PASSAGE READING FLUENCY IN SPANISH AND ENGLISH:

THE RELATION TO STATE ASSESSMENT OUTCOMES IN ENGLISH FOR

STUDENTS IN A DUAL-LANGUAGE CONTEXT

by

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The United States is experiencing an increase in young students developing
literacy in English and Spanish. Schools providing dual-language English/Spanish
instruction need technically adequate tools to assess reading skills in the languages of
instruction, and interpretation of results needs to acknowledge the complexity of cross-
linguistic learning. Although passage reading fluency in English strongly predicts overall
reading proficiency in English in the primary grades and there is some indication that
passage reading fluency in Spanish provides equivalent information regarding Spanish
reading skills, rarely have the two been examined simultaneously and within a dual-
language instructional context. The current study examined predictive and concurrent
validity of passage reading fluency in English and Spanish within third grade within a
dual-language instructional environment. Using a state assessment of reading as the
criterion measure, a correlational design was used to investigate the relation between
passage reading fluency in English and Spanish and performance on the statewide
assessment of reading in English. Findings indicate that within a dual-language context,
passage reading fluency in English is the stronger predictor of performance on the state
assessment in English, regardless of the student's home language. Spanish reading

fluency is also strongly related to English reading fluency but did not explain additional variance in predicting performance on the statewide large-scale assessment of reading in English beyond what English fluency explained. Results are consistent with the idea that same language assessments are more predictive of reading performance than cross-language assessments are, but the benefits of formative assessment in the language of instruction remain.

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CHAPTER I

INTRODUCTION

School-age children in the United States are increasingly influenced by more than one language. The demographics of the country are changing, and this change presents strong linguistic implications. According to its 2006 American Communities report, the U.S. Census Bureau found that more than 55 million people in the country speak a language other than English at home. The vast majority of these people spoke Spanish (U.S. Census, 2006). The trend is increasing as the percent of the U.S. population that was Hispanic rose from 12.5% in 2000 to 16.3% in 2010, and this trend is expected to continue (Ennis, Rio-Vargas, & Albert, 2011). Though some may consider this situation as coming full circle with the nation's predominantly immigrant roots, educators are faced with both demographic shifts and the resulting increased need for understanding of language acquisition and its influence on literacy development. The potential for children to be exposed to more than one language presents great opportunities for cultural connections, cognitive growth, and global understanding.

Influence of Dual-language on Cognition and Literacy

Many children learn in two languages, whether due to a heritage language spoken in the home or to parental choice that their children develop bilingual skills. Families may be making the choice to enroll their children in dual-language programs more frequently because the benefits of bi-literacy have become clearer and more widely known. The strongest evidence to date for the benefits of bilingualism comes from the work of Bialystok (1997, 2011) and a large longitudinal study published by Thomas and Collier (2002).

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In her 2011 study, Bialystok compared the performance of 63 eight-year old children, half of whom were monolingual and half bilingual, on complex classification tasks that combined several executive functioning skills. She found that bilingual children displayed greater ability to coordinate the different cognitive skills necessary to complete the task than children who were monolingual. Her earlier work focused on four and five year old children who had similar language development and socio-economic backgrounds, comparing their understandings of how print represents language (Bialystok, 1997). In this study, she reported that students who were bilingual, either English-Chinese or English-French, had stronger understandings of metalinguistic processes (Bialystok, 1997).

In the work of Thomas and Collier (2002), bilingual students outperformed monolingual students in all academic subjects on average after four to seven years. Using a mixed methods design, Thomas and Collier examined school records of 210,054 students at five geographically and demographically different school sites in the United States. These researchers examined long-term educational achievement through standardized test scores, comparing performance on standardized reading assessments through normal curve equivalents (NCE), finding gains that continued through high school for students enrolled in dual-language programs. The benefits in reading scores outpaced the gains of English language learners (ELLs) who had not received instruction in their native language, as well as outpacing the gains of English-only students (Thomas & Collier, 2002). Long-term academic gains from dual-language programs were reported both for students whose first language was Spanish learning English as well as for students whose first language was English learning Spanish (Thomas & Collier, 2002).

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Though there was great variation in the instructional models included in this study, such as the percentage of time the students spent learning each language each day and the language levels of peers in the class, the critical features associated with these benefits revolved around substantial time in instruction of both languages (i.e., for four to seven years), and that the goal of the program was language and literacy proficiency in both languages.

The Thomas and Collier (2002) study is perceived as seminal because of its scope and depth, and their findings have been echoed in other research. Higher achievement rates for students in bilingual programs have been recorded elsewhere as well, along with other important student indicators for schools such as improved attendance rates and increased graduation rates (Lindholm-Leary & Borsato, 2001;Patrinos & Velez, 2009). Similarly, Proctor and Silverman (200) found that biliterate students outperformed monoliterate students on Spanish and English literacy measures. Other studies have considered the role of the school in being prepared to support the needs of students who are learning in two languages and have found that students who speak a language other than English at home and enter schools that are unprepared to provide strong dual-language instruction are at a strong risk of academic failure (Hammer, Jia, & Uchikoshi, 2011). In other words, a key factor may be that the instruction is bilingual, not just that the children are bilingual.

Increasing Number of Dual-language Programs

As schools adjust to meet the needs of students entering their program who speak a language other than English at home, an effective model that has emerged is teaching literacy skills in students' first language while beginning to develop second language

skills (Collier & Thomas, 2004). Dual-language programs, where the goal is high levels of literacy in two languages, are becoming more common. For example, according to a 2011 report by the Center for Applied Linguistics (CAL), the number of these programs in the United States has grown significantly, from one dual-language program in 1962, to about 30 dual-language programs in the 1980s, with 266 more programs by 2002, ending in 2010 with a total of 384 programs. Most of these dual-language programs are located in elementary schools and are Spanish/English programs (CAL, 2011). Moreover, these numbers may underestimate the actual number of dual-language programs, as registration in the Center for Applied Linguistics database is a voluntary process and may not include all dual-language programs. For instance, Maxwell (2012) reports growth of dual-language programs as having been even more extensive, with 2000 more dual-language programs added from 2002 to 2012. These two sources cite different numbers of programs, but both describe a trend of increasing numbers of dual-language programs in schools. Also consistent across the two sources is the fact that although some programs include other languages such as French, Japanese, Russian, or Mandarin Chinese, the vast majority of these programs operate in Spanish and English (CAL, 2011; Maxwell, 2012).

The increase in the number of dual-language programs presents new challenges to school leadership. Having staff who are competent to teach in both languages, provide strong language models to the students in the language of instruction, and are able to converse collegially is challenging in a tight job market for bilingual teachers. Additionally, it is necessary to have materials in two languages, including excellent literature for students as well as research-based curriculum for core instruction and interventions. Monitoring student progress to know whether students are on-track to

meet key benchmarks in English and the additional language is also a key need as the

number of dual-language programs increases. The research synthesis of Cheung and

Slavin (2012) comparing outcomes in reading for Spanish-dominant ELLs from different

programmatic approaches found that the quality of instruction was more important to

successful outcomes than the language of instruction. The critical connection between

formative assessments and instructional practices becomes ever clearer in terms of

student achievement. Within this context of developing literacy in two languages,

technically adequate tools are needed to assess student progress and predict performance

on high stakes assessments. Nevertheless, as the literature review in the next chapter

makes clear, few studies have examined the utility of curriculum-based measures in more

than one language for predicting reading achievement, leaving uncertain the technical

adequacy of such measures in dual language contexts.

CHAPTER II

REVIEW OF THEORY AND LITERATURE

This study was grounded in several key bodies of research. I looked at the context of dual-language in the current educational landscape. I reviewed the extensive research regarding curriculum-based measurement, focusing on passage reading fluency (PRF), and looking particularly at studies involving English and Spanish language learners. Next, I examined major theories on the interaction of language acquisition and literacy development to better understand how these constructs may influence results of the proposed study. I also compared some of the specific structural elements of Spanish and English, as it is possible these structural differences may impact outcomes of reading in two languages. Finally, I reviewed high stakes assessments in schools and examined why third grade marks a critical point in both language acquisition and literacy development. Taken together, the ideas explored in this literature review set the stage for the importance of the proposed research.

Predicting reading performance is complex, particularly when students are developing literacy in two languages. The interpretation of the results from literacy measurement tools must consider the variable of language acquisition (Durgunoğlu, 2002). As children are developing understanding of the structures of text at an exponential pace, some of these skills, such as narrative development, may be seen across languages (Uccelli & Paz, 2007). In a dual-language context, components of literacy may develop as underlying proficiencies that may be seen across the first language (L1) and the second language (L2), (Cummins, 1979). This idea of language and literacy transference may not explain all aspects of student learning, as there is also evidence that factors such as the contextualization of language (Cummins, 1991), the extent of variance

between languages (Melby-Lerväg & Lerväg, 2011), and the degree to which some aspects of second language may develop independent of first language proficiency (Conner, 1996) should be considered within a dual-language context.

Over the past three decades, curriculum-based measurements (CBMs) have emerged as efficient and reliable tools for assessing reading skills (Reschley, Busch, Betts, Deno, & Long, 2009). CBMs may be used to predict performance on standardized state reading assessments (Good, Simmons, & Kame'enui, 2001). Curriculum-based measurement is an important assessment tool in reading that has evidence of technical adequacy and predictive validity, but the vast majority of the research studies in this area have been conducted in English. Preliminary research on PRF in Spanish and English indicates similar results (Baker, Stoolmiller, Good, & Baker, 2011; de Ramirez & Shapiro, 2006, 2007); however, the limitations of sample sizes and instructional variables require more research before construct validity can be established for the use of curriculum-based measures within a dual-language context.

Third grade traditionally marks the instructional shift from learning to read to reading to learn (Indrisano & Chall, 1995), and students who leave this grade unable to decode and comprehend grade-level material may be at a disadvantage that increases exponentially over time (Stanovich, 1986). Third grade is also the start of high-stakes reading assessments at the national and state level, with decisions about resource allocation and program evaluation often contingent on these reading achievement scores (NCLB, 2002). As the number of dual-language programs increases, having viable tools to assess and predict reading performance in the third grade is increasingly important.

PRF is a curriculum-based measure with a substantial body of research for use in English instructional programs by English speakers, particularly at the third grade level. However, more information is needed to see if the same interpretations of PRF results may be applied in a dual-language setting. The purpose of this study is to examine the predictive and concurrent validity of PRF in English and Spanish in a dual-language context, using the Oregon Assessment of Knowledge and Skills as the criterion measure.

Curriculum-Based Measurement

Curriculum-based measurement (CBM) is the term tied to a grouping of assessments that grew out of the work of Stanley Deno and colleagues from the University of Minnesota (Deno, 1985, 1992). Their work focused on developing assessments that were time efficient, sensitive to growth, and not tied to a particular basal program or adopted curriculum. Based on principles of Deno's work, a variety of different CBMs have been created, and examination proceeded as to the validity of interpretation of scores for different population groups and for different purposes. CBM measures in the area of literacy include fluency measures in word reading, passage reading, letter naming, sound naming, syllable segmentation, and reading tasks where a missing word must be selected. Using CBM data to monitor student performance and inform instructional practices has shown positive outcomes in achievement (Fuchs & Fuchs, 1986; Reschly et al. 2009). CBM data has also proven valuable to evaluate the effectiveness of programs (Tindal, 1989). Additionally, the use of CBM measures is integral to the response to intervention (RTI) movement that centers on having universal screening instruments to identify which students may need additional supports very early in the educational process (Espin, Shinn & Busch, 2005; Kaminski & Good, 1996).

Passage Fluency as a Literacy Indicator

Of the wide array of curriculum-based measurements, PRF is perhaps the most widely used and researched (Reschley et al., 2009). Passage reading fluency may be referred to by the acronym PRF, but the same task is also known by other terms such as oral reading fluency (ORF) or reading CBM (R-CBM). Because other sorts of CBMs, such as word reading lists, could be referred to as oral reading tasks, the term PRF will be employed in this discussion, as the connected text of a passage is a key element of this assessment. This distinction of the connected text as being seminal to the assessment is highlighted by Crosson and Lesaux (2009) stating "while the bulk of research on reading fluency has been in the domain of word reading fluency, recently there has been a resurgence of interest in the role of fluent oral reading of connected text—that is, text-reading fluency, as distinct from word-reading fluency" (p. 3).

Features of PRF. In performing a PRF task, a student reads a passage of connected text aloud for one minute and is scored on the number of words read correctly (Fuchs & Deno, 1991). PRF scores have been examined with the lens of technical adequacy, and their reliability has been established across numerous studies (Deno, 1992; Kame'enui, Fuchs, Francis, Good, O'Conner, Simmons, Tindal, & Torgesen, 2006). PRF has shown to be technically adequate, and scores are highly correlated to other standardized assessments of reading achievement. Different producers of PRF products, such as DIBELS and AIMSweb, have almost identical standard administration protocols (Good & Kaminski, 2002; Shinn & Shinn, 2002), both in the instructions given to the student and in the rules for scoring whether a word is correct. This similarity of administration leads to greater reliability of PRF, regardless of the developer.

PRF, as all curriculum-based measures, is a standardized methodology that is time efficient, easy to administer, may be given frequently, and is sensitive to growth (Reschly et al., 2009). A general outcome measure such as PRF does not provide in-depth information about particular sub-skills in reading that may be necessary within a diagnostic framework, but rather presents an overall look at reading ability. Longitudinal PRF data have provided stable norms in the number of words a student would typically be reading at particular point in time and the typical growth rates in additional correct words per week, regardless of geographic or curricular factors (Hasbrouck & Tindal, 2006). The stability of these norms is a key to using PRF for creating screening decision rules. For example, if the student is not reading a particular number of words by fall of the second grade as measured by PRF, the student may receive additional instructional supports. Norms also provide a basis for evaluating the effectiveness of an intervention. By knowing the student's base line PRF score and the typical growth of additional words per week, teachers can chart an aim line towards a goal and subsequently chart progress data in relation to that aim line, and evaluate whether the current intervention is being effective for that student.

Extensive research on the uses of PRF in the assessment of reading occurred in the past two decades (Fuchs, Fuchs, Hosp, & Jenkins, 2001). The concept that automaticity of lower order skills allows room for higher level cognitive functioning (Samuels, 1979) is the underlying logic of fluency-based assessments. Studies have associated oral reading fluency with comprehension skill acquisition (Baker et al., 2008; Good et al., 2001). Fluency measures the more complex skills of fluidly decoding words and orally forming sentences with prosody (Adams, 1990); it is not simply a

measurement of the speed at which a student reads. The acquisition of these fluency skills is an indication that students will continue to develop reading proficiency.

Major findings of research on PRF. Researchers have explored several key factors including (a) the strong relation between PRF and comprehension (Fuchs et al. 2001), (b) the validity of interpreting PRF scores to predict outcomes on other reading measures (Reschly et al., 2009), (c) PRF use in progress monitoring because of sensitivity to growth (Shinn & Good, 1992), and (d) the use of PRF to inform instruction (Fuchs, Fuchs, & Hamlett, 2007).

The relation between PRF and other indicators of reading comprehension is perhaps the most extensively researched topic in the area of curriculum-based measurement. Reschly and colleagues (2009) conducted a meta-analysis of more than 40 studies that examined this question, finding a moderately high correlation between reading fluency and reading comprehension (.77), as seen in Table 1. This finding indicates that PRF is a reasonably good indicator of overall reading performance and, because of the low resource demands in terms of time and money to administer, a very useful tool for schools (Reschly et al., 2009).

Table 1

Major Findings on PRF

	Study Type	n	Grade Level	Demographic	Assessment Language	Major Findings
Reschly et al. (2009)	Meta-analysis	105 studies	1-6	Varied	English	Correlation to State Assessment: .77
Baker et al. (2008)	Quasi-experimental		1-3	Students in Poverty	English	Correlation to State Assessment: .58-.82
Baker & Good (1995)	Quasi-experimental	50	2	L1 Spanish ELLs	English	Correlation to Comprehension Measure: .73
Wiley & Deno (2005)	Quasi-experimental	15	3&5	L1 various ELLs	English	Correlation to Comprehension Measure: .61
Domíguez de Ramírez & Shapiro (2006)	Quasi-experimental	14	3	L1 Spanish ELLs in Bilingual Programs	Spanish English	Mean cwpm fall: 75.5 Mean cwpm spring: 86.07 Mean cwpm fall: 61.5 Mean cwpm spring: 77.64
Domíguez de Ramírez & Shapiro (2007)	Quasi-experimental	14	3	L1 Spanish ELLs in Bilingual Programs	Spanish English	Correlation Between Spanish & English PRF Spring: .85 Fall: .71
Baker, Park, & Baker (2010)	Quasi-experimental	471	1-3	L1 Spanish ELLs in Bilingual Programs	Spanish English	ORF growth in English higher than Spanish, ORF predicted comp in same language but not across languages

The relation between performance on PRF and other measures of reading achievement in the primary grades is well established (Fuchs et al. 2001; Reschly et al., 2009; Shinn & Good, 1992). Standardized tests such as the Comprehension Subtest of the Stanford Diagnostic Reading Test and the Woodcock Reading Mastery Test correlated strongly with PRF (Hosp & Fuchs, 2005; Shinn & Good, 1992). Additionally, performance on PRF tasks showed predictive validity for performance on state tests of reading achievement (Sibley, Biwer, & Hesch, 2001).

The strength of this correlation in the higher-grade levels is less clear. Some research results have shown that PRF is still a strong indicator of reading comprehension in fifth grade (Sibley et al., 2001). However, Wiley and Deno (2005) found that PRF was less highly correlated to other measures of reading comprehension in Grade 5 than it was in Grade 3. These findings were in agreement with studies that showed the strength of correlation decreasing after Grade 3 (Fuchs et al., 2001; Jenkins & Jewell, 1993; Kranzler, Miller, & Jordan 1999).

Application to English language learners (ELLs). The majority of studies examining the predictive validity of PRF to outcomes on broader reading measures did not disaggregate the results for language minority students. As the numbers of students who enter schools in the United States speaking a language other than English increases (Ennis et al., 2011), it is important to examine how the relation between oral reading fluency and reading comprehension might change for these students. Sandberg and Reschly (2012) point out that factors in the test taker, factors in the test, and factors in the examiner may all influence the validity of interpreting PRF scores in relation to English language learners. Early findings from research on this subject are mixed.

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Baker and Good (1995) found PRF to be as reliable an indicator of overall reading skills for second grade students who were ELLs as for students whose primary language was English. As shown in Table 1, these researchers found a strong correlation (.73) of PRF with the Stanford Reading test, for 50 students who were ELLs. Similarly, Wiley and Deno (2005) found that PRF for ELLs at the third grade correlated with the Minnesota Comprehensive Assessment of Reading at .61, which is a moderately strong relation, though not as strong as that of English-only students, at .71. PRF showed promise in reading evaluation of first grade ELL students, where the correlation between PRF and a measure of decoding fluency for ELLs was strong at .86 (Graves, Plascencia-Peinado, Deno, & Johnson, 2005). These results were echoed in a study by Baker, Smolkowski, Katz, Fien, Seeley, Kame'enui, and Beck (2008), where a large sample of 9600 students from high-poverty schools, 32% of whom were ELLs, showed correlations of .6-.8 between PRF and performance on reading comprehension measures, as shown in Table 1. Riedel (2007) examined the relation between PRF and reading comprehension for 59 ELL first graders and compared these results to other L1 English students, finding a stronger correlation for ELLs (.69) than for native English speakers (.51).

Other studies, however, have shown that though there continues to be some correlation between text fluency and comprehension, the relation is less robust for ELLs, and oral language skills in English are, in fact, a stronger predictor of reading comprehension (Crosson & Lesaux, 2009). Students who are ELLs generally share the characteristic of lower oral language skills in English, both receptive and expressive (Proctor, Carlo, August, & Snow, 2005). Oral language proficiency may play a role in PRF performance even for monolingual students (Yovanoff, Duesberry, Alonzo, &

Tindal 2005), so it is possible that lower oral language skills may weaken the linkage between PRF and reading comprehension measures for students who are English language learners. Genessee, Paradis, and Crago (2004) proposed a contradictory outlook, positing that oral language may develop easily across both languages, whereas reading and writing need explicit instruction.

Application to Spanish language learners. Having discussed the increasing numbers of dual-language Spanish/English programs where Spanish literacy development is critical for both Spanish native language speakers who are learning English, and for English native speakers who are learning Spanish, there has historically been little research on technically adequate tools to evaluate children's reading in Spanish (Goldenberg & Gallimore, 1991). However, this has been a burgeoning field of inquiry in the last seven years.

For students receiving early literacy instruction in Spanish, Rhoades found that tests of syllable sounds showed efficacy in predicting future reading success in Spanish (2009). Baker, Cummings, Good, and Smolkowski (2007) demonstrated evidence of concurrent, criterion-related validity for Spanish PRF (S-PRF) by comparing outcomes to those of the Spanish reading comprehension measures, the Woodcock Muñoz and Aprenda tests. They reported .73 correlation of S-PRF to the text comprehension subtest of the Spanish Woodcock Munoz, $p < .001$ and a .64 correlation of S-PRF to the Aprenda, $p < .01$, demonstrating statistical significance in both findings.

Two studies of S-PRF that looked to establish technical adequacy of these CBMs in Spanish conducted by Dominguez de Ramirez and Shapiro in 2006 and 2007, compared S-PRF to the English PRF (E-PRF) rates of the same students, rather than

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examining other indicators of reading ability. Some of these results are displayed in Table 1. Students who were native Spanish speakers had scores on PRF tasks that were at a lower level and a lower rate in Spanish than these same students had on the same tasks in English (Dominguez de Ramirez & Shapiro, 2006). Some published norms developed for PRF in Spanish are lower than those developed for English (AIMSweb Spanish Reading, 2002; Baker et al. 2007).

Baker, Park, and Baker (2010) also looked at passage fluency in both Spanish and English for students receiving instruction in both languages. They examined the relation between initial proficiency and fluency growth in each language, as well as the predictive validity of using PRF scores to indicate achievement on comprehension measures, both within the same language and across languages. Regression and path analysis in their results indicate fluency as a strong predictor of performance in the same language but not a predictor cross-linguistically. In other words, Baker et al. (2010) found that a student's PRF in Spanish was a predictor of that student's performance on other reading measures in Spanish, but that the S-PRF score was not a predictor of other reading measures in English.

In a thorough examination of the literature regarding research on S-RF, I was unable to locate any studies that examined the application of S-PRF to L1 English students who were learning Spanish.

Student Proficiencies in Language and Literacy

Acquiring language is a complex process occurring with deceptive ease when children typically develop and live in language-rich environments. This acquisition of language occurs through broad exposure to language and continual practice in natural

environments (Genessee, Paradis, & Crago, 2004). Proficiency in oral language in the early years of birth to three years old provides strong indication of future academic success and is most highly attributable to the number of words a child hears (Hart & Risely, 1995). Oral language proficiency is strongly connected to the development of literacy skills (Hart & Risley, 2002), along with appropriate instructional practices (National Reading Panel, 2000). Understanding vocabulary is a key component of both oral language development and literacy development, and though vocabulary knowledge is a key to understanding what is being read, reading is also key to building vocabulary (Nagy & Anderson, 1984). Oral language acquisition, vocabulary development, and PRF were found to covary in research by Yovanoff, Duesberry, Alonzo, and Tindal (2005) examining L1 English students in grades four through eight, with vocabulary becoming relatively more important than PRF with each grade level.

Dual-language proficiency may be examined empirically and structurally. Empirically, one may attend to the strong relation between dual-language proficiency and achievement outcomes (Gonzales, 1986; Lindhom-Leary & Borsato, 2001; Patrinos & Velez, 2009, Thomas & Collier, 2002). Structurally, it is important to consider the pre-skills that undergird both languages and how acquisition of those skills may foster proficiency in two languages (Dugunğlu, 2002). Using this lens, phonemic and morphological similarities and differences must be considered.

Cross-linguistic Transfer of Language and Literacy

When learning two languages, certain skills that are learned in one language may appear with ease in the second language. Cross-linguistic transfer refers to transference of oral language comprehension as well as phonological awareness and decoding, and

how these skills move from the first to second language. However, there is much yet to learn about cross-linguistic transference. Most of the research in the area of cross-linguistic transference has been limited to discrete skills within language and literacy that are most easily quantifiable, such as phonological awareness and word reading skills, and less is clear about the role of transference in fluency and comprehension (Proctor, August, Carlo, & Snow, 2006). In fact, Snow (2006) states, "there is still remarkably little clarity about how to define transfer operationally, what evidence would count as demonstrating its existence, or the range of phenomena for which it might be expected to operate."

Language transference could be defined as the influence of the learner's native language on learning a second language (Odlin, 1989). This influence may manifest as negative, also referred to as interference, or as positive, meaning it provides a facilitative effect on language acquisition due to similarities of the two languages. The concept of transference in linguistic literature rose to prominence in the 1940s (Odlin, 1989), and is a subject of interest not only to those involved in second-language acquisition but also to researchers examining linguistic change over time. The concept of language mixing and its relation to dialect development and new language immersion was of particular note (Odlin, 1989). In the 1970s, the prevailing theories around language transference were rooted in contrastive analysis thinking and essentially focused on identifying potential areas of difficulty in learning a second language by identifying the aspects of the two languages that differed from each other (Bialystok, 1991). Also in the 1970s, increasing attention was given to the sociolinguistic contexts that surround language learning and use (Bialystok, 1991). Theories about language transference are important because of

their potential influence on the pedagogical methods and programmatic models that are implemented by educators.

Linguistic Interdependence

A predominant theory in bilingual education currently is that of linguistic interdependence (Cummins, 1979). The linguistic interdependence model posits that an underlying language proficiency develops in a child, independent of either the first or second language. (Cummins, 1979; Diaz & Klinger, 1991). Under this theory, the underlying proficiency, once mastered, may be demonstrated in either language. If this language proficiency is developed and expressed in one language, the child will be able to use this proficiency in the second language (Diaz & Klinger, 1991). Exposure to the second language is necessary, but it would not be necessary to explicitly teach the use of the specific language proficiency in the second language. For example, if a child has learned the underlying concept of how words come together to express concepts, a child simply needs exposure to the second language and all that has been learned in the first language will transfer to the second language with automaticity (Cummins, 1979). An implication for educators is that development of the first language will facilitate the development of the second language and teaching specific transference skills may not be necessary. Gonzalez (1986) examined the reading and oral language skills of Hispanic children who had immigrated to the United States and found stronger correlations between English and Spanish reading skills than the relation between English reading and English oral language skills. Cummins (1991) cited this study as an example of the underlying proficiencies in reading transferring from first language (L1) to second language (L2) as a support of linguistic interdependence. Snow and Hoefnagel-Hohle

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(1978) highlighted similar outcomes where underlying cognitive attributes could be seen in both L1 and L2, decontextualized from explicit language learning.

One can use the linguistic interdependence model to consider additional studies that involve skill development in two languages. For example, a positive correlation was found for the contribution of Spanish vocabulary in native Spanish speaking students to English literacy in the later years of elementary school (Durgunoğlu, Nagy, & Hancin-Bhatt, 1993; Proctor, August, Carlo, & Snow, 2006), and could easily be viewed as evidence of the linguistic interdependence theory. Uccelli and Paez (2007) found that story structuring skills in Spanish contribute to narrative quality in English, which may be another example of an underlying proficiency in language transferring from one language to another.

Phonemic awareness is "defined as the ability to hear and manipulate the sounds in spoken words and the understanding that spoken words and syllables are made up of sequences of speech sounds" (Center on Teaching and Learning, 2013, para. 1), and is recognized as a key skill in developing literacy. The research findings here are complex in regards to how phonemic awareness develops in the second language. Bialystok, McBride-Change, and Luk (2005) found that phonemic awareness, once developed, easily transfers from one language to another. However, McCandliss, Fiez, Proptopapas, Conway, and McClelland's (2002) found that second language learners were unable to distinguish between phonemes in the second language without explicit instruction, regardless of their phonemic awareness skill in their first language.

Explicit Language Transference

Unlike the lens of linguistic interdependence that examines how underlying proficiencies in language may facilitate language acquisition, explicit language transference contemplates theoretical frameworks where the specific attributes of the languages may impact the learning of the new language. Language transfer includes the influence resulting from similarities and differences between the target language and any other language that has been previously learned (Odlin, 1989). The contrastive cross-linguistic model focuses on specific compare/contrast strategies between the first and second language, with each language developing in relative independence in the absence of direct comparison (Conner, 1996). Bialystok (1991) explained the underpinnings of this theory as "the claim that language learners learned a second language by substituting target-language forms and structures into what they already knew about their first language" (p. 3).

Under the contrastive model, it should also be easier to learn a second language that is more similar structurally to a student's first language. Melby-Lerväg and Lerväg (2011) conducted a meta-analysis of studies on cross-linguistic transfer including the areas of oral language, decoding, and phonological awareness. They found oral language skills in first and second language to have a small but meaningful correlation (.16), while the correlational for phonological awareness across languages was moderately strong (.60). The strength of phonological awareness across languages could be interpreted as a sign of linguistic interdependence. However, correlations on decoding varied greatly across the studies reviewed, and were stronger when the first and second language had more similar structures, giving credence to the contrastive analysis theory (Melby-Lerväg

& Lerväg, 2011). Genessee (1979) also reported that correlations between L1 and L2 reading skills decrease as the similarities between orthographies decrease in the two languages.

Melby-Lerväg and Lerväg (2011) examined reading comprehension in their study as well. Decoding and oral language in the second language were found to predict reading comprehension in the second language, with the correlation weakening as children got older. However, oral language in the first language was not found to be predictive of the reading comprehension achievement in the second language, but decoding in the first language was predictive of decoding in the second language (Melby-Lerväg & Lerväg, 2011). Overall, their study showed more cross-linguistic transfer in decoding involving similar alphabetic structures and less in the area of oral language, though decoding and oral language had an inverse relation as the student aged (Melby-Lerväg & Lerväg, 2011).

Essential Comparison of English and Spanish Language

As noted in the contrastive theory, the similarity of language structure may play a pivotal role in the ease with which a student may transfer knowledge between languages (Conner, 1996). English and Spanish both use the Roman alphabet, leading to a similar overall look, and 35% of words have shared cognates, or origins, across the languages (WETA, 2011). Also, the movement of reading from left to right across the page is the same, in contrast to writing systems such as Chinese or Hebrew. The overall sentence structure is very similar between English and Spanish as well. Punctuation is a bit more complex in Spanish, with preceeding and following end marks, as well as additional accents and tildes, but overall it has similar punctuation rules to English (WETA, 2011).

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Morphographic Comparison

Despite the many similarities between Spanish and English orthographic systems, there are a few differences. These include gender identification of nouns in Spanish to which there is largely no equivalent in English (e.g., *gato, tabla*), as well as the use of gendered noun identifier articles (e.g., *el, la, los, las*), (WETA, 2011). Noun and adjective placements are usually reversed between English and Spanish. For example, in English a steed may be described as *a white horse*, while in Spanish the description would be of *un caballo blanco*, or *horse white* in direct translation. Pluralization rules are fairly straightforward in Spanish but quite complex in English (e.g., *mice* as opposed to *mouses*, *deer* as opposed to *deers*, *foxes* as opposed to *foxs*, *knives* as opposed to *knifes*).

There are also subtler differences between English and Spanish, such as the way each language represents motion events. Spanish expresses key information about motion events within the verb, while English provides that information outside of the verb, usually through a preposition (Filipović, 2011). For example, in Spanish one might say, *Salio de la casa brincando*. An exact translation of that would be *She exited the house skipping*. But a more common way to express this concept in English would be *She skipped out of the house*, where the positionality of the motion moved from the verb, *exited*, to the preposition, *out*.

Spanish is a much more transparent orthography than English, with almost all words following regular spelling and decoding patterns (Baker, 2010). English spelling is much less regular, though depending on the rules that are applied, the percentage of regularly spelled words can range from as low as 8% to as high as 50% (Kessler &

Tremain, 2003). This difference in orthography can have many implications for English language learners in oral language, written language, and decoding fluency, as well as in developing speech pattern errors, misspellings, and slow decoding. The transparency of Spanish may also have indications for Spanish language learners, in allowing a more rapid learning of the decoding rules and structures when learning to read.

Finally, the differences in orthography can have implications for educational evaluations because of the translation errors that affect the content validity of the assessments (Braken & Barona, 1991). It is conceivable that translating a reading passage with equivalent content could unwittingly raise it to a higher level through the vocabulary words chosen. Referring back to the differences in verbs between English and Spanish listed above, the word *out* may be considered a kindergarten level word, while the word *exited* may be considered a first or second grade level word.

Phonemic Comparison

The phonetic patterns of oral language are incredibly complex, in fact much more complex than linguists originally supposed, due to the prosodic structures and phonemes that are language specific (Pierrehumbert, 2003). However, children's ability to distinguish between phonemes develops faster in languages with more complex morphologies (Durgunoğlu, 2002). In both English and Spanish, high levels of phonemic awareness are correlated with high levels of word recognition (Durgunoğlu, 2002).

In English, the regularity with which a particular phoneme or sound is represented by a particular grapheme, or letter combinations, is not at all consistent when compared with Spanish phonemes and graphemes. Spanish has a much more transparent phonemic structure (Margit & Shinn, 2002). Because of this, literacy instruction in Spanish is based

on syllables rather than letter sounds and blends, and early assessment of literacy may be most effective when based on syllables (Alonzo, Gonzalez, & Tindal, 2010).

Connecting Classroom Measures to High Stakes Measures

Over the past 20 years, school accountability has become increasingly defined by state-level standardized assessments, and these assessments have been tied to increasingly high stakes decisions (Peterson & Hess, 2008). All states assess reading/language arts and mathematics through these assessments, as required by the No Child Left Behind Act (2001). The most common format for the reading/language arts test involves reading a passage of grade level text and answering multiple choice questions based on that text.

Performance on PRF tasks correlates strongly to performance on state reading assessments (Baker, Smoklowski, Katz, Fien, Seeley, Kame'enui, & Beck 2008; Resch et al., 2009; Sibley et al., 2001). Sibley et al. (2001) found strong predictive validity for interpreting PRF scores in relation to student performance on state tests in fifth and sixth grade. These findings were similar to the results of Baker and colleagues work in 2008 when they found correlations of .6-.8 of PRF to the Oregon Assessment of Knowledge and Skills (OAKS). In addition, this team established that examining the rate of growth on PRF slope added to accuracy of predicting OAKS (Baker et al., 2008). Reschly et al.'s 2009 meta-analysis of correlational evidence of 70 research studies found PRF to be a significant predictor of scores on state reading tests, with a mean correlation of .77. All of the studies listed above examine E-PRF and performance on state assessments in English.

Purposes of State Assessments

State assessments are present in all 50 states and may serve several purposes. Tindal (2002) wrote that state assessments are increasing in numbers and in rigor. First, the results of these assessments are used for school evaluation. This accountability system is a major cornerstone of the No Child Left Behind Act of 2002, with the students' results viewed against a critierion standard (e.g., 75% of students at third grade will meet the expectation) and in terms of score growth (e.g., did more third grade students meet the expectation this year than last year?). If schools fall short on either of these measures, they are moved through a series of progressive sanctions.

Second, state assessments may be used for program evaluation (Beatty, 2010), though the lack of ability to limit variables involved may interfere with the validity of interpretations. For example, an average increase in student scores on a state assessment that coincides with the adoption of a new reading curriculum may cause leaders to interpret the curriculum caused the improvement. However, the additional professional development that teachers received with attention to high leverage strategies may have had a stronger influence on the students' scores.

Additionally, state assessments may be used to inform instruction (Chudowsky & Pellegrino, 2003), but the utility of using state assessments to inform instruction has been called into question. Tindal (2002) stated the lag time between the administration of state assessments and when teachers receive the results detracts from the use of these assessments for instructional purposes. However, as many assessments have moved toward a computer-based format, the time lag has lessened, so this may be less of an issue. State assessments are generally given at a particular point in time, as a summative

assessment of learning. Without the opportunity to give the assessments at multiple points in time, it is difficult to use the results for monitoring student progress in an on-going manner. In addition, there are validity issues around the interpretation of subscores or strand data to inform instruction as these small samples of skills may not stand up to psychometric scrutiny (Miller, 2008). The number of items addressing each skill may be too small to create generalizations about students' overall skills in those areas.

Third Grade Considerations

Third grade is a particularly important year, both from the standpoint of literacy instruction as well as language acquisition. In most schools, third grade marks the major paradigm shift from learning the skills to decode the written word to using those skills to acquire content knowledge (Indrisano & Chall, 1995). Full acquisition of a second language, including academic language proficiency, generally takes four to seven years (Collier, 1989). Under this framework of language acquisition, the end of third grade would mark the end of the fourth year of school-based intensive language instruction and development, and when at least a portion of students enrolled in the program would be fully fluent in the second language (Thomas & Collier, 2002).

Third grade also marks the first year in which accountability systems for student literacy achievement are required nationally. Under the No Child Left Behind Act (2001) that dominated the educational policy stage in the beginning of the 21st century, third grade was the first year that schools were held accountable for educational achievement through standardized assessments of reading (NCLB, 2001). In the State of Oregon, when key benchmarks in the educational experience were selected to act as indicators of educational achievement and progress, these indicators included things like graduation

rates, readiness for kindergarten, enrollment in postsecondary education, and reading in the third grade (Oregon Education Investment Board, 2012).

Recent discussions in educational leadership have continued to emphasize the importance of third grade reading proficiency as a critical requisite for future academic achievement. The importance of third grade reading has spawned a number of different approaches in states, from requiring early intervention for students who are not on-track to meet third grade reading benchmarks to mandatory retention policies in some states (Gewertz, 2011). In fact, 32 states have adopted policies that specifically state third grade assessments will be used to guide reading intervention policies, and 14 states have adopted strict requirements that students will repeat the third grade with additional reading instruction if they do not pass the third grade assessments (Webley, 2012). With the possibility of such high-stakes outcomes tied to the results of reading assessments in the third grade, educators require tools to make valid prediction of outcomes to guide instructional decisions.

Purpose of the Current Study

Developing literacy in two languages is increasingly the reality for many children in public schools in the United States. Spanish/English programs are the most common dual-language type in the U.S. (CAL, 2011). Teachers need technically adequate tools to assess literacy development on a frequent basis while considering the variables of both language acquisition and reading skill acquisition, as students are developing the ability to comprehend text in both languages. The ability to read connected text fluently out loud is an important indicator of overall reading skills, and measuring this through PRF has correlated strongly to performance on state assessments of reading, for English

speakers in English. The predictive validity strength of PRF for ELLs in English or of

PRF in Spanish within a dual-language context is less clear. English and Spanish have

important similarities and differences orthographically and morphologically that may

impact cross-linguistic transfer of reading skills. These structural differences are

important to consider in evaluating the validity of interpretation of PRF scores across

languages.

The purpose of this study is to examine the following questions for students

learning both English and Spanish at the third-grade level, all within a dual language

instructional context:

1. *What is the relation between E-PRF and S-PRF for third grade students in a dual language instructional context*?

2. *What is the relation of E-PRF to state accountability assessment in English reading for both L1 English and L1 Spanish third grade students in a dual language context*?

3. *To what extent does S-PRF predict state assessment performance in English reading above and beyond what E-PRF predicts for both L1 English and L1 Spanish students in a dual language context*?

4. *To what extent does a student's L1 moderate the relationship between E-PRF and S-PRF and criterion performance on state assessment in English reading in a dual language context*?

Adding to the body of knowledge on these topics is extremely important, as the number

of dual-language programs increases around the United States and the number of students

entering schools who speak a language other than English continues to grow.

Technically adequate tools to assess literacy development are critical to planning

interventions, allocation of resources, and the evaluation of programs.

CHAPTER III

METHODOLOGY

This chapter presents the general methods used in this study and addresses (a) design, (b) setting, (c) participants, (d) instruments, (e) data collection procedures, and (f) data analyses.

Research Design

This study analyzed an existing data set that contained the results of state assessments and the results of PRF assessments in both English and Spanish from one elementary school. The sample included students who were enrolled in the dual-language Spanish/English program and took all of the following assessments: (a) winter E-PRF (b) winter S-PRF, and (c) OAKS Third Grade Reading Test. Each student had the opportunity to take the OAKS assessment three times throughout the year, and only the highest score was used in the analyses. Students took the PRF assessment in both languages in the fall, winter, and spring. I chose to use the winter PRF in English and Spanish, as it occurred in the midpoint of the year and without being able to know exactly when students took the OAKS assessment, this midpoint is approximately equidistant from the fall and spring test windows. Specific details regarding the setting, the participants, experimental controls, the measures, and the statistical analyses are described in more detail in the following sections.

Setting

The data set in this study came from one elementary school in a school district located in the Pacific Northwest. The district is medium-sized, located in a city with a

population of approximately 25,000. The community is home to two ethnic minority groups; Hispanic families who primarily trace their roots to Mexico and Russian families who include both recent immigrants and members of a religious group known as Old Believers. In the school district, approximately 75% of the students were Hispanic, 15% were Russian, and 10% were white, non-Russian. The percentage of students who were identified as English language learners (ELL) was 46% overall in the district, but in kindergarten, 72% of the students qualify.

The vast majority of students enrolled in the district qualify for free lunch because of economic disadvantage. This allows the district to participate in Part 2 of the Free and Reduced Meal (FARM) program, which entitles all students to receive breakfast and lunch at no cost. As more than 80% of the students in this district meet the federal eligibility requirements for the school lunch program, all students are able to access free school lunch and breakfast, and no individual data on students' FARM status was available. Federal Title I support for reading needs is available district-wide.

Enrollment in the school district had grown steadily for the 10 years prior to the study, with 5,543 students enrolled in the district's 11 schools at the time of data collection. The district had one high school campus, with four small interest-focused high schools and one alternative high school program. Additionally, there were two middle schools and four elementary schools. The school from which these data were reported was the largest of the elementary schools, with 900 students enrolled. This school contained a dual-language Spanish/English program, a dual-language Russian/English program, and an English plus program.

One of the defining aspects of the district's culture was a commitment to bilingual education. Comprehensive dual-language programs in English/Spanish were offered in every school and an English/Russian strand was also offered K-12. The purpose of the dual-language program in this district was not simply to transition to English, but to develop high-level language and literacy skills in two languages. All teachers were expected to see themselves as language teachers and to incorporate sheltered techniques and language objectives into every lesson to support the language acquisition of all students.

The model of bilingual education employed in this school was a 75/25 additive dual-language model, meaning that 75% of the students' instruction was delivered in Spanish, and 25% of the instruction was delivered in English in kindergarten. Each consecutive year thereafter, the amount of instruction in Spanish decreased slightly, while the amount of English instruction increased slightly. By third grade, instruction was 50% in English and 50% in Spanish, and this language of instruction distribution continued through the end of fifth grade, with at least two periods each day taught in Spanish to each student through high school graduation.

Participants

The extant data set contained the results of third grade students enrolled in the Spanish/English dual-language program at one elementary school. This study examined the results from three cohorts of third grade students, one cohort from the 2009-10 school year, the second cohort from the 2010-11 school year, and the third cohort from the 2011-12 school year. I made an *a priori* decision to only include students in the sample who fit all of the key research criteria including (a) enrolled in dual-language English/Spanish

instruction for at least three years, (b) had scores from state assessment in reading, and from the winter administration of R-CBM and Spanish-CBM, and (c) identified home language of either English or Spanish.

The original data set of third graders contained information from 403 students. First, I excluded 123 students from the sample for not being enrolled in the dual-language English/Spanish program. Next, I excluded 69 students who were enrolled for fewer than three years. The rationale for this decision was to examine students who had experienced dual language instruction during their formative literacy development of the primary grades. I then excluded six students for having a home language other than English or Spanish. Finally, 10 students who had participated in reading state assessment through the Extended Assessment rather than the OAKS test were excluded, bringing the final number of participants to 195 students, 20 of whom spoke English as their first language and 175 of whom spoke Spanish as their first language. The *n* of these three cohorts is as follows: 77 students from 2009-10, 75 students from 2010-2011, and 43 students from 2011-12, as seen in Table 2.

Table 2

Sample Participation Cohorts by School Year

Frequency	2009-10	2010-11	2011-12	Total
n	77	75	43	195
%	39.5	38.5	22.1	100

The home language or L1 (first language) of the sample participants are illustrated in Table 3. Only participants with an L1 of English or Spanish were included in the

sample. Students with home languages of Russian, Mixtexcan, Zapotan, or other languages were excluded from this study. The number of students in the sample with Spanish as the home language (n =175) was far greater than the number of students with English as the home language in this sample (n = 20).

Table 3

Home Language (L1) of Sample

Language	n	Percent
English	20	10.3
Spanish	175	89.7
Total	195	100

Race/ethnicity characteristics of the sample are summarized in Table 4. This sample was predominantly identified as in the Hispanic/Latino group, with 182 participants (93.3%) counted in that group. Eight students (4.1%) were identified as white. The final three groups represented in the sample were two (1%) students in the Black/African American group, one (.5%) student in the Pacific Islander group, and two students (1%) for whom race/ethnicity was unknown. No students in the sample were listed as Asian or Native American; therefore, these groups are not included in the table.

Table 4

Summary of Race/Ethnicity of Sample

Ethnicity	HL		*n*	Percent
	Eng	Span		
White	8	0	8	4.1
Hispanic/Latino	9	173	182	93.3
Black/African American	2	0	2	1.0
Pacific Islander	1	0	1	.5
Unknown	0	2	2	1.0
Total	20	175	195	100

Note. HL = home language. Eng = English. Span = Spanish

Finally, other key demographics of interest, including limited English proficiency (LEP) status, gender, and special education status, are summarized in Table 5, and are again noted by HL. As stated previously, individual student data regarding eligibility for FARM was not available, and the actual percent of students eligible for FARM district-wide could range from 81% eligible to 100% eligible. All of the L1 English students were non-LEP. Of the 175 L1 Spanish students, 5 entered school fully fluent in English and were non-LEP. An additional 22 of the L1Spanish students entered school classified as LEP, but had achieved English fluency at some point in the last two school years, and are therefore considered reclassified LEP students. The remaining 148 students are currently classified as LEP. This means that 97% of the students in the L1 Spanish group would be counted as LEP in the reporting of OAKS scores (Oregon Department of Education,

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2010). Of the total 195 students in the study, nine students qualified for special education

programs (SPED), while the remaining 186 did not qualify for SPED. The gender

distribution of the sample was fairly evenly split, as 50.3% of the participants were male

and 49.7% were female.

Table 5

Summary of SPED, Gender, and LEP Status

Characteristic	HL		*N*	%
	Eng	Span		
SPED Status				
SPED	3	6	9	4.6
Non-SPED	17	169	186	95.5
Gender				
Male	7	91	98	50.3
Female	13	84	97	49.7
LEP Status				
Non-LEP	20	5	25	12.7
Reclassified LEP	0	22	22	11.2
Current LEP	0	148	148	76.1

Data Collection Procedure

As the data proposed for this study came from an extant data set, I gathered information regarding the procedures followed when the assessments were administered. Information was provided by the district's special education coordinator, the building principal, the building Title 1 teacher, a sampling of classroom teachers from the building, and a sampling of the assessors.

A group of eight paraprofessionals and three certified teachers participated in one day of training on the standard assessment procedures for PRF the week prior to administration. The training consisted of the written materials and video practice sessions listed on the AIMSweb website under training materials. Training included an emphasis on scoring rules, including how to score insertions, deletions, mispronunciations, and self-corrections. The assessors also participated in a number of exercises designed to develop inter-rater reliability, where all assessors would score the same student on a video clip and then compare results. Assessors were given a script for providing standardized directions to the students, as well as timers. In cohort one, the assessors recorded results on paper and later transferred these data to the AIMSweb data input site. In cohort two, assessors were provided laptops and used the browser-based scoring option that allowed the scores to be input directly into the AIMSweb data input site. This assessment team flooded into the primary classrooms to complete the assessment of the all first, second, and third grade students in PRF in both English and Spanish within three weeks. Assessors administered only the S-PRF or the E-PRF, depending on which language was stronger for the assessor, so students had a different assessor for the E-PRF than the S-PRF.

The standard procedure for the assessor was to enter the classroom and quietly call one student at a time to accompany the assessor to a station in the hallway to complete the assessment. Administration of the PRF only occurred during class time, to minimize distractions from hallway traffic. Classroom teachers were not involved in the administration of the PRF measures. Administration of the measures took place over a period of three weeks from when the first student participated until the last student was assessed. The passages that were used in administration were the benchmark passages that are only released to the district test administrator during a one-month window of time in fall, winter, and spring for security reasons. Each student read the same passage of text designated per window.

Administration of the state reading assessment, OAKS, followed the administration procedures outlined in Test Administration Manual (Oregon Department of Education, 2011). All test proctors were required to complete training on test administration and security. The OAKS assessments were primarily administered in class groups within a computer lab. Students were given chunks of time, from 30 minutes to 60 minutes, to complete the test, and were given as many additional time slots as necessary to complete the assessment. Students were given standard directions about reading a passage of text and then answered multiple-choice questions that followed the text. Accommodations, such as a quieter setting or having the directions read aloud to students, were administered on an individualized basis. No documentation of any use of accommodations was available in the extant data set.

Measures

The three measures used were the OAKS assessment, the AIMSweb E-PRF, and the AIMSweb S-PRF. Students had opportunities to take the OAKS assessment three times during the year during a fall, winter, and spring window, but may have only taken the assessment once. The data set provided the highest score, but no information as to when this score was obtained or if the student had taken the assessment more than once. Rather, for the OAKS, simply the highest score was reported. In regards to the PRF assessments in English and Spanish, all students in the sample took these assessments three times, once in each of the fall, winter, and spring windows. Because of the difficulty in knowing the time of the OAKS assessment, I chose to use the winter PRF scores in English and Spanish. One major difference in the measures that were administered is that the PRF measures were administered in a one-on-one situation, where one adult was sitting with the student and directly scoring the student's responses, whereas the OAKS test is administered on the computer, where students may have very little interaction with adults and are proceeding at their own pace.

AIMSweb PRF

The PRF assessments by AIMSweb examined in this study are known in English as R-CBM and in Spanish as Spanish CBM. The formats of these two measures are essentially the same, with the proctor providing standardized directions to a student individually and the student then reading a passage aloud for one minute. Each of these passages is of similar length and readability level.

The R-CBM passages were developed by Howe and Shinn (2002) with a group of educators. Length of passage, number of syllables, and readability levels were controlled

for to create as much consistency as possible across passages (AIMSweb, 2012).

Readability levels were scored across several scales, including Lexile and Fry Readability

scales, with all of the benchmark probes found to have consistency of >.92. Test/retest

reliability for R-CBM was established through a sampling of 1000 students, selected to

be representative of the national population on race/ethnicity, gender, and free and

reduced lunch status, with the test/retest correlation for all students at >.93 (AIMSweb,

2012). Shapiro, Keller, Lutz, Santoro, and Hintze (2006) examined criterion validity for

R-CBM measures by comparing R-CBM for collected data with scores on group reading

tests administered in the spring of the same grade, with all correlations significant, $r > .65$.

The scores for the AIMSweb PRF measures, both R-CBM in English and

Spanish-CBM, are reported in terms of the number of correct words the student read in

one minute. The total number of words read correctly in that minute is scored, and

information is provided comparing that student's scores to aggregate and national norms

collected through AIMSweb. However, the process for selection of inclusion in the

national norms set are explained only for the English R-CBM (AIMSweb, 2002), while

norms for Spanish-CBM are not provided. AIMSweb passage fluency measures have

shown reliability both in alternate forms and in test-retest situations over four months

(Daniel, 2010). At the third grade level, the mean of reliability for the three benchmark

probes (fall, winter, spring) for the year is .94. Correlations between the adjacent probes

for test-retest reliability show fall-winter is .94 and winter-spring is .95. These statistics

of technical adequacy refer specifically only to the English versions of PRF in AIMSweb,

but the technical manual reports that similar procedures were used in developing the

Spanish measures (Shinn & Shinn, 2002).

OAKS

The other measure in this study the Oregon Assessment of Knowledge and Skills (OAKS) for Reading Grade 3, which is a criterion-referenced test aligned to the Oregon State curriculum standards for the third grade (Oregon Department of Education, 2012). At the third-grade level, text passages average 150-250 words in length, introduced by a title and short introduction to provide context to the passage. The passage is then followed by questions or tasks that have four possible answer choices from which the student must select the best answer. Raw scores are converted electronically into a scaled Rausch unit or RIT score, with indication as to whether a score *meets*, *exceeds*, *nearly meets*, or *does not meet* the grade-level expectation. The RIT score ranges from 150-300 (Oregon Department of Education,). During the time frame that these data were collected, students could take the assessment up to three times during the school year without penalty or parental permission.

Items in the OAKS test are crafted to represent diverse levels of cognitive demand; however, all items are selected-response to passages representing literature, informational text, and practical reading. The OAKS assessment is delivered via computer, which enables test adaptability functions, where the difficulty of the items changes depending on the student response (Oregon Department of Education, 2011). The pools of test items provide a range and breadth of item difficulty, and the test pools pull from 450-500 items (Oregon Department of Education, 2011).

Allowable resources for students, including English language learners taking the OAKS, include additional time, the option of a quiet setting, or having directions read aloud. In 2009, a Spanish version of the third grade level OAKS was piloted, and

approved for limited use in the 2010-11 school year. Outside of that, all items, directions, and response choices on the OAKS Reading test are in English (Oregon Department of Education, 2011). Participants in this study took the OAKS only in English.

Construct validity of tests refers to the degree to which an assessment measures the construct, or learning concept, it intends to measure. The Oregon Department of Education (2001) reports the correlation between OAKS and the Iowa Test of Basic Skills at .78, and OAKS and the California Achievement test at .75. Additionally, as a criterion referenced assessment, OAKS items are carefully aligned with the state of Oregon's curriculum standards (Oregon Department of Education, 2011). Taken together, these data lend credence to the construct validity of the OAKS assessment as an indicator of overall reading skills for third grade students.

Data Analyses

Correlations were examined for the strength of the relation between scores on PRF in English and in Spanish and scores on OAKS. More specifically, the strength of relations between the E-PRF and OAKS, between S-PRF and OAKS, and between E-PRF and S-PRF were examined. Home language, either English or Spanish, was considered in the study as a blocking factor. In other words, correlations were examined not only for the entire sample, but also by home language. Correlation analyses examined whether better or poorer scores on one measure were associated with better or poorer scores on another measure.

Sequential multiple linear regression analyses were conducted to examine the combined association between performance on PRF in English and Spanish and performance on the OAKS. The purpose of these analyses were to help answer the

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question *in a dual-language environment, in the fourth year of instruction in two languages, to what extent do the PRF scores in both languages do a better job of predicting OAKS performance than either score alone?* In addition, an additional multiple regression model exploring the potential moderating effect of home language was examined.

CHAPTER IV

RESULTS

Prior to answering the research questions, the data were examined descriptively both statistically and visually. Descriptive statistics included the mean and standard deviation for student performance on each measure. Histograms were examined around the distribution of scores for each measure and each group. The dependent variable in all analyses was the third grade reading OAKS score. The independent variables were R-CBM and Spanish-CBM, and were disaggregated by home language. To add specific information regarding the research questions, correlations and multiple regression statistics were used. All statistical analyses were conducted using SPSS version 20.

Descriptive Statistics

I examined the descriptive statistics of means, standard deviations, and minimum and maximum scores for the entire sample. As stated earlier, I made an *a priori* decision to only include students in the sample who fit all of the key research criteria including (a) enrolled in dual-language English/Spanish instruction for at least three years, (b) identified home language of either English or Spanish, (c) had scores from state assessment in reading, and from the winter administration of R-CBM and Spanish-CBM.

Descriptive statistics for the total 195 student sample are displayed in Table 6. It is notable that the scores on the S-PRF had a lower mean and maximum for both the L1 English group and the L1 Spanish groups. The means of the OAKS scores, which is an English assessment, are perhaps less surprising, with the L1English group having a higher average score, $M = 212.85$, than the L1Spanish group, $M = 203.75$. Note that the

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means of the E-PRF and S-PRF are about the same for the L1 Spanish group (E-PRF M =72.35, S-PRF M = 73. 96), while the means of the E-PRF and S-PRF scores are very discrepant for the L1 English group (E-PRF M = 92.65, S-PRF M = 59.35).

Table 6

Descriptive Statistics of Assessment Results

Sample	Assessment	n	Min	Max	*M*	*SD*
Total	OAKS	195	177	234	204.69	10.02
	R-CBM	195	6	207	74.44	31.77
	Spanish-CBM	195	2	162	72.46	24.01
L1 Spanish	OAKS	175	177	234	203.75	9.74
	R-CBM	175	6	207	72.35	30.70
	Spanish-CBM	175	2	162	73.96	23.52
L1 English	OAKS	20	200	232	212.85	8.84
	R-CBM	20	37	159	92.65	35.86
	Spanish-CBM	20	4	106	59.35	24.81

To better understand the distribution of the scores of the total sample, the score distribution in a visual format was examined using histograms. Though none of these distributions show a perfectly bell-shaped curve, all three distributions are approximately normal. These figures are found in Appendix A.

Understanding of the AIMSweb PRF scores may be difficult without additional context. To support understanding of these descriptive statistics, I compared the means of the total sample to the AIMSweb published norms (AIMSweb, 2012). These norms are taken from winter of third grade, the same time period as the sample data, and are

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displayed in Table 7. The mean of this study's sample for Spanish CBM, $M = 72.46$, is almost identical to the national norm for this measure published by AIMSweb, $M = 73$. However, in regards to the E-PRF assessment, R-CBM for this sample has a mean that is 24 correct words per minute lower than the published AIMSweb norms ($M = 74.44$ and $M = 97$ respectively). Considering that the majority of the participants in this sample were English language learners may play into the difference in these means.

Table 7

Comparison of Sample to AIMSweb Norm Table

Measure	Sample M	Sample n	AIMSweb M	AIMSweb n
R-CBM	74.44	195	97	69394
Spanish CBM	72.46	195	73	1644

Inferential Statistics

Linear correlations and multiple regression analyses were conducted to answer the research questions. Specifically, the correlations of R-CBM and Spanish CBM with each other and with the OAKS were examined for the full sample as well as comparing these relationships between students' whose home language was English to those whose home language was Spanish. In addition, a sequential multiple regression was conducted to examine the question of whether adding an interaction between home language and PRF increased the of state assessment results within a dual-language context.

Correlations

Correlational analyses helped to answer the first three research questions: (1) *what is the relation of E-PRF to S-PRF? (2) what is the relation of E-PRF to state assessment in English reading for both L1 English and L1 Spanish students? (3) what is the relation of S-PRF to state assessment in English reading for both L1 English and L1 Spanish students?*

To investigate if there was a statistically significant association between each variable, linear bivariate correlations were computed. Table 8 summarizes those Pearson's correlations using two-tailed significance tests for the total sample, as well as home language-based subsamples. The correlations were significant between all measures for the total sample, $p < .001$. The correlation between Spanish reading fluency and OAKS performance was lower than the English reading fluency and OAKS for the total sample. Of particular interest in the correlation results are the E-PRF relation to OAKS scores for both the L1 English and the L1 Spanish groups. Both groups show a strong relationship, $r > .6$, and for both groups this relation has statistical significance, $p < .001$.

Table 8

Correlations Between Measures

		OAKS	Eng PRF
Total *n = 195*	English PRF	.626***	
	Spanish PRF	.427***	.651***
L1 English *n = 20*	English PRF	.623**	
	Spanish PRF	.393	.593**
L1 Spanish *N = 175*	English PRF	.608***	
	Spanish PRF	.519***	.729***

*** *p <.001, **p <.01*

The relation between S-PRF and E-PRF is also notable. For all students, this relation is strong, $r = .651$, $p < .001$. A visible representation of this relation is shown in the scatterplot, Figure 1. This shows a high positive correlation between reading fluency in English and Spanish for the participants in this study. The relation of S-PRF to OAKS is positive for all students, though the results differ somewhat by home language. For L1 Spanish students, the correlation is even stronger than for the whole sample, $r = .729$ and is statistically significant at $p < .001$. The relation for L1 English students is slightly less strong than it is for all students, $r = .593$, but is also statistically significant ($p < .05$).

Figure 1

Relation of E-PRF and S-PRF Scores by Home Language
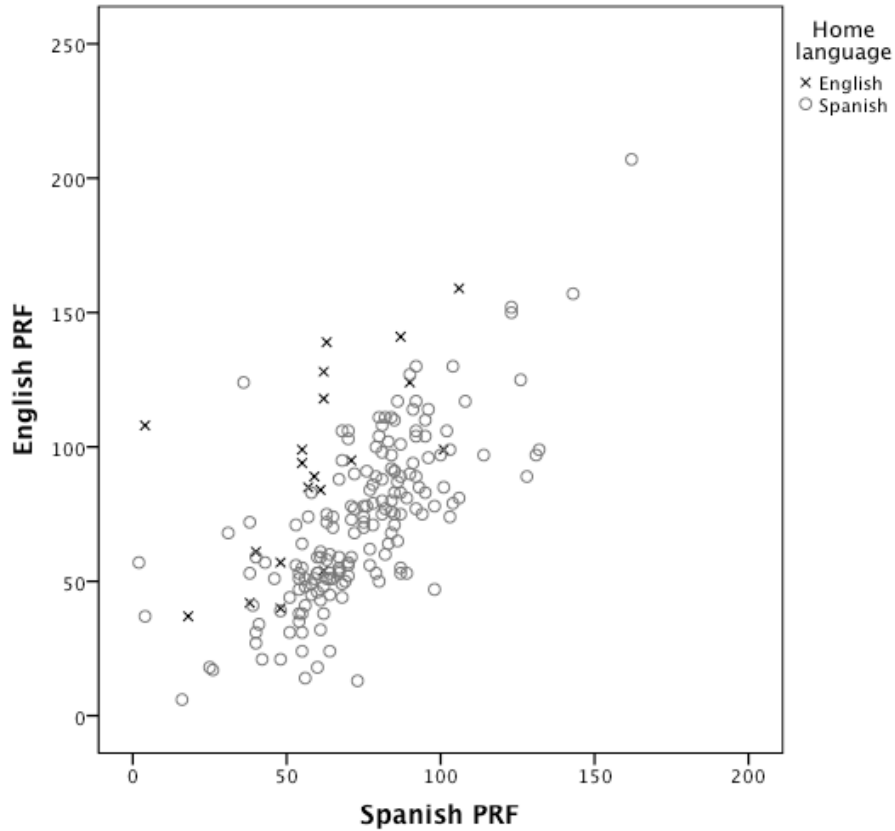
The relation of E-PRF and S-PRF results can also be examined by cohort year.

Figure 2 shows the distribution of the correlation for students in each year of data

collection 2009, 2010, and 2011. The most significant outliers in correlational scores all

appear to be from the first year of data collection.

Figure 2

Relation of E-PRF and S-PRF Scores by Cohort Year
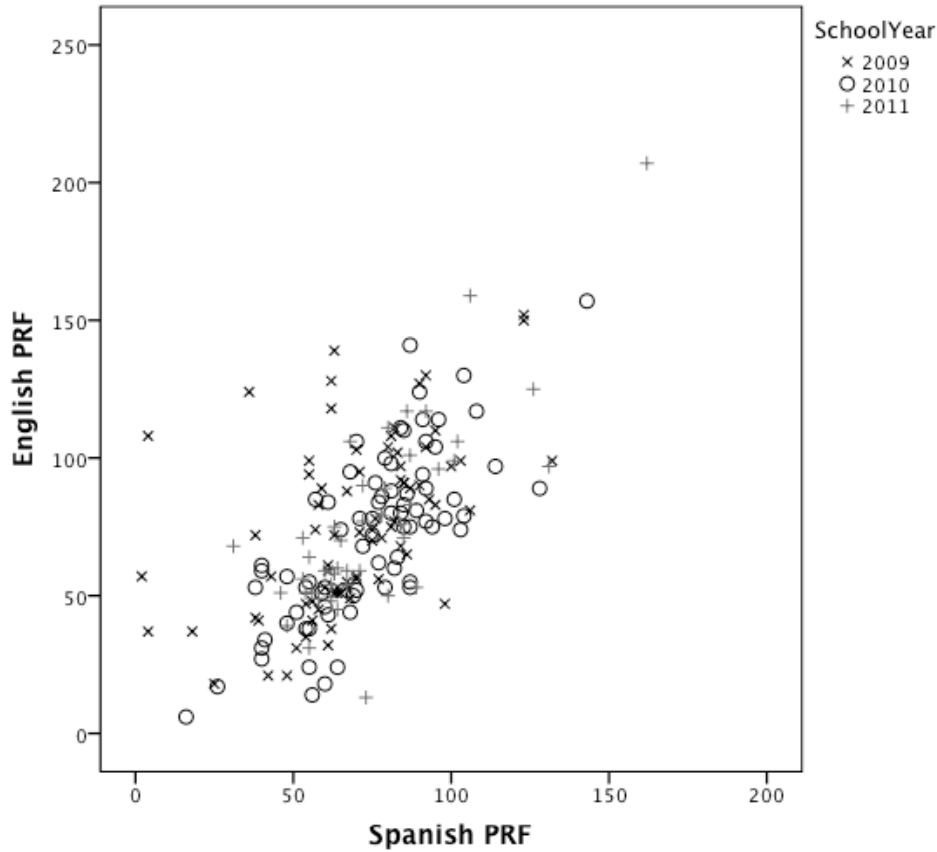
Multiple Regression

A sequential multiple regression was run to investigate the following two

questions: (4) *how well do E-PRF and S-PRF predict performance on English OAKS* and

(5) *does the interaction of home language and PRF increase the ability to predict OAKS*

achievement within a dual-language context? In running the regression, OAKS was the

dependent variable, and the independent variables were considered in the following

order: (a) E-PRF, (b) S-PRF, (c) home language, and then (d) the interaction of home language with both types of PRF.

Regression results. The results of the regression analysis are displayed in Table 9. Results indicate that E-PRF was predictive of OAKS performance in Model 1, and it was statistically significant at $p < .001$. Beta coefficients frame understanding of the slope of change of the variables' interaction, and the standardized beta coefficients allow comparison of the variables in a scale-free context. The standardized Beta coefficient for English PRF, $\beta = .626$, may be interpreted such that every time the E-PRF score is raised by one standard deviation, .626 of the standard deviation of OAKS score would also increase. This coefficient is significant, $p < .001$. However, adding the variable of S-PRF in Model 2 did little to increase the power of the model, with the change to R^2 showing that only an additional .001 of the variance is explained through the addition of this variable, and this was not statistically significant. The variable of home language r^2 does provide some additional strength to the model, with $\beta = .208$, $p < .001$ and does provide some more explanation of variance, with r square change of .033, $p < .05$. Factoring in the interaction between HL and PRF did not add to the power of the model, with a Beta coefficient of $\beta = -.106$, and ΔR^2 of only .002. The constant, or intercept, is the expected value of the independent variable when the value of all the independent variables is zero. In this case, the constant would identify the OAKS score for a student who had a score of zero on both the E-PRF and S-PRF assessments. There are no scores of zero for several of the dependent variables in this data set. Therefore, the constant for this regression is not interpretable and is not reported Table 9.

Table 9

Model Summary

Step and predictor variable	B	$SE\ B$	β	R^2	ΔR^2
Step 1:					
E-PRF	.198***	.018	.626	.392***	.389***
Step 2:					
E-PRF	.191***	.023	.604		
S-PRF	.014	.031	.034	.393***	.001
Step 3:					
E-PRF	.155***	.025	.491		
S-PRF	.061	.033	.146		
Home Language (HL)	6.845***	2.024	.208	.427**	.034**
Step 4:					
E-PRF	.155***	.028	.493		
S-PRF	.067	.036	.160		
Home Language (HL)	10.797	5.549	.328		
HL Interaction with S-PRF	-.007	.067	-.022		
HL Interaction with E-PRF	-.054	.095	-.106	.429	.002

*** $p < .001$, ** $p < .01$

Collinearity and constant issues. As multiple regression is a statistical analysis to predict the values of one variable on the basis of several other variables, it is important to analyze the independent variable for multicollinearity. Collinearity, which describes the degree to which two variables are redundant, is problematic in regression analyses because it may make the results difficult to interpret. Variables that have above a .90 correlation are likely too closely related to be viewed as independent variables in a multiple regression analysis. As evidenced in Table 8, the correlations among the first

two independent variables (E-PRF and S-PRF) are not > .90. The last variable of the interaction between home language and PRF would be expected to show indications of collinearity because of the nature of interaction variables.

Tolerance and variance inflation factor (VIF) were also examined for indications of excessive collinearity. Under this lens, as well, there were no indicators of concern, with the exception found in the combined factor variables, which is expected. Tolerance levels, where values closer to one indicate the least concern with collinearity, ranged in the first three models from .594 to .821. The last model in the multiple regression included the combined variables of home language and PRF, and tolerance levels dropped to .075 and .088, but again with the nature of combining variables this is not surprising. VIF indicators were all less than 2.0 in the first three models, with only the HL and HL PRF combined variables in model four rising to 13. Therefore, issues of collinearity appear unlikely to have influenced the regression results.

Summary

The descriptive statistics, correlational analysis, and multiple regression model all illuminated points that will be important to examine. The mean of the total sample in this study on the S-PRF ($M = 72.46$) is similar to the national norm for Spanish ($M = 73$); where as the mean of the sample in this study on the E-PRF ($M = 74.44$) is lower than the national norm for English ($M = 97$). Additionally, the means of the English and Spanish PRFs are about the same for the L1 Spanish group (E-PRF $M = 72.35$, S-PRF $M = 73.96$), while the means of the English and Spanish PRF scores are very discrepant for the L1 English group (E-PRF $M = 92.65$, S-PRF $M = 59.35$).

The correlation coefficients indicated a strong relation between the E-PRF and

OAKS for all students, *r* =.*626.* This relation held whether the students' first language

was English, *r* = .623, or Spanish, *r* = .608. The correlation coefficients between S-PRF

and OAKS in the total sample would still be considered moderate, *r* = .427, but results

for the L1 English subsample showed a slightly weaker correlation, .393, while the

relation was stronger for L1 Spanish students, *r* =.519. PRF was strongly positively

correlated between English and Spanish for all students (*r* = .651***) and L1 English

students (*r* = .593**) , though again it was stronger for L1 Spanish students *(r* =

.729***)

     The model used for the sequential multiple regression analyses revealed that E-

PRF was the strongest variable in predicting achievement on OAKS. Specifically, adding

S-PRF scores did not increase the predictive power of the model. Home language of the

student did provide additional information to the prediction of student performance on

OAKS. Moreover, the interaction of HL and PRF in both languages did not increase the

power of the model.

CHAPTER V

DISCUSSION

The results of the study are discussed here with respect to the research questions

and in the context of current understandings of assessment of reading skills within a dual-

language context. In the following sections, I (a) review findings from the current study,

(b) connect findings to previous research (c) address the limitations of the study, and (d)

consider implications for future research.

This study was conducted to gain information about the assessment of reading

skills at the third grade level within a dual-language English/Spanish context and focused

on several research questions all to be considered within that instructional framework.

The usefulness of CBMs increases when skills being measured are related to performance

on state assessments (Good et al., 2001), and little has been explored about the validity of

interpretation of CBMs in a dual-language context. More specifically, in light of the

increasing use of CBMs in schools as tools to assess students' reading abilities and as

predictors of achievement on state reading tests, it is important to understand their

relevance to specific groups of students and particular instructional models. The

complexity of language acquisition, and how language proficiencies interact with literacy

development, requires specific examination of the validity of assessment tools within that

context.

Summary of Findings

The results of this study provide information on all of the research questions

explored. In answer to the first research question focusing on the relations between E-

PRF and S-PRF, findings from the current study suggest that PRF in English and in

Spanish are highly related in a dual language context. PRF scores across English and Spanish were strongly correlated for all students participating, but this relation was strongest for students who were L1 Spanish students. In answer to the second research question regarding the relations between E-PRF and performance on a state accountability test of reading, E-PRF was a strong predictor of performance on OAKS reading assessment for all students in the dual language program. Of particular note was the strength of this relation for L1 Spanish students. In contrast, S-PRF was less strongly correlated to OAKS scores than was E-PRF for all students, even though it was a stronger predictor for L1 Spanish students than it was for L1 English students. In answer to the third research question regarding the degree to which S-PRF might additionally predict state test performance beyond what E-PRF predicted, the current study did not reveal any such additional predictive power. Finally, in relation to the fourth research question focused on whether students' first language might affect the relations between E-PRF and state test performance or S-PRF and state test performance, again findings suggested that no such differential relations. The interaction between home language and PRF scores did not enhance the prediction of OAKS scores. In sum, the current findings suggest that E-PRF is equally predictive of state test performance for all students' regardless of whether their L1 is English or Spanish.

Connections to Prior Research

Understandings of English PRF

In this study, PRF in English is shown to be a strong predictor of performance on state reading assessments at the third grade level for students who are enrolled in a dual-language English/Spanish program regardless of whether their home language was

English or Spanish. These results were supported both by correlational and multiple regression analyses. E-PRF was the strongest indicator of performance on the OAKS assessment in this study and was not moderated by the student's first language.

Reading fluency is perhaps the most widely researched CBM. Study findings have consistently shown strong correlations between the scores on one-minute PRF measures and performance on state assessments (Baker et al., 2008; Silberglitt et al., 2006; Wood, 2006), though the context of these studies focused on monolingual English speakers. Reschly et al. meta-analysis findings showed a correlation for E-PRF to state assessment at .77, and this study had correlation of E-PRF to state assessment at .626. Though the correlation of this study is slightly weaker, it is consistent with previous findings of E-PRF, providing evidence that E-PRF scores are useful tools in predicting reading achievement on state assessments within a dual-language context as well.

English PRF for ELLs. Of particular note in these findings is the strength of the relation between E-PRF and the state reading assessment for students whose L1 is Spanish. The results of this study indicate that E-PRF is a strong predictor of achievement on state reading tests for students whose L1 is Spanish and who are receiving literacy instruction in a dual language context. As clarified previously, all but six of the L1 Spanish students in this sample are considered to be LEP status or ELLs. This means that though not all of the L1 Spanish students are ELLs, 97% of the students in the L1 Spanish group are ELLs, and allows us to at least consider the results of the L1 Spanish group in relation to previous research with ELLs. The number of LEP students in this study was large in comparison to most previous research. For example, Crosson and

Lesaux (2009) examined results for 76 students, all of whom where ELLs, whereas Wiley and Deno (2005) examined results for 29 ELLs within their research.

As stated previously, the majority of research examining the predictive validity of PRF to other reading comprehension measures has not focused on students who are ELLs. Researchers that have examined E-PRF for ELLs have found mixed results. There are some studies that found strong connections between reading fluency and comprehension measures for ELLs (e.g., Wiley & Deno, 2005), while others demonstrated that this connection was not robust for ELLs (e.g., Crosson & Lesaux, 2009). The third grade results of the Wiley and Deno noted a correlation of .61 for ELL students, which is consistent with the results of this study, .608 for the Spanish L1 group which is majority ELL. Crosson & Lesaux's study, found text reading fluency correlated at .619 to reading comprehension which also appears consistent with the findings of this study, but Crosson & Lesaux also found that English reading fluency was less predictive of reading performance than other variables when examined within a hierarchical nested regression. This latter finding has no correlate in this study because additional measures were not available.

English PRF for L1 English in Dual-Language Context. Another notable result of the current study is the E-PRF correlation to OAKS for L1 English students. Although the relation of E-PRF to broader measures of reading performance has been well documented (Reschly et al., 2009; Sibley et al., 2001), none of these studies have looked at L1 English students in a dual-language instructional context. The students in this study had the majority of their literacy instruction in Spanish for their four years of school enrollment, yet the mean for this subgroup sample on the R-CBM was 92.65

cwpm, which is very close to the mean for the national norm sample published of 97

cwpm for the winter of third grade for the CBM used (AIMSweb, 2012). In the dual

language program studied, explicit instruction does occur in English literacy, but

significantly less instructional time is spent in English for students in this program than in

a typical school in the United States. On average, L1 English students enrolled in dual-

language instruction in this study performed at similar levels to national averages for

students on E-PRF.

Understandings of Spanish PRF

Spanish reading fluency was a moderate predictor of performance on the OAKS

reading assessment in English within a dual-language context. The positive correlation of

S-PRF to OAKS may be interpreted as having moderate predictive validity in considering

performance on OAKS. However, it may be that the reason that Spanish is correlated to

OAKS is its relation to E-PRF. E-PRF is correlated to OAKS for all students, and once

the E-PRF to OAKS relationship is controlled for, performance on the S-PRF had no

additional power to explain the OAKS score.

One way to consider the findings of this study is to understand if one started with

S-PRF information as a predictor of OAKS performance, there would be some predictive

power. The prediction would become much stronger, however, if E-PRF scores then

added into the calculation.   However, the reverse would not be true. If one started with

E-PRF to predict OAKS, adding in S-PRF would not make it a stronger predictor, as was

demonstrated in the multiple regression model.   These findings may reinforce the results

of Baker et al. (2010), who found that reading fluency scores were a strong predictor of

reading performance in the same language but not cross languages in a dual language setting.

The examination of validity of interpretation of S-PRF scores is still a fairly emergent field, in comparison to that of E-PRF scores, though several significant studies in the last seven years have provided strong information (Baker, Cummings, Good, Smolkowski, 2007; Baker, Park, & Baker, 2010; Dominguez de Ramirez & Shapiro, 2006, 2007). Findings on Spanish CBMs have shown some promising results, but have by no means consistently indicated that Spanish CBMs may be validly interpreted in terms of predictive validity on Spanish reading outcome measures. In fact, questions have been raised as to the application of CBMs for native Spanish speakers (Escamilla, 1994), while other studies have underlined the importance of Spanish CBMs being developed in ways that are consistent with the structure of Spanish rather than translations of English measures (Alonzo et al., 2008; Rhoades, 2009). The results of the current study are limited in value towards this developing further understanding on the value of S-PRF in predicting overall reading performance in Spanish as the design did not include an outcome measure in Spanish.

One finding across the research regarding reading fluency in Spanish is that the average number of correct words per minute in Spanish is lower than the average number of correct words per minute in English (de Dominguez de Ramírez & Shapiro, 2006; Sandberg & Reschley, 2012). The current study partially corroborates such findings: L1 English speakers demonstrated this pattern with a slower mean S-PRF rate than E-PRF rate. However, L1 Spanish speakers read at essentially the same rate in both languages. Of note is the fact that L1 language speakers were nearest the normative mean rate for

their first language, but not their second. For example, the L1 Spanish mean for S-PRF in winter was almost identical for the national average for AIMSweb Spanish reading passages in winter (AIMSweb, 2012) and the IDEL reading passage for winter benchmark recommendation (Baker et al., 2007), but L1 English speakers were well below these national averages. As stated by Good et al. (2007) "Spanish has, in general, longer words than English. Therefore, a child may read fewer words in one minute in Spanish than in English, although he/she may have recognized the same number of syllables in words when reading a passage" (p. 3). The results of this study may reinforce the idea that the morphographic differences between Spanish and English, have implications for reading fluency expectations for L1 English speakers, including understanding that the fluency scores that indicate proficiency in Spanish may be lower than those that indicate proficiency in English. Without further detail on the development on the AIMSweb passages, it is unclear how to interpret the inconsistent results for L1 Spanish speakers. Future research will require far greater transparency regarding the nature and development of passages for PRF measures for the true mechanisms underlying these findings to be understood.

The question of the relation of S-PRF to OAKS has several different variables involved in it. The results of this study indicate that scores on S-PRF do have a moderate relation to OAKS scores. As demonstrated by the multiple regression, E-PRF scores are clearly a stronger predictor of OAKS English reading performance, whether the student's first language is English or Spanish. Therefore, in a dual-language context, E-PRF would be the preferred assessment tool for understanding and program planning in the area of meeting state reading benchmarks in English.

However, it is critical to consider other uses for S-PRF scores in a dual-language context, where the long-term goal is that students will perform at high levels of academic proficiency in both English and Spanish (Collier & Thomas, 2004). In such a context, teachers need tools to support the Spanish reading development of all their students. S-PRF may be a time-efficient way for teachers to gain information regarding students' overall performance of reading in Spanish and to inform their instruction, as has been established in English (Crawford, Tindal, & Steiber, 2001; Fuchs & Fuchs, 1986). For schools adopting an RTI approach to identify students early for any necessary additional supports in developing Spanish literacy, S-PRF may be a useful tool (Baker et al., 2007; Espin, Shinn & Busch, 2005; Kaminski & Good, 1996).

In fact, there is evidence that it may be even more critical to pay attention to Spanish literacy development than English reading in a dual-language context. Proctor et al. (2010) found evidence that within a dual-language context, L1 Spanish students who received Spanish language instruction were losing Spanish literacy skills relative to overall literacy growth rates. The researchers stated, "Heritage language loss is described as paradoxical because Spanish and English reading skills are intertwined and biliteracy is associated with better economic opportunities for Latino/as in the U.S. job market" (p. 1). Knowing that monitoring the progress of skills is one of the most effective ways to have educators attend to a particular subject (Fuchs & Fuchs, 1986), having tools to monitor Spanish reading development frequently and effectively may be critical to long-term outcomes of bilingualism.

Understandings of PRF Cross-Linguistically

Proctor and Silverman (2011) point out the difficulty of interpreting literacy assessments within a dual-language context because of the inherent confounding of literacy and language acquisition happening simultaneously. The strength of the relation between reading fluency in English and Spanish in this study is notable. One may consider the theoretical framework of linguistic interdependence, as espoused by Cummins (1991). In this theory, underlying proficiencies of language and literacy are most easily developed in the child's first language and, once mastered, are likely to manifest in additional languages learned. Linguistic interdependence provides the rationale for the pedagogical approach to supporting ELLs through developing literacy in home first language first, as a vehicle to building stronger English literacy skills in the future. The strength of the relation of PRF in English and Spanish in this study may support the linguistic interdependence theory in that students who tend to be proficient readers in English also tend to be proficient readers in Spanish within a dual-language context.

Though there are many similarities between the linguistic structures of Spanish and English, Spanish is a much more transparent orthography than English, with regular syllable sound relations that are consistent (Baker, 2010). So, when students are learning within a dual-language context, what might be the expected influence of the orthographic differences on reading fluency? There is evidence from research with bilingual adults that indicates readers' sensitivity to L2 orthographic regularity is influenced by the orthographic structures in their native (L1) language (Koda, 1996; Wang & Koda, 2007). This understanding could indicate that it may be more difficult for L1 Spanish students to

decode English accurately than for L1 English students to decode Spanish accurately. The L1 Spanish students in this study did have an E-PRF mean (i.e., 72.43 cwpm) significantly below the national norm mean for E-PRF (i.e., 97 cwpm). Orthographic challenges could play a part in this, though without a Spanish outcome measure to check the reverse inference, this claim is weak at this time, and could be more related to levels of English language acquisition.

The strength of relation between E-PRF and S-PRF was strong across all students, but it was strongest for L1 Spanish students. There are a number of plausible explanations for such a finding. For example, the contextual factors of this study's setting may underlie this finding. Despite the large number of L1 Spanish students, this data set, as with almost any data set in the United States, came from a school where English is the only official language and the language of power (Proctor et al. 2010). Within this setting, students are learning within a broader context of culture that is dominated by English. The media and culture outside of the school and town portray English as the language that will provide opportunities. Goldenberg and Gallimore (1991) discussed the important role of parental support in the early literacy development of Hispanic bilingual students, and families may emphasize development of English as more important than Spanish to enable their children to have full opportunities in the United States. It is likely that a study of similar design conducted in a dual-language context in a school in Mexico or Spain may have a different outcome, simply due to the greater cultural context. Alternatively, the particular context of learning within a dual-language program may confer value to the language through the programmatic structures and values in place, as well as the instructional time spent in each language.

Finally, this study examined the interaction of reading fluency and home language to see if the prediction of state test performance based on PRF depended to any extent on students' home language. The results of this study did not show the interaction of home language and reading fluency as adding any additional benefit to the predictive ability of E-PRF in relation to outcomes on state reading assessments. This finding held true regardless of whether the students' home language was English or Spanish. It is possible that the relative similarities between English and Spanish are connected to this result, in alignment with the contrastive analysis work of Melby-Lerväg and Lerväg (2011). A study conducted in a dual-language context with two languages that were more structurally disparate, such as English and Hebrew, might find more predictive value from looking at the interaction of factors. Alternately, the fact that reading fluency and home language did not moderate the predictive ability of E-PRF to OAKS, may be related to levels of language acquisition. Students in this sample have been immersed in the learning of both languages for at least three years. It is possible that for students who are in the earlier stages of acquiring a language, the interaction of E-PRF and home language for students may be a more important factor for educators to examine.

Understandings of the Dual-Language Context

As stated previously, the quantity of studies of PRF for ELLs and of PRF in Spanish are small. What further complicates the interpretation of these findings in relation to previous studies are the vast variations in instructional and research variables. For example, connections can be made to the Crosson and Lesaux (2009) study, because their work focused on the relation of PRF to reading comprehension in English for L1 Spanish students who had received some dual-language instruction. However, their study

examined the results for fifth grade students, who were instructed in Spanish and English in an model that was 80/20 (80% of the day in English, 20% of the day in Spanish) by fourth grade, and no Spanish instruction in fifth grade. Though the socio-economic variables of the Crosson and Lesaux (2009) study were similar to this study, the grade and instructional differences make it difficult to draw strong comparisons between the two.

The work of Wiley and Deno (2005) focused on students who were ELLs in both third and fifth grade. In this study, 80% of the ELL participants' first language was Hmong, 13% was Somali, and 7% was Spanish. Given the work of Melby-Lerväg and Lerväg (2011) positing that the levels of linguistic transfer co-varies with the structural similarities of the language, the results of Wiley and Deno's study may not be strong comparators to the results of this study. Additionally, there is no information given as to the instructional context in regards to L1 instruction or dual-language models if any in the Wiley and Deno (2005) providing even less variables to match with the current study in regards to interpreting results.

The Dominguez de Ramírez and Shapiro studies (2006, 2007) provided some information regarding instructional context. Students in these studies were enrolled in a *transitional bilingual* program, meaning some L1 instruction in Spanish was provided until students were fully fluent in English. This goal is quite different then the goal of a dual-language program that aspires to students achieving high levels of literacy and academic competence in two languages. Additionally, the Dominguez de Ramírez and Shapiro studies (2006, 2007) contained 68 L1 Spanish students from grades one through five, so these results are not necessarily aligned with the results of this study which only

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examined third grade. Dominguez de Ramírez and Shapiro (2006, 2007) compared the results of L1 Spanish students to L1 English students, but unlike this study, none of the L1 English students in their research were enrolled in a dual-language context.

In summary, the body of research in regards to PRF with ELLs and in Spanish is still in the neophyte stage in comparison to E-PRF for the general population, and at this point indicates more questions than answers. Replication of studies which control for important variables such as grade level, levels of English acquisition, and instructional context are needed to establish guidance for teachers and educators as the demographic and language goals of schools shift to include more students who are learning or influenced by a second language.

Study Limitations

There are a number of limitations to interpreting the results of this study. These limitations include (a) statistical conclusion, (b) internal factors of ambiguous temporal precedence and confounding constructs, and (c) external validity concerns around the generalizability of the results. The most significant of these limitations are the intertwined constructs of language acquisition and literacy development, as well as generalizing these results from such a specific setting to the broader population.

Statistical Conclusion Validity

The size of the sample in this study was 195 students, 175 of whom were L1 Spanish speakers and 20 of whom were L1 English speakers. This sample size, particularly for L1 English students, must bring caution to the interpretation of the

statistics. The indicators of power for the L1 English students were affected by the size of the sample, and this likely decreased the significance of results for this group. However, the sample size of L1 Spanish speakers is fairly robust, when considered in the context of previous CBM inquiry, which has contained few research studies focusing on PRF for ELLs.

Internal Validity Issues

There are two important internal validity issues to consider in interpreting the results of this study. First, consideration must be given to ambiguous temporal precedence. For instance, this involves the lack of clarity as to when the OAKS reading assessment was taken during the school year. Students had three opportunities to take the OAKS reading assessment, and only the highest score was reported in the data set. This lack of information about timing of the scores from OAKS provides a threat to the validity of interpretation of the PRF scores from the winter as predictors of OAKS performance. For example, a student may have passed the OAKS test in English in the fall, and then improved her PRF score in Spanish significantly by the winter. To reduce this limitation, a study could be designed where the testing windows were specified, such as using a fall PRF score and a spring OAKS score.

The second internal validity issue inherent in this study is that of confounding constructs of language proficiency and reading performance. All students whose first language was Spanish were considered in the HL Spanish group. The analyses did not attend to different levels of English language proficiency and how those levels of language proficiency may impact reading ability in both languages. Though language acquisition takes an average of four to seven years (Collier, 1989), this span shows that

the amount of time for each student to fully acquire a second language will vary greatly.

For example, the validity of interpretation of PRF scores in English for a student still at

the emergent stage of English acquisition would be inherently different than the

interpretation of PRF scores for a student who is almost fluent in English. For some

students, the PRF scores in Spanish may be a much stronger indicator of their overall

skill development in literacy, though the study did not show this to be true in general. As

students in the dual-language context at the primary grades are, by definition, learning

how to be literate and how to be proficient in a second language simultaneously, these

constructs are confounded.

External Validity Issues

Issues with the generalizability of the results of this study are perhaps the most

critical factors to consider in the context of validity. The strength of the relation between

E-PRF and OAKS for the ELLs in this study is notable. However, the experience of the

ELLs in this study may not be typical of most students who are learning English in

schools currently. That is, most ELLs are not instructed in a dual-language context,

where literacy is being developed in their L1 first to allow the transference of those skills

more readily into English as described by Gonzalez (1986). The results for ELLs who

are instructed in English may or may not be similar to the results of the ELLs in this

study, who were instructed in a dual-language context.

In addition, one must consider the generalizability of results of this study to other

dual-language contexts. Great variance exists in dual-language contexts instructionally:

in the amount of instructional time in each language, in the pedagogical methodologies

employed, and in other variables that may impact school performance (Collier &

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Thomas, 2004). These considerations, along with the variability of experience and background knowledge inherent in each language learner (Genessee, Paradis, & Crago, 2004), suggest caution in generalizing the results of this study to other educational situations.

Attention must be given to the unique community setting from which these data were gathered. The community is within the United States where the official language is English. This statement is not without significant historical and political implications. Historically, a number of movements have fought to maintain English as the sole language of the United States, with specific hegemonic intent (Lee, 1996). This national reality may impact the effectiveness of long-term dual-language programs, where English is recognized as the language of power in the country. Within that context, Spanish may never have the inherent importance to students instructionally. Within this national context, the community from which these data were gathered was comprised of primarily Spanish-speaking residents. Here, children may have a unique juxtaposition of language influences, with English as the national language of power and Spanish as the language that children hear most often around them in their daily lives. Interpretation of the results of this study must attend to the uniqueness of the linguistic and cultural influences of the setting.

Implications

The strong correlation between E-PRF and OAKS at third grade for all students in this study within a dual-language instructional context and the strong connection between E-PRF and S-PRF reinforce the importance of oral reading fluency. This information is notable in regards to the ELL group. However, this study raises many more questions

about assessing primary reading in a bilingual English/Spanish context. Based on my findings and the findings of prior research, I would propose several follow-up research projects to answer the following questions:

- Is PRF in English and Spanish predictive of reading achievement measures in Spanish in a dual-language setting?

- Is PRF in English more predictive of reading achievement in English in a dual-language program than in an English immersion program for ELLs?

- How does the predictive validity of E-PRF for ELLs covary with the students' level of English language acquisition?

- Does the predictive validity of E-PRF in a dual-language context covary with the level of structural similarity of the second language to English?

- Does the predictive validity of E-PRF in a dual-language context change at grade levels other than third grade?

The first study proposed would be similar to this study, but with a Spanish reading summative assessment as the dependent variable. It is important to establish whether the value of PRF as a proxy for overall reading levels that has been established in English, at least at the primary grades (Reschly et al., 2009), is an equally strong indicator in Spanish. Because of the more regular and predictable structure of the Spanish language, there is an increasing chance that the scores of reading fluency assessments could provide false positives. In other words, a student may more regularly decode text without familiarity with meaning behind the words in Spanish. Baker et al. (2010) did find S-PRF to be a predictor of scores on other reading assessments in

Spanish, but confirmation of these findings is important. It would be instructive to conduct a study where one could have enough sample size power to effectively examine the predictive validity of S-PRF in regards to a Spanish reading summative assessment, such as the Aprenda, and look at these results for both L1 Spanish and L1 English students.

Another future research project suggested by the results of this study is to compare the validity of interpretation of E-PRF scores for ELLs who are in dual-language programs with those of students who are in English immersion programs. Studies focusing on interpreting E-PRF scores for ELLs have shown differing results (Crosson & Lesaux, 2010; Wiley & Deno, 2005), and it is possible that controlling more explicitly for instructional models may help to explain these differences. Basing study questions in the theoretical understandings of language acquisition referenced in this paper of Cummins (1979) and Durgunoğlu (2002), it is possible that E-PRF may be more predictive for ELLs who have had literacy developed in their first language than for ELLs who have had English immersion since kindergarten. Recently, Baker, Park, Baker, Basaraba, Kame'enui, and Beck (2012) examined this question with 214 ELL students in the primary grades, finding that students who were developing literacy in Spanish benefited over students who were enrolled in English immersion programs.

Additionally, developing more understanding of the how the value of PRF covaries with the level of language acquisition would be extremely valuable, and information could be gained by examining these data by the level of English acquisition. This understanding would allow educators to better interpret the results of these assessments within a broader context for each student who is learning a second language.

Alonzo et al. (2010) found the levels of English acquisition affected the validity of interpretation of early literacy measures, and Crosson and Lesaux (2010) found that the value of reading fluency is strongly mediated by L2 oral language proficiency. Issues of disproportionality of ELLs in programs such as special education (Figuero, 1990) may be rooted in applying assessment interpretations in the same way for these students as for the majority population. E-PRF is a tool being used with increasing frequency in schools, and the population of students who are ELLs is increasing. Providing teachers with understanding of how this tool may or may not provide valid interpretations of overall reading progress while students are learning English is critical.

In this study, I looked at reading assessment in a dual-language context of English and Spanish. Would the implications of PRF score use be different for students who were learning languages that were more structurally diverse than English and Spanish? Melby-Lervåg and Lervåg (2011) looked at cross-linguistic literacy performance for students learning bilingually and found that the more similar the two languages are, the stronger the relations will be when literacy skills are assessed across both languages. More specifically, their findings indicated that more cross-linguistic transfer in decoding involving similar alphabetic structures. However, their measures of decoding were not reading passages of connected text. Conducting a study similar to this one, with a comparison of PRF outcomes in dual-language programs between English/Spanish and English/Chinese, for example, could bring additional understanding to the value of this theoretical lens.

Finally, this study only examined the results of PRF scores in English and Spanish, and their relation to OAKS reading assessment, at the third grade level. Would

these results be different at different grade levels? Differing strength of PRF when considered at higher grade levels would be consistent with the findings of Yovanoff et al. (2005) and Megert (2010), who found that vocabulary measures may be increasingly stronger indicators of overall reading performance after the fourth grade. However, vocabulary may have a unique consideration for ELLs. Genessee et al. (2004) note that vocabulary lags behind other indicators of language acquisition and relying on vocabulary measures for ELLs may provide less accurate information about language and literacy development. Conversely, E-PRF at grades one and two may possibly be less strong indicators of performance on state assessment at the third grade level for students in dual-language programs due to the lack of instructional time in English. As discussed earlier in this paper, full acquisition of a second language is expected to take a minimum of four years (Collier, 1989). Students enrolled in dual-language programs will only have participated in two years of instruction when they are in the first grade, and three years of instruction when they are in the second grade. Therefore, it may be that, though the E-PRF scores were strong indicators of OAKS performance for ELLs in this study, this may not hold true at the first or second grade level. Thus, more specific study as to the strength of E-PRF for ELLs at varying grade levels may be important.

Conclusion

The number of children who are developing literacy in two languages is increasing. This is due to a combination of demographic shifts in the United States with an increasing number of children speaking Spanish in the home (U.S. Census 2006), the demand for language proficiency in the context of an increasingly global economy, (Human Resources Development Group, 2013), and the mounting evidence that

intentional bilingual education results in strong benefits for the children involved in terms of cognition and long-term academic gains (Bialystok, 2011; Thomas & Collier, 2004). As the benefits of bilingualism are better understood, there has been an increase in the number of schools offering dual-language programs, where the goals are high levels of literacy in both languages. By far, the most common languages engaged in these dual-language programs in the United States are English and Spanish.

Simultaneous to the rise in dual-language programs, schools are now held to high standards of accountability measured primarily through the results of state assessments. The outcomes of these assessments have implications at the student, school, and district level. Ensuring that students are reading proficiently at the third grade is considered a key benchmark at all levels, as a difficulty with reading proficiency at third grade has been linked to widening the achievement gap. PRF assessments have emerged as important tools for educators to help identify any students who may need additional supports to meet those critical state assessment benchmarks at third grade.

Educators and policy-makers may find the results of this study useful for several reasons. First, this study yielded evidence that E-PRF can be an important tool in a dual-language instructional context, where all students are still expected to meet the criterion of state assessment in English reading. The connection between E-PRF and state assessment in reading was strong for all students in the dual-language setting, which demonstrates this as a useful tool for educators within the context in predicting achievement on state tests. Of particular importance to educators is the strong correlation of E-PRF to OAKS for ELL students at the third grade, as the body of evidence regarding PRF for ELLs provides mixed results. Next, understanding the strong relation between

reading fluency in English and Spanish for all students in a dual-language setting continues to provide evidence of the underpinnings of linguistic proficiencies in both languages. Additionally, the indication that L1 English students maintained proficiency in literacy development in English at least comparable to national norms in E-PRF is important. These students are not behind the national benchmarks in English, and they are developing a second language simultaneously. Educational program planning decisions are made within a political context, and the benefits of bilingual education may never be enjoyed by a larger segment of the population until the evidence is strong and generally understood that achievement in English is enhanced, not deterred, when students learn in two languages.

Finally, though there is much to be learned about the complex constructs of language and literacy in a dual-language context, the variable that is arguably most critical to educators is instruction. In fact, Proctor et al. (2006), in their discussion of the complexity of supporting language acquisition and developing literacy in a dual-language context, state "a crucial mediating variable is instruction, which may play an important role in the development of biliteracy and cross-linguistic transfer" (p. 160). Continuing to develop and understand tools that are easy for educators to use and provide meaningful information to teachers is an important part of helping all children become proficient readers.

APPENDIX A

DISTRIBUTION OF SCORES

Figure 3

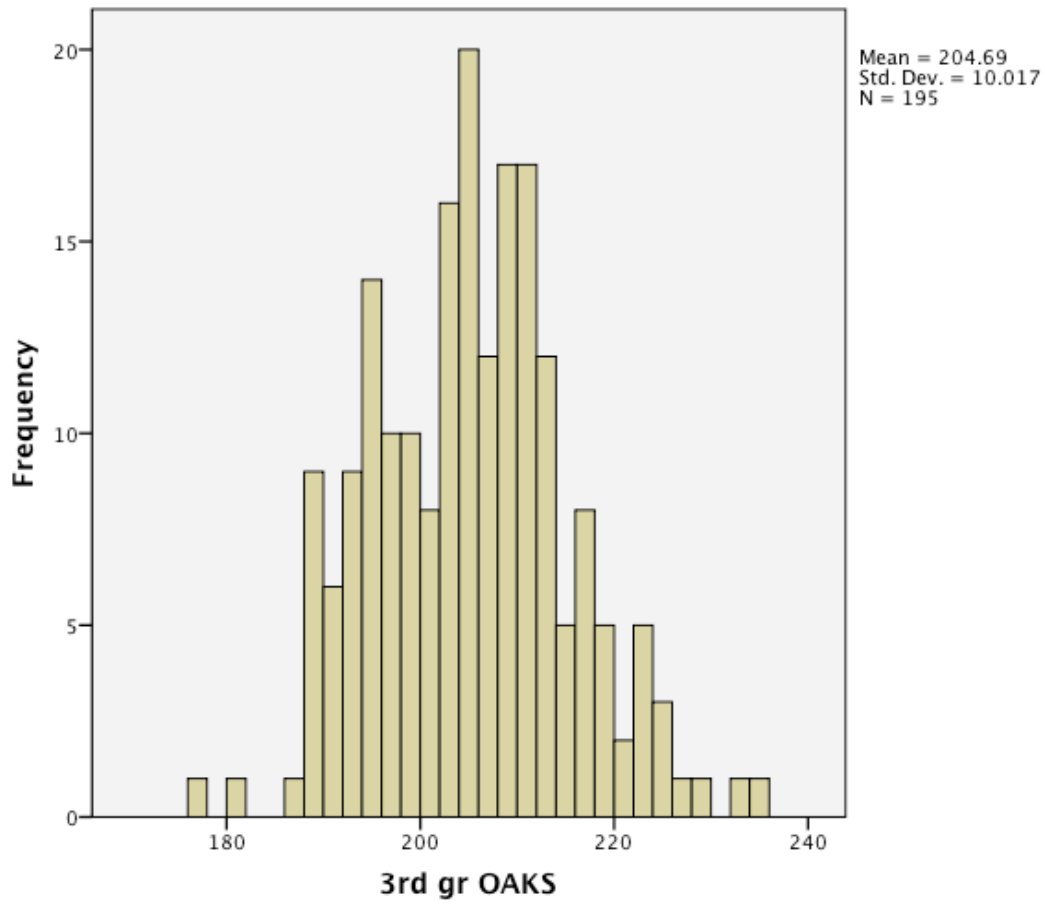*Distribution of Total Sample OAKS Results*
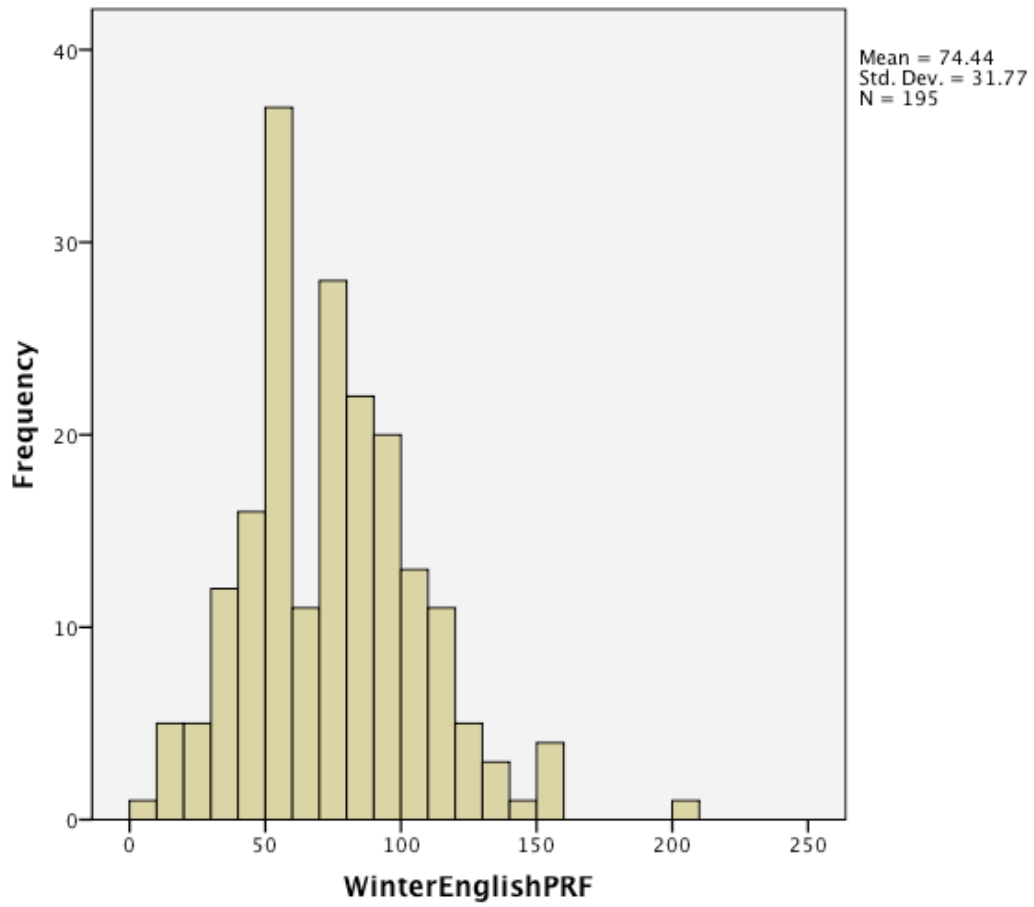
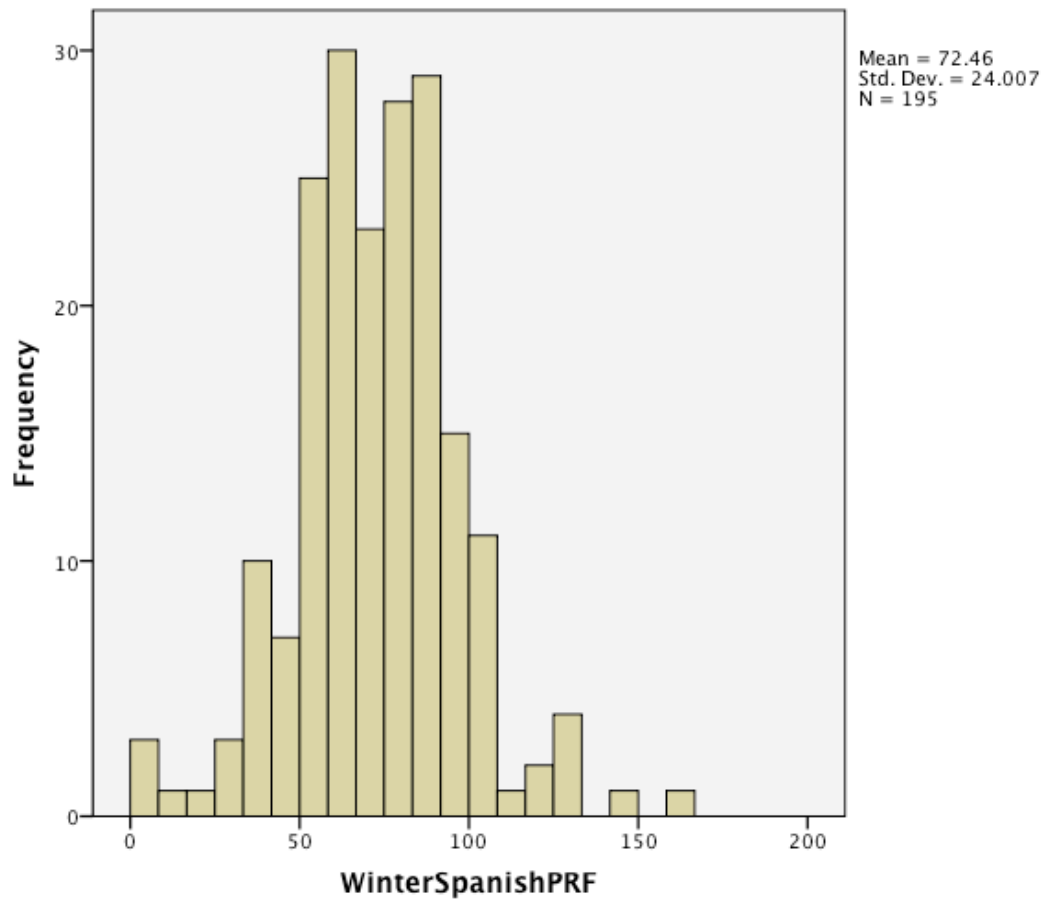Figure 4

Distribution of Total Sample R-CBM Results

Mean = 74.44
Std. Dev. = 31.77
N = 195

Figure 5

Distribution of Total Sample Spanish-CBM Results

AIMSWEB PASSAGE SAMPLES

R-CBM

When Maggie Ray's mother told her they would visit Mrs. Zale at teatime next	14
Thursday, Maggie Ray said she wasn't going. Mrs. Zale lived in the big house on	29
the corner of the block. Mrs. Zale's yard was filled with dead trees and surrounded	44
by a tall, spiked fence. The curtains over Mrs. Zale's windows were never pulled	58
open, and her house was always dark at night. Mrs. Zale didn't seem to have any	74
visitors except the mailman when he delivered her mail.	83
On Wednesday, Maggie Ray cornered the mailman. "What's Mrs. Zale like? I'm	95
supposed to go to her house on Thursday for tea, and I need to know."	110
The mailman smiled at Maggie Ray. "Don't tell me you've never met Mrs. Zale.	124
You've lived down the street from her for over a year."	135
"Well I haven't," Maggie Ray said. "But I have to meet her tomorrow. Do you	150
think you could tell me a bit about her?"	159
"Oh, no," the mailman said. "Mrs. Zale will want you to be surprised."	172
When teatime rolled around the next day, Maggie Ray's mother had to drag	185
Maggie Ray up the sidewalk to Mrs. Zale's front door.	195
"I don't want to go in there," Maggie Ray panted. "Please don't make me go in	211
there."	212
Before Maggie Ray could escape from her mother's grip, the front door opened.	225
Maggie Ray's eyes nearly fell out of her head when a monkey in a red velvet vest	242
opened the door. The monkey squawked at Maggie Ray and her mother and	255
pointed them toward the dining room.	261
The dining room held another surprise. A parrot was sitting on the chandelier.	274
"Hello, hello, hello," he said as they walked into the room. "Would you like cream	289
or sugar, cream or sugar?"	294
Maggie Ray couldn't believe her eyes. A silver tea service was laid out on the	309
dining room table. There were trays of cookies, tarts, candies, and chocolates.	321
"Welcome, welcome," said the old woman who stepped into the room. She was	334
dressed in an emerald ball gown. "I'm so glad you could make it, Maggie Ray." Mrs.	350
Zale really was full of surprises!	356

Un día el viento soplaba tan fuerte que no se podía ni	12
parar. Todos los animales del bosque buscaron donde	20
esconderse. Los pájaros se escondieron en los árboles.	28
Pero, el viento seguía soplando y se reía de los animales.	39
--Yo soy más fuerte que los árboles --dijo el viento. --	49
Soy más fuerte que la lluvia.--	55
El viento soplaba y soplaba y no paraba. Los pájaros	65
se cansaron de agarrar a las ramas de los árboles. Uno por	77
uno, el viento correteaba a los pájaros y se fueron volando.	88
La tierra se llenaba de sus plumas.	95
Un pájaro amarillo no le tenía miedo al viento. Era un	106
pajarito chiquitito con ojos negros y un pico agudo. Estaba	116
enojado con el viento por haber lastimado a sus amigos.	126
Cuando el viento empezó a soplarle en la cara, el pajarito	137
saltó.	138
--Tu no me asustas --gritó el pájaro. –	145
El viento se rió y empezó a arrojar al pajarito por todo	157
el cielo. Lo levantaba y luego lo dejaba caer. Lo hizo girar	169
rápidamente en el aire. El pajarito tenía ganas de llorar,	179
pero no lo hizo. El pajarito amarillo voló lo más rápido que	191
pudo para escaparse del viento.	196
El viento se enojó y empezó a corretear al pajarito	206
amarillo. Pero poco a poco se cansó y el bosque se calmó.	218
Los otros pájaros volvieron y recogieron sus plumas.	226
--Gracias --le dijeron al pajarito amarillo.	232

APPENDIX C

OAKS READING THIRD GRADE SAMPLE TEST ITEM

A SON REMEMBERS

Dr. Martin Luther King Jr. was an important man in United States history. This article is about both his family and his important work. Read it to learn about this special man.

AS A YOUNG BOY, Martin Luther King III liked to play sports with his father, Dr. Martin Luther King Jr. They swam and rode bikes together. "We also played baseball in the backyard," Martin says. However, the Kings were not free to do all the things they enjoyed.

For example, they could not go to an amusement park near their home in Atlanta, Georgia. A law prevented them from going because of their skin color. Laws also kept children of different races from attending the same

schools. Dr. King worked to change unfair laws like these. He led peaceful marches and gave many speeches.

"He traveled a lot to fight prejudice in different places in the country," Martin says. Prejudice is hatred or unjust treatment based on unfair opinions about a group of people.

Dr. King convinced most Americans that all people should be treated fairly. The laws began to change. As a third-grader, Martin was among the first African-American children in the South to go to school with white children.

Dr. King was killed in 1968. Today, Martin leads a group started by his father. The group wants to make America a better place for all people. "Have hope!" Martin says. "By working together as one community, we can solve our problems."

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Why did Dr. King travel so much?
- A. He liked to see lots of different places.
- B. His parents lived in another part of America.
- C. The company he worked for sent him.
- D. He was fighting prejudice all over America.

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As used in this selection, the word prevented means
- A. stopped.
- B. encouraged.
- C. allowed.
- D. attended.

REFERENCES CITED

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

AIMSweb, (2012). *AIMSweb technical manual*. Pearson. Retrieved from: https://aimsweb.pearson.com/downloads/AIMSweb_TM.pdf

Alonzo, J., Gonzalez, M., & Tindal, G. (2008). *Phonological awareness and Spanish literacy: Considerations for assessment.* Paper presented at the American Educational Research Association Annual Meeting, New York, NY.

Baker, S. K., & Good, R. (1995). Curriculum-based measurement of English reading with Bilingual Hispanic students: A validation study with second-grade students. *School Psychology Review, 24*, 561-578.

Baker, S. K., Smolkowski, K., Katz, R., Fien, H., Seeley, J. R., Kame'enui, E. J., & Beck, C. T. (2008). Reading fluency as a predictor of reading proficiency in low-performing, high-poverty schools. *School Psychology Today, 37*, 18-37.

Baker, D. L. (2010). *Understanding the relation between Spanish and English reading development.* Webinar presented as a follow-up from the Center on Teaching and Learning Fall Conference, Eugene, OR. Retrieved from http://ctl.uoregon.edu/research/presentations

Baker, D. L., Cummings, K.D., Good. R. H., & Smolinski, K. (2007). Indictodores Dinamicos del Exito in la Lectura (IDEL Summary of decision rules for intensive, strategic, and benchmark instructional recommendations in kindergarten through third grade (Technical Report No. 1). Eugene, OR: Dynamic Measurement Group.

Baker, D. L., Park, Y. & Baker, S. K. (2010). The reading performance of English learners in grades 1-3: The role of initial status and growth on reading fluency in Spanish and English. *Reading and Writing: An Interdisciplinary Journal*, 25, 251-281.

Baker, D. L, Park, Y., Baker, S. K., Basaraba, D. L., Kame'enui, E. J & Beck, C. T. (2012). Effects of a paired bilingual reading program and an English-only program on the reading performance of English learners in grades 1-3. *Journal of School Psychology*, *50,* 737-758.

Baker, D. L., Stoolmiller, M., Good, R. H., Baker, S. K. (2011). Effect of reading on comprehension passage fluency in Spanish and English for second grade English learners. *School Psychology Review, 40*, 331-351.

Beatty, A. (Ed.). (2010). *State Assessment Systems: Exploring Best Practices and Innovations: Summary of Two Workshops.* Washington, D.C.: National Academies Press.

Bialystok, E. (1991). *Language processing in bilingual children*. Bath, Avon: Cambridge University Press.

Bialystok, E. (1997). The effects of bilingualism and biliteracy on children's emerging concepts of print. *Developmental Psychology, 33,* 429-440. doi: 1649/97/S3.00

Bialystok, E. (2011). Coordination of executive functions in monolingual and bilingual children. *Journal of Experimental Child Psychology, 110,* 461-468.

Bialystok, E., McBride-Chang, C., Luk, G. (2005) *Bilingualism, language proficiency and learning to read in two writing systems*. New York: Cambridge Press.

Braken, B. A. & Barona, A. (1991). State of the art procedures for translating, validating, and using psychoeducational tests in cross-cultural assessment. *School Psychology International*, *12*, 119-132. doi:10.1177/0143034911211010

Center for Applied Linguistics (2011). *Two-way immersion directory tables: Growth of TWI programs, 1962-Present.* Retrieved from http://www.cal.org/twi/directory/twigrow.htm

Center on Teaching and Learning, University of Oregon (2013). *Professional development to the Oregon K-12 literacy framework.* Retrieved from http://oregonliteracypd.uoregon.edu/topic/phonological-awareness

Cheung, A. C. & Slavin, R. E. (2012). Effective reading programs for Spanish-dominant English language learners (ELLs) in the elementary grades: A synthesis of research. *Review of Educational Research, 82*(4), 351-395 doi: 10.3102/0034654312465472

Chudowsky, N. & Pellegrion, J. W. (2003). Large-scale assessments that support learning: What will it take? *Theory Into Practice, 42*(1).

Collier, V. (1989). How long: A synthesis of research on academic achievement in a second language. *TESOL Quarterly, 23*, 509-531.

Collier, V. P. & Thomas, W. P. (2004). The astounding effectiveness of dual-language education for all. *National Association of Bilingual Educators Journal of Research and Practice, 2*(1), 1-20.

Conner, U. (1996). *Contrastive rheotoric: Cross-cultural aspects of second-language writing*. Cambridge: Cambridge University Press.

Crawford, L., Tindal, G., & Steiber, S. (2001). Using timed oral readings to predict student performance on statewide achievement tests. *Educational Assessment, 7,* 303-323.

Crosson, A. C., & Lesaux, N. K. (2009). Revisiting assumptions about the relationship of fluent reading to comprehension: Spanish-speakers' text-reading fluency in English. *Reading and Writing, 23*, 475-494.

Cummins, J. (1979). Linguistic interdependence, and the educational development of bilingual children. *Review of Educational Research, 49*, 222-251.

Cummins, J. (1991). Interdependence of first- and second-language proficiency in bilingual children. In E. Bialystok (Ed), *Language processing in bilingual children* (pp. 70-89). Bath, Avon: Cambridge University Press.

Daniel, M. H. (2010). *Reliability of AIMSweb reading curriculum-based measurement (R-CBM) (Oral reading fluency).* Clinical Assessment, Pearson.

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*, 219-232.

Deno, S. (1992). The nature and development of curriculum-based measurement. *Preventing School Failure, 36*, 5-10.

Diaz, R. M. & Klinger, C. (1991). Towards an explanatory model of the interaction between bilingualism and cognitive development. In E. Bialystock (Ed.), *Language processing in bilingual children.* (pp. 167-192). Bath, Avon: Cambridge University Press.

Dominguez de Ramírez, R. D., & Shapiro, E. S. (2006). Curriculum-based measurement and the evaluation of reading skills of Spanish-speaking English language learners in bilingual education classrooms. *School Psychology Review, 35*, 356-369.

Dominguez de Ramírez, R. D., & Shapiro, E. S. (2007). Cross-language relationship between Spanish and English oral reading fluency among Spanish-speaking English language learners in bilingual education classrooms. *Psychology in the Schools, 44*, 795-806. doi: 10.1002/pits.20266

Durgunoğlu, A. Y. (2002), Cross-linguistic transfer in literacy development and implications for language learners. *Annals of Dyslexia, 52*, 189-204.

Durgunoğlu, A. Y., Nagy, W. E., & Hancin-Bhatt, B. J. (1993). Cross-language transfer of phonological awareness. *Journal of Educational Psychology, 85,* 453-465.

Ennis, S. R., Rios-Vargas, M., & Albert, N. G. (2011) *The Hispanic Population 2010: 2010 Census Briefs.* Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf

Escamilla, K. (2000). *Bilingual means two: Assessment issues, early literacy, and Spanish-speaking children.* US Department of Education. Office of Bilingual Education and Minority Languages Affairs.

Espin, C. A., Shinn, M., & Busch, T. W. (2005). Curriculum-based measurement in the content areas: Vocabulary matching as an indicator of progress in social studies learning. *Journal of Learning Disabilities, 38*, 353-363.

Figuero, R. A. (1990). Best practices in the assessment of bilingual children. In A. T. Thomas and J. Grimes (Eds.) *Best practices in school psychology-II* (pp. 93-106). Washington D.C.: National Association of School Psychologists.

Filipović, L. (2011). Speaking and remembering in one or two languages: Bilingual vs. monolingual lexicalization and memory for motion events. *International Journal of Bilingualism, 15*, 466-485. doi:10.1177/1367006911403062

Fuchs, L. S., & Deno, S. L. (1991). Paradigmatic distinctions between instructionally relevant measurement models. *Exceptional Children, 57*, 488-500.

Fuchs, L. S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53*, 199-208.

Fuchs, L. S., Fuchs, D. & Hamlett, C. L. (2007). Using curriculum-based measurement to inform reading instruction. *Reading and Writing: An Interdisciplinary Journal, 20,* 553-567.

Fuchs, L. S., Fuchs, D., Hosp, M. K., Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading, 5*, 239-256.

Genessee, F. (1979). Acquisition of reading skills in immersion programs. *Foreign Language Annals,* 12, 71-77.

Genessee, F., Paradis, J., & Crago, M. B. (2004). Dual-language development & disorders: A handbook on bilingualism & second language learning. Baltimore, MD: Paul H. Brookes.

Gewertz, C. (2011). P-2 years targeted to achieve grade 3 reading proficiency. *Education Week, 36*, 1-23.

Goldenberg, C. & Gallimore, R. (1991). Local knowledge, research knowledge, and educational change: A case study of early Spanish reading improvement. *Educational Researcher, 20*, 2-14. Retrieved from: http://www.jstor.org/stable/ 1176231

Gonzalez, G. (1986) Potential interference from Spanish on the production of English. In *Dialect differences in schools: Educational, social, and economic implications*. Dialect symposium in Cleveland, OH.

Gonzales, L. A. (1986). *The effects of first language education on the second language and academic achievement of Mexican immigrant elementary school children in the United States* (Doctoral Dissertation). University of Illinois, Urbana-Champaign.

Good, R. H. III & Kaminski, R., (1996). Assessment for instructional decisions: Toward a proactive/prevention model of decision-making for early literacy skills. *School Psychology Quarterly, 11,* 326-336.

Good, R. H. III & Kaminski, R. A. (2002). *Dynamic indicators of basic early literacy skills* (6th ed.). Eugene, OR: Institute for the Development of Educational Achievement. Retrieved from: http://dibels.uoregon.edu/

Good, R. H., Simmons, D. C., & Kame'enui, E. J. (2001). The importance of decision-making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high stakes outcomes. *Scientific Studies of Reading, 5,* 257-288.

Graves, A. W., Plasencia-Peinado, J., Deno, S. L., & Johnson, J. R. (2005). Formatively evaluating the reading progress of first-grade English learners in multiple-language classrooms. *Remedial and Special Education, 26*, 215-225.

Hammer, C. S., Jia, G. and Uchikoshi, Y. (2011), Language and literacy development of dual-language learners growing up in the United States: A call for research. *Child Development Perspectives*, 5: 4–9. doi: 10.1111/j.1750-8606.2010.00140.x

Hart, B. & Risely, T. R. (2002). *Meaningful differences in the everyday experience of young American children.* Baltimore, MD: Paul H. Brookes.

Hasbrouck, J. & Tindal, G. (2006). Oral reading fluency norms: A valuable tool for reading teachers. *Reading Teacher, 59*, 636-644.

Hosp, M. K. & Fuchs, L. S. (2005). Using CBM as an indicator of decoding, word reading, and comprehension: Do the results change with grade? *School Psychology Review, 34,* 9-26.

Howe, K. B. & Shinn, M. M. (2002). *Standard reading assessment passages (RAPs): A manual describing development and technical features.* Eden Prairie, MN: Edformation.

Human Resources Development Group (2013). *Foreign languages and global issues.* APEC. Retrieved from: http://hrd.apec.org/index.php/Foreign_Languages _and_Global_Issues

Indrisano, R. & Chall, J. S. (1995). Literacy development. *Journal of Education*, *177,* 63-83.

Jenkins, J. R. & Jewell, M. (1993). Examining the validity of two measures for formative teaching: Read aloud and maze. *Exceptional Children*, *59,* 421-432.

Kame'enui, E. J., Fuchs, L., Francis, D. J., Good, R. H. III, O'Connor, R. E., Simmons, D. C., Tindal, G., Toregesen, J. K. (2006). The adequacy of tools for assessing reading competence: A framework and review. *Educational Researcher, 35,* 3-11.

Kaminski, R. A. & Good, R. H. (1996). Toward a technology for assessing basic literacy skills. *School Psychology Review*, *25,* 215-27.

Kessler, B., & Treiman, R. (2003). Is English spelling chaotic? Misconceptions concerning its irregularity. *Reading Psychology*, *24*(3/4), 267.

Koda, K. (1996). L2 word recognition research: A critical review. *The Modern Language Journal*, *80*, 450–460.

Kranzler, J. H., Miller, M. D. & Jordan, L. (1999). An examination of racial/ethnic and gender bias on curriculum-based measurement of reading. *School Psychology Quarterly, 14*, 327-342.

Lee, T. (1996). Language as power: A linguistic critique of U. S. English. *The Modern Language Journal*, *80*, 129-140.

Lindholm-Leary, K., & Borsato, G. (2001) *Impact of two-way bilingual elementary programs on students' attitudes toward school and college.* CREDE/CAL, Washington, DC.

Margit, E. & Shinn, M. (2002). *AIMSweb training workbook: Administration and scoring of Medidas Incrementales de Destrezas Esenciales (MIDE) for use with AIMSweb*. Eden Prairie, MN: Edformation, Inc. Retrieved from: http://www.aimsweb.com/uploads/files/AdminAndScoringMIDE.pdf

Maxwell, L. A. (2012). 'Dual' classes see growth in popularity. *Education Week*, *31*(26), 1-17.

McCandliss, B. D., Fiez, J. A., Protopapas, A., Conway, M., & McClelland, J. A. (2002). Attempts and failure in teaching the [r]–[l] contrast to Japanese adults: Tests of a Hebbian model of plasticity and stabilization in spoken language perception. *Cognitive, Affective, & Behavioral Neuroscience, 2(2),* 89-108. Retrieved from <www.cnbc.cmu.edu/~jlm/papers/Mc- CandlissETAL02.pdf>.

Melby-Lerväg, M., & Lerväg, A. (2011). Cross-linguistic transfer of oral language, decoding, phonological awareness and reading comprehension: A meta-analysis of the correlational evidence. *Journal of Research in Reading, 34*, 114-135. doi: 10.1111/j.1467-9817.2010.01477

Megert, B. R. (2010). *Establishing predictive validity for oral passage reading fluency and vocabulary curriculum-based measures (CBMs) for sixth grade students* (Doctoral dissertation). Retrieved from University of Oregon Library.

Miller, C. D. (2008). Data for school improvement and educational accountability: Reliability and validity in practice. In K. Ryan , & L. Shepard (Eds.), *The Future of Test-Based Educational Accountability* (pp. 249-261). New York: Routledge.

Nagy, W., & Anderson, R. (1984). How many words are there in printed school English? *Reading Research Quarterly, 19*, 304-330.

Nagy, W., & Garcia, G. E., (1993). Spanish-English bilingual students' use of cognates in English reading. *Journal of Reading Behavior, 25*, 241-260.

National Reading Panel (2000). *Teaching Children to Read: An Evidence-based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction.* Retrieved from www.nationalreadingpanel.org/ Publications/publication.htm

No Child Left Behind (NCLB) Act of 2001, Pub.L. No. 107-110, § 115, Stat 1425 (2002).

Odlin, T. (1989). *Language Transfer: Cross-Linguistic Influence in Language Learning.* Cambridge: Cambridge University Press.

Oregon Department of Education (2011). Reading and literature test specifications and test blueprints. Office of Assessment. Retrieved from http://www.ode.state.or.us/ search/page/?id=496

Oregon Department of Education (2012). *Oregon Statewide Assessment System: Test Development (Volume 2).* Retrieved from http://www.ode.state.or.us/wma/ teachlearn/testing/manuals/2013/asmttechmanualvol2_testdevelopment_1213.pdf

Oregon Department of Education (2010). Test Administration Manual. Retrieved from www.ode.state.or.us/search/page/?=486

Oregon Educational Investment Board (2012). Achievement compacts. Retrieved from
    http://governor.oregon.gov/Gov/OEIB/OregonEducationInvestmentBoard.shtml#
    Achievement_Compacts

Patrinos, H., & Velez, E. (2009). Costs and benefits of bilingual education in Guatemala:
    A partial analysis. *International Journal Of Educational Development*, *29*, 594-
    598. doi:10.1016/j.ijedudev.2009.02.001

Peterson, P. E., & Hess, F. M. (2008). Few states set world-class standards. *Education
    Next,* Retrieved from http://www.educationnext.org/files/ednext_20083_70.pdf

Pierrehumbert, J. B. (2003). Phonetic diversity, statistical learning, and acquisition of
    phonology. *Language and Speech, 46*(2-3), 115-154.

Proctor, C. P., August, D., Carlo, M., & Snow, C. (2005). Native Spanish-speaking
    children reading in English: Toward a model of comprehension. *Journal of
    Educational Psychology, 97*, 246-256.

Proctor, C. P., August, D., Carlo, M. S., & Snow, C. The intriguing role of Spanish
    language vocabulary in predicting English reading comprehension. *Journal
    of Educational Psychology, 98*, 159-169. doi: 10.1037/0022-0663.98.1.159

Proctor, C. P. & Silverman, R. D. (2011). Confounds of assessing the association
    between biliteracy and English language proficiency. *Educational Researcher,
    40*, 62-64. doi: 103102/0013189v11403138

Reschly, A. L., Busch, T. W., Betts, J., Deno, S. L., & Long, J. D. (2009). Curriculum-
    based measurement oral reading as an indicator of reading achievement: A meta-
    analysis of the correlational evidence. *Journal of School Psychology, 47*, 427-469.
    doi: 10.1016/j.jsp.2009.07.001

Rhoades, W. B. (2009). *Assessing early literacy development in Spanish speakers when
    Spanish is the language of instruction.* (Doctoral dissertation). Retrieved from
    University of Oregon Library.

Riedel, B. W. (2007). The relation between DIBELS, reading comprehension, and
    vocabulary in urban, first grade students. *Reading Research Quarterly*, *42*, 460–
    466.

Sandberg, K. L. & Reschly, A. L. (2012). English learners: Challenges in assessment and
    the promise of curriculum-based measurement. *Remedial and Special Education,
    32*, 144-154. doi: 10.1177/0741932510361260

Samuels, S. J. (1979). The method of repeated readings. *The Reading Teacher,* 32, 403-
    408.

Shapiro, E. S., Keller, M. A., Lutz, J., Santoro, L., & Hintze, J. M. (2006). Curriculum-based measures and performance on state assessments and standardized tests: Reading and math performance in Pennsylvania. *Journal of Psychoeducational Assessment, 24*(1), 19-35.

Shinn, M. R. & Good, R. H. (1992). Curriculum-based measurement of oral reading fluency: A confirmatory analysis of its relation to reading. *School Psychology Review, 21*, 459-480.

Shinn, M. R. & Shinn, M. M. (2002). *AIMSweb training workbook: Adminstration and scoring of reading curriculum-based measurement (R-CBM) for use in general outcome measurement.* Minnesota: Edformation.

Sibley, D., Biwer, D., & Hesch, A. (2001, April). *Establishing curriculum-based measurement oral reading fluency performance standards to predict success on local and state tests of reading achievement.* Paper presented at the annual meeting of the National Association of School Psychologists, Washington, DC.

Silberglitt, B., Burns, M. K, Madyun, N. H., & Lail, K E. (2006). Relationship of reading fluency assessment data with state accountability test scores: A longitudinal comparison of grade levels. *Psychology in the Schools, 43*, 527-535.

Snow, D. E. & Hoefnagel-Hohle, M. (1978). The critical period for language acquisition: Evidence from second language learning. *Child Development, 49,* 1114-1128.

Snow, C. (2006) Cross-cutting themes and future research directions. In August, D. & Shanahan, T. (Eds.), *Developing literacy in second language learners: Report on the National Literacy Panel on minority children and youth*. Mahwah, New Jersey: Lawrence Earlbaum Associates.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of learning to read. *Reading Research Quarterly, 21*, 360-407.

Tindal, G. (1989). Evaluating the effectiveness of educational programs at the systems level using curriculum-based measurement. In Shinn, M, R. (Ed). *Curriculum-based measurement: Assessing special children.* (pp. 202-238). New York, NY: Guilford Press.

Tindal, G. (2002). Large-scale assessment for all students: Issues and options. In Tindal, G. & Haladyna T. M. (Eds.). *Large-Scale Assessment Programs for All Students.* (pp. 1-24). Mahwah, NJ: Erlbaum.

Thomas, W. P. & Collier, V. P. (2002). *A national study of school effectiveness for language minority students' long-term academic achievement.* Research Report 143). Retrieved from Center for Research on Education, Diversity, and Excellence, Office of Educational Research and Improvement. Washington, D.C.

Ucelli, P., & Paz, M. M. (2007). Narrative and vocabulary development of bilingual children from kindergarten to first grade: Developmental changes and associations among English and Spanish skills. *Language, Speech, and Hearing Services in Schools, 38*, 225-236. doi: 0161-1461/07/3803-0225

U.S. Census Bureau (2006). *Persons speaking a language other than English at home. American Community Survey*. Retrieved from http://www.infoplease.com/us/census/languages-other-than-english-2006.html

Wang, M., & Koda, K. (2007). Commonalities and differences in word identification skills among learners of English as a second language. *Language Learning, 57,* 201–222.

Webley, K. (2012). Retrograde: Is it smart to hold back third-graders who can't read well? *Time, (180)*10, 60.

WETA, (2011). Coloring Colorado: Helping children read and succeed. Retrieved from: http://www.colorincolorado.org/educators/background/capitalizing/

Wiley, H. I. & Deno, S. L. (2005). Oral reading and maze measures as predictors of success for English learners on a state standards assessment. *Remedial and Special Education, 26*, 207-214.

Wood, D. E. (2006). Modeling the relationship between oral reading fluency and performance on a statewide reading test. *Educational Assessment, 11*, 85-104.

Yovanoff, P., Duesberry, L., Alonzo, J., & Tindal, G. (2005). Grade-level invariance of a theoretical causal structure predicting reading comprehension with vocabulary and oral reading fluency. *Educational Measurement: Issues and Practice, 24*(3), 4-12.