non-EL counterparts. However, there was

no comparison group, which limits conclusions about the efficacy of this curriculum.

Tier 2 Interventions. Many researchers who have conducted early reading studies with ELs have examined instructional approaches resembling Tier 2 interventions (de la Colina, Parker, Hasbrouck, & Lara-Alecio, 2001; Denton, Anthony, Parker, & Hasbrouck, 2004; Gerber et al., 2004; Gunn, Biglan, Smolkowski, & Ary, 2000; Haager & Windmueller, 2001; Leafstedt, Richards, & Gerber, 2004; Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003; Linan-Thompson et al., 2006; Vaughn, Cirino, et al., 2006; Vaughn, Linan-Thompson, Mathes, Cirino, et al., 2006; Vaughn, Mathes, et al., 2006). These interventions have been supplementary to general classroom instruction, have been delivered in small groups by instructors other than general classroom teachers, have been implemented for 30 to 50 min daily, and have ranged from 10 weeks to 8 months. Further, the interventions have incorporated explicit instruction targeting phonemic awareness, letter–sound correspondence, decoding, fluency, and comprehension, all critical beginning reading skills known to be important for native English speakers who struggle in reading (e.g., National Reading Panel, 2000). Vaughn and colleagues have also incorporated explicit oral language and vocabulary activities (see Vaughn et al., 2005).

Across these studies, ELs made reliable gains in phonemic awareness (Gerber et al., 2004; Linan-Thompson et al., 2003; Vaughn, Cirino, et al., 2006); letter–sound recognition (Vaughn, Cirino, et al., 2006); word attack (Gunn et al., 2000; Vaughn, Cirino, et al., 2006); word reading (Denton et al., 2004; Leafstedt et al., 2004; Vaughn, Cirino, et al., 2006); fluency (de la Colina et al., 2001); spelling (Vaughn, Cirino, et al., 2006); and comprehension (de la Colina et al.). ELs reliably outperformed controls in all but two of the studies, which did not include controls (Haager & Windmueller, 2001; Linan-Thompson et al., 2003). Linan-Thompson et al. (2006) also demonstrated that more ELs who received supplemental reading intervention in first grade met RTI criteria than controls and maintained this status through the end of second grade.

Findings of the previous studies suggest that explicit, skills-based instruction known to be effective for many at-risk native English speakers are also beneficial for many at-risk ELs. These studies involved supplementary, small group instruction resembling Tier 2 intervention. Further research is needed to determine what types of general classroom, Tier 1 instruction are effective, reducing the need for more intensive intervention for ELs. Also, few researchers have directly tested whether beginning reading interventions are as effective for ELs as for their native English-speaking peers. It is important to better understand whether classroom-based reading instruction has a differential impact on different groups of students.

KINDERGARTEN PEER-ASSISTED LEARNING STRATEGIES

One classwide instructional approach that has benefited many beginning readers is Kindergarten Peer-Assisted Learning Strategies (K–PALS), a supplemental peer-tutoring program developed by researchers at Vanderbilt University (D. Fuchs et al., 2001). In K–PALS, higher performing readers are paired with lower performing readers to practice skills identified as critical for beginning reading (e.g., National Reading Panel, 2000), including phonemic awareness, letter–sound recognition, decoding, and fluency. Results of large-scale experimental studies indicate that K–PALS has improved beginning reading skills of many low-, average-, and high-performing readers, as well as some children with disabilities (e.g., D. Fuchs et al., 2001; D. Fuchs et al., 2002). K–PALS has also been shown to be effective for many students in schools with high proportions of minority children and children living in poverty, as well as in schools with predominantly White, middle-class populations. Teachers have reported that K–PALS is practical, efficient, and fits well with a variety of teaching philosophies (McMaster, Fuchs, & Fuchs, 2002).

For the previous reasons, K–PALS appears promising as a Tier 1 instructional approach within an RTI framework; however, as mentioned, it is important to understand the impact of such approaches for ELs. We believe that K–PALS may provide effective beginning reading instruction for ELs for two important reasons.

First, K–PALS includes explicit phonemic awareness, letter–sound, and decoding instruction, which have been found to be important not only for native English-speaking students but also for many ELs at risk for reading failure (e.g., de la Colina et al., 2001; Denton et al., 2004; Gerber et al., 2004; Gunn et al., 2000; Vaughn, Cirino, et al., 2006; Vaughn, Linan-Thompson, Pollard-Durodola, Mathes, & Hagan, 2006; Vaughn, Mathes, et al., 2006).

Second, K–PALS includes components recommended for ELs, such as interactive teaching and high levels of student engagement, frequent opportunities for accurate responses, and peer-mediated learning (Gersten & Geva, 2003; Vaughn, Linan-Thompson, et al., 2006). Such recommendations align with perspectives of social learning theorists, who assume that social interaction improves a child's ability to gain and understand knowledge (e.g., Vygotsky, 1987), and second language-learning theorists, who assume that ELs develop academic language proficiency by engaging in tasks that require them to receive and produce language to learn new concepts (e.g., Cummins, 1980; Long & Porter, 1985). K–PALS provides a logical context and multiple opportunities for such interactions.

The purpose of this study was to determine the effectiveness of K–PALS (D. Fuchs et al., 2001) implemented with ELs. Two primary research questions were addressed: (1) Do ELs who participate in K–PALS outperform control ELs on critical beginning reading skills? (2) Is K–PALS as effective for ELs as for non-ELs? A secondary research question was whether K–PALS is effective as a Tier 1 intervention for ELs, as evidenced by lower proportions of unresponsive students to K–PALS than to traditional classroom instruction.

METHOD

Setting and Participants

This study was part of a large-scale randomized field trial investigating the "scaling up" of evidence-based practice in reading. The large-scale study included approximately 1,800 kindergartners attending 46 public elementary schools in Tennessee, Texas, and Minnesota. Within each state, kindergarten classrooms were assigned randomly within school to one of four groups with varying levels of support: Level 1 (no-PALS Control), Level 2 (1-day workshop), Level 3 (1-day workshop plus booster sessions), or Level 4 (1-day workshop plus booster sessions plus weekly mentor visit). The primary purpose of the larger study was to examine the extent to which these levels of support improved teachers' implementation of K–PALS and students' beginning reading achievement. The present study differed from the larger study in that we focused on the effectiveness of K–PALS for a subgroup of study participants, specifically ELs in Minnesota; we examined the effectiveness of K–PALS as a Tier 1 intervention for ELs; and we did not include an analysis of levels of support for this subgroup of students.

The present study was conducted in Minnesota, which included 8 Control, 12 Level 2, 12 Level 3, and 10 Level 4 classrooms in the larger study. Five hundred nine kindergartners were study participants in these classrooms. Of these, 22% were ELs (n = 112), which was slightly lower than the overall proportion of ELs in the participating districts (approximately 30%). The present study included 60 kindergartners selected from the 509 Minnesota participants.

Preliminary findings from the large-scale study indicated that students who participated in K–PALS outperformed Controls on several measures of beginning reading. Further, accuracy of K–PALS implementation, or fidelity, was found to impact student achievement. Level of support did not have a consistent impact on student achievement. Thus, for the purposes of the present study, we selected students whose teachers had implemented K–PALS with high fidelity (90% or greater) to ensure that participants had indeed received K–PALS as it was intended to be implemented (see Procedures for details of how fidelity was assessed). Fifteen K–PALS teachers met this criterion. We included all Control classrooms (n = 8) to maximize the number of ELs we could include in the study. Fifty-three percent of K–PALS teachers and 25% of Control teachers taught in Title I schools. Fifty-three percent of K–PALS teachers and 50% of Control teachers taught in schools meeting adequate yearly progress (AYP) standards. None of the schools in the present or larger study were Reading First schools.

Although we selected teachers with high fidelity to ensure that participants truly received K–PALS instruction, there was the possibility that this selection criterion would yield a biased sample. In other words, high-fidelity K–PALS teachers might have been higher performing teachers in general. To address this potential problem, we first determined that there were no statistically significant differences between K–PALS and Control teachers on key demographic variables (see Table 1). Second, we used a Classroom Atmosphere Rating Scale (CARS; Wehby, Dodge, & Greenberg, 1993) to assess the quality of the instructional environment in all classrooms in the larger study (see Procedures). The correlation between K–PALS fidelity and CARS ratings in the larger study was r = -.39, suggesting that K–PALS fidelity was not strongly related to general instructional quality. In addition, a comparison of CARS ratings showed no reliable differences between K–PALS and Control teachers in the present study (K–PALS, M = 11.08, SD = 3.66; Control, M = 9.14, SD = 2.41, t[1, 18] = -1.25, p = .23); note that a lower score was associated with more positive classroom ratings). Based on these analyses, we concluded that the K–PALS teachers selected for this study were not different from Controls in terms of overall experience or instructional quality.

After identifying classrooms, we selected EL and non-EL participants. In Minnesota, ELs are defined as students who (a) first learned a language other than English, usually speak a language other than English at home, or do not use English as a primary language; and (b) lack the English skills needed to fully participate in classes taught in English (Minnesota Department of Education, 2004). Part (a) of the definition is determined by a home language questionnaire given to all students when they first enter a district, and Part (b) is measured by teacher judgment and/or performance on one of several measures such as the Student Oral Language Observation Matrix (Minnesota Department of Education, 2003). ELs in our study were included in general education classrooms with native English-speaking peers and received pullout EL services. The primary language of instruction was English.

Selection of participants involved a matching procedure. In the Control classrooms, 20 ELs had parental consent to participate in the larger study. We matched 20 K–PALS ELs to the 20 Control ELs based on two pretest measures: Rapid Letter Naming (RLN) and Rapid Letter Sound identification (RLS). K–PALS and Control ELs were rank-ordered based on these measures. The 20 K–PALS ELs whose scores most closely matched the 20 Control ELs' scores were selected. Then, the 20 K–PALS ELs were matched to 20 K–PALS non-ELs using the same procedure. A power analysis with our sample size (N = 60 with 20 students per cell) indicated adequate power (β =.93) to detect a moderate effect size of d = 0.50 at α = .05.

Table 2 presents student demographic information, which was collected as part of the larger study. Chi square analyses revealed no significant differences between K–PALS and Control ELs, or between K–PALS ELs and non-ELs, on sex, special education status, or free or reduced price lunch. T tests revealed no reliable group differences in terms of number of absences, and no reliable differences between K–PALS and Control ELs' English proficiency levels. Reliable differences were found between groups on age, such that K–PALS ELs were slightly older than Controls (5.78 vs. 5.51 years old). Reliable differences were also found between EL and non-EL groups on race and how often students received additional reading and language instruction outside the classroom. As one might expect, there were more Hispanic and Asian/Indian ELs than non-ELs. ELs received more reading and language help outside the classroom than did non-ELs. Table 2 includes a breakdown of types of help received.

Measures

In the larger investigation, all participants were administered a battery of beginning reading measures prior to and immediately following K–PALS implementation (in October and November and again in April and May of the study year). The measures included three groups of tests: phonemic awareness, which measured knowledge of sounds in words; alphabetic, which measured letter naming, letter–sound recognition, word reading, and spelling skills; and oral reading, which measured reading of connected text. All were

TABLE 1

Teacher Demographics

	K-PALS (n = *15)*		*Control* (n = *8)*			
Variable	n	*(%)*	n	*(%)*	χ^2	p
Sex					1.96	.16
Male	0	(0.0)	1	(12.5)		
Age in years						
20–29	5	(33.3)	2	(25.0)	2.01	.57
30–39	5	(33.3)	1	(12.5)		
40–49	4	(26.7)	4	(50.0)		
50–59	1	(6.7)	1	(12.5)		
Race					1.96	.16
African American	0	(0.0)	0	(0.0)		
Caucasian	15	(100.0)	7	(87.5)		
Hispanic	0	(0.0)	0	(0.0)		
Asian/Pacific Islander	0	(0.0)	1	(12.5)		
Educational Degree					4.36	.50
BS/BA and BS/BA+30	6	(40.0)	4	(50.0)		
MEd/MS and MEd/MS+15	5	(33.4)	2	(25.0)		
MEd/MS+30	4	(26.7)	2	(25.0)		
Teaching Certification					1.17	.28
Elementary	13	(86.7)	8	(100.0)		
Elementary and Reading	2	(13.3)	0	(0.0)		
Teach in a Title I school	8	(53.3)	2	(25.0)	1.70	.19
Teach in a school meeting AYP	8	(53.3)	4	(50.0)	0	1.0
	M	(SD)	M	(SD)	t	p
Years of teaching	10.63	(6.75)	11.88	(6.56)	–.42	.68
Years in current position	6.47	(5.12)	7.88	(5.46)	–.61	.55
Reading instruction credit hours	3.13	(1.13)	2.75	(1.39)	.72	.48
Special education credit hours	2.00	(1.51)	2.25	(1.75)	–.39	.72

Note. K-PALS = Kindergarten Peer-Assisted Learning Strategies; BS = Bachelor of Science; BA = Bachelor of Arts; MEd = Master's of Education; MS = Master's of Science; AYP = Adequate Yearly Progress.

given as pre- and posttest measures except for spelling and oral reading, which were given at posttest only.

Phonemic Awareness Measures. A segmentation test based on the Yopp-Singer test (Yopp, 1988) and developed for use in previous PALS research (D. Fuchs et al., 2001) was administered. In this test, the examiner says a word and prompts the student to say the sounds in the word. One point is recorded for each phoneme said correctly. The score is recorded as the number of correct phonemes expressed in 1 min. A blending task, also used by Fuchs et al., assessed students' ability to blend phonemes into words. For example, if the examiner says "s-oa-p," the student blends the phonemes into "soap." The score was recorded as the number of words blended correctly in 1 min.

Alphabetic Measures. A test for RLN was given to assess rapid letter identification skill. This measure was developed for use in a previous PALS study (D. Fuchs et al., 2001) and consisted of upper and lower case letters presented randomly in black type on a single sheet of paper. Students were instructed to name the letters as quickly as

TABLE 2

Student Demographics

	K-PALS ELs (n = *20)*		*Control ELs* (n = *20)*		*K-PALS non-ELs* (n = *20)*		χ^2	
Variable	n	*(%)*	n	*(%)*	n	*(%)*	*1 vs. 2*[b]	*1 vs. 3*[c]
Sex							0.40	0.40
Male	10	(50)	12	(60)	12	(60)		
Special Education							1.03	2.11
No IEP	20	(100)	19	(95)	18	(90)		
Has an IEP	0	(0)	1	(5)	1	(5)		
In process	0	(0)	0	(0)	1	(5)		
Race							10.92*	19.21**
African American	4	(20)	1	(5)	11	(55)		
Caucasian	0	(0)	1	(5)	6	(30)		
Hispanic	8	(40)	2	(10)	1	(5)		
Asian/Indian	7	(35)	16	(80)	1	(5)		
Other	1	(5)	0	(0)	1	(5)		
Receive free or reduced-price lunch	12	(60)	11	(55)	12	(60)	1.30	0.00
Reading/language help[a]							2.16	15.85**
No assistance	8	(40)	7	(35)	18	(90)		
Reading specialist	5	(25)	5	(25)	0	(0)		
Resource, speech	0	(0)	2	(10)	1	(5)		
Title I	1	(5)	1	(5)	1	(5)		
ESL pullout	6	(30)	5	(25)	0	(0)		
	M	(SD)	M	(SD)	M	(SD)	t *(38)*	
Age in years	5.78	(0.31)	5.51	(0.29)	5.79	(0.35)	2.84**	–0.07
Absences	2.56	(3.78)	1.40	(2.16)	2.53	(3.44)	1.04	0.02
English proficiency	3.05	(0.69)	3.45	(0.83)			2.78	NA

Note. K-PALS = Kindergarten Peer-Assisted Learning Strategies; EL = English learner; IEP = individualized education plan. ESL = English as a Second Language.

[a]In the schools in which this study was conducted, supplementary reading and language help was provided to students in an English immersion format either in the general classroom or as pullout service. [b]Group comparison between K-PALS ELs versus Control ELs. [c]Group comparison between K-PALS ELs versus K-PALS non-ELs.

*$p < .05$. **$p < .01$.

they could. The score was recorded as the number of letters named correctly in 1 min.

A test for RLS was given to assess letter–sound identification skill. RLS is based on a measure used by Levy and Lysunchuk (1997) and was developed for use in a previous PALS study (D. Fuchs et al., 2001). All 26 letters of the alphabet were presented randomly in black type on a sheet of paper. Students were instructed to say the sounds as quickly as they could. The score was recorded as the number of sounds produced correctly in 1 min.

The Word Identification (Word ID) and Word Attack subtests of the Woodcock Reading Mastery Test-Revised (WRMT-R; Woodcock, 1987) were given to measure word recognition and decoding skills. Scores on the Word ID and Word Attack subtests correlate highly with other tests of reading, including the Iowa Test of Basic Skills Total Reading, the Woodcock-Johnson Test of Reading Achievement, and the reading subtest

of the Wide Range Achievement Test, with correlations of .83 to .92. Internal consistency exceeds .90. The scores for these measures were the number of words read correctly.

The Wechsler Individual Achievement Test (WIAT; Psychological Corporation, 1992) spelling subtest was administered at posttest only. Students were instructed to write letters and words on a sheet of paper. The score was the number of letters and words written correctly. The WIAT correlates well with other achievement tests (*r*s = .70s to .80s), and has a test–retest reliability coefficient of .94.

Oral Reading Measures. Oral reading measures were administered at posttest only. Students read from two passages (Oral Reading A and B) that incorporated sight words and decodable words introduced in K–PALS lessons. Both stories had a Flesch-Kincaid readability grade level of 0.0. Before reading each story, the student was instructed to read aloud and to try his or her best. As the student read, the examiner marked insertions, omissions, substitutions, and mispronunciations not caused by speech-related problems or dialects. Omissions and additions of endings were considered errors. Self-corrections were not counted as errors. Errors were not corrected and no decoding assistance was given. The score was the number of words read correctly in 1 min. Alternate-form reliability for the larger sample was .95 ($p < .001$).

Reading Instruction

Core Instruction. All teachers in the larger study were asked to report the types of activities and materials that comprised their core language arts instruction. Language arts instruction was generally implemented between 90 and 120 min per day. Teachers consistently reported implementing "balanced" literacy instruction that incorporated letter and letter sound recognition and pronunciation; phonemic awareness; "building" words using onsets and rimes (word families); shared and guided reading; whole-class writing and journal writing; comprehension activities such as making predictions, identifying main ideas, and sequencing; and vocabulary development. Most reading instruction was implemented in a whole-class format followed by individual seatwork. Teachers generally did not use a single curriculum but reported using guided reading books, trade books, decodable and pattern books downloaded from the Web, teacher-made materials, and letter charts.

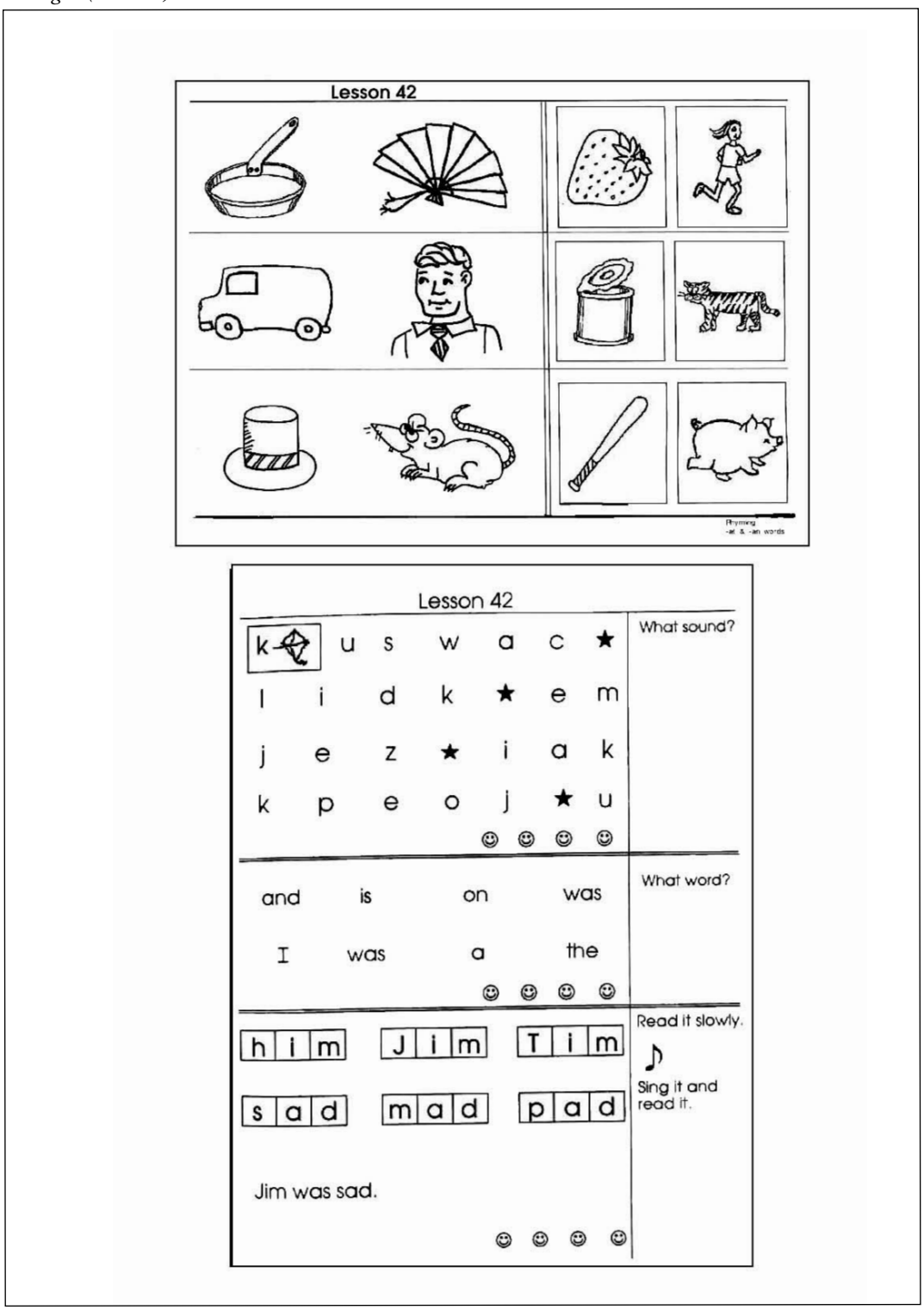
K–PALS Instruction. As mentioned, K–PALS was developed by researchers at Vanderbilt University (D. Fuchs et al., 2001), and was designed to be a supplement to beginning reading instruction in the general education classroom. As part of the larger study, teachers implemented K–PALS for 18 weeks, four times per week, for 20 to 30 min each session. In K–PALS, the teacher pairs higher performing readers with lower performing readers. The higher performer in each pair acts as the Coach (tutor) first, and the lower performer acts as the Reader. The roles are reciprocal such that during each activity students take turns being Coach and Reader. Pairs change approximately every 4 weeks. We did not dictate with whom ELs should be paired (e.g., partners with the same language versus English proficient partners); this was left up to teachers.

Teachers prepare their students for K–PALS by modeling the activities during eight training lessons presented in a whole-class format. The teacher acts as the Coach and the students are the Readers. Gradually, students take turns assuming the role of Coach for the whole class. Then, the students tutor each other, alternating as Coach and Reader. The teacher circulates among the student pairs, monitoring their progress and providing corrective feedback.

Two types of activities are included in K–PALS: Sound Play and Sounds and Words. Sound Play is a teacher-directed activity and includes five phonemic awareness games that address first sounds, rhyming, blending and segmenting, and ending sounds. Each lesson sheet shows pictures of common animals and objects. For example, the rhyming game shows rows of four pictures (see Figure 1). The first two pictures rhyme. The teacher points to the first two pictures and says, "Pan, fan;" then points to the other two pictures and says, "Which one rhymes with pan and fan, strawberry or ran?" The students reply, "Ran." One type of game is presented for several lessons, and then another type of game is introduced. For example, students play the First Sound Game for several sessions, using a different

FIGURE 1

Sample Teacher-Directed Sound Play and Peer-Mediated Decoding Kindergarten Peer-Assisted Learning Strategies (K-PALS) Lesson



set of pictures each time. Then, students play the rhyming game for several sessions, and so on. Sound Play games become increasingly difficult as students progress through the K–PALS lessons.

Two types of activities are included in K–PALS: Sound Play and Sounds and Words.

Sounds and Words is made up of four activities that are previewed by the teacher and then conducted by student pairs. The activities are all printed on one side of a lesson sheet (see Figure 1). The first activity, "What Sound?" displays rows of letters that students read from left to right. 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, "Good. Read the line again." At the end of the activity, the Coach marks one of four happy faces printed under the "What Sound?" section. Then, the students switch roles and repeat the activity.

After doing "What Sound?" twice, the pair moves on to "What Word?" which involves reading common sight words printed in rows on the lesson sheet. The Coach points to each word and asks, "What word?" The Reader reads the words, and the Coach corrects errors just as in the "What Sound?" activity. After the Reader reads, the Coach marks a happy face, and the students switch roles and repeat the activity. They then move on to "Sound Boxes," in which they read decodable words comprised of sounds practiced in the lesson. The words are presented in word families, such as "at," "mat," and "sat." 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 the letter in 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 as in the previous activities. After the Reader reads, the Coach marks a happy face, and the students switch roles and repeat the activity.

Finally, the students read sentences comprised of sight words and decodable words practiced in the lesson. The Coach says, "Read the sentence," and corrects any errors as the Reader reads. After reading the sentence, the students repeat the Sounds and Words activities, marking more happy faces each time they complete a section, until the timer rings (after about 15 min). At the end of the lesson, the students count the happy faces they have marked, and record this number on point sheets.

Control Instruction. Control teachers conducted their regular reading instruction. A research assistant observed all Control teachers once during a 30-min structured reading lesson that the teacher identified as typical daily instruction. The observed instruction was provided in either small group or whole-class formats. All teachers implemented explicit instruction in letter sounds, phonemic awareness skills, letter writing, and word identification. Several Control teachers also were observed to incorporate storybook reading and journal writing activities to enhance comprehension. As mentioned earlier, we used the CARS (Wehby et al., 1993) to determine the quality of instructional environment. The instructional quality in Control classrooms was rated as moderate to very high.

Procedures

Test-Administration Training. In October 2004, the first author trained examiners to administer all pretest measures in two 1.5-hr sessions. Examiners included seven female graduate students in Educational Psychology who all had experience working with young children in schools. In April 2005, a similar 1.5-hr training session was held to review the pre- and posttest measures and introduce the additional posttest-only measures.

Following both pre- and posttest trainings, the first author held individual mock testing sessions with each examiner to establish interrater agreement. During this session, the examiner administered each measure to the first author, who noted the examiner's accuracy in giving directions, timing, and scoring the tests. The examiner scored each test, and a point-by-point agreement procedure was used to compare the examiner's

scores with the first author's scores. Interrater agreement was established by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100 to yield a percentage. On any measure on which interrater agreement was less than 90%, the examiner was required to practice the measure and redo interrater agreement for that measure. On average, pretests and posttests were administered and scored with 98% agreement.

Pre- and Posttesting. To administer the pretests, examiners met individually with each student for whom parental consent was obtained. The examiner spent several minutes establishing rapport with the child, and then administered the RLN test. In a second session, the examiner administered the remaining measures in random order to avoid an order effect. At posttest, an examiner who was unfamiliar with each student (i.e., had never had contact with the child's classroom during the study, to avoid an experimenter effect) spent several minutes establishing rapport. Then, the RLN test was administered, followed by the remaining tests, which were again given in random order.

K–PALS Training and Support. In this study, classroom teachers delivered all K–PALS instruction. As part of the larger study, all K–PALS teachers attended a 1-day K–PALS workshop conducted by the first author. During this workshop, teachers learned the purpose and research background of K–PALS. They were then provided with detailed descriptions and demonstrations of K–PALS procedures. Each teacher received a K–PALS manual, which was previewed in detail. Teachers were given numerous opportunities to practice K–PALS activities in the roles of both teacher and students. They were also given the opportunity to pair their students and think about how they would organize their classrooms for K–PALS. Teachers assigned to Level 3 and Level 4 also received booster sessions and support from K–PALS experts throughout the study. More detail about Level 3 and Level 4 can be obtained from the first author.

K–PALS Fidelity. A checklist of teacher and student behaviors essential to K–PALS was developed to assess fidelity in the larger study (more information about this checklist may be obtained from the first author). One point was given for each correct behavior that was observed. Points were added and divided by the total number of possible points, then multiplied by 100 to yield a percentage. In the larger study, four members of the research team conducted fidelity checks of the 34 K–PALS classes in December and March. Each observer conducted 10% of her observations with the first author. Percentage of interrater agreement on the fidelity checklist was established by dividing the number of agreements by agreements plus disagreements and multiplying by 100. Mean interrater agreement was 91.25%. The fidelity of K–PALS classes selected for this study was above 90%, with a mean of 95%.

Classroom Atmosphere. A Classroom Atmosphere Rating Scale (CARS; Wehby et al., 1993) was used during classroom observations to determine the quality of the instructional environment for all teachers in the larger study. Each classroom was observed for 30 min during either K–PALS or structured reading instruction (for Controls), and rated on a scale of 1 (*very high*) to 5 (*very low*). Items included levels of student compliance during structured times, compliance during transitions, adherence to rules, cooperation, interest and engagement, on-task behavior, and the degree to which the environment was supportive of student behavior. A lower total score was associated with more positive ratings. Mean interrater agreement was 85%. K–PALS and Control teachers in this study received ratings of moderate to very high; as mentioned, there were no reliable differences between the two groups.

Design and Data Analysis. A pretest–posttest control group design using a matched sample was used to examine the effectiveness of K–PALS for ELs. Matching is a common technique used to select control subjects who are matched with treated subjects on background covariates that the researcher believes need to be controlled (Gall, Gall, & Borg, 2003). Posttest data were analyzed using two sets of analyses of covariance (ANCOVAs) with pretest RLN as a covariate to compare (a) K–PALS ELs to Control ELs and (b) K–PALS ELs to K–PALS non-ELs. Pretest RLN was used as a covariate to control for any pretreatment group differences not accounted for by the matching procedure. We chose RLN due to its strong initial predictive validity of future reading achievement (e.g., Torgesen, Wagner, & Rashotte, 1997).

To address our secondary research question, we determined proportions of students unresponsive to K–PALS and Control instruction. To do this, we identified students who had scored below the 16th percentile (1 *SD* below the mean of the larger Minnesota sample) on at least one of the following posttest measures: RLN, RLS, WRMT-R Word ID and Word Attack, and Oral Reading. We chose the 16th percentile as it is currently recommended as a reasonable RTI cutpoint (e.g., D. Fuchs & Fuchs, 2006). We chose the above measures for the following reasons: RLN for its strong initial predictive validity of future reading achievement (e.g., Torgesen et al., 1997), RLS for its direct relation to skills taught in K–PALS, WRMT-R Word ID and Word Attack to be consistent with previous studies examining at-risk readers' response to intervention (e.g., Vellutino et al., 1996), and oral reading, to be consistent with current RTI recommendations (e.g., D. Fuchs & Fuchs, 2006) and previous research (e.g., Vaughn et al., 2005). Ideally, we would have used progress-monitoring data to identify nonresponders; however, this study is based on an extant data set that did not include such measures, and so the use of progress monitoring data was not possible.

RESULTS

This study addressed the following primary research questions: (a) Do kindergarten ELs who participate in K–PALS outperform Control ELs on critical beginning reading skills? and (b) Is K–PALS as effective for ELs as for non-ELs? To answer these questions, we conducted ANCOVAs on posttest outcomes with pretest RLN as covariate. Pre- and posttest means and standard deviations (*SD*s) are provided in Table 3. Results of ANCOVAs on posttest analyses are provided in Table 4.

Posttest Differences

ANCOVAs for each reading measure are presented in Table 4. All effect sizes reported below were calculated by dividing the mean difference by the pooled *SD*.

K–PALS ELs Versus Control ELs. To answer our first research question (Do ELs who participate in K–PALS outperform Control ELs on critical beginning reading skills?), we conducted ANCOVAs comparing K–PALS ELs to Control ELs on all posttest measures, using pretest RLN as covariate. The homogeneity of regression assumption was met for these analyses. Effect sizes were calculated by dividing the mean difference by the pooled *SD*. K–PALS ELs reliably outperformed Control ELs on Segmentation, $F(1,37) = 5.32$, $p = .03$, $d = .69$; Blending, $F(1, 37) = 5.46$, $p = .03$, $d = 0.65$; and RLS, $F(1, 37) = 6.14$, $p = .02$, $d = 0.58$. There were no reliable differences between K–PALS ELs and Control ELs on the other measures (see Table 4).

K–PALS ELs Versus K–PALS Non-ELs. To answer our second research question (Is K–PALS as effective for ELs as for non-ELs?), we conducted ANCOVAs comparing K–PALS ELs to K–PALS non-ELs on all posttest measures, using pretest RLN as covariate. The homogeneity of regression assumption was met for these analyses. Again, effect sizes were calculated by dividing the mean difference by the pooled *SD*. There were no reliable differences between K–PALS ELs and K–PALS non-ELs on any of the measures (see Table 4).

Response to Intervention

A secondary research question was whether there would be lower proportions of ELs unresponsive to K–PALS than to more traditional classroom instruction. Using the criterion of one *SD* below the larger study sample mean on at least one of several posttest beginning reading measures, we identified students who were unresponsive to intervention. Table 5 presents proportions of K–PALS ELs, Control ELs, and K–PALS non-ELs who met this criterion at the end of the study. Chi square analyses indicated that there were reliably fewer unresponsive K–PALS ELs than Control ELs on RLS, $\chi^2(1) = 5.63$, $p = 0.02$, and that there were reliably fewer unresponsive K–PALS ELs than K–PALS non-ELs on RLS, $\chi^2(1) = 4.33$, $p = 0.05$.

DISCUSSION

The purpose of this study was to investigate the effectiveness of K–PALS for ELs beginning to read. Many researchers focusing on early reading instruction for ELs have employed supplemen-

TABLE 3

Means and SDs on Pre- and Posttest Measures by Instructional Group and EL Status

	K-PALS ELs (n = *20)*		*Control ELs* (n = *20)*		*K-PALS Non-ELs* (n = *20)*	
Measure	M	(SD)	M	(SD)	M	(SD)
Phonemic awareness						
Segmentation						
Pre	3.75	(4.25)	2.15	(2.76)	5.20	(8.06)
Post	18.7	(11.72)	10.80	(11.29)	20.35	(11.32)
Blending						
Pre	0.90	(1.59)	0.90	(2.45)	1.35	(2.16)
Post	9.60	(7.43)	5.20	(6.09)	9.50	(6.40)
Alphabetic						
RLN						
Pre	19.35	(16.25)	19.95	(19.66)	19.30	(15.96)
Post	33.60	(16.91)	35.00	(16.08)	35.55	(21.38)
RLS						
Pre	12.35	(10.90)	12.15	(13.82)	12.75	(11.48)
Post	41.45	(15.98)	30.95	(19.92)	38.55	(23.25)
Word Identification						
Pre	0.65	(1.23)	1.10	(2.77)	2.60	(5.23)
Post	10.80	(11.72)	9.55	(11.34)	9.80	(10.82)
Word Attack						
Pre	0.05	(0.22)	0.30	(0.92)	0.90	(2.34)
Post	5.30	(6.26)	3.85	(6.74)	4.45	(5.50)
Spelling						
Post	8.90	(4.28)	8.75	(3.92)	8.05	(4.06)
Oral reading						
Oral reading A						
Post	20.45	(19.14)	16.85	(20.72)	22.90	(26.03)
Oral reading B						
Post	18.90	(18.76)	16.85	(20.88)	23.65	(28.38)

Note. K-PALS = Kindergarten Peer-Assisted Learning Strategies; EL = English learner; RLN = Rapid Letter Naming; RLS = Rapid Letter Sound.

tary, Tier 2 type interventions with ELs identified as at risk of reading failure (de la Colina et al., 2001; Gerber et al., 2004; Gunn et al., 2000; Haager & Windmueller, 2001; Leafstedt et al., 2004; Vaughn, Cirino, et al., 2006; Vaughn, Linan-Thompson, et al., 2006; Vaughn, Mathes, et al., 2006). Few have examined the effects of classroom-based instruction, implemented by the general classroom teacher, on the beginning reading achievement of ELs. We examined whether K-PALS could serve as general classroom, "Tier 1" instruction that would be beneficial for many ELs, reserving increasingly intensive interventions for the most severely struggling beginning readers. We discuss our findings in terms of our primary and secondary research questions in the following section.

Do K–PALS ELs Outperform Control ELs on Critical Beginning Reading Skills?

In this study, K–PALS ELs reliably outperformed Control ELs on phonemic awareness (blending and segmenting) and letter–sound recognition, with effect sizes ranging from .58 to .69 for these

TABLE 4

Analyses of Covariance (Posttest)[a]

	K-PALS ELs vs. Control ELs		*K-PALS ELs vs. K-PALS non-ELs*	
Measure	F*(1,37)*	d[b]	F*(1,37)*	d[b]
Phonemic awareness				
Segmentation	5.32*	0.69	0.23	–0.14
Blending	5.46*	0.65	0.00	0.01
Alphabetic				
RLN	0.08	–0.08	0.36	-0.10
RLS	6.14*	0.58	0.34	0.15
Word Identification	0.44	0.11	0.16	0.09
Word Attack	1.30	0.22	0.42	0.14
Spelling	0.07	0.04	0.85	0.20
Oral reading				
Oral reading A	1.07	0.18	0.25	–0.11
Oral reading B	0.36	0.10	0.66	–0.20

Note. K-PALS = Kindergarten Peer-Assisted Learning Strategies; EL = English learner; RLN = Rapid Letter Naming; RLS = Rapid Letter Sound.
[a]Pretest RLN was used as a covariate. [b]Effect sizes were calculated by dividing the mean difference by the pooled SD.
*$p < .05$.

TABLE 5

Proportions of K-PALS and Control Students Unresponsive to Instruction

	K-PALS ELs (n = 20)	*Control ELs (n = 20)*	*K-PALS non-ELs (n = 20)*	*K-PALS ELs vs. Control ELs*		*K-PALS ELs vs. K-PALS non-ELs*	
Posttest	n *(%)*	n *(%)*	n *(%)*	χ^2	p	χ^2	p
RLN	5 (25)	6 (30)	6 (30)	0.13	0.72	0.13	0.72
RLS	1 (5)	7(35)	6 (30)	5.63	0.02*	4.33	0.05*
Word Identification	1 (5)	2 (10)	3 (15)	0.36	0.55	1.11	0.29
Word Attack	6 (30)	12 (60)	9 (45)	3.64	0.06	0.96	0.33
Oral reading A	1 (5)	3 (15)	2 (10)	1.11	0.29	0.36	0.55
Oral reading B	1 (5)	3 (15)	4 (20)	1.11	0.29	2.06	0.15

Note. K-PALS = Kindergarten Peer-Assisted Learning Strategies; EL = English learner; RLN = Rapid Letter Naming; RLS = Rapid Letter Sound.
*$p < .05$.

measures. These findings are convergent with previous research demonstrating positive K–PALS effects on the beginning reading performance of native English-speaking children (D. Fuchs et al., 2001); are consistent with other early reading research conducted with ELs (e.g., de la Colina et al., 2001; Denton et al., 2004; Gerber et al., 2004; Gunn et al., 2000; Leafstedt et al., 2004; Linan-Thompson et al., 2006; Vaughn, Cirino et al., 2006; Vaughn, Linan-Thompson et al., 2006; Vaughn, Mathes, et al., 2006); and support the use of explicit, skills-based instruction aimed at improving ELs' beginning reading. Phonemic awareness and letter–sound recognition are essential skills for developing reading proficiency (e.g., National Reading Panel, 2000). Fostering these skills in the general classroom may serve to provide at-risk readers, including ELs, with a foundation in reading that is critical for continued school success.

Although the above findings are encouraging, there were no statistically significant differences between K–PALS and Control ELs on the WRMT-R Word ID and Word Attack subtests, the WIAT spelling test, or Oral Reading. This lack of reliable differences perhaps could be attributed to lack of sensitivity of the measures that were used; they may simply have not detected small but important differences between the two groups following K–PALS. It is also possible that the stronger phonemic awareness and letter–sound recognition observed in K–PALS ELs would eventually lead to better reading performance; longitudinal research is needed to address this question. The relatively small sample size also limited our power to detect small but possibly important effects; indeed, effect sizes for Word Attack and Oral Reading A were positive (.22 and .18, respectively).

On the other hand, perhaps K–PALS was not intensive enough to effect greater performance on these measures. Future research could address (a) whether K–PALS leads to improved performance on more sensitive word-reading measures, (b) whether the impact K–PALS has on letter–sound recognition and phonemic awareness skills eventually leads to improved performance on standardized word-reading measures and oral reading, and (c) whether increasing the duration or intensity of K–PALS leads to greater reading performance.

Is K–PALS as Effective for ELs as for Non-ELs?

Results suggest that K–PALS was as effective for ELs as for non-ELs in this study. This finding provides direct evidence that both ELs and non-ELs can benefit similarly from classroom-based instruction, which is important because Tier 1 interventions should be effective for diverse groups of students. Yet, there are several considerations important to the interpretation of these results. First, we should note that pretest RLN and RLS scores indicate that our non-EL sample (n = 20) performed slightly below (but within .5 *SD* of) the average-achieving students of the non-EL sample in the larger study (n = 397; RLN mean = 26.45, *SD* = 16.34; RLS mean = 15.89, *SD* = 12.97). In other words, by matching non-ELs to our EL sample, we selected from a somewhat lower-performing segment of the larger sample. Thus, our findings apply to ELs as compared to slightly lower-performing non-EL peers, rather than to non-EL peers in general. Second, it is unclear whether the ELs' pretest RLN and RLS scores reflected their reading skills, their limited English proficiency, or both. In other words, although the ELs and non-ELs were performing similarly at the beginning of the study, the two groups may have been low performing for different reasons. Further research should include an examination of the impact of language proficiency on ELs' response to intervention. Third, both K–PALS and Control ELs received more outside reading help than K–PALS non-ELs. ELs were pulled out either for English language instruction or for additional reading help, which could also account for their similar performance to non-ELs at the end of the study. Future research could include an examination of whether K–PALS alone is sufficient for both ELs and non-ELs, or whether ELs require outside reading help in addition to K–PALS to maintain performance levels similar to their non-EL peers.

Is K–PALS Effective as a Tier 1 Intervention for ELs?

In considering "evidence-based" approaches to Tier 1 instruction, it is critical to understand for *whom* those approaches are evidence-based (Klingner & Edwards, 2006). We further explored this issue by examining whether there were lower proportions of students who were unresponsive to K-PALS than to more traditional classroom instruction. Results tentatively suggest that more ELs were responsive to K–PALS than to traditional instruction. Interestingly, it also appeared that more ELs than non-ELs were responsive to K–PALS, perhaps because the non-ELs were relatively low-performing (compared to the larger sample). It is possible that the ELs were more responsive because their primary difficulties were related to language proficiency, which improved over time, whereas some of the non-ELs' difficulties were related to true reading deficits.

Results tentatively suggest that more ELs were responsive to K–PALS than to traditional instruction.

However, because of the small numbers of students in our sample, whether these findings have practical significance remains unclear. For example, 5% of K–PALS ELs were unresponsive based on RLS scores, compared to 35% of Control ELs and 30% of non-ELs. This difference seems large, but in terms of sheer numbers translates to 1 K–PALS EL, 7 Control ELs, and 6 K–PALS non-ELs who were nonresponders. It is important to replicate these findings with more students. In addition, we used only posttest performance to judge responsiveness to instruction. However, researchers have suggested that a more accurate way of identifying students unresponsive to intervention is to use a dual discrepancy approach (L. S. Fuchs, 2003; Speece & Case, 2001), which takes into account both level and growth. We were unable to collect progress-monitoring data needed to estimate growth within the resources of the larger study. Had we done so, we would have been able to compare the amount of growth ELs made in K–PALS versus traditional instruction. This might have yielded different proportions of unresponsive students than those reported above.

We should also be clear that we do not automatically assume that students who did not meet our RTI criteria are truly unresponsive or that they cannot benefit from classroom-based instruction. Rather, further work is needed to better understand what needs to be in place for Tier 1 instruction to be most beneficial for at-risk ELs. This work should include (a) an examination of instructional components that are most beneficial for ELs, and (b) an examination of instructional contexts that are most beneficial for ELs (see Klingner & Edwards, 2006). With respect to instructional components, K–PALS incorporates a number of elements suggested to be important for ELs (e.g., Gersten & Baker, 2000; Gersten & Geva, 2003; Vaughn, Linan-Thompson, et al., 2006), such as repetition, routines, modeling and practice, and frequent opportunities to respond in a peer-mediated format. Explicit instruction in vocabulary and oral language might further support ELs' development of early literacy skills (e.g., Vaughn Linan-Thompson, et al., 2006). An examination of whether explicit instruction in these skills can be successfully incorporated into K–PALS and improve outcomes for ELs would be useful.

With respect to instructional contexts, Klingner and Edwards (2006) suggested that it is also important to understand the impact specific teacher and classroom variables have on students' response to intervention. Gersten, Baker, Haager, and Graves (2005) have addressed this issue by examining the importance of teacher quality in predicting outcomes for ELs learning to read. They used an observational instrument to identify aspects of instruction that differentiated effective from ineffective teachers, as evidenced by the amount of reading growth made by ELs in the classrooms they observed. Findings indicated that effective teachers exhibited a "seamless quality" to their instruction, whereby one activity flowed smoothly to the next, with activities appropriately paced and designed to be interesting to beginning readers. Effective teachers also integrated vocabulary instruction into reading activities, making the meanings of key words concrete through pictures, demonstrations, and many opportunities for prac-

tice. Writing was also used frequently, often to explicitly reinforce phonological, word analysis, and vocabulary skills.

Similar observations and analyses to those used by Gersten et al. (2005) might be useful for better understanding the impact of teacher quality during K–PALS for ELs learning to read. Perhaps effective K–PALS teachers integrate vocabulary and oral language more explicitly into K–PALS lessons even though those skills are not part of the K–PALS protocol. Perhaps effective K–PALS teachers find ways to seamlessly incorporate K–PALS activities with other reading, language, and writing activities such that critical skills are more readily generalized. Such information would shed light on instructional conditions that enhance K–PALS for ELs.

Limitations

There are several limitations to this study. First, in the larger study, classrooms were assigned randomly to K–PALS or Controls, but because this study used extant data from the larger study, we were unable to assign individual ELs randomly to K–PALS or Control groups. Whereas our matching procedure allowed us to control for pretreatment differences, at least in terms of beginning reading skills, a randomized design would have been ideal. Second, because of the limited number of ELs in the control group (n = 20), we only used approximately 36% of the ELs from the larger study (n = 40). Moreover, the majority of the ELs in the control group were Asian students (80%), whereas K–PALS ELs were distributed across three major ethnicities (Hispanic 40%, Asian 35%, and African 20%). We chose to use initial reading performance level rather than ethnicity as our matching criterion as we considered this more relevant in establishing group equivalence; however, we cannot rule out the possibility that differences in ethnicities between K–PALS and Control ELs could have influenced our outcomes. Finally, the generalizability of the study findings is limited in that we only included ELs in the Minnesota site of the larger K–PALS study. We did so because EL populations and services provided varied widely from one state to the next; thus, including ELs from other sites would further complicate our analyses. Further research is needed to replicate our findings with other EL groups.

Implications for Research

Our results suggest that K–PALS holds promise as an approach for promoting beginning reading skills for ELs. This finding extends other research focusing on K–PALS, including the larger study in which this study was embedded, as this study includes a specific examination of the efficacy of K–PALS for ELs. Yet, it is also clear that establishing effective classroom-based beginning reading instruction for ELs is an area in need of further research. For example, research is needed to examine the mediating effects of variables such as home language, language proficiency, and SES on ELs' response to instruction. It is also important to understand better the role of language of instruction. There is some evidence that bilingual or transitional instruction is more effective for ELs than English-only instruction on reading performance (see Slavin & Cheung, 2005); however, given that many urban districts, including those in this study, are comprised of heterogeneous language populations, it may be infeasible to provide bilingual instruction aligned with each language group.

Our results suggest that K–PALS holds promise as an approach for promoting beginning reading skills for ELs.

With respect to specific K–PALS features, future research could explore ways to improve this approach for ELs. For example, researchers could compare the effects of pairing ELs with others who speak the same language versus pairing ELs with native English speakers, or of pairing students based on English proficiency (e.g., higher English-proficient students paired with lower English-proficient students). Another possible way to enhance K–PALS features for ELs might be to add explicit instruction in vocabulary and oral language. Finally, it is important to attend to contextual factors that might influence the effectiveness of "evidence-based" instruction (Klingner & Edwards, 2006). Observational methods such as those employed by Gersten et al. (2005) could

provide further insight into instructional conditions that impact K–PALS effectiveness.

Another possible way to enhance K–PALS features for ELs might be to add explicit instruction in vocabulary and oral language.

Implications for Practice

K–PALS was implemented by classroom teachers in this study, increasing our confidence in its feasibility for classroom use. Although 20 to 30 min per session, 4 days per week may seem time-intensive for a supplement to core instruction, our teachers reported that K–PALS fit well with their existing language arts programs and required little preparation time. Educators interested in implementing K–PALS as Tier 1 instruction should thus be encouraged to do so, with the following considerations: First, implementing K–PALS with fidelity is essential. In this study, we only included students from K–PALS classes with high fidelity. We do not know whether results would be similar if teachers were to modify K–PALS activities substantially.

Second, K–PALS is likely to be most beneficial if it is part of a carefully orchestrated beginning reading program in which activities are seamlessly integrated, reinforcing oral language, phonologic, decoding, vocabulary, writing, and other skills critical for beginning readers. Finally, as with any evidence-based approach, K–PALS will not be effective for all students. In this study, several ELs and non-ELs were performing significantly below average on some measures following K–PALS. It is critical that teachers monitor the progress of students at risk and implement instructional changes when students are not sufficiently responding to classroom instruction. It is our hope that implementing such a process with fidelity will help to ensure that appropriate classroom instruction is in place for the majority of students, including ELs, reserving more intense interventions for the most severely struggling readers.

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ABOUT THE AUTHORS

KRISTEN L. MCMASTER (CEC MN Federation), Assistant Professor; **SHU-HSUAN KUNG** (CEC Taipei Federation), Doctoral Student; **INSOON HAN** (CEC MN Federation), Doctoral Student; and **MARISA CAO** (CEC MN Federation), Education Specialist, Department of Educational Psychology, University of Minnesota, Minneapolis.

Correspondence concerning this article should be addressed to Kristen McMaster, University of Minnesota, 350A Education Sciences Building, 56 East River Rd., Minneapolis, MN 55455 (e-mail: mcmas004@umn.edu).

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