

The importance of dual language assessment in early literacy

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Executive summary

The purpose of this paper is to (a) discuss the importance of assessing Spanish-speaking students in English and Spanish to support them in becoming bilingual and biliterate, and (b) describe the development of a suite of Spanish reading assessments systematically designed for that purpose. Spanish-speaking students are a growing population of students in the U.S. who are exposed to Spanish and, in some cases, indigenous languages such as Mam or Quechua in their homes, often in addition to English. Supporting bilingual and biliteracy development is emerging more frequently as a goal of educational programs; however, the majority of students continue to find themselves in English-only educational settings (National Center on Education Statistics [NCES], n.d).

Supporting bilingual and biliteracy development requires a nuanced instructional approach that accounts not only for a student's language proficiency in English and Spanish, but also the amount of Spanish and English used during instruction. Moreover, this approach is supported by the fact that the five big ideas associated with learning to read in English and Spanish are the same (accounting for differences in the orthography between the two languages; Francis et al., 2006).

This paper will explain the research supporting the suite of Spanish literacy assessments anchored in the Science of Reading and describe the importance of using a dual language (Spanish/English) assessment approach to obtain a more accurate picture of the reading ability and instructional needs of Spanish-speaking students (Guilamo, 2021). The relationship between Spanish and English literacy development will be described, as well as the contribution of Spanish language and literacy development to the development of students' English decoding and comprehension skills.





Current educational context for Spanish-speaking students

A demographic overview of Spanish-speaking students in the U.S.

The Latino/a population accounted for over half (52%) of U.S. population growth between 2010–2019 and, as of 2019, there were nearly 60 million Latino/a-identified people in the United States (Noe-Bustamante et al., 2020).

In fall 2018, 13.8 million (27%) of the approximately 51 million school-age children in the U.S. were Hispanic (Irwin et al., 2021). Moreover, in 2017 the number of public-school students identified as English learners (ELs) was approximately 5 million (10.2%), 3.8 million (74.8%) of whom indicated Spanish was their home language (Husar et al., 2020). Throughout this paper, we use the term Spanish-speaking students to refer to students whose families speak Spanish as their heritage language.

Spanish-speaking students, however, are a heterogeneous group with varying levels of educational experiences and Spanish-language proficiency (López & Foster, 2021). Although Mexico has historically been the country with the largest representation of immigrants in the United States, recent years have seen an increase in the number of immigrants from El Salvador, Guatemala, and Honduras (Cohn et al., 2017). That said, the Latino/a population is not exclusively made up of immigrants—in fact, the majority of people who identify as Latino/a are U.S.-born individuals with at least one parent who is an immigrant (Noe-Bustamante & Flores, 2019).

In 2018,

27%

of the approximately 51 million school-age children in the U.S. were Latino/a.

(Irwin et al., 2021)

Issues of educational equity

There are long-standing opportunity gaps between Spanish-speaking students and their English-speaking peers. Latino/a students who come from primarily Spanish-speaking families demonstrate lower reading performance than their English-speaking counterparts (National Academy of Science, Engineering, & Medicine [NASEM], 2017). **Trend data from the Reading subtest of the National Assessment of Educational Progress (NAEP), for example, reveals that grade 4 students not identified as ELs have obtained significantly higher scores than their EL-identified peers for the last 19 years. On average, non-ELs have earned scores 36 points higher than ELs.**

Although it is difficult to disaggregate state-reported data by Latino/a origin and language spoken at home, only 23% of Latino/a students were categorized as proficient readers on NAEP in 2019 (NCES, 2020). Moreover, Latino/a students tend to be over-identified as having a learning disability (LD); Carnock & Silva, 2019;).

Data from the U.S. Department of Education indicates that approximately 50% of English Learners receiving Special Education services are identified as having a specific learning disability, compared to only 37% of students with disabilities who are not English learners (U.S. Department of Education, nd). These disparities are troubling not only because successfully learning to read is one of the best available and most prominent outcomes of academic success (National Reading Panel, 2000), but also because low reading outcomes tend to lead to low educational attainment, low wages, and generational poverty. Reading scores as early as third grade are highly predictive of life outcomes (Annie E. Casey Foundation, 2010).

Therefore, the early identification of reading difficulties is an important part of addressing the needs of the Latino/a population. Assessing Spanish-speaking students in English only without taking into consideration their English proficiency can result in lower levels of performance, which may be mistaken for reading; it may be, for example, that students do not have sufficient English proficiency to understand the task, not that they do not have the literacy skills being assessed. Before assessing Spanish-speaking students in Spanish, however, one must also ensure they have sufficient Spanish language skills to understand the task and that they have received reading instruction in Spanish (Lambert, 2022; Linan-Thompson et al., 2022); simply administering a Spanish literacy screener because a student is a native Spanish speaker is inappropriate. If a child has never been instructed to read in Spanish it is unlikely they will be able to complete decoding tasks in Spanish. (California Department of Education, 2019; Hoover et al., 2016). Consequently, assessment is needed in both English and Spanish in order to provide the appropriate level of instructional support.

77%

of Latino/a students
are not classified as
proficient readers by
4th grade.

(NAEP, 2019)



The need for reading screening measures for Spanish-speaking students

Little information is available to teachers and school administrators about evidence-based practices for assessing Spanish-speaking students. There is consensus that assessing bilingual students in their home language and in English provides the most accurate estimates of their overall ability level (Pitoniak et al., 2009). Individually, Spanish-speaking students in the U.S. have varying degrees of exposure to English and Spanish; consequently there is great variability in the language proficiency that they have in both languages (López & Foster, 2021). As such, the skills they are able to demonstrate in each language may be different and should be explicitly measured.

However, in order to accurately assess Spanish-speaking students in both English and Spanish, reliable measures that support valid inferences about student performance in both languages need to be available.

Our suite of Spanish literacy assessments directly addresses this issue by providing a valid and reliable solution in Spanish and, when administered in conjunction with DIBELS® 8th Edition, provides a comprehensive, dual-language approach to literacy screening. mCLASS Lectura was developed based on Spanish language and literacy development with approximately 1,600 students enrolled in 19 schools across seven states. The development of these assessments involved state-of-the-art measurement principles design meeting the rigorous standards of educational and psychological testing (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 2014), as well as national organizations designed to support implementation of intensive interventions for struggling students, such as the National Center on Intensive Intervention.

Universal screening assessments are designed to provide educators with predictive information about which students are performing at expected levels in reading or are at risk for reading difficulty and in need of additional instructional support (Clemens et al., 2015). Thoughtful and systematic examination of universal screening data can serve as one mechanism for helping address observed disparities in student

performance by providing educators with a comprehensive picture of student overall literacy achievement, as well as information about discrete skills (McIntosh & Goodman, 2016). Although the availability of universal screening assessments for Spanish literacy has increased over recent years, information about the reliability, validity, and diagnostic accuracy of these Spanish screening assessments is limited. An English-only approach to screening bilingual students may underestimate their knowledge and skills, given that limited English proficiency can adversely affect a student's performance on English measures (Pitoniak et al., 2009). In one study of 214 4-to-5-year-old Spanish-speaking preschoolers enrolled in Head Start in four states (OR, UT, CA, MN), significantly higher rates of identification of "Tier 2 or 3" status were observed when measuring early literacy and language skills only in English. For example, on a phonological awareness task in English, 63% of students were found to be "at risk" on a universal screening measure, whereas on the Spanish measure only 21% were identified as "at risk" (Carta et al., 2020). These results demonstrate the importance of measuring Spanish-speaking children in Spanish to improve the accuracy of estimation of student skills.

Because language development does not necessarily happen at the same rate or in the same pattern in both languages, English-only approaches underestimate a child's ability level, promote deficit-based thinking, and may provide practitioners with inaccurate information to guide instructional planning with Spanish-speaking students (Huang et al., 2021; Rojas et al., 2019).

It is important for teachers to know what children are capable of in their home language, because teachers can leverage these skills during English and bilingual instruction to design effective educational experiences that are tailored to children's ability levels and skills in both languages.

This is particularly true in the early elementary grades when children are first entering school, when their home language exposure has a much greater impact on their proficiency in both English and Spanish (Hammer et al., 2014; Quiroz et al., 2010). The case of children who have primarily spoken Spanish at home is particularly important to consider, as children with only emerging skills in English will not be able to demonstrate their knowledge on a test they may not understand.

However, as children receive more English instruction, language proficiency shifts over time and English literacy assessment may become a more accurate reflection of their learning. It is also not appropriate to assume that Spanish-speaking students

have all received Spanish literacy instruction and literacy skills should be assessed in Spanish. Ultimately, students should be assessed in the language(s) most likely to elicit their best performance and should be related to the language educators want them to demonstrate literacy proficiency in—which may include Spanish, English, or both—to obtain the data needed for guiding informed instructional planning. Gathering multiple sources of data about a student's prior language and literacy experiences in Spanish and English is critical when interpreting their performance in each language (Francis et al., 2019; Linan-Thompson et al., 2022).

Teachers can use information about students' Spanish literacy skills to provide them with targeted English literacy instruction that helps students leverage their existing skills. Multiple meta-analytic studies and systematic reviews of the literature, for example, indicate that teaching Spanish-speaking students literacy skills in Spanish and supporting their Spanish-language development results in similar or even more positive outcomes in English than if students were provided English-only instruction from the beginning of school (August & Shanahan, 2006; Baker et al., 2016; Durán et al., 2013; NASEM, 2017). In other words, providing Spanish instruction to Spanish-speaking students not only honors and supports their home language development and culture, but also supports English language and reading development. Consequently, assessments in Spanish that provide consistent estimates of student skill over time and support trustworthy inferences about student skill (i.e., assessments that are reliable and valid, respectively) are needed to (a) accurately capture student ability levels, (b) promote equity in educational practices and parity in outcomes, and (c) provide educators with information to guide instruction in Spanish and English.



Key considerations for Spanish literacy assessments

Research suggests that the five big ideas of beginning to read in English also apply to learning to read in Spanish (Francis et al., 2006; Lesaux & Geva, 2006; Lesaux et al., 2006). Consequently, Spanish literacy assessments for Spanish-speaking students should also focus on **phonological awareness, alphabetic understanding, fluency, vocabulary, and comprehension**, albeit with consideration of the differences in the orthographic, morphological, and syntactical structures of Spanish. For example, measures of phonological awareness in Spanish should focus not only on syllables, because syllabic patterns in Spanish are consistent, but also on phonemes, because knowing the sounds within syllables also is key to understanding the alphabetic system (Gorman & Gillam, 2003). Research suggests that while syllabic awareness is a significant predictor of later reading skills, phonemic awareness is also important when learning to read in Spanish (Defior & Serano, 2011; Mathes et al., 2007; Suárez-Coalla et al., 2013). Knowledge of phonemes supports students' ability to decode increasingly long and more complex multisyllabic words. There are few Spanish assessment systems that take into account linguistic and cultural considerations relevant to Spanish-speakers in the U.S.—many of these universal screeners of Spanish literacy are translations of existing English versions. While some studies have reported on the reliability, validity, and classification accuracy of these universal screeners of Spanish literacy (Baker et al., 2022; Basaraba et al., 2022), there is little information about how these assessments were developed to include linguistic and cultural considerations relevant to Spanish speakers in the U.S. (de Ramirez & Shapiro, 2007; Gutiérrez et al., 2020, 2021; Keller-Margulis et al., 2012).

This approach is problematic because Spanish translations do not account for morphological, lexical, and syntactical differences between English and Spanish (Krach et al., 2017; Peña & Halle, 2011). All of the measures in our suite of Spanish assessments were developed in Spanish with the support of Spanish language and literacy development experts to address this concern.

Cross-linguistic transfer

Evidence suggests that oral language (OL), phonological awareness (PA), and alphabet knowledge (AK) skills measured in Spanish can aid in predicting reading skills and language growth in English (Atwill et al., 2010; Baker et al., 2011; Jackson et al., 2014; Melby-Lervåg & Lervåg, 2011). These predictions are supported, in part, by the linguistic similarities between Spanish and English, although there are obviously differences to be considered as well. Although we have evidence of the transfer of these skills, there is still much more we need to understand about the roles played by the language of instruction and the quantity and quality of exposure to both English and Spanish in supporting literacy development in both languages (August & Shanahan, 2006; Baker et al., 2012; Castilla et al., 2009; Goodrich et al., 2013; Melby-Lervåg & Lervåg, 2011).

It is well-documented that a child's exposure to both English and Spanish at home and school affects their proficiency in both languages and affects their performance on assessments in each language (Cárdenas-Hagan et al., 2007). Therefore, it is important to take levels of exposure in both contexts into consideration when interpreting scores in each language. In this section, we first describe the similarities and differences between Spanish and English and then provide details about theories of cross-linguistic transfer that capitalize on those similarities and differences.

Similarities and differences between English and Spanish

Spanish and English both use the Roman alphabet, which supports the development and transfer of phonemic and phonological awareness. The letters *c, d, f, k, l, m, n, p, q, s, t, w,* and *y*, for example, are nearly identical in terms of the sound they make across English and Spanish (Colorín Colorado, 2007a). Additionally, approximately 30–40% of words in English have cognates in Spanish and similar syntactic structures (Colorín Colorado, 2007b).

Cognates are words that are pronounced similarly and have a similar meaning (e.g., *baseball* and *beisbol* or *elephant* and *elefante*). Spanish-speaking students learn cognates more rapidly than words without cognates, and knowing a word in Spanish facilitates the learning of the word in English (Ibrahim, 2006; Ramirez et al., 2013). These findings lend support to the idea that Spanish oral vocabulary may provide assistance with English reading and comprehension.

There are notable differences between Spanish and English, however, that also need to be considered during the design and development of assessments and instruction to support biliteracy development. Spanish not only has more letters

than English (i.e., 27 instead of 26), but also differs in the way specific consonants (i.e., *h, j, r, v, x, z*) are pronounced. These issues need to be taken into consideration during the development of instructional materials and assessments designed specifically to support students' Spanish/English biliteracy development (Colorín Colorado, 2007a).

It is also worth noting that there are significant differences in orthographic transparency (i.e., complexity, consistency, or transparency of letter-sound correspondences) between Spanish and English (Seymour et al., 2003).

Spanish has a relatively transparent orthography in which there is essentially a 1:1 correspondence between sounds and the letters used to represent them.

English, in contrast, is said to have an opaque orthography because the 26 letters of the English alphabet are used to represent over 40 different sounds. The five letters used to represent vowels in English, for example, actually represent up to 14 different vowel sounds in American English, depending on region and dialect (Frost, 2005). These differences in orthographic transparency have important implications for students learning to read in either language, as the orthographic transparency (as well as the fact that Spanish is a syllable-timed language with a simple and consistent syllabic structure) means that students learning to read in Spanish may sometimes work with syllables as their smallest linguistic unit, as opposed to in English, where the less consistent letter-sound correspondences require attention at the individual phoneme level (Soriano-Ferrer & Morte-Soriano, 2016). Differences in letter-sound combinations (e.g., *que, qui*) as well as the absence of specific sounds in Spanish, such as consonant and vowel digraphs (e.g., *sh, ow*), consonant blends (e.g., *sl, str*), initial sounds (e.g., *kn-, wr-*), final sounds (e.g., *-ck, -ng*), certain word endings (e.g., *-ed, -s*), prefixes and suffixes (e.g., *un-, -ly*), and contractions also require careful consideration when teaching and monitoring Spanish-speaking students' literacy development (Colorín Colorado, 2007b). Furthermore, the greater use of vowels in Spanish results in significantly more multisyllabic words and fewer monosyllabic words than in English and, in contrast, fewer monosyllabic words (Carlo et al., 2020).

The differences between Spanish and English to be mindful of during the design of curricula and assessment materials extend beyond the sound and word levels. They include lexical and syntactical features, too. While sentences in Spanish and English use Subject-Verb-Object (SVO) word order (e.g., *The girl kicked the ball; La niña pateó el balón*), the languages vary with respect to placement of adjectives. In English, adjectives typically come before a noun (*the red ball*), while in Spanish, they

typically come after the noun (*la pelota roja*). Spanish nouns also encode information about gender (e.g., *maestro* and *maestra* for man or woman teacher, respectively) and Spanish uses conjugation of verbs to indicate person, mood, or tense, so there is greater flexibility in word order when it comes to sentence construction compared to English (Carreiras et al., 1995).

Theoretical frameworks of cross-linguistic transfer

Most cross-linguistic transfer research in the U.S. is guided by Jim Cummins's Developmental Interdependence Hypothesis, which proposes that "The level of second language (L2) competence which a bilingual child attains is partially a function of the type of competence the child has developed in their first language (L1) at the time when intensive exposure to L2 begins." (Cummins, 1979, p. 75).

Cummins and others demonstrate that understanding what Spanish-speaking students bring to the task of learning English is critical to academic success (Hammer et al., 2011). Cummins (1988) notes that the conceptual and cognitive proficiency developed in L1 is transferable across languages. He calls this the Common Underlying Proficiency (CUP). The CUP allows for foundational general knowledge about language, strengthening a child's understanding of both languages.

To date, much of the research conducted on cross-linguistic transfer has been correlational and has focused on early literacy skills such as oral language, phonological awareness, and alphabet knowledge. Collectively, results from these meta-analytic and correlational studies suggest moderate to strong evidence of cross-linguistic transfer for meta-linguistic skills such as phonological awareness (Branum-Martin et al., 2012; Melby-Lervåg & Lervåg, 2011), morphological awareness (Kuo et al., 2017; Ramirez et al., 2010), and reading comprehension (Proctor et al., 2010) in a student's native language and their second language.

Correlations between oral language skills in English and Spanish are less robust (Melby-Lervåg & Lervåg, 2011), which stands to reason given that children experience significant variability in exposure to English and Spanish. However, oral language skills in Spanish have been found to predict later reading performance in English (Mancilla-Martinez & Lesaux, 2010).

These results, in other words, indicate that oral language, phonological awareness, alphabet knowledge, and reading comprehension skills measured in Spanish can aid in predicting reading skills and language growth in English (Atwill, et al., 2010; Baker et al., 2011; Jackson et al., 2014; Melby-Lervåg & Lervåg, 2011). Moreover, research indicates that these same critical foundational literacy skills in English support acquisition of Spanish literacy (Leider, Proctor, Silverman, & Harring, 2013; Nakamoto, Lindsey, & Manis, 2008; Spies et al., 2018). Given the bidirectional relationship between English and Spanish in cross-linguistic transfer studies, it is reasonable to conclude that assessing students in Spanish and English can yield useful information for instructional planning in either or both languages.

In addition to the relationship between these skills in both languages, there is also a need to further explore the internal mechanisms of cross-linguistic transfer and the external factors, such as language of instruction and language exposure, that can support or hinder the transfer (August & Shanahan, 2006; Castilla et al., 2009; Goodrich et al., 2013; Melby-Lervåg & Lervåg, 2011).

There is also cross-linguistic theory that is specific to vocabulary development. The mechanisms underlying associations between English and Spanish vocabulary development can be explained by the Revised Hierarchical Model (RHM; Kroll et al., 2010). The RHM provides a framework for understanding how levels of L1 proficiency impact cross-linguistic semantic associations. According to this theory, when children first begin to learn a new language, their L1 vocabulary mediates access to conceptual knowledge in L2. When children encounter a new word in their second language, they use their L1 system to access their stored knowledge. A Spanish-speaking child may hear the word *dog*, relate it to the Spanish word *perro*, then access the concept of an animal that has four legs and a tail and barks (Peña et al., 2012). As children learn more vocabulary in their second language and have more experience using the language, L2 words start to develop their own pathways directly to the child's store of conceptual knowledge. Therefore, it is theoretically useful to teach children vocabulary in their stronger language to facilitate the acquisition of new concepts and create a larger store of background knowledge that can be drawn upon to learn new words in their second language (Baker et al., 2021).



Key features of high-quality assessments for supporting Spanish-speaking students

In this section, we first describe some of the limitations of the Spanish reading assessments currently available and follow with descriptions of the key features of high-quality assessments for supporting Spanish-speaking students and how these features are included in our suite of Spanish assessments.

Limitations of currently available Spanish reading assessments

There is a critical, national need for reading screening solutions that can be used with Spanish speakers, as the solutions currently available are inadequate for several reasons. As one example, the universal screening reading assessments available in Spanish often lack technical adequacy; most do not meet basic psychometric standards for their intended use (e.g., reliability, validity, classification accuracy) and/or information about their technical adequacy is not available.

Of eight Spanish early literacy assessments on the market, only three have publicly available psychometric data. None appears to have been studied with a sample size reflecting the broad population of Spanish speakers across the U.S. The few studies that exist have focused on a narrow or small population, not reflective of the geographic or heritage-country diversity. Consequently, although the NCII regularly conducts important reviews of universal screening and progress monitoring assessments of reading, data for published universal screeners of Spanish reading (such as easyCBM, Indicadores Dinámicos del Éxito en la Lectura, Istation's Indicators of Progress Español, aimswebPLUS Spanish Early Literacy and Reading, Tejas Lee, FastBridge earlyReading and CBMreading Spanish, and Measures of Academic Progress Español) have not been included as part of their extensive review process to date.

Of the available studies published in the last 15 years exploring the properties of Spanish literacy screening assessments for use with school-age students, only seven (Baker et al., 2022; Baker et al., 2011; Basaraba et al., 2022; de Ramirez & Shapiro, 2007; Gutiérrez et al., 2020, 2021; Keller-Marguilis et al., 2012) reported validity evidence (i.e., correlations and classification accuracy indices) to demonstrate the degree to which performance on the Spanish Oral Reading Fluency (ORF) passages was related to performance on other measures. Across these studies, correlations ranged from low to strong and classification accuracy results varied depending on the cut score used to designate proficiency on the state achievement test. Moreover, only some studies provided information about other subtests covering phonological awareness, decoding, or alphabet knowledge (Baker et al., 2022; Basaraba et al., 2022; Gutiérrez et al., 2020;2021).

Key features of high-quality assessments

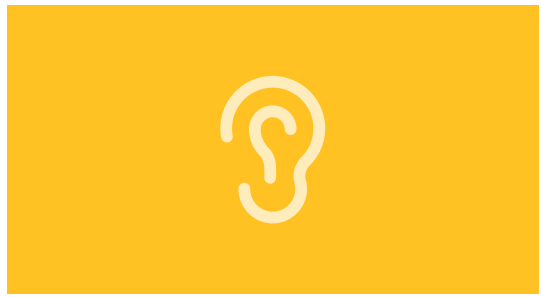
Accurately estimating children’s ability levels is a critical component of improving reading performance (Linan-Thompson et al., 2022). To identify and support struggling Spanish-speaking students early, educators need reliable reading measures that yield valid inferences about student performance to provide these students with the same opportunities to improve their reading skills that are afforded to English monolingual students.

Figure 1: Key features of instructionally relevant Spanish literacy assessments

Features	Details	Examples/Notes
Focus on critical early literacy skills	<ul style="list-style-type: none"> • Phonological awareness • Alphabetic understanding/decoding • Fluency with connected text • Vocabulary • Comprehension 	Subtests of the screening assessment are developed to measure each of these domains that are based on Spanish development and are not translations of English.
Attend to specific linguistic features of Spanish	Measures should be written in Spanish to authentically assess Spanish literacy skills.	<p>Letter name/letter sound measures must reflect the letters/sounds of Spanish, including letters/sounds that are unique to Spanish.</p> <p>Measures of phonological awareness and word reading explicitly account for syllabic and morphological structures of Spanish (e.g., consonant digraphs such as <i>ll</i> and <i>rr</i> that are unique to Spanish, as well as other common digraphs, such as <i>tr</i>, <i>dr</i>, and <i>gl</i>).</p> <p>Passages of connected text for measuring reading fluency should be written using syntactical, lexical, and grammatical rules of Spanish (and passage difficulty should be measured accordingly).</p>

Figure 1: Key features of instructionally relevant Spanish literacy assessments (continued)

Features	Details	Examples/Notes
Strong technical adequacy	<p>Should include information about:</p> <ul style="list-style-type: none"> • Reliability: Consistency of scores across alternate test forms, measurement occasions, raters, and/or between items and overall score. • Criterion validity: Extent to which performance on measure of interest is related to performance on other similar measures. • Classification accuracy: Consistency with which scores on screening assessment classify students and predict a decision regarding performance on an outcome assessment. • Generalizability: Extent to which reliability, validity, and classification accuracy generalize to other demographic groups of students. 	<p>Reliability (alternate-form, test-rest, interrater, and/or internal consistency)</p> <p>Criterion validity (concurrent, predictive)</p> <p>Classification accuracy (sensitivity, specificity, accuracy, Area Under the Curve)</p>
Appropriateness of tasks	<p>Tasks used to measure Spanish literacy skills should be appropriate for:</p> <ul style="list-style-type: none"> • The construct being assessed. • Age/skill level of students being assessed. 	<p>Phonological awareness in Spanish will focus on syllable awareness and phoneme awareness (in line with the Science of Reading; Guilamo, 2021).</p> <p>Tasks should be sufficiently sensitive to measure skills and detect change, even among the youngest learners.</p>
Brief, easy, and efficient to administer	<p>Tasks should be:</p> <ul style="list-style-type: none"> • Brief in duration, because all students should be assessed. • Efficient with respect to the time, personnel, and resources required to administer the assessments and interpret results. • Easy to administer, because minimal training is required to administer the assessments using standardized administration procedures (Deno, 2003). 	<p>Items are scripted for the examiner and scoring is well specified.</p> <p>Each subtest is no more than 3 minutes long.</p>



Spanish measurement innovations and mCLASS®

The mCLASS and mCLASS Español suite of assessments offered by Amplify feature a newly designed Spanish reading universal screening assessment, mCLASS Lectura, designed and developed to incorporate the key features of instructionally relevant assessments described in Figure 1 and to address the known limitations in other available Spanish reading assessments.

mCLASS Lectura was co-developed with the Center on Teaching and Learning at the University of Oregon and was created to provide educators with a high-quality, evidence-based assessment to support understanding of Spanish-speaking students' biliteracy development. mCLASS Lectura is a universal screening assessment of foundational Spanish reading skills that includes measures of phonological awareness, alphabetic understanding and decoding, reading fluency, and reading comprehension. mCLASS Lectura, combined with additional measures of literacy skills in vocabulary, oral language, and spelling, comprises the mCLASS Español assessment suite.

In the sections that follow, we describe the development of mCLASS Lectura; explain why mCLASS Lectura is a user-friendly, efficient, and affordable solution for schools and districts; and discuss how the program can be used to support students' literacy skill development in bilingual and English-only program settings.

mCLASS Lectura development process

mCLASS Lectura has been purposefully designed, developed, field-tested, and evaluated to address many of the limitations noted earlier in this paper about the paucity of Spanish literacy assessments available for Spanish-speaking students, as well as the cultural appropriateness and technical adequacy of those assessments.

First and foremost, mCLASS Lectura focuses on the development of Spanish literacy skills using items and texts that were written in Spanish. Existing research that supports authentically written Spanish assessments, specifically the *Indicadores Dinámicos del Éxito en la Lectura* (IDEL; University of Oregon, 2006) contributed to the development of some of the measures, as did research conducted in the last decade on the development of Spanish literacy skills and exploring the relationships among those skills. Items and texts were written *in* Spanish and were developed to account for the linguistic structures (e.g., letter-sound correspondence rules, morphological, lexical, and syntactical) of Spanish. In addition, authors represented

La feria de California

Ana está muy contenta porque hoy va a la feria de California. Ella va todos los años con su mamá, papá, y su hermana, Rosa. Pasan todo el día en la feria disfrutando de los diferentes eventos.

Cuando llegan a la feria, Ana y Rosa corren para ver a un grupo que está bailando salsa. Después de un rato, comienzan a bailar con su papá y mamá. Bailan hasta que ellas dos se cansan, pero su papá y mamá siguen bailando un buen rato.

Figure 2. Excerpt from Spanish oral reading fluency passage

multiple Spanish-speaking countries and regions to provide content with cultural relevance and appropriateness. (See Figure 2 for an example of an oral-reading fluency passage for grade 3.)

Additional efforts to maximize cultural relevance and appropriateness for Spanish-speaking students included using a norming sample of students from states with large numbers and a diverse range of Spanish-speaking students, including California, Illinois, New Mexico, Oregon, Texas, Utah, Washington, North Carolina, and Wyoming. With respect to content development, we engaged in an iterative development process that included piloting the items with students and obtaining feedback from not only leading experts in biliteracy, but also school district representatives working in multiple Spanish-speaking regions (including Central America, South America, the Caribbean Islands, and Spain) and with multiple dialects.

Findings from literature reviews, reviews of existing Spanish reading screening assessments, and feedback from stakeholders led to key decisions in the development and scope of the mCLASS Lectura measures and the overall mCLASS Español suite, including:

- Making the measures available for grades K–6.
- Including a measure of oral language to help identify students in grades K–2 who may be struggling to comprehend the language structures that are foundational to understanding early-reader texts.
- Systematically increasing the difficulty of phonological awareness tasks by increasing the number of syllables per word and by using fewer common words.
- Scoring phonological awareness measures at the syllable level in the early grades, which capitalizes on the consistent syllabic structure of Spanish and is not only reflective of phonological awareness instruction in many Spanish literacy programs, but also is a strong predictor of reading success in Spanish (Vazeux et al., 2020), while also including items that are scored at the phoneme level.
- Including an optional phonological awareness elision task that requires students to identify the remaining word after increasing smaller phonological units (e.g., parts of a compound word, syllables, and phonemes) are deleted to provide valuable information about students' syllabic and phonemic awareness (both of which are critical to learning to read in Spanish; Bravo-Valdivieso et al., 2006; González & Ayala, 2002; Serrano et al., 2005).
- Measuring letter-sound correspondence and decoding with measures of letter-sound fluency, syllable-reading fluency, and real-word fluency.
- Developing an abbreviated, less-challenging version of letter-sound fluency for kindergarten (K-Inicio FSL) to account for the floor effects often experienced by children as they enter kindergarten.
- Including a measure of Spanish spelling to provide teachers with information about students' Spanish encoding skills.
- Including a measure of vocabulary that assesses students' general vocabulary knowledge, and their ability to use context to determine word meaning and understand relationships among words.
- Including a Maze comprehension task in which students are asked to silently read passages of grade-level appropriate Spanish text and then identify the missing word (from three possible word choices) to maintain coherence in the passage.

To ensure greater equivalence of alternate forms administered at the beginning of year, the middle of year, and the end of year (BOY, MOY, and EOY, respectively), we

used Rasch modeling design the forms. This approach allowed us to measure student ability and item difficulty on the same scale on which (a) the item difficulty represents the location on the latent trait scale at which the probability of a correct response to the item is equal to the probability of an incorrect response (0.50) and (b) the person-ability estimate represents the relative ease or difficulty of an item for a student with average ability (Embretson & Reise, 2000). These item and person parameters were used to generate estimates of item difficulty for all students with average ability; we then used those item difficulty estimates to construct forms of comparable difficulty. For example, based on data from our pilot study, the word *luz* on a first-grade measure of word-reading fluency (*Fluidez en las Palabras*) was a relatively easy item with an empirical item difficulty of -3.95, whereas *hielo* was considerably more difficult for students, with an item difficulty of -0.43. Using the item-level difficulty data, we were able to ensure that alternate forms for BOY, MOY, and EOY for each mCLASS Lectura measure were of comparable difficulty.

Lastly, one of the critical objectives for mCLASS Lectura is to facilitate cross-language examinations of student performance in Spanish with data from the mCLASS Lectura assessments and from DIBELS® 8th Edition, our complementary suite of English assessments for grades K–6, which was designed to measure similar literacy skills in English. By providing educators with side-by-side information about students' Spanish and English literacy skills, we aim to promote exploration of cross-linguistic relationships between Spanish and English and provide educators with instructionally useful information about student literacy skills in both languages; for example, correlational analyses of data from both assessments allows us to explore the extent to which performance on Spanish reading measures predicts performance on English reading measures (and vice versa).

The screenshot shows the mCLASS Lectura software interface. At the top, there is a navigation menu with options: Benchmark, Progress, Instruction, Home Connect, and Dual Language. A dropdown menu is set to 'Grade 1'. Below the navigation, there is a 'Name' dropdown menu with a list of students: Archuleta, Gabriel; Benavidez, Daniel; Campos, Sophia; Carvajal, Alexander; Delao, Camilla; Desilva, Christian; Diaz, Eduardo; Escalera, Javier; Esquibel, Jennifer; and Gray, Jose. The selected student is Gabriel Archuleta. The main content area displays 'Gabriel Archuleta' and a summary of his performance: 'Gabriel demonstrates higher performance on Spanish literacy assessments than English literacy assessments. Gabriel applies strong foundational skills in Spanish to read and comprehend text. Gabriel may need additional support in English language, foundational skills, and in applying foundational skills to read and comprehend text.' To the right, an 'Overall Literacy Skill' comparison shows 'English DEVELOPING' and 'Spanish ON TRACK'. Below this, there is a table of scores for English and Spanish across seven literacy skills: Letter Names, Phonological Awareness, Letter Sounds, Decoding, Word Reading, Reading Accuracy, and Reading Fluency. The table shows that Gabriel's Spanish scores are generally higher than his English scores, with Spanish scores often meeting or exceeding benchmarks.

	Letter Names	Phonological Awareness	Letter Sounds	Decoding	Word Reading	Reading Accuracy	Reading Fluency
English	30 Well Below	34 Below	11 Well Below	11 Well Below	10 Below	40% Well Below	4 Well Below
Spanish	51 Benchmark	53 Benchmark	20 Benchmark	55 Benchmark	23 Below	95% Benchmark	42 Below

Supporting Gabriel's Biliteracy Development

Using mCLASS Lectura

mCLASS Lectura is a user-friendly, efficient, and affordable solution

As noted in Figure 1, in the case of complementary assessment systems in English and Spanish, results from universal screening assessments should provide users with consistent and trustworthy information about students' biliteracy development. In particular, information about student skill development in phonological awareness, alphabetic understanding, fluency, vocabulary, and comprehension in Spanish and English is useful not only for monitoring student skill development in both languages, but also for obtaining valuable information about which skills students may have in their L1 that may be leveraged to support their L2 literacy development.

Additionally, universal screening assessments should use not only appropriate methods for measuring the constructs of interest, but also tasks that are developmentally appropriate. To that end, and in line with other universal screening assessments of English and Spanish literacy, mCLASS Lectura measures foundational early literacy skills that are critical for students learning to read. For example, DIBELS® 8th Edition includes measures of letter-naming fluency, phonemic-segmentation fluency, letter-sound correspondence knowledge and decoding skills, fluency with connected text, and reading comprehension. mCLASS Lectura measures these same skills, taking into consideration the syllabic structure and orthographic transparency of Spanish.

In addition, we have made a concerted effort to ensure that the measures are developmentally appropriate by including K-Inicio FSL, which was systematically designed to be easy enough that students with the lowest levels of incoming skills in kindergarten could be successful and have an opportunity to demonstrate their skills. In other words, one goal of K-Inicio FSL is to minimize the observance of floor effects often seen in kindergarten, where scores earned are often extremely low, if not zero, giving educators little actionable data to work with to plan their instruction (Catts et al., 2009). In particular, a significant body of research suggests that Spanish-speaking children tend to enter kindergarten with low language and literacy skills given social and economic realities in the U.S. that lead to higher rates of poverty and less access to high-quality early educational experiences (NASEM, 2017) and therefore items at the beginning level may be necessary to adequately and meaningfully capture ability levels to guide instruction (Durán & Wackerle-Hollman, 2018; Ford et al., 2013).

Universal screening requires assessments that are user friendly, have documented evidence of validity and reliability, and are easily interpreted to provide teachers with meaningful data. General outcome measures have become one of the primary types of assessment tools used for universal screening and progress monitoring (Fuchs & Fuchs, 2006) precisely because they are brief, easy-to-use, and aligned with long-term academic outcomes (Fuchs & Deno, 1991).

The context of universal screening includes the expectation that all students are assessed, so universal screening assessments must also be time- and resource-efficient; although it is not feasible to administer a diagnostic reading assessment that takes 45–60 minutes to all students, administering a set of assessments requiring no more than 5–7 minutes per student is feasible. Assessment administration procedures should also be easily learned so that a range of school personnel can easily gain fidelity in the administration with minimal training. This is particularly true for Spanish assessments, as bilingual paraprofessionals or educational assistants may need to be hired to complete the administration if there are insufficient numbers of bilingual teaching staff to complete the necessary testing.



mCLASS Lectura and English-only instructional programs

Even if reading instruction only focuses on the acquisition of English literacy skills, information about a student's literacy skills in Spanish provides valuable insights into a student's literacy development (Lambert, 2022). If assessment is conducted only in English, teachers may erroneously decide that students are low-performing or that they do not have the aptitude to become skilled readers. In contrast, also assessing Spanish-speaking students using mCLASS Lectura can provide teachers with concrete information about the Spanish literacy skills students already have that may readily support their English-reading development. Seeing, for example, that a student has solid knowledge of letter-sound correspondences for the letters *f, k, l, m, n, p, qu, s,* and *t* in Spanish can provide teachers with some confidence that the student knows these letter-sound correspondences in English, as they are the same. More broadly speaking, if a student demonstrates strong performance on a Spanish measure of a meta-linguistic skill such as phonological awareness, it is likely that student will also perform well in English. mCLASS Lectura will also provide instructional recommendations in both English and Spanish, taking the student's home language exposure and language of classroom instruction into consideration to interpret their performance in each language.

mCLASS Lectura and dual language instructional programs

Dual language programs in which instruction is provided in students' L1 and L2 (e.g., Spanish and English, respectively, for Spanish-speaking students) offer one evidence-based approach for supporting the biliteracy development of Spanish-speaking students (August & Shanahan, 2006; NASEM, 2017). These programs can vary in their design and the amount of instructional time allocated to each language, as well as the students they serve. One-way programs, for example, serve a group of students who share an L1 and capitalize on their L1 literacy skills to support the development of their L2 literacy skills. Often, these programs serve Spanish-speaking students to support their literacy development in both Spanish (L1) and English (L2), although variations on this model (e.g., English-speaking students learning to read in Spanish) are growing in popularity. Two-way programs serve English- and Spanish-

speaking students and support the acquisition and development of literacy skills in both languages for both groups of students (Francis et al., 2006).

In response to the growth in Spanish-speaking students in the U.S., dual language programs have grown tremendously in the last several years. A decade ago, there were about 200 dual language programs across the U.S.; today, there are more than 3,600 (Olmos, 2021). Of these, approximately 80% are Spanish dual language programs (ACIE, 2021). With respect to the distribution of dual language programs by state, the majority (18.75%) of programs are in California, followed by Texas (14.78%), New York (12.94%), and Utah (8.43%). As of 2021, only six states had zero dual language programs (ACIE, 2021). Dual language programs aren't just growing in areas of the country typically known for having a high Spanish-speaking population. As of 2022, North Carolina had 229 dual language Spanish programs, an increase from only 29 during the 2010–2011 school year (ACIE, 2021). Regardless of which populations of students are served, the overarching goal of dual language programs remains the same: “[to promote] bilingualism and biliteracy, academic excellence in both Spanish and English, and positive cross-cultural relationships and high levels of self-esteem” (Lindholm-Leary et al., 2007).

Dual language programs are grounded, in part, in theories of cross-linguistic transfer that articulate hypotheses about how students' knowledge and skills in their heritage language (L1) can be used to facilitate the development of similar skills in their second language (L2) (Cummins, 1979; Proctor et al., 2010). Key components of the dual language program, namely instruction and assessment, can capitalize on the similarities between the two languages while also being mindful of the nuanced differences between the two languages that may be particularly challenging for developing readers. mCLASS Lectura is a perfect fit for dual language programs in that it can be administered to all children and benchmark performance in Spanish and English can be documented and used to guide instruction.

The screenshot displays the mCLASS Lectura interface for a student named Gabriel. On the left is a vertical list of student names: Gray, Jose; Maroto, Luciana; Montreal, Sergio; Morgan, Joselyn; Ocampo, Rosa; Pascua, Luis; Rojas, Mariana; Ruiz, Andres; Thomas, Miguel; Vega, Angel; and Zendejas, Josephine. The main content area is titled "Supporting Gabriel's Biliteracy Development" and is divided into two sections: "Phonological Awareness" and "Letter Sounds and Decoding".

Phonological Awareness

Gabriel has strong skills in phonological awareness in Spanish at both the syllable and phoneme levels and needs to build skills in phonological awareness in English. During instruction, consider cross-language transfer or whether the sounds transfer between languages. Build on sounds that are similar across languages, and highlight sounds that are different. Start with earlier phonological awareness skills like blending and segmenting at the syllable and onset-rime levels before moving to phonemes.

34 Below ENGLISH Phonemic Segmentation Phoneme Segmentation Fluency PSF

53 Benchmark SPANISH Syllable Segmentation Fluidez En La Segmentación De Sílabas FSS

20 Benchmark SPANISH Phoneme Manipulation ¿Que Queda? QQ

For students with developing or emerging skills in English language, start instruction with sounds the student already knows. Then, focus on recognizing and distinguishing all of the sounds in English.

Cross-Linguistic Transfer: Phonological Awareness

Letter Sounds and Decoding

Gabriel has strong skills in phonics in Spanish (letter sound correspondence and blending sounds into syllables) and needs to build letter sound and decoding skills in English. During instruction, consider cross-language transfer: sounds and letter combinations that are transferable (e.g., m, s, t) and non-transferable (e.g., r, rr, ñ) from Spanish to English. Highlight sounds and letter combinations present and not present in the child's native language. Include extra modeling and examples of words that include the sounds and letter combinations. During instruction, use words with meanings the student understands so the focus can be on alphabetic principle and basic phonics.

19 Below ENGLISH Vocabulary VOCAB

24 Benchmark SPANISH Vocabulario VOCAB

Scaffold: For students with developing or emerging skills in English language, start instruction with sounds the student already knows. Then, focus on recognizing and distinguishing all of the sounds in English (e.g., English-only digraphs such as sh and th).

Cross-Linguistic Transfer: Letter Sounds and Decoding



Future directions

mCLASS Lectura has many strengths and has undergone a rigorous development process, but there will always be more research that needs to be completed. In the future, we will continue gathering validity evidence, including predictive validity and concurrent validity, with other important outcome measures such as state achievement tests and tests of overall reading achievement. Moreover, we have systematically developed a set of progress monitoring forms for each grade level and are in the process of gathering empirical evidence that they are sensitive to incremental change and provide reliable estimates of student growth in key Spanish literacy skills (Baker et al., 2010, 2012; Baker et al., 2011).

It will also be important to continue validating mCLASS Lectura as a dyslexia screening tool, as dyslexia in students who are bilingual and biliterate is not well understood. Our efforts to gather preliminary validity evidence for mCLASS Lectura as a dyslexia screening tool include simultaneously administering other measures typically used in dyslexia screening, such as the Analisis de Palabras (Word Analysis) subtests of the Woodcock-Muñoz Language Survey (Woodcock, Alvarado, Schank, Mather, Wendling, & Muñoz-Sandoval, 2017) and the Clinical Evaluation of Language Fundamentals (CELF; Wiig et al., 2013), which is designed to help educators determine whether additional testing is needed to identify a disorder. Additionally, we will conduct predictive validity studies to explore the relationships between performance on mCLASS Lectura and later identification of dyslexia.



Conclusion

Given that there are long-standing inequities in educational opportunities and outcomes for Spanish-speaking students, it is critical that assessment practices recognize students' language proficiency and how it might not only impact performance on an English literacy assessment, but also yield information about their instructional needs. Spanish language and literacy testing is an important tool for establishing broader equity in our educational systems and supporting strength-based approaches to educating Spanish-speaking students, supporting their progress toward English academic outcomes, and supporting the maintenance of their heritage language and culture. Moreover, given the exponential increase in Spanish-English dual language programs in schools throughout the United States in the last decade and the number of students striving to become proficient readers in both languages, a reliable and valid assessment system that enables educators to monitor literacy skill development is critical. mCLASS Lectora provides an assessment solution that supports these culturally and linguistically sustaining practices.

Specifically, mCLASS Lectora is a research-based Spanish literacy assessment that provides school districts with a valid and reliable solution to the universal screening of Spanish literacy skills. mCLASS Lectora was designed with Spanish language and literacy development as the central construct and was not translated from an English assessment. Items were carefully developed and vetted to provide educators with targeted and actionable information to guide reading instruction in both Spanish and English. mCLASS Lectora stands above the other Spanish assessments available on the market as an evidence-based and high-quality solution that is linguistically and culturally responsive, efficient, easy to use, and affordable. Assessment is only useful if it creates the opportunity for meaningful improvements in student academic outcomes, and mCLASS Lectora strives to be part of that solution.

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