

English Language Learners' and Native English-Speakers' Spelling Growth after Supplemental Early Reading Instruction

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ABSTRACT

English language learners (ELLs) are the fastest growing population of students in U.S. schools, and, unfortunately often experience lower levels of reading and spelling achievement than native English-speaking students. There is growing evidence showing that early reading interventions, which have been effective with native English-speakers, can also be effective with ELLs, although the majority of the research focuses on students who are native Spanish-speakers. Additionally, much less is known about spelling growth for ELLs, especially ELLs who speak a native language other than Spanish. Thirteen first grade students who were struggling with early literacy skills (seven non-Spanish-speaking ELLs and six native English-speakers) were selected for participation. The students were placed in three small reading groups, with four to five students each (at least two of whom were ELLs). The groups met five times a week, for approximately six weeks, for 30 minutes per session (totaling approximately 15 hours of supplemental instruction). The small group instruction was designed to reinforce phoneme awareness skills and help students understand the relationships between spoken sounds and written letters. Analysis of pretest to posttest gain scores showed significant growth in spelling ability. Non-Spanish-speaking ELLs with varying levels of English language proficiency benefitted from the intervention. All students demonstrated growth in their understanding of letter-sound correspondences. Evidence-based practices focusing on phonological awareness and the relationships between written letters and spoken sounds can be effective in terms of spelling ability growth when used in small groups comprised of both non-Spanish-speaking ELLs and native English-speakers.

Key words: Early Literacy Intervention, Spelling, English Language Learners

INTRODUCTION

English Language Learners in U.S. Schools

Schools in the U.S. have seen a 57 percent increase in English language learners (ELLs) in the last 20 years, while the total growth for all students was 4 percent (National Education Association, 2015). Unfortunately, many ELLs may not receive proper early instruction, especially in terms of early reading and writing (Vadasy & Sanders, 2010). In comparison with their native English-speaking peers, ELLs are underperforming academically. Over 70% of fourth and eighth grade native English-speaking students are reading at or above a basic level, whereas the same is true for only 30% of ELLs (National Center for Education Statistics, 2011).

Developmental spelling for ELLs is an area where future research is clearly needed. While there is growing evidence showing that early reading interventions which have been effective with native English-speakers can also be effective with ELLs, much less is known about spelling. In their review of 17 literacy intervention studies for ELLs, Shanahan and Beck (2006) found only two that reported spelling outcomes,

and only one of the two was published in a peer-reviewed journal. A more recent study on phonics-based instruction for kindergarten ELLs and native English-speakers conducted by Vadasy and Sanders (2010) did include a spelling subtest, with treatment students significantly outperforming control students as well as a positive relationship between the amount of time classroom teachers spent on phonics and spelling outcomes.

Even within the reading intervention literature, the majority of the studies in the literature focus on Spanish-speaking ELLs, making it difficult to generalize findings to all ELLs, especially knowing that there are over 400 languages represented in U.S. schools (Boyle, Taylor, Hurlburt, & Soga, 2010). Therefore, the purpose of this study is to learn more about spelling growth for non-Spanish-speaking ELLs. Specifically, this study addresses whether a supplemental program that was designed to help students understand the systematic and predictable relationships between written letters and spoken sounds is effective in increasing spelling and reading abilities of students placed in small instruction groups composed of non-Spanish-speaking ELLs

and native-English speakers. This supplemental program has been shown to be effective with monolingual English-speaking students (Blachman et al., 2004). The mixed language groups are an important aspect of this study because most mainstream teachers have not received training in instructional strategies for ELLs and may feel inadequately prepared to teach ELLs (Sullivan, 2011). Teachers may feel more competent to teach ELLs if they know one can develop these early reading and spelling skills in mixed groups of native English-speakers and ELLs.

SPELLING AND READING

Elementary teachers have long included spelling tests as a regular component of assessing students. Yet, many educators may ask what we can learn from how children spell. A child's spelling ability can serve as a window into their stage of reading development (Ouelette & Sénéchal, 2008). Developmental spelling can give educators a picture of a child's understanding of how spoken sounds are represented by letters. Instruction can then be targeted to align with this understanding, although this is something that is not often utilized (Invernizzi & Hayes, 2004). Since spelling and reading develop at the same time and support one another, learning about students' spelling abilities tends to provide insight into reading abilities.

To better understand how children progress as spellers, researchers have used different perspectives and models to characterize learning. Often spelling development has been viewed through stage-based theories. Led by developmental theorists such as Ehri (1989), Henderson (1981), and Read (1971), this research emphasizes that there is a sequence in the acquisition of spelling and it happens through developmental stages. As children possess more sophisticated understanding of phoneme-grapheme correspondence, their knowledge of the spelling system develops and deepens. While different theoretical models of spelling development may have different names and numbers of stages, the developmental sequence is, for the most part, agreed upon by developmental researchers. Stages often begin with pretend writing and random strings of symbols and letters. As children progress, they begin to recognize that letters correspond with phonemes. During these beginning stages, it is not uncommon for children to omit vowels and final sounds. Children continue to progress, demonstrating an understanding of letter patterns and correspondence between letters and phonetically related letters. In early work, Beers and Beers (1992) summarized developmental stage spelling theory research saying, (1) the spelling errors that children make as they write are not random errors, (2) there are indeed identifiable stages of orthographic awareness through which children pass as they become more proficient in their writing, and (3) children proceed through these stages at varying rates (p. 231).

The purpose of this study was to investigate spelling growth in non-Spanish-speaking ELLs and native English-speaking first graders when taught in small groups together. Small group instruction focused on phoneme awareness skills and the alphabetic principle (the systematic and predictable

relationships between written letters and spoken language sounds). Early reading was also assessed in terms of correct letter sound knowledge during timed word reading.

METHODS

Participants

The study was conducted at an elementary school serving kindergarten through fifth grade children in an upstate New York school district. At the end of the school year, kindergarten teachers were asked to recommend students for the study who could benefit from additional small group instruction in early literacy skills during the following fall semester. Kindergarten students who were learning English (as indicated by assignment to English as a Second Language (ESL) instruction or whose parents had indicated a language other than English is spoken at home on school registration forms), as well as native English-speaking students, were eligible for inclusion in this supplemental intervention study, which took place during the following school year when the students began first grade. As seen in Table 1, the final sample consisted of 13 students, nine boys and four girls, with seven of the students classified as English Language learners. All of the 13 students were teacher-selected children who had returned the parent consent form and were then screened by the researcher to verify that they were having difficulties with beginning reading skills and spelling. There was no attrition during the study and all analyses are based on 13 children.

Table 1 provides the demographic information for all 13 participants.

Design

The study employed a multiple-baseline-across-groups design, a type of single-case research design (see Figure 1).

Table 1. Demographic information for all participants

Student	Gender	Age	Language (s) other than English spoken at home
Group 1			
Hamsa	F	6-1	Tamil
Josip	M	6-3	Bosnian
Nick	M	6-2	
Sam	M	6-3	
Group 2			
Shen	M	6-0	Chinese
Daya	F	6-2	Tamil
Karina	F	6-0	Turkish and Russian
Trevor	M	6-4	
Stephen	M	6-4	
Group 3			
Philip	M	6-0	French, Lingala, and Tshiluba
Aslan	M	6-1	Turkish and Russian
Leah	F	6-2	
Marcus	M	6-7	

Group 1	Baseline	Pretest	Intervention (30 lessons)	Posttest	Maintenance
Group 2	Baseline	Pretest	Intervention (28 lessons)	Posttest	Maintenance
Group 3	Baseline	Pretest	Intervention (26 lessons)	Posttest	Maintenance

Figure 1. Multiple-baseline-across-groups design used in current study

Single-case designs are useful in literacy intervention research because they (a) emphasize the individual as the unit of concern; (b) provide a practical way to analyze educational practices under typical conditions; (c) methodically determine if an intervention is effective and for whom it is effective; and (d) incorporate ways to assess not only the outcomes of an intervention, but the process of change across time (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). In a multiple-baseline design, the start of treatment (intervention) is staggered, meaning that different individuals or groups start the treatment at different times. This is done to show that changes or growth can be seen due to the introduction of something new (e.g., the intervention). The three reading groups began the intervention at staggered start times; meaning Group 1 started the intervention first, followed by Group 2 and then Group 3 (see Figure 1).

Figure 1 above is a depiction of the multiple-baseline-across-groups design utilized in the study.

Procedures

Three school psychology graduate students administered a pretest battery to the participants immediately prior to beginning their small group reading lessons and a posttest battery after the completion of their group's six-week intervention. The battery of reading assessments also included the Developmental Spelling Test (DST) which is the focus of this study and which had been previously used with kindergarten and first grade students (Tangel & Blachman, 1992). Words included on the test are *mat*, *lap*, *sick*, *elephant*, *pretty*, and *train*. These words were originally chosen by Ball and Blachman (1991) because they provided an opportunity to examine the sophistication of the children's spellings in terms of phonological accuracy.

The developmental scoring criteria (Table 2) were created by Tangel and Blachman (1992) with interrater reliability reported to be .999 (Tangel & Blachman, 1995). Extensive training was required to determine reliably the correct phonetic sophistication of each word. The author first assigned points to the child's spelling of each word based on phonological accuracy, with a scoring scale from

Table 2. Developmental spelling test scoring criteria

Points awarded	Criteria
0	A random string of letters
1	A single phonetically related letter
2	Correct first letter of the word
3	More than one phoneme represented (but not all) with phonetically related (e.g., z for s) or conventional letters
4	All phonemes represented with phonetically related letters or conventional letters
5	Correct phonetic spelling (e.g., train spelled tranē)
6	Correct spelling

0-6, with a score of 6 signifying that the word was spelled correctly. Then, to establish reliability for the scores, the author trained a graduate student in school psychology, one of the original testers, to score the student responses. For each word, the scoring criteria were explained and reviewed (refer to Table 2). Issues were discussed that might come up during scoring such as letter reversals, intrusions, and how to score phonetically related letters (e.g., z for s). The author and graduate student then practiced scoring, focusing on one word at a time to avoid confusion. Using a subset of student responses from an earlier study, the author and graduate student practiced scoring words together and discussed our rationale behind the scores we gave to each word. Once the author and graduate student had reached 90% agreement on all words used in training, the graduate student independently scored all of the student responses (6 spelling responses on pretest + 6 spelling responses on posttest = 12 spelling responses per student; 12 spelling responses x 13 participants = 156 student responses) from the current study. Interrater reliability was calculated and found to be $r = 0.992$, with 97% total percentage of agreement between my initial scores and the scores of the independent rater. As displayed in Table 3, percent of agreement for individual words ranged from 92% to 100%. Overall, the author and graduate student disagreed on 3% (4) of the 156 responses.

Table 2 shows how words were scored using the Developmental Spelling Test.

Table 3 shows the interrater reliability when scoring the Developmental Spelling Test.

In addition to the DST, one-minute Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2007) Nonsense Word Fluency probes were administered approximately twice a week during the baseline, intervention, and maintenance phases. These timed probes are comprised of a list of nonsense words that are spelled according to conventional English spelling patterns. It should be noted that while only real words were used in instruction, the use of nonsense words allows for a way to measure how well a student can transfer knowledge of learned letter-sound correspondences to words not seen previously. The nonsense word probes were scored according to correct letter sounds (CLS) per minute. For example, if a child is shown *riz* and says “r...i...z,” the score for correct letter sounds (CLS) is 3 because each sound was said correctly. In the case where the student is shown *riz* and says “riz,” a score of 3 would also be awarded. These DIBELS goals for CLS per minute identify scores of 0-18 as “*intensive*,” meaning students with these scores are the most in need of the intervention. Scores of 19-24 are labeled “*strategic*” and identify students who still need reading support. Scores of 25 correct letter sounds per minute are considered “*core*,” meaning students are meeting grade level benchmarks in reading for that skill.

Treatment

As mentioned previously, 13 students (seven ELLs and six native English-speakers) were selected for participation in a reading intervention study. The students were placed in three small reading groups, with four to five students each (at least two of whom were ELL students). The groups met five times a week, during the first semester of first grade, for approximately six weeks, for 30 minutes per session (totaling approximately 15 hours of supplemental instruction). The author, a former elementary school teacher, taught the small group lessons to all students. All of the small group lessons during this study were conducted in a small room used by the speech language pathologist and one of the ESL teachers.

The small group supplemental reading instruction was designed to reinforce phoneme awareness skills and help students understand the alphabetic principle (how written letters represent spoken sounds). Learning these skills in an explicit and systematic way helps children develop accurate and fluent word recognition and understanding of letter-sound

correspondences (e.g., Ehri, 2005; Report of the National Reading Panel, 2000). *Road to Reading: A Program for Preventing and Remediating Reading Difficulties* (Blachman & Tangel, 2008) was selected for the intervention because it reinforces these principles. Each 30-minute lesson contained the following five steps.

1. Teach/review sound-symbol correspondences (e.g., *a* says/a/as in **a**pple).
2. Teach/review decoding skills. Students manipulated letter cards on a sound board to make simple phonetically regular words changing one sound at a time (e.g., *cat* → *pat* → *pit*).
3. Review phonetically regular words and high frequency words.
4. Read orally in context.
5. Write four or five short words and a short sentence that contained words using the same phonetic patterns taught in each lesson.

FINDINGS

Spelling

Nine of the 13 students exhibited positive gains on the Developmental Spelling Test (DST) after six weeks of supplemental instruction (see Table 4). Similarly, when using the nonparametric sign test to analyze gain scores for the whole group (including all ELLs and all native English-speakers), students made statistically significant spelling gains from pretest to posttest, $Z = 2.214$, $p = .021$, $r = .43$, demonstrating a medium effect size. The conventions for effect size for the sign test are small = 0.10, medium = 0.30, and large = 0.50 (Cohen, 1988).

Table 4 shows the spelling raw scores and gain scores for all students. An asterisk denotes that the student is an English language learner.

Table 4. Spelling raw scores and gain scores

Student	Spelling pretest	Spelling posttest	Gain score
Group 1			
Hamsa*	27	29	+2
Josip*	27	30	+3
Nick	7	17	+10
Sam	12	20	+8
Group 2			
Shen*	27	27	0
Daya*	29	28	-1
Karina*	28	30	+2
Trevor	10	19	+9
Stephen	21	24	+3
Group 3			
Philip*	24	25	+1
Aslan*	5	18	+13
Leah	29	29	0
Marcus	25	25	0

Table 3. Interrater reliability of developmental spelling test

Word	Percent of agreement	r
Mat	96%	0.994
Lap	96%	0.996
Sick	100%	1
Elephant	100%	1
Pretty	100%	1
Train	92%	0.944
Total reliability	97%	0.992

Progression through the stages of developmental spelling is evident when examining individual words assessed at pretest and posttest. For example, nine of the 13 students showed improvement from pretest to posttest in their phonetic sophistication when spelling the word sick. As seen in Table 5, Aslan, an ELL, initially spelled sick as ztiyar, which earned a point for one phonetically related letter (z for s), but otherwise consisted of a random string of letters. At posttest after six weeks of supplemental group lessons, this same child was able to produce sikk, earning 4 points on the developmental scale, showing all phonemes with phonetically related letters or conventional letters. For the same word,

Nick and Trevor were able to produce s at pretest, earning 2 points for the correct first letter of the word. By posttest both students included all phonemes with phonetically related letters or conventional letters, writing sik and sic, respectively (Table 5).

Correct Letter Sounds

A summary of DIBELS Correct Letter Sounds (CLS) individual baseline, intervention, and maintenance means can be seen on Table 6. During baseline, the stage prior to the implementation of small group lessons, 10 of the 13 students

Table 5. Spelling pretest and posttest for the word “sick”

Student	Pretest spelling	Pretest score	Posttest spelling	Posttest score	Gain score for “sick”
Group 1					
Hamsa*	sik	4	sic	5	+1
Josip*	sik	4	sick	6	+2
Nick	s	2	sic	5	+3
Sam	sak	3	sak	3	+0
Group 2					
Shen*	sic	5	sic	5	+0
Daya*	sic	5	sick	6	+1
Karina*	sic	5	sick	6	+1
Trevor	s	2	sik	4	+2
Stephen	sic	5	sic	5	+0
Group 3					
Philip*	sk	3	sic	5	+2
Aslan*	ztiyar	1	sikk	4	+3
Leah	sic	5	sic	5	+0
Marcus	sek	4	sic	5	+1

An asterisk denotes that the student is an English language learner

Table 6. Correct letter sounds summary

Student	Probe Score Means (SD)			
	Baseline	Intervention	Maintenance	Growth
Group 1				
Hamsa*	14.8 (2.17)	32.2 (11.46)	42.86 (9.06)	28.1
Josip*	27.2 (6.18)	52.8 (16.70)	69.29 (8.73)	42.1
Nick	5.6 (5.32)	20.1 (7.74)	28.0 (7.87)	22.4
Sam	19.4 (3.13)	28.1 (7.34)	45.43 (8.24)	26.0
Group 2				
Shen*	17.2 (6.98)	38.1 (10.28)	48.8 (5.12)	31.6
Daya*	21.1 (4.94)	37.4 (5.87)	52.0 (9.17)	30.9
Karina*	16.6 (2.92)	42.3 (8.52)	54.0 (8.51)	37.4
Trevor	6.9 (9.29)	42.3 (8.52)	54.0 (8.51)	42.1
Stephen	1.8 (3.56)	27.8 (12.37)	51.8 (5.07)	50.0
Group 3				
Philip*	1.0 (2.55)	16.5 (6.92)	39.0 (NA)	38.0
Aslan*	1.3 (3.20)	32.2 (7.61)	28.0 (NA)	26.7
Leah	6.5 (3.23)	25.0 (5.78)	35.0 (NA)	28.5
Marcus	9.6 (8.32)	25.3 (4.75)	25.0 (NA)	15.4

had means in the intensive, or lowest level, according to DIBELS goals. All 13 students experienced an increase in mean scores from baseline to intervention, with 11 of the 13 students' intervention averages in the highest DIBELS range, referred to as core and indicating grade level benchmarks have been met for that skill. All 13 students were at DIBELS core level during the maintenance phase, suggesting that all 13 students were meeting grade level benchmarks for CLS per minute.

Table 6 displays a summary of correct letter sound mean scores during baseline, intervention, and maintenance for all students. An asterisk denotes that the student is an English language learner.

DISCUSSION

The inclusion of a developmental spelling measure during the pretest and posttest batteries is a unique aspect of the current study, as spelling is an area where more research is clearly needed, especially for non-Spanish-speaking ELLs. Analysis of pretest to posttest gain scores on the DST showed that students made significant growth during the intervention on spelling ability. Additionally, all students demonstrated growth in their knowledge of letter-sound correspondences as evidenced by nonsense word fluency probes. These findings add to previous spelling and reading findings—evidence-based practices focusing on phonological awareness and decoding that are effective with groups of native English-speakers (e.g., Blachman et al., 2004; Denton et al., 2006) can also be effective when used in small groups comprised of both non-Spanish-speaking ELLs and native English-speakers.

Although limited data exists on spelling, this study adds to the literature showing that explicit instruction in word level skills can help ELLs in terms of spelling growth (Stuart, 1999; Vadasy & Sanders, 2010). Similar to Vadasy and Sanders (2010) who also assessed students' dictation attempts utilizing the Tangel and Blachman (1992) rubric in order to give partial credit for words depending on the phonetic sophistication of the spellings, this study found that explicit instruction in letter-sound correspondences and oral readings of decodable texts can improve the spelling abilities of ELLs who are struggling with reading. It should be noted that while Vadasy and Sanders did include both native English-speaking children and ELLs, the treatment students were not taught in mixed language groups as in the current study and the majority of the ELLs spoke Spanish.

There were several noteworthy findings when looking specifically at spelling scores and spelling growth. For example, Aslan, the only student whose English language proficiency was considered to be at the beginner level, the lowest level according to the New York State English as a Second Language Achievement Test (NYSESLAT), had the greatest gains of all the students on the spelling measure. This is consistent with previous research showing that ELLs with varying levels of English language proficiency can benefit from the reading intervention and low levels of English language ability did not necessarily hinder responsiveness

in reading skills (Gunn et al., 2000; 2002; 2005; Vadasy & Sanders, 2010; Vaughn et al., 2006) or in spelling (Vadasy & Sanders, 2010).

CONCLUSION AND EDUCATIONAL IMPORTANCE

With the population of English language learners in U.S. schools continuing to rise, it is imperative for educators to know as much as possible about effective instruction for ELLs. This study looks at how inclusive mixed language grouping practices can benefit all learners in both spelling and reading, demonstrating that a program that builds on phoneme awareness skills and emphasizes explicit instruction in the alphabetic code can be beneficial for non-Spanish-speaking ELLs and native English-speakers. Additionally, this provides more support for the idea that classroom teachers can successfully help improve reading and spelling abilities of both ELLs and native English-speakers taught together. Since small groups are typical in first grade, evidence that non-Spanish-speaking ELLs and native English-speakers can benefit from these same strategies might encourage teachers to create more diverse groups. This may be especially true for teachers who in the past felt reluctant to include ELLs in small instructional classroom groups.

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