

mCLASS® Español

mCLASS Spelling Español

Technical Manual

Amplify.

Table of Contents

Introduction	1
Spelling Español Overview	1
Background	1
Word Selection	3
Administration and Scoring	3
Chapter 1: Research Overview and Sample Descriptions	4
Sample Recruitment and Selection Procedures	4
Description of Research Samples	5
External Measures Descriptions	9
Star Early Literacy Spanish (SELSp)	9
mCLASS Lectura	10
Results	11
Descriptive Statistics	11
Chapter 2: Reliability of mCLASS Spelling Español Measure	14
Internal Consistency Reliability	14
Chapter 3: Validity of mCLASS Spelling Español Measure	15
Concurrent Validity	16
Predictive Validity	16
Chapter 4: Cuts scores of mCLASS Spelling Español Measure	17
Developing Cut Scores	17
Interpreting Cuts Scores of mCLASS Spelling Español Measure	19
References	22

List of Tables

- Table 1. Sample Scoring for the Target Word: *vamos*
- Table 2. Word types included in the Spelling Measure by Grade
- Table 3. Demographic information Research Samples A and B
- Table 4. Demographic information Research Sample C
- Table 5. mCLASS Lectura subtests contributing to the composite score
- Table 6. Descriptive Statistics for the mCLASS Spelling Español Measure
- Table 7. Descriptive Statistics for the Star Early Literacy Spanish Measure by Grade
- Table 8. Descriptive Statistics for the mCLASS Lectura Composite Score by Grade
- Table 9. Internal Consistency of the mCLASS Spelling Español Measure
- Table 10. Correlation Coefficients Descriptors (Hopkins, 2002)
- Table 11. Concurrent Validity of mCLASS Spelling Español Measure with Star Early Literacy Spanish
- Table 12. Predictive Validity of mCLASS Spelling Español Measure with Star Early Literacy Spanish
- Table 13. Logistic Regression and Receiver Operator Curve (ROC) Results for CLASS Spelling Español Measure Score Range

mCLASS Spelling Español

Introduction

The rapidly increasing establishment of dual language programming in schools across the U.S. (American Councils Research Center, 2021) has created a demand for high quality literacy screening assessments in Spanish (e.g., Durán et al., 2022). To better meet the growing needs of educators to screen multilingual Spanish-speaking students for reading difficulties, Amplify has created an early Spanish literacy measure designed to provide information on students' skills in the area of spelling. Educators may use the additional information collected from this measure to develop targeted interventions for students at risk.

Spelling Español Overview

Background

One essential component for both reading and writing is *lexical knowledge*, encompassing the depth and quantity of known words. This is because reading and writing involve a set of constrained skills that are essential for both activities. These skills include: (1) *phonology*, or the ability to recognize and manipulate various units of speech sound; (2) *orthography*, the knowledge and awareness of graphemes; and (3) *morphology*, the knowledge and awareness of word structures such as affixes and base words, as well as the ability to reflect on and manipulate those structures (e.g., Kim, 2022).

To delve deeper into the matter, the strong connection between word reading and spelling arises from their shared underlying skills, despite these skills following different processes or sequences. In word reading, individuals retrieve letters and graphemes along with their associated phonological and morphological information. Conversely, in spelling, the process involves retrieving phonological and morphological information, connecting it with graphemes, and then assembling and writing them in the correct order (e.g., Ehri, 1997; Kim, 2022; Kim et al., 2023). Consequently, word reading is considered a receptive skill, focusing on recognizing and retrieving grapheme-phoneme/morpheme correspondences. In contrast, spelling is an expressive skill that demands accurately encoding phoneme and morpheme information into graphemes while adhering to the proper sequence and formation (e.g., Berninger et al., 2002).

Despite the differing process sequences, various meta-analyses and reviews, relying on correlational evidence, consistently demonstrate a significant moderate-to-strong correlation between word reading and spelling ($r = .64$; Ahmed & Wagner, 2020; $r = .82$; Kim et al., 2023). Hence, the experience of word reading enhances spelling, and conversely, the experience of spelling enhances word reading (e.g., Abbott et al., 2010; Kim et al., 2023). Both activities offer opportunities to engage with the phonological, orthographic, and morphological structure of words (e.g., Kim et al., 2023). Proficiency in mastering lexical skills in either reading (word reading) or writing (spelling) is crucial because as children become adept in these skills, they can allocate their cognitive resources to more advanced cognitive processes, such as reading comprehension (e.g., Labeledge & Samuels, 1974; Perfetti & Stafura, 2014) or written composition (e.g., Kim, 2022; Kim et al., 2018).

Spelling entails the capacity to correctly write words in isolation, devoid of context, as seen in tasks like dictation. The mCLASS Spelling Español measure is designed to serve as an indicator of a student’s level of lexical knowledge within the writing domain. For early writers, spelling tasks have demonstrated significant promise in CBM assessments, as evidenced in studies conducted in both English (e.g., Coker & Ritchey, 2010; Ritchey & Coker, 2014) and Spanish (e.g., Gil et al., 2020). The mCLASS Spelling Español measure is designed based on the principles of General Outcome Measurement and Curriculum-Based Measurement (CBM; Deno, 1992). Assessments from this approach are designed to efficiently screen for students who are at-risk for difficulty; they are brief assessments of critical skills that are sensitive to student learning and overall growth. CBM measures do not assess all skills within a domain but provide a snapshot of a student’s skills in a given area using tasks that are instructionally useful and can be reliably administered (Deno, 2003).

CBM Spelling measures usually consist of a list of grade-appropriate words that are dictated to students at a predetermined pace. mCLASS Spelling Español contains a list of 12 words for each grade level, K–2. For each grade level, each form includes words that address skills taught over the entire grade level. All forms within a grade level are designed to be of equivalent difficulty so that a student’s growth over the school year is representative of their skill development and not differences in the forms administered at each time of year. The student must spell each word that is dictated. CBM Spelling measures produce two scores: Correct Letter Sequences (CLS) and Words Spelled Correctly (WSC). CLS is a more sensitive measure; a correct letter sequence is counted for each correct letter-to-letter sequence, including the beginning space to the first letter, a letter to punctuation (e.g., an apostrophe in a contraction), punctuation to a letter, and the end letter to a space. WSC is a count of the number of words a student spells correctly (Hosp et al., 2007). As an example, if the word is *luz* and the student writes *lus*, they would receive 2 points for CLS and 0 points for WSC. See Table 1 for an additional sample of the CLS and WSC rules for the word *vamos*.

Table 1. Sample Scoring for the Target Word: *vamos*

vamos	“vamos”	“bamos”	“bamo”
1. _v	✓	✗	✗
2. va	✓	✗	✗
3. am	✓	✓	✓
4. mo	✓	✓	✓
5. os	✓	✓	✗
6. s_	✓	✓	✗
Total CLS	6	4	2
Total WSC	1	0	0

Word Selection

Each alternate form of mCLASS Spelling Español consists of 12 words for each grade level for grades K–2. The items developed for the measure were guided by the grade-specific expectations included in the Common Core State Standards en Español (San Diego Office of Education, 2012). These guidelines informed the word types included at each grade level, and words were pooled from a list of common high-frequency words compiled from the Real Academia Española (2015). These word types are listed in Table 2. Each form for a grade level includes the same number of words of each type.

Table 2. Word Types Included in the Spelling Measure by Grade

Grade	Word Types
K	All 1- to 2-syllable words - 3 CV (consonant vowel) -3 CVC -6 2-syllable CVCV or VCV
1	All 2- to 3-syllable words - 3 Inflections -3 Orthographically complex (b-v; c-s-z-x; c-k-qu; g-j; y-ll; r-rr; m-n) -3 Consonant combinations (br, bl, pr, tr, gr, cl) -3 one-syllable with consonant digraph (ch, ll, rr) -3 Vowel combinations (ua, ie, ai)
2	All 3- to 4-syllable words - 2 with diphthongs (io, ie, ue) -3 with varying prefixes or suffixes -3 with the same phoneme, but different grapheme (b-v; c-s-z-x; c-k-qu; g-j; y-ll; r-rr; m-n) -3 complex sounds for spelling (h-ch; h-j; que, qui, gue, gui)

Administration and Scoring

mCLASS Spelling Español incorporates the key features of CBM Spelling measure design, administration, and scoring. It is administered on a computer or tablet, so typical procedures for administering the measure were modified to fit the software environment. The target word is spoken by the computer, and the student uses letter tiles to spell the word. This approach offers several advantages, as it easily allows for standardization in the pace of dictating words. The keyboard is specifically designed to include letter keys with accent marks for words where students are required to employ an accent to spell a word correctly. Administration time is approximately 15 minutes per group. Because students vary in how long they take to manipulate the online letter tiles, the time between words is much longer than the time typically provided in a traditional paper-pencil CBM Spelling assessment. Both CLS and WSC scores are calculated. mCLASS Spelling Español is administered from the middle of kindergarten through the end of Grade 2.

Chapter 1: Research Overview and Sample Descriptions

This technical manual provides an overview of the reliability and validity evidence for mCLASS Spelling Español, as well as the procedures used to establish the score ranges upon which student performance is categorized and reported. A study was conducted during the 2021–2022 school year, including assessments at the Beginning of Year (BOY), Middle of Year (MOY), and End of Year (EOY).

The primary goal of this study was to establish the reliability and validity of the mCLAS Español Spelling measure and to determine and confirm score ranges based on grade levels and different times of the year (TOY). To achieve this, the study aimed to answer the following research questions:

1. What is the reliability of mCLASS Spelling Español at each time of year across kindergarten to second grade?
2. How well does mCLASS Spelling Español correlate with an external criterion measure of Spanish reading?
3. How effectively do scores from the mCLASS Spelling Español Measure scores predict performance on an external criterion measure of Spanish reading?
4. What is the classification accuracy of the mCLASS Spelling Español cut scores?

Sample Recruitment and Selection Procedures

Amplify enlisted elementary and middle schools from various regions across the United States to participate in research related to mCLASS Lectura (Amplify's additional Spanish literacy assessment suite) during the 2020–2021 and 2021–2022 school years. This particular study involving mCLASS Spelling Español was conducted as part of this larger research initiative on Spanish reading.

Schools were recruited from mCLASS customers using the existing mCLASS Spanish assessment, *Indicadores Dinámicos del Éxito en la Lectura* (IDEL), through website postings and email contacts, as well as via connections to Amplify customer support managers and Amplify sales team members. Prior to reaching out to districts, the following criteria for participating schools were confirmed: a) students were enrolled in a dual-language program and/or are native Spanish speakers; b) participating students had a range of Spanish reading proficiency levels; and c) participating students were enrolled in any of the target grade levels (K–2). Once eligibility criteria were met, information about the project, including participation requirements and incentives, was communicated to potential participating schools via a flier containing a link to a questionnaire schools were asked to complete if they were interested in discussing the study further. School staff then received a description of the study, selection criteria, and participation options. Amplify research staff reached out to all interested schools for a virtual meeting to discuss the research activities schools would be expected to complete by time of year. Schools were recruited until Amplify met or exceeded its recruitment goals or until it was no longer feasible for schools to assess students during the specified benchmark administration windows.

All students who were enrolled in a Dual Language Immersion (DLI) program and/or were native Spanish speakers were eligible for participation and were included unless they would normally be excluded from typical assessments. At their discretion, schools could also opt not to assess students with disabilities who required assessment modifications.

Description of Research Samples

This study included students in grades K to 2 who had recorded mCLASS Spelling Español Measure scores and had scores on specific criterion measures during the 2021–2022 school year. Operational data from the mCLASS platform was obtained for Sample A (n = 50,749) and included students with complete data on mCLASS Spelling Español (i.e., data for BOY, MOY, and EOY). With respect to the demographics for Sample A, approximately 45% of students identified as male, 45% identified as female, and data for gender was missing for approximately 9% of students. The majority of students in Sample A (42.9%) identified as Hispanic/Latino, 8% identified as White, and fewer than 2% of students identified as another race/ethnicity (e.g., American Indian/Alaskan Native, African American/Black, Asian, Hawaiian/Pacific Islander, and Multiracial, respectively). Additionally, approximately 18.6% of Sample A were identified as English as a Second Language (ESL), 4.4% were eligible for special education services, and 15.9% received free or reduced price lunch services (a common indicator of socioeconomic status).

From this large operational dataset we derived two smaller datasets (Sample B and Sample C) comprised of students with mCLASS Spelling Español scores and scores on the external criterion measures, Star Early Literacy Spanish (SELSp) or mCLASS Lectura, that were administered by trained Amplify data collectors in each school. Sample B consists of students with at least one mCLASS Spelling Español score and at least one SELSp score at any TOY during the 2021–2022 school year. Sample B was used to evaluate the reliability and validity of mCLASS Spelling Español. This sample consists of 4,271 students with a demographic composition similar to that of Sample A; demographic information for Sample B is presented in the right-hand panel of Table 3. Lastly, Sample C consists of students with mCLASS Spelling Español scores and a composite score from mCLASS Lectura. Sample C was used to evaluate the classification accuracy of mCLASS Spelling Español. This sample consists of 9,329 students with a demographic composition similar to that of Sample A; demographic information for Sample C is presented in Table 4.

Table 3. Demographic Information Research Samples A and B

	Sample A				Sample B			
	All	K	Grade 1	Grade 2	All	K	Grade 1	Grade 2
Sample Size (n)								
Students	50,749	17,514	21,390	11,845	4,271	2,081	1,316	874
Gender (n)								
Female	23,123 (46%)	8,312 (48%)	9,369 (44%)	5,442 (46%)	1,228 (29%)	457 (22%)	447 (34%)	324 (37%)
Male	23,075 (46%)	8,355 (48%)	9,329 (44%)	5,391 (46%)	1,181 (28%)	449 (22%)	419 (32%)	313 (36%)
Not specified	4,551 (9%)	847 (5%)	2,692 (13%)	1,012 (9%)	1,862 (44%)	1,175 (57%)	450 (34%)	237 (27%)
Ethnicity (n)								
American Indian	224 (0.4%)	24 (0.1%)	156 (0.7%)	44 (0.4%)	12 (0.3%)	1 (0.05%)	5 (0.38%)	6 (0.69%)
Asian	106 (0.2%)	25 (0.1%)	31 (0.1%)	50 (0.4%)	8 (0.2%)	0 (0%)	3 (0.23%)	5 (0.75%)
Black	587 (1.2%)	185 (1.1%)	201 (0.9%)	201 (1.7%)	44 (1%)	15 (0.72%)	9 (0.68%)	20 (2%)
Hispanic	21,752 (43%)	7,357 (42%)	8,830 (41%)	5,565 (47%)	1,099 (26%)	419 (20%)	390 (30%)	290 (33%)
Native Hawaiian or other Pacific Islander	17 (0%)	6 (0%)	8 (0%)	3 (0%)	1 (0%)	0 (0%)	1 (0.08%)	0 (0%)
Multiracial	936 (2%)	345 (2%)	368 (2%)	223 (2%)	48 (1%)	18 (1%)	17 (1%)	13 (1%)
White	4,062 (8%)	1,266 (7%)	1,453 (7%)	1,343 (11%)	253 (6%)	79 (4%)	82 (6%)	92 (11%)
N/A	23,065 (45%)	8,306 (47%)	10,343 (48%)	4,416 (37%)	2,818 (66%)	1,549 (75%)	809 (61%)	448 (51%)

	Sample A				Sample B			
	All	K	Grade 1	Grade 2	All	K	Grade 1	Grade 2
ESL (n)								
Yes	9,437 (19%)	2,955 (17%)	3,607 (17%)	2,875 (24%)	521 (12%)	172 (8%)	201 (15%)	148 (17%)
No	16,900 (33%)	5,675 (32%)	6,862 (32%)	4,363 (37%)	932 (22%)	2,331 (16%)	325 (25%)	276 (32%)
N/A	24,412 (48%)	8,884 (51%)	10,921 (51%)	4,607 (39%)	2,818 (66%)	1,578 (76%)	790 (66%)	450 (51%)
Special Education (n)								
Yes	2,227 (4%)	656 (4%)	954 (4%)	617 (5%)	119 (3%)	35 (2%)	51 (4%)	33 (4%)
No	21,231 (42%)	7,323 (42%)	8,545 (40%)	5,363 (45%)	1,117 (27%)	437 (21%)	391 (30%)	289 (33%)
N/A	27,291 (54%)	9,535 (54%)	11,891 (56%)	5,865 (50%)	3,035 (71%)	1,609 (77%)	874 (66%)	552 (63%)
Other Demographics (n)								
FRL Eligible	8,066 (16%)	2,868 (16%)	3,032 (14%)	2,166 (18%)	437 (10%)	187 (9%)	130 (10%)	120 (14%)
FRL Not Eligible	1,993 (4%)	706 (4%)	670 (3%)	617 (5%)	120 (3%)	54 (3%)	32 (3%)	34 (4%)
N/A	40,690 (80%)	13,940 (80%)	17,688 (83%)	9,062 (77%)	3,714 (87%)	1,840 (88%)	1,154 (88%)	720 (82%)

Table 4. Demographic Information Research Sample C

Sample C								
	All		K		1		2	
	N	%	N	%	N	%	N	%
Gender								
Female	4,783	51.22	1,519	50.94	1,756	51.60	1,508	51.05
Male	4,546	48.68	1,458	48.89	1,644	48.31	1,444	48.88
N/A	10	0.11	5	0.17	3	0.09	2	0.07
Ethnicity								
Alaska Native	1	0.01	0	0	0	0	1	0.03
American Indian	9	0.10	0	0	6	0.18	3	0.10
Asian	55	0.59	15	0.50	19	0.56	21	0.71
Black or African-American (non Hispanic)	388	4.15	124	4.16	147	4.32	117	3.96
Hispanic-Latino	4,649	49.78	1,527	51.21	1,742	51.19	1,380	46.72
Multiracial-Other	201	2.15	72	2.41	75	2.20	54	1.83
Native Hawaiian or Other Pacific Islander	8	0.09	3	0.10	4	0.12	1	0.03
White	1,716	18.37	522	17.51	556	16.34	638	21.60
N/A	2,312	24.76	719	24.11	854	25.10	739	25.02
ESL								
Yes	2,120	22.70	663	22.23	817	24.01	640	21.67
No	4,579	49.03	1,458	48.89	1,636	48.08	1,485	50.27
N/A	2,640	28.27	861	28.87	950	27.92	829	28.06

Sample C								
	All		K		1		2	
	N	%	N	%	N	%	N	%
Special Education								
Yes	270	2.89	76	2.55	106	3.11	88	2.98
No	3,045	32.61	969	32.49	1,144	33.62	932	31.55
N/A	6,024	64.50	1,937	64.96	2,153	63.27	1,934	65.47
FRL Eligible								
Yes	1,382	14.80	483	16.20	503	14.78	396	13.41
No	621	6.65	182	6.10	206	6.05	233	7.89
N/A	7,336	78.55	2,317	77.70	2,694	79.17	2,325	78.71

External Measures Descriptions

Star Early Literacy Spanish (SELSp)

SELSp is a computer-adaptive assessment designed to measure the early literacy skills of beginning Spanish readers in two broad domains: Word Knowledge and Skills, and Comprehension Strategies and Constructing Meaning (Renaissance Learning, 2021). These broad domains include 10 sub-domains assessing the following skills: Visual Discrimination, Concept of Word, Phonemic Awareness, Alphabetic Principle, Phonics, Structural Analysis, Vocabulary, Sentence-Level Comprehension, Paragraph-Level Comprehension, and Accentuation (Renaissance Learning, 2021). In this computer adaptive assessment, each administration consists of 27 items of varying difficulty based on the student's responses presented in multiple choice format (three answer choices per item). Each item consists of a combination of audio instructions, an on-screen prompt in the form of a cloze stem containing text or graphics, and three answer choices containing letters, words, graphics, or numbers. SELSp takes approximately 10–15 minutes for students to complete. Similar to mCLASS Lectura, it is intended as a screening and progress monitoring assessment to track student progress and instructional needs.

In grades 1–3, scaled score generic reliability for SELSp ranges from 0.83–0.88; split-half reliability ranges from 0.81–0.87; and alternate form reliability ranges from 0.73–0.75. Concurrent validity with two Spanish easy CBM subtests for Grade 2 ranges from 0.67–0.72 (Renaissance Learning, 2021).

SELSp total scaled scores were used in the present analysis rather than scores from the seven subscales within SELSp because students may only see a limited number of items in some domains based on their item responses. Thus, scaled scores are considered the strongest estimate of a student's overall reading skills at a particular time (Renaissance Learning, 2014). Star Early Literacy Spanish served as the grades 1–2 external criterion measure for mCLASS Spelling Español Measure because the Spelling Español measure is used to determine students' risk for difficulty.

mCLASS Lectura

mCLASS Lectura is a fixed-form universal screening assessment designed to provide educators with timely information about students' Spanish literacy skill development in Grades K–6. Aligned with the critical component skills for Spanish literacy development outlined by the National Literacy Panel for Language Minority Children and Youth (August & Shanahan, 2006) and the Simple View of Reading (Baker et al., 2022; Proctor et al., 2015), including phonological awareness, alphabetic understanding, fluency, and reading comprehension. The subtests that comprise mCLASS Lectura, the skills they measure, and the grade levels in which they are administered are summarized in Table 5.

Table 5. mCLASS Lectura Subtests Contributing to the Composite Score

Subtest	Skill	K	Grade 1	Grade 2
Fluidez en nombrar letras (FNL)	Letter name fluency	X	X	
Fluidez en la segmentación de sílabas (FSS)	Phonological awareness (syllable segmentation)	X	X	
Fluidez en los sonidos de las letras (FSL)	Phonics (letter-sound correspondences)	X	X	
Fluidez en los sonidos de sílabas (LSS)	Phonics (syllable decoding)	X	X	
Fluidez en las palabras (FEP)	Phonics (word reading)	X	X	X
Fluidez en la lectura oral (FLO)	Phonics Fluency		X	X
¿Cuál Palabra? (CP)	Reading Comprehension			X

Alternate, equivalent benchmark forms are available for each subtest to be administered at BOY, MOY, and EOY and these administrations result not only in a raw score for each subtest but are also used to create a weighted composite score that provides an overall indicator of Spanish literacy skills and reading risk.

Confirmatory factor analytic methods were used to generate composites scores for each grade and TOY by using an iterative model building process in which, first, all subtests loaded onto a common reading factor and, second, modeling different types of covariances for the theoretical or measurement-driven relationships among the scores. Each composite score, then, is a scaled, linear combination of weighted subtest scores that were derived from multiplying the factor loadings by the standard deviation of each subtest score (see mCLASS Lectura Technical Manual).

Results

Descriptive Statistics

Table 6 displays the descriptive statistics for mCLASS Spelling Español scores by grade and time of year from the 2021–2022 mCLASS Spelling Español study. Overall, the results indicate that in each grade level, average scores increased over time.

Table 6. Descriptive Statistics for the mCLASS Spelling Español Measure

Grade	Time of Year (TOY)	N	Mean	Standard Deviation	Median	Min	Max	Skewness	Kurtosis
K	BOY	--	--	--	--	--	--	--	--
	MOY	5,236	13.52	11.30	11	0	44	0.51	2.02
	EOY	16,655	24.50	13.20	29	0	49	-0.52	1.93
1	BOY	5,444	28.18	20.30	28	0	74	0.17	1.76
	MOY	18,738	41.81	20.70	47	0	77	-0.59	2.15
	EOY	8,829	48.56	20.20	55	0	84	-0.97	2.92
2	BOY	4,767	54.61	25.60	63	0	95	-0.75	2.34
	MOY	8,728	60.21	25.00	68	0	100	-0.93	2.83
	EOY	8,103	66.70	25.00	75	0	107	-1.16	3.47

Table 7 presents the descriptive statistics depicting the total scaled scores for SELSp, categorized by grade and time of year, as observed in the 2021–2022 mCLASS Spelling Español Measure study. In general, the findings reveal that average scores exhibited an upward trajectory over the course of grades, particularly in kindergarten and Grade 1. However, in Grade 2, there appears to be a deviation from this trend. Despite the fact that SELSp is vertically scaled, the mean scores are comparatively lower throughout the year in Grade 2 when contrasted with the other grade levels. This variation could potentially be attributed to fluctuations in the sample composition at different times of the year or it may be linked to differences in the nature of the tasks assigned across grade levels.

Table 7. Descriptive Statistics for the Star Early Literacy Spanish Measure by Grade

Grade	Time of Year (TOY)	N	Mean	Standard Deviation	Median	Min	Max	Skewness	Kurtosis
K	BOY	1,350	495.88	104.30	477	303	867	0.72	0.72
	MOY	1,567	578.92	125.00	584	75	891	0.00	2.53
	EOY	1,577	642.91	128.10	655	330	887	-0.28	2.31
1	BOY	1,069	565.35	177.00	581	57	857	-1.22	4.66
	MOY	1,084	621.94	167.20	651	61	889	-1.45	5.62
	EOY	1,328	644.51	181.50	697.50	3	891	-1.59	5.40
2	BOY	933	476.60	296.70	589	59	890	-0.29	1.38
	MOY	937	503.11	297.60	615	58	896	-0.34	1.44
	EOY	1,117	567.53	286.10	709	59	896	-0.70	1.86

Table 8 displays the descriptive statistics for the mCLASS Lectura Composite Score by Grade and time of year from the 2021–2022 mCLASS Spelling Español study. Overall, the results indicate that in each grade level, average scores on subtests increased over time.

Table 8. Descriptive Statistics for the mCLASS Lectura Composite Score by Grade

Grade	Time of Year (TOY)	N	Mean	Standard Deviation	Median	Min	Max	Skewness	Kurtosis
K	BOY	1,640	284.90	37.00	276.00	237	436	1.11	4.18
	MOY	1,640	367.18	39.80	365.50	282	505	0.32	2.84
	EOY	1,640	402.93	37.70	404.00	303	528	0.06	2.90
1	BOY	2,178	362.76	40.00	356.00	298	529	0.85	3.55
	MOY	2,178	403.66	38.30	401.00	323	555	0.45	3.03
	EOY	2,178	445.68	38.00	445.00	356	589	0.18	2.77
2	BOY	766	363.99	40.60	360.00	303	514	0.44	2.55
	MOY	766	405.05	38.60	405.50	329	520	0.05	2.51
	EOY	766	446.51	38.40	448.00	366	574	0.12	2.68

Chapter 2: Reliability of mCLASS Spelling Español Measure

Internal Consistency Reliability

We assessed the reliability of mCLASS Spelling Español by examining the internal consistency scores for each grade. Internal consistency refers to the degree to which items in a test, questionnaire or assessment consistently measure the same underlying concept or trait. Therefore, internal consistency assesses the reliability of the measurement (i.e., mCLASS Spelling Español) by examining how closely related the items are to each other. We interpret our results using Salvia et al. (2016) reliability standards, which recommend a minimum reliability of 0.60 for group-level educational decisions, 0.70 for general reliability, 0.80 for screening decisions, and 0.90 for significant individual educational decisions. We used Cronbach’s coefficient alpha to measure internal consistency. Table 9 displays sample sizes, coefficient alpha values, and their 95% confidence intervals (CI) for scores across all grades and times of the year. The results demonstrate exceptional levels of internal consistency (exceeding .90) across all grade levels and assessment points, indicating that mCLASS Spelling Español is a highly reliable tool for making individual-level educational decisions.

Table 9. Internal Consistency of the mCLASS Spelling Español Measure

Grade	# of Items per Form	Beginning of Year			Middle of Year			End of Year		
		N	Alpha	CI	N	Alpha	CI	N	Alpha	CI
K	12	--	--	--	5,235	0.90	[0.90, 0.91]	16,652	0.93	[0.93, 0.93]
1	12	5,440	0.95	[0.94, 0.95]	18,729	0.95	[0.95, 0.95]	8,828	0.94	[0.94, 0.94]
2	12	4,765	0.95	[0.95, 0.95]	8,727	0.95	[0.95, 0.95]	8,104	0.95	[0.94, 0.95]

Chapter 3: Validity of mCLASS Spelling Español Measure

Validity assesses the extent to which a test accurately measures what it claims to measure. It involves gathering evidence and theory to support the interpretations of test scores for their intended use. Validity ensures that test scores genuinely represent the construct under examination (e.g., high spelling scores truly reflect strong spelling skills), making it a measure of accuracy or utility.

Criterion-related validity specifically concerns the ability of the assessment to estimate student performance on a criterion measure that assesses the same (or a related) construct. In a broader sense, it reflects how current outcomes relate to outcomes on an external, conceptually related assessment. It encompasses both concurrent- and predictive-related validity evidence. Whether the evidence is concurrent or predictive depends on the timing of the external criterion assessments relative to the target assessment. Evidence of concurrent validity is gathered when the target assessment and the external assessment are administered at approximately the same time, while evidence of predictive validity is gathered when performance on the target assessment is examined relative to performance when the external assessment is administered at some point in the future.

Validity is typically demonstrated through a correlation between the target measure (i.e., mCLASS Spelling Español) and an external criterion measure (i.e., SELSp). Specifically, the expectation is that there should be a strong correlation between the scores on mCLASS Spelling Español and other assessments that evaluate overall Spanish reading achievement, the particular skills examined by each assessment, and/or related skills. When two tests that measure similar psychological constructs or processes exhibit a significant correlation when administered simultaneously, it suggests they are tapping into the same underlying aspects. The following criteria was applied when describing correlation coefficient (Hopkins, 2002):

Table 10. Correlation Coefficients Descriptors (Hopkins, 2002)

Correlation Range	Descriptor
0.70 and above	Strong
0.50–0.69	Moderate–Strong
0.30–0.49	Moderate
0.10–0.29	Small
0.09 or less	Very Small

Concurrent Validity

Concurrent validity for mCLASS Spelling Español was evaluated by correlating mCLASS Spelling Español scores with scores from an external criterion assessment (SELSp) when both were administered at BOY, MOY, and EOY across grade levels, with the exception of kindergarten because mCLASS Spelling Español is administered only at MOY and EOY.

The findings indicate moderate to strong correlation coefficients observed across various grade levels and assessment points throughout the academic year (see Table 11). The correlations values achieved are deemed acceptable, signifying a moderate to strong association between the two measures. This outcome is noteworthy, particularly when considering that we are correlating an isolated spelling assessment (i.e., mCLASS Spelling Español) with a comprehensive reading skills assessment (i.e., SELSp). It is plausible to anticipate even higher correlations if the mCLASS Spelling Español results were to be correlated with a more specific spelling assessment. This expectation arises from the understanding that when the target measure and the criterion measure share greater content alignment, similar lengths, and matching formats, they have the potential to yield more favorable and precise outcomes. Moreover, it is noteworthy that the diminished internal consistency values observed in kindergarten can be linked to the relatively limited development of spelling skills at this grade level. Additionally, the utilization of an online assessment format may also be a contributing factor to these reduced values in comparison to those observed in grades 1 and 2.

Table 11. Concurrent Validity of mCLASS Spelling Español Measure with Star Early Literacy Spanish

Grade	Beginning of Year			Middle of Year			End of Year		
	N	Alpha	CI	N	Alpha	CI	N	Alpha	CI
K	--	--	--	335	0.60	[0.53, 0.66]	573	0.57	[0.52, 0.63]
1	366	0.72	[0.67, 0.74]	712	0.72	[0.69, 0.78]	606	0.71	[0.66, 0.73]
2	311	0.68	[0.62, 0.74]	387	0.74	[0.69, 0.78]	520	0.69	[0.64, 0.73]

Predictive Validity

Predictive validity was assessed by correlating mCLASS Spelling Español scores from BOY and MOY with scores from the external criterion assessment (SELSp), when administered at the EOY. In the case of kindergarten students, predictive validity was determined by correlating the mCLASS Spelling Español Measure scores at MOY with the SELSp scores at EOY. The results showed a moderate predictive validity of .48 for the mCLASS Spelling Español Measure among kindergarten students, while for first and second grade students, the results revealed a moderate to strong relationship (see Table 12). It is worth noting

that the somewhat diminished predictive validity values in the kindergarten group may be attributed, as previously mentioned, to the relatively limited development of spelling skills at this grade level and the adoption of an online assessment format. These factors may contribute to the observed decrease in predictive validity when compared to the outcomes obtained in grades 1 and 2.

Table 12. Predictive Validity of mCLASS Spelling Español with Star Early Literacy Spanish

Grade	Beginning of Year			Middle of Year		
	N	Alpha	CI	N	Alpha	CI
K	--	--	--	--	0.48	[0.40, 0.55]
1	408	0.62	[0.56, 0.69]	824	0.70	[0.66, 0.69]
2	362	0.63	[0.57, 0.69]	523	0.65	[0.59, 0.69]

Chapter 4: Cuts Scores of mCLASS Spelling Español Measure

Developing Cut Scores

Data collected over the course of the 2021–2022 school year were used to confirm and refine initial cut points. The goal of this analysis was to establish score ranges that correspond to performance levels (e.g., Benchmark, Below Benchmark, and Well Below Benchmark) for mCLASS Spelling Español. Analysis was conducted to ensure that data from mCLASS Spelling Español yield consistent and trustworthy inferences about student placement into a performance level based on their demonstration of early Spanish spelling skills so they receive the necessary level of instructional support.

To identify at-risk students, cut scores were generated from data from mCLASS Spelling Español at each time of year. mCLASS Spelling Español cut scores were established using students' performance on mCLASS Lectura (specifically the composite score) as the external criterion measure in kindergarten through Grade 2. The first score, the risk cut score, classifies students who are well below benchmark in their performance and at risk for reading difficulties, including dyslexia. The second score, called the benchmark goal, can be used to classify students who are at some risk for not meeting proficiency goals versus those who are on track for meeting proficiency goals.

The cut scores were established using Receiver Operating Characteristic (ROC) curve analyses, which assess the relationship between *true positive rates* (correctly identifying students not on track for proficiency) and *false positive rates* (incorrectly suggesting a student was not on track for proficiency). In this context, ROC results quantify the extent to which mCLASS Spelling Español scores predict performance on an external Spanish criterion measure (mCLASS Lectura in kindergarten through Grade 2). ROC analyses produce an Area Under the Curve (AUC) estimate, summarizing the classification accuracy of the mCLASS Spelling Español Measure. An AUC of 0.5 signifies chance-level prediction, while an AUC of 1.0 indicates perfect predictiveness (Habibzadeh et al., 2016).

In addition to the AUC, ROC analyses provide insights into the *sensitivity* and *specificity* of a screening tool. Sensitivity measures the proportion (ranging from 0 to 1) of truly at-risk students correctly identified by the screener (i.e., the proportion of students at risk on the external criterion measure who were also identified as at risk by the screener). Specificity, also expressed as a proportion, indicates the accuracy with which genuinely proficient readers are correctly identified as not at risk by the screener (i.e., the proportion of students on-track on the external criterion measure who were also identified as on-track by the screener). Sensitivity can also be understood as the likelihood that a student meeting the criterion goal is correctly identified as such by the screener.

Sensitivity and specificity, both stable screening effectiveness indicators independent of reading difficulties prevalence (Pepe, 2003), hinge on how the screener's cut score is established, a factor separate from the AUC. Optimal cut scores were chosen to strike a balance between sensitivity and specificity, given their interplay in an educational prevention model. This approach maximizes the correct identification of students needing intervention while minimizing under-identification of those not requiring it. Recommended cut scores for mCLASS Spelling Español were set to prioritize sensitivity while maintaining specificity at or above 0.80. Specifically, for each benchmark, the cut score was selected to maximize sensitivity among scores with specificity at or above 0.80. When significant sensitivity-specificity disparities occurred or no specificity met the 0.80 threshold, we sought the cut score that provided the highest blend of sensitivity and specificity to harmonize intervention provision and teacher workload (e.g., Baker et al., 2015; Ford et al., 2016).

Irrespective of the criterion measure, the 20th percentile rank cut identifies students significantly below benchmark, signifying their vulnerability to missing year-end learning goals and necessitating intensive intervention (NCII, 2018). Such students may also be at risk for reading disabilities, including dyslexia. The 40th percentile cut targets students below benchmark, indicating some risk in meeting year-end learning goals, warranting additional support.

Below is a summary of key concepts:

- **Benchmark Cut Score:** This value represents the threshold score that designates whether a student falls into the "Benchmark" category. It is the score used to determine if a student is performing at or above the expected benchmark level. As an example, in Table 13 within the Benchmark column, the value 1 corresponds to score ranges indicating performance levels categorized as "Well Below/Below Benchmark," while the value 2 corresponds to score ranges indicating performance levels categorized as "At and Above benchmark."
- **Accuracy:** Accuracy is a measure of how well the cut score predicts a student's performance level. It is the proportion of all students correctly classified by the cut score.
- **Sensitivity:** Sensitivity is a measure of how well the cut score identifies students who are genuinely at risk. It represents the proportion of students who are truly at risk (according to the criterion measure) that are correctly identified by the screener cut score as being at risk.

- **Specificity:** Specificity is a measure of how well the cut score identifies students who are not at risk. It represents the proportion of students who are truly not at risk (according to the criterion measure) that are correctly identified by the screener cut score as not at risk.
- **AUC (Area Under the Curve):** The AUC is a measure of the overall classification accuracy of the screening test. It summarizes how well the test distinguishes between students at risk and those not at risk. An AUC of 0.5 indicates that the test performs no better than chance, while an AUC of 1.0 suggests perfect predictive ability. Values between 0.5 and 1.0 indicate varying degrees of accuracy.
- **AUC CI (Confidence Interval):** This represents the confidence interval for the AUC value. It provides a range of values within which the true AUC is likely to fall. A narrower confidence interval suggests more precise estimation.

Interpreting Cuts Scores of mCLASS Spelling Español Measure

Table 13 provides cut scores, accuracy, sensitivity, specificity, and AUC values for the at-risk and some-risk cut scores of mCLASS Spelling Español organized by grade level and time of year.

Table 13. Logistic Regression and Receiver Operator Curve (ROC) Results for mCLASS Spelling Español Measure Score Ranges

Grade	Time of Year (TOY)	N	Bench- mark	Cut Score	% at or below cut	Accuracy	Sensitivity	Specificity	AUC	AUC CI
		--	--	--	--	--	--	--	--	--
	Beginning of Year (BOY)	--	--	--	--	--	--	--	--	--
K	Middle of Year (MOY)	2,198	1	4	28.25%	0.81	0.67	0.86	0.84	[0.82, 0.86]
		2,198	2	12	52.68%	0.74	0.81	0.68	0.84	[0.82, 0.85]
	End of Year (EOY)	2,661	1	14	25.44%	0.85	0.73	0.88	0.89	[0.87, 0.90]
		2,661	2	26	46.37%	0.76	0.79	0.74	0.84	[0.83, 0.86]

Grade	Time of Year (TOY)	N	Benchmark	Cut Score	% at or below cut	Accuracy	Sensitivity	Specificity	AUC	AUC CI	
1	BOY	1,361	1	16	33.21%	0.82	0.74	0.87	0.90	[0.88, 0.91]	
		1,361	2	30	53.20%	0.81	0.89	0.75	0.89	[0.87, 0.91]	
	MOY	2,774	1	30	27.36%	0.83	0.69	0.89	0.89	[0.88, 0.90]	
		2,774	2	46	51.01%	0.78	0.86	0.72	0.87	[0.85, 0.88]	
	EOY	2,878	1	39	28.49%	0.83	0.71	0.88	0.89	[0.88, 0.90]	
		2,878	2	54	52.43%	0.76	0.85	0.69	0.86	[0.84, 0.87]	
	2	BOY	602	1	41	24.25%	0.84	0.65	0.91	0.90	[0.87, 0.93]
			602	2	62	47.51%	0.79	0.86	0.75	0.89	[0.87, 0.92]
MOY		2,529	1	46	24.36%	0.85	0.71	0.89	0.90	[0.89, 0.91]	
		2,529	2	66	47.05%	0.76	0.84	0.73	0.87	[0.86, 0.88]	
EOY		2,534	1	52	23.16%	0.84	0.67	0.89	0.89	[0.88, 0.91]	
		2,534	2	72	47.43%	0.77	0.83	0.74	0.86	[0.84, 0.87]	

Overall, the values in Table 13 suggest that the mCLASS Spelling Español Measure cut scores accurately identify students' performance levels and effectively differentiate between those at risk and those not at risk, with generally high accuracy, sensitivity, specificity, and AUC values.

The accuracy values in Table 13 generally range from around 0.74 to 0.85. These values indicate the overall screening accuracy of the mCLASS Spelling Español cut scores. The accuracy values appear to be relatively high (1.0 indicates perfect predictiveness), suggesting that the cut scores effectively distinguish between students at different performance levels.

Sensitivity values in Table 13 range from around 0.65 to 0.89. Sensitivity values above 0.80 are typically considered the minimally acceptable value for screening assessments (e.g., Catts et al., 2009). In this case, most of the sensitivity values meet or exceed this threshold, indicating that the cut scores are effective in identifying students at risk.

Specificity values in Table 13 vary but generally range from around 0.68 to 0.91. Higher specificity values indicate a better ability to correctly identify students who are not at risk. Specificity values above 0.70 are typically considered acceptable (e.g., Kilgus et al., 2014). While some values fall below 0.80, many are above this threshold, indicating that the cut scores are reasonably effective in identifying students not at risk. This approach maximizes the correct identification of students needing intervention while minimizing under-identification of those not requiring it, which is the purpose of screening.

Last, the AUC values in Table 13 range from around 0.84 to 0.90. The AUC summarizes the overall classification accuracy of the screening test. An AUC value of 0.5 suggests no better than chance prediction, while an AUC of 1.0 suggests perfect prediction. In this case, the AUC values are generally high, indicating that the cut scores for mCLASS Spelling Español are effective in distinguishing between students at different performance levels.

References

- Abbott, R. D., Berninger, V. W., & Fayol, M. (2010). Longitudinal relationships of levels of language in writing and between writing and reading in grades 1 to 7. *Journal of Educational Psychology, 102*(2), 281–298. <https://doi.org/10.1037/a0019318>
- Ahmed, Y., & Wagner, R. K. (2020). A “simple” illustration of a joint model of reading and writing using meta-analytic structural equation modeling (MASEM). In R. A. Alves, T. Limpo, & R. M. Joshi (Eds.), *Reading-Writing Connections: Towards Integrative Literacy Science* (pp. 55–75). Springer International Publishing. https://doi.org/10.1007/978-3-030-38811-9_4
- American Councils Research Center. (2021). *2021 canvass of dual language and immersion (DLI) programs in US public schools*. https://www.americancouncils.org/sites/default/files/documents/pages/2021-10/Canvass%20DLI%20-%20October%202021-2_ac.pdf
- Amplify Education, Inc. (2022). *mCLASS Lectura Technical Manual*.
- August, D., & Shanahan, T. (2006). *Developing literacy in second-language learners: Report of the national literacy panel on language minority children and youth*. Lawrence Erlbaum Associates.
- Baker, D. L., Alberto, P. C., Macaya, M. M., García, I., & Gutierrez-Ortega, M. (2022). Relation Between the Essential Components of Reading and Reading Comprehension in Monolingual Spanish-Speaking Children: a Meta-analysis. *Educational Psychology Review, 34*(4), 2661-2696. <https://doi.org/10.1007/s10648-022-09694-1>
- Baker, D. L., Biancarosa, G., Park, B. J., Boussetot, T., Smith, J.-L., Baker, S., Kame'enui, E., Alonzo, J., & Tindal, G. (2015). Validity of CBM measures of oral reading fluency and reading comprehension on high-stakes reading assessments in Grades 7-8. *Reading and Writing, 28*, 57-105. <https://doi.org/10.1007/s11145-014-9505-4>
- Berninger, V. W., Abbott, R. D., Abbott, S. P., Graham, S., & Richards, T. (2002). Writing and reading: Connections between language by hand and language by eye. *Journal of learning disabilities, 35*(1), 39-56. <https://doi.org/10.1177/002221940203500104>

- Catts, H. W., Petscher, Y., Schatschneider, C., Bridges, M. S., & Mendoza, K. (2009). Floor effects associated with universal screening and their impact on the early identification of reading disabilities. *Journal of Learning Disabilities, 42*, 163-176. <https://doi.org/10.1177/0022219408326219>
- Coker, D. L., & Ritchey, K. D. (2010). Curriculum-based measurement of writing in kindergarten and first grade: An investigation of production and qualitative scores. *Exceptional Children, 76*(2), 175–193. <https://doi.org/10.1177/001440291007600203>
- Deno, S. (1992). The nature and development of Curriculum-Based Measurement. *Preventing School Failure, 36*(2), 5-10 <https://doi.org/10.1080/1045988X.1992.9944262>
- Deno, S. (2003). Curriculum-Based Measures: Development and perspectives. *Assessment for Effective Intervention, 28*(3&4), 3-12. <https://doi.org/10.1177/073724770302800302>
- Durán, L., Baker, D., Basaraba, D., O'Brien, G. (2022). *The importance of dual language assessment in early literacy*. Amplify Education, Inc. https://amplify.com/pdf/uploads/2023/03/mCLASS_Paper_Biliteracy_021023_web.pdf
- Ehri, L. C. (1997). Learning to read and learning to spell are one and the same, almost. In C. A. Perfetti, L. Rieben, & M. Fayol (Eds.), *Learning to spell: Research, theory, and practice across languages* (pp. 237–269). Lawrence Erlbaum Associates Publishers.
- Ford, J. W., Missall, K. N., Hosp, J. L., & Kuhle, J. L. (2016). Comparing two CBM maze selection tools: Considering scoring and interpretive metrics for universal screening. *Journal of Applied School Psychology, 32*, 329-353. <https://doi.org/10.1080/15377903.2016.1207738>
- Gil, V., de León, S. C., & Jiménez, J. E. (2021). Universal screening for writing risk in Spanish-speaking first graders. *Reading & Writing Quarterly, 37*(2), 117-135. <https://doi.org/10.1080/10573569.2020.1733451>
- Habibzadeh, F., Habibzadeh, P., & Yadollahie, M. (2016). On determining the most appropriate test cut-off value: the case of tests with continuous results. *Biochemia medica, 26*(3), 297-307. <https://doi.org/10.11613/bm.2016.034>
- Hopkins, W. G. (2002). A scale of magnitudes for the effect statistics. In *A review of statistics*. Retrieved Aug 11, 2010 from <http://www.sportsci.org/resource/stats/effectmag.html>

- Hosp, M.K., Hosp, J.L., & Howell, K.W. (2007). *The ABCs of CBM: A Practical Guide to Curriculum-Based Measurement*. New York, NY: Guilford.
- Kilgus, S. P, Methe, S, A., Maggin, D. M., & Tomasula, J. L (2014). Curriculum-based measurement of oral reading (R-CBM): A diagnostic test accuracy meta-analysis of evidence supporting use in universal screening. *Journal of School Psychology, 52*, 377-405. <http://dx.doi.org/10.1016/j.jsp.2014.06.002>
- Kim, Y. S. G. (2022). Co-occurrence of reading and writing difficulties: The application of the interactive dynamic literacy model. *Journal of learning disabilities, 55*(6), 447-464. <https://doi.org/10.1177/00222194211060868>
- Kim, Y. S. G., Petscher, Y., Wanzek, J., & Al Otaiba, S. (2018). Relations between reading and writing: A longitudinal examination from grades 3 to 6. *Reading and writing, 31*, 1591-1618. <https://doi.org/10.1007/s11145-018-9855-4>
- Kim, Y. S. G., Wolters, A., & Lee, J. W. (2023). Reading and writing relations are not uniform: They differ by the Linguistic grain size, developmental phase, and measurement. *Review of Educational Research*. <https://doi.org/10.3102/00346543231178830>
- LaBerge, D., & Samuels, S.J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology, 6*(2), 293–323. [https://doi.org/10.1016/0010-0285\(74\)90015-2](https://doi.org/10.1016/0010-0285(74)90015-2)
- National Center on Intensive Intervention. (2018). *Academic screening tools chart rating rubric*. Retrieved October 13, 2022 from https://intensiveintervention.org/sites/default/files/NCII_Academic_Screening_RatingRubric_July2018.pdf
- Pepe, M. S. (2003). *The statistical evaluation of medical tests for classification and prediction*. New York, NY: Oxford University.
- Perfetti, C., & Stafura, J. (2014). Word knowledge in a theory of reading comprehension. *Scientific studies of Reading, 18*(1), 22-37 <https://psycnet.apa.org/doi/10.1080/10888438.2013.827687>
- Proctor, C. P., Harring, J. R., & Silverman, R. (2015). Comparing reading profiles of biliterate Latino/a children in elementary school: Evidence from the simple view of reading. *Miríada hispánica, (10)*, 59-82. https://www.cpatrickproctor.com/uploads/9/0/9/1/9091150/proctor_harring__silverman__2015_.pdf

Real Academia Española. (2015, November). Corpus de Referencia del Español Actual (CREA) - Listado de frecuencias. Real Academia Española - CREA. Retrieved from <http://corpus.rae.es/lfrecuencias.html>.

Renaissance Learning. (2014). STAR Early Literacy Technical Manual. Wisconsin Rapids: Author. Available by request to research@renaissance.com.

Renaissance Learning. (2021). STAR Early Literacy Technical Manual. Wisconsin Rapids: Author. Available by request to research@renaissance.com.

Ritchey, K. D., & Coker, D. L. (2014). Identifying writing difficulties in first grade: An investigation of writing and reading measures. *Learning Disabilities Research and Practice*, 29, 54–65. <http://dx.doi.org/10.1111/ldrp.12030>

Salvia, J., Ysseldyke, J., & Witmer, S. (2016). *Assessment in Special and Inclusive Education (13th ed.)*. New York, NY: Cengage.

San Diego County Office of Education. (2012). Common core en español: State standards initiative translation project. Retrieved from <https://commoncore-espanol.sdcoe.net>

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