



Early Literacy Interventions for English Language Learners: Support for an RTI Model

Krista Healy, Mike Vanderwood, and Danielle Edelston
University of California, Riverside

As part of a three tier prevention model, first grade students in a large urban school district were screened with measures of phonological awareness and nonsense word fluency to determine those in need of a Tier 2 reading intervention. The 15 lowest performing English language learner (ELL) students were selected and received a manualized phonological awareness intervention combined with a token economy. The students were monitored weekly with a Phoneme Segmentation Fluency (PSF) task and a Nonsense Word Fluency (NWF) task to assess improvement of their reading skills. Students were exited from the intervention upon reaching a predetermined level of both the PSF and NWF tasks. Twelve of the fifteen students were exited from the intervention and the remaining three students were referred for Tier three (intensive) intervention.

Key Words: RTI, ELL, Phonological Awareness, Reading Intervention, Early Literacy

The Individuals with Disabilities Education Improvement Act of 2004 (IDEIA2004) provides school psychologists an opportunity to address several of the limitations inherent in using the IQ/achievement discrepancy model to determine eligibility for special education (Gresham & Witt, 1997). The law's revisions prevent states from requiring use of the discrepancy model in determining Learning Disability (LD) eligibility and only encourages the use of one other model: response to an intervention (RTI) (Wrights Law, 2004). An RTI approach can be described as a method to determine whether a student has a disability by examining the student's response to a high quality intervention implemented with integrity. It is suggested that those students who do not respond to intervention at an expected rate, based on empirical standards or professional judgment, and are shown to be performing at a substantially low level (e.g., 10th percentile or below), can be considered to be eligible for special education services because of a learning disability (LD). An assumption of an RTI approach for determining special education eligibility is that a student's failure to respond to an evidence-based intervention implemented with integrity is an accurate predictor of future performance (Gresham, 2002).

Given the importance of reading skills, it seems critical to determine the utility of the RTI approach to special education eligibility by focusing on the effects of early literacy interventions. To date there is a significant amount of information that has shown early reading skills can predict later reading ability and that these skills can be improved (Speece, Mills, Ritchey, & Hillman, 2003; Stage, Abbott, Jenkins, & Berninger, 2003; Torgesen, Wagner, & Rashotte, 1994). However, much of this research has focused on English only students, and not on ELL students.

There are challenges to assessing English Language Learners (ELL) when attempting to determine eligibility for special education. Some have suggested the most appropriate way to conduct an assessment for special education eligibility is to use a bilingual psychologist and assess in both the native language and English (Kamphaus, 2000; Lopez, 1997). However, it may not be practical to have all ELL students assessed by a bilingual psychologist. Alternate ELL intellectual assessment approaches such as non-verbal assessment have significant limitations and some consider the methods inappropriate (Bainter & Tollefson, 2003).

Three Tier Model

RTI decision making can be implemented as a component of the three tier model (Walker et al., 1996). At the first level there is a universal intervention, usually a district-wide curriculum. Universal screening is done to assess which students are not responding to the curriculum. At the second tier, students who have not made significant progress are provided more intense selected instructional interventions (Torgesen, 2002). The third tier is reached when students do not respond to this more intense intervention. At this point, they may be referred for an even more intense intervention or special education as a student with a learning disability (Torgesen, 2002).

Phonological Awareness

One area of current interest in the intervention literature is phonological awareness. Early phonological awareness skills account for a significant amount of variance in later word recognition and comprehension (Catts, Gillispie, Leonard, Kail, & Miller, 2002; Kirby, Parrila, & Pfeiffer, 2003; Schatsneider, Fletcher, Francis, Carlson, & Foorman, 2004). Phonological awareness skills are also strong predictors of reading for non-English speaking children. Engen and Høien (2002) studied Norwegian speaking students in Norway and found that phonological awareness accounted for significant variance in both word decoding and reading comprehension.

It also appears that phonological awareness skills transfer across languages. Correlations between Spanish phonological awareness tests and English reading ability have been found to be as high as the correlations between English phonological awareness tests and English reading ability (Lindsey, Manis & Bailey, 2003; Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002). Kindergarten Spanish phonological awareness skills have been found to correlate significantly with English reading skills at the end of first grade (Lindsey et al., 2003). Durgunoglu, Nagy, and Hancin-Bhatt (1993) found that Spanish phonological awareness in first-grade Spanish-speaking students positively correlated with English and Spanish reading ability.

In addition to transfer between languages, phonological awareness skills are higher in the language of instruction versus the native language. Bialystok, Majumder, and Martin (2003) found that English bilingual children who were taught in French performed higher on phonological awareness tasks in French as compared to their performance on phonological awareness tasks in English.

Because of this link between phonological awareness skills and later reading ability, phonological awareness interventions have been put in place with students at risk for future reading failure due to their low phonological awareness skills. Kjeldsen, Niemi, and Olofsson (2003) found that students performing at or below the 25th quartile had higher reading scores when given a phonological awareness intervention than the students who had not been given the intervention.

Several studies have shown the positive impact of phonological awareness interventions on overall reading performance among minority children (Morris, Tyner, & Perney, 2000; Phillips, McNaughton, & MacDonald, 2004). Given the evidence previously presented regarding the strong correlation of phonological awareness across languages (Lindsey et al., 2003), there is reason to believe phonological awareness interventions in English should benefit ELL students.

The Current Study

The purpose of this study was to explore the possibility of using an RTI model with ELL students to determine who needs additional intensive services. Quiroga et al. (2002) implemented such an intervention program to eight students whose first language was Spanish. The intervention consisted of both phonological awareness training and repeated readings of English. Although the students'

reading ability did improve after the intervention, the effects of the phonological awareness training and the effects of the repeated readings of English could not be separated. No other studies of this type were found in a PsychINFO and ERIC database search conducted in January 2004. Thus, additional study is needed.

Before RTI can be used with ELL students, several questions must be answered. First, can this population benefit from a phonological awareness intervention delivered in English? In addition, it is important to determine whether monitoring RTI will identify those students most in need.

METHOD

Participants

Two forms of screening measures were used with a first grade, low SES (100% free lunch), urban setting of 259 students. First, all first-grade students were given a school-wide reading mastery assessment. Forty-five students who had obtained less than mastery on the measure were then given both a Phoneme Segmentation Fluency task (described below) and a Nonsense Word Fluency task (described below). Twenty-five students met the criteria for the study (receiving scores of 30 and below [below the 25th percentile; AIMSweb, 2004] on both tasks). One of the students who met the criteria exhibited selective mutism in the classroom and was therefore excluded from the study. The 24 remaining students were grouped according to their track in school. Five more students were then excluded based on their school track. These students were off-track during part of the intervention and would have therefore missed parts of the intervention. Nineteen students (11 males, 8 females) were then chosen to participate. During the study, two children moved away and one child with autism dropped out. Because the focus of this study was on ELL students, one participant's scores were also excluded from analysis because of his Fluent English Proficiency score on the California English Language Development Test (CELDT). There were 7 males and 8 females included in the final analysis. All students were ELL students, ranging from beginning to intermediate based on CELDT scores (see Table 1). Fourteen students' first language was Spanish and the remaining student spoke Vietnamese. All participants were between the ages of six and seven years. All students continued to receive Open Court reading instruction in their classroom.

Materials

Intervention curriculum. A district and state approved, manualized phonological awareness curriculum, *Sounds and Letters for Readers and Spellers* (Greene, 1997) was used for this study's intervention. This intervention was implemented in English because of the evidence that stronger intervention effects are seen when the intervention is in the primary language of instruction (Bialystok et al., 2003). The intervention was provided in small groups, with no more than five participants per group. With only a few exceptions no deviations for the intervention's manual were made.¹

Progress monitoring. English Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF) were used as progress monitoring tools to monitor the students' progress during the intervention (Shinn & Shinn, 2002). English progress monitoring tools were used because of the evidence of strong correlations between English and Spanish phonological awareness (Lindsey et al., 2003; Quiroga et al., 2002). PSF is an individually administered test that takes one minute to administer. Words were presented to participants orally, one at a time, and students are then asked to identify the specific phonemes in each word. The overall score is the number of segmented sounds correctly identified in one minute. During the winter of first grade, the 25th percentile is 31 correctly identified

Footnote. ¹Contact the first author at kheal001@student.ucr.edu for the specific intervention protocol.

Table 1.
Participant's CEDLT Classification, Baseline and Final PSF and NWF Scores, and Exit Decision

<i>Participant</i>	<i>CEDLT</i>	<i>Baseline PSF</i>	<i>Final PSF</i>	<i>Baseline NWF</i>	<i>Final NWF</i>	<i>Exited</i>	<i>Session Exited</i>
1	Intermediate	0	55	17	53	Yes	12
2	Intermediate	4	47	27	86	Yes	12
3	Intermediate	7	53	26	50	Yes	12
4	Early Intermediate	7	55	17	50	Yes	12
5	Early Intermediate	9	57	14	55	Yes	12
6	Intermediate	22	59	13	52	Yes	12
7	Intermediate	24	63	25	64	Yes	16
8	Early Intermediate	27	68	15	65	Yes	18
9	Early Intermediate	30	67	24	53	Yes	18
10	Early Intermediate	23	58	0	61	Yes	22
11	Early Intermediate	18	48	11	51	Yes	22
12	Beginning	1	61	9	54	Yes	25
13	Intermediate	24	63	13	41	No	NA
14	Intermediate	21	47	10	5	No	NA
15	Intermediate	4	14	27	51	No	NA

segments (AIMSweb, 2004). PSF alternate form reliability is .88 for two weeks and .79 for one month (Kaminski & Good, 1996).

NSF is an individually administered test that also takes one minute to administer. Participants are given a sheet of nonsense words in the form of consonant-vowel-consonant and asked to read aloud the words. Participants can either read the word as a whole word or as the individual sounds that make up the word. The overall score is the number of letter sounds read correctly in one minute. During the winter of first grade, the 25th percentile is 30 correctly read sounds (AIMSweb, 2004). Good et al. (as cited in Official DIBELS home page, 2004) found that in first grade the alternate form reliability of NWF is .83, and the predictive validity to oral reading fluency is .82. Speece et al. (2003) found NWF to be a valid measure of early reading performance.

Token economy. A meta-analysis performed by Fuchs and Fuchs (1986) showed that progress monitoring has the greatest effect sizes when combined with behavior management. Given this finding, all participants were given a card with their names on it, in which they could earn stars for good behavior exhibited during the intervention session. After obtaining 10 stars students could choose a prize out of a "treasure box."

Procedures

The original 19 students were broken up into four groups: three groups of five and one group of four, based on their classroom and track assignment. Two graduate students administered the phonological awareness training two times per week in 30 minute sessions to the participants. One unit of instruction was given during each intervention session. The *Letters for Readers and Spellers* (Greene, 1997) curriculum contains 18 lessons. At the completion of lesson 18, the intervention started back on lesson 1, using different vocabulary words. Each participant was assessed once a week with both PSF and NWF before the first training session of the week. The intervention lasted for 12-25 sessions depending on the participant's degree of progress. After 12 sessions, those students whose trendline

exceeded their goal line and had met the exit criteria (45 correctly segmented sounds on PSF and 50 correct letter sounds on NWF) were exited from the program. Six students were exited after 12 sessions and subsequently the groups were reformed. Each group always contained five or fewer students.

Design

A modified single-case A-B design was used. In an RTI model, goals are set and decisions are made based upon whether or not goals are met. In this study, a goal line was set for each participant, using the participants' baseline data and the exit criteria for both PSF and NWF to determine whether participants were making the required gains needed to reach their goal. Trend lines through each participant's data were drawn in order to compare the participants' growth each week to the growth needed in order to reach the goal.

Inter-observer Agreement

Two graduate students were involved in the progress monitoring. Treatment integrity data were collected during five different progress monitoring sessions. During these five sessions, both graduate students recorded scores for participants during both the PSF and NWF administrations. Inter-observer agreement on PSF ranged from 81% to 100% per administration, with a combined agreement of 95%. Inter-observer agreement on NWF ranged from 75% to 100% per administration, with a combined agreement of 91%. Total inter-observer agreement for both PSF and NWF ranged from 75% to 100% with a total combined agreement of 93%.

RESULTS

The baseline scores on PSF ranged from 0 – 30 ($M = 15.4, SD = 10.2$; see Table 1). The baseline scores on NWF ranged from 0 – 27 ($M = 16.5, SD = 7.9$; see Table 1). The final intervention progress monitoring point for PSF ranged from 14 – 68 ($M = 54.3, SD = 13.0$; see Table 1). The final intervention progress monitoring point for NWF ranged from 5 – 86 ($M = 52.7, SD = 16.7$, see Table 1). The participants as a whole went from means in the at-risk range to means in the mastery range (DIBELS Benchmark levels, 2004). Swanson and Sasche-Lee (2000) recommend using the pooled standard deviation of both the baseline and the treatment when calculating Cohen's d single case effect sizes. The effect size for PSF was 1.7 and for NWF was 1.6. Due to autocorrelation interpreting effect sizes of single case designs must be done with caution (Parker et al., 2005). Of the 15 students who participated in the study, six were exited during the first exit period after receiving 12 intervention sessions. Overall, 12 of the students (80%) were exited by the twenty-fifth session (Table 1). These twelve students ranged in ELL status from beginning to intermediate as determined by CEDLT. Two participants (13.3%) had met the exit criteria for PSF, but not NWF by the conclusion of the intervention (Table 1). These students were identified as Intermediate ELLs. One student (6.7%) had met the exit criteria for NWF, but not PSF by the conclusion of the intervention (Table 1). This student was identified as an Intermediate ELL.

DISCUSSION

The purpose of this study was to examine some of the basic assumptions of an RTI model for special education eligibility with an ELL population. A critical assumption in an RTI model is that most students can benefit from structured intensive instruction. Therefore, it seems important to determine if ELL students benefit from an English phonological awareness intervention. It is also critical to

know whether the students' performance facilitates identification of those most in need of additional services. Lack of response to a high quality intervention is intended to provide the IEP team with data that indicates the student has a disability and if need is established is eligible for special education.

The data from this study provide initial support for using an RTI model to intervene with ELL students who have concerns related to literacy. Participants 1 through 12 met both their PSF and NWF goals. In an RTI approach, this signifies that these students do not have a disability and therefore a team would not need to address eligibility concerns for these students. Participants 13 and 14 both met the goal for PSF, but not NWF. In the case of Participant 13 the student's trend line was parallel and just under the goal line. However, as shown in Figure 1, Participant 14 clearly did not meet her goal for NWF. Her trend line was essentially flat and continuously widened further away and below her goal line. Somewhat surprisingly, Participant 15 met the goal for NWF, but not PSF.

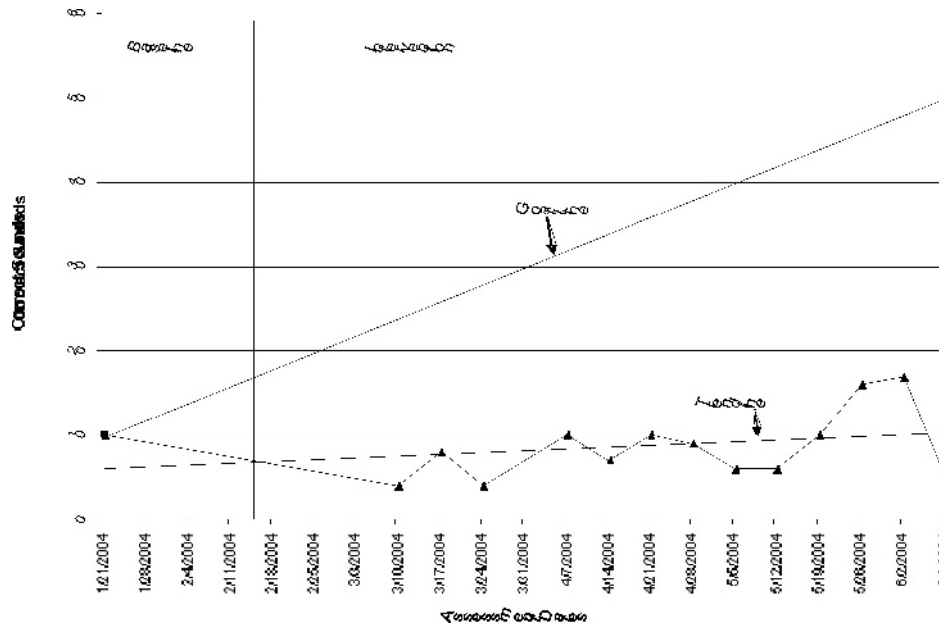


Figure 1.
Participant 14's NWF Progress Monitoring Graph

For the three students who did not attain the desired cut off scores, three options exist. First, the current intervention could be continued without modification. This is what teams would typically decide to do with Participant 13, who if given a few more weeks of instruction would likely have met his goal. A second option is that these students could receive a different intervention. In some cases more assessment data might be necessary to help further define the problem, but in both of the remaining cases the problem seems fairly clear. Participant 14 has achieved her goal in phonological awareness, but not in phonics. Providing the student a more targeted phonics intervention to supplement classroom instruction is one option teams might choose. For Participant 15, the data initially may seem counter intuitive. Phonological awareness typically develops before phonics is completely established. Yet, the student met the goal for phonics (i.e., NWF), but not for phonological awareness (i.e., PSF).

One of the final options a team can consider for students who do not meet the goals set within a desired time frame is to look at more intensive interventions. The choice could be an intensive individualized intervention, or the team could decide to investigate eligibility for special education. Most likely, additional assessment data are not necessary. The disability would be determined by documenting the student did not respond to intervention. The need for special education could be determined through multiple measures including an individually administered achievement test.

Implications for School Psychologists

There are at least two different approaches to using RTI as a method for determining eligibility for LD. The first approach is to simply replace the current discrepancy model with the RTI model. When students are referred to a Student Study Team (SST), interventions are developed and progress monitoring is implemented to assess the impact of the intervention. At some pre-determined point, the SST examines the data and makes one of four decisions: (a) set a higher goal; (b) continue the intervention; (c) change the intervention; or (d) refer for special education eligibility determination. The IEP team uses the data from the intervention along with some indicator of peer standing (e.g., California Achievement Test – Sixth Edition [CAT6], Woodcock-Johnson-Third Edition-Achievement [WJIII-Ach], local norm system) to help them determine if the student is eligible for special education.

A second approach to RTI is to implement a prevention model that is focused on affecting the entire student population. The data from the prevention program can also be used to inform special education eligibility. In this study, a prevention oriented approach was used. The students were selected and the intervention started as part of a three-tier model (Walker et al., 1996). All students were first screened, and those students below cutoff scores in PSF and NWF were selected to participate in the intervention. Twelve of the fifteen students met the exit criteria for both NWF and PSF by the conclusion of the study. Only three participants were not exited from the program. The group as a whole went from mean PSF and NWF scores that were considered to be in the at-risk range to mean PSF and NWF scores that were in the mastery level range (DIBELS Benchmark Goals, 2004). By providing data suggesting that a stand-alone phonological intervention for ELL students can cause significant skills growth, this study provides preliminary support that instruction in English is beneficial to English Language Learner students.

The usefulness of this intervention has implications for the practice of school psychology. A typical school psychologist spends approximately 50% of the day testing, while only spending approximately 20% of their time conducting direct intervention (Reschly, 2000). In this case, a total of three hours per week was spent implementing and evaluating an intervention with the lowest performing first-grade students in one school. At the end of 16 weeks, only three students needed additional services.

Through this model, the school psychologist could spend less time in assessment testing and more time in other areas such as intervention implementation, progress monitoring, and consultation. It is important to note that the interventionists in this study were first-year school psychology graduate students implementing reading interventions for the first time.

LIMITATIONS AND FUTURE CONSIDERATIONS

The sample for this study all came from one low SES school. A possible area for future research would be to include ELL students differing in SES status and from multiple schools. It is important to determine the factors that influence acquisition of English phonics skills and the extent to which these factors affect their response to reading interventions. Additional interventions should be attempted

with ELL students using a randomized control trial design to determine the most effective way to intervene with students who are second-language learners.

Because this was a demonstration of implementing RTI in a natural environment, typically single-case methodology was not employed. For example, only one data point was collected during baseline to allow the intervention to be implemented as quickly as possible. Treatment integrity was only addressed by ensuring that the interventionists used a manualized intervention.

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