

Acadience Spelling Preliminary Cut Points for Kindergarten and First Grade

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Research indicates that there is a strong relationship between reading and spelling. Both reading and spelling rely on the same underlying knowledge of letters and sounds, such as phonemic awareness, and basic and advanced phonics skills. Students who have difficulty with these underlying foundational skills are likely to have difficulty with both decoding words (reading) and encoding words (spelling). In fact, research indicates that difficulties with spelling are linked to reading difficulties such as dyslexia (Lohvansuu et al., 2021; O'Brien et al., 2011), in addition to being linked to difficulties in writing (Daffern, Mackenzie, & Hemmings, 2017; Sumner, Connelly, & Barnett, 2016). Importantly, research also indicates that instruction in spelling can support fluent reading. According to Moats (2005), when a student knows how to spell a word it facilitates fluent reading of that word. In particular, the assessment of spelling in the early stages of reading development (e.g., kindergarten) may provide instructionally useful information about student application of phonemic awareness and alphabetic principle skills to reading and reading-related tasks (Clemens et al., 2013). As such, spelling assessment may provide critical information, helpful in screening for reading difficulties and instructional planning within an MTSS service delivery system in schools.

Purpose and Research Question

Previous research provides initial validity and utility information for Acadience Spelling (see Powell-Smith & Warnock, 2022). The purpose of this document is to report the Acadience Spelling preliminary cut points for risk and summarize how they were determined. The cut points for risk aid in the use and interpretation of Acadience Spelling assessment data by allowing educators to identify students at increased risk for reading difficulties. The following research question was examined: What preliminary cut points for risk for Acadience Spelling may be useful for identifying students who need additional instructional support?

Method

Sample

Data used for this research consisted of Acadience Spelling and Acadience Reading scores for students in grades K–2 entered into Acadience Data Management from 2018–2019 through mid-year 2021–2022. Inclusion criteria were (a) data for at least two time points, (b) Acadience Spelling scores and an Acadience Reading Composite Score (RCS), and (c) an RCS at a later time point. Sample sizes for the cut points for risk were 109 kindergarten students at middle of year (MOY), 649 students at Grade 1 beginning of year (BOY), and 116 Grade 1 students at MOY. Other sample sizes are noted in the tables and figures.

Measures

Measures included Acadience Spelling and the Acadience Reading K–6 measures given at their designated grades and times of year.

Acadience Spelling

Acadience Spelling is designed based on the principles of General Outcome Measurement (Fuchs & Deno, 1991), and provides a broad indication of a student’s level of general spelling skills. Additionally, Acadience Spelling indicates whether a student is making sufficient progress in spelling. The measure is administered from the middle of kindergarten through the end of first grade. The spelling measure includes a sample of words selected from a broad pool of grade-specific words. The words are dictated by the assessor. Students have a limited amount of time to spell the word (10-12 seconds depending on grade level) until the next word is given. Two scores are calculated for Acadience Spelling: Correctly Spelled Words (CSW) and Correct Spelling Sequences (CSS). For more information, see the *Acadience Spelling Administration & Scoring Guide* (Powell-Smith et al., 2021), available at www.acadiencelearning.org.

Acadience Reading K–6

The Acadience Reading measures collected in this study were First Sound Fluency (FSF), Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), Oral Reading Fluency (ORF), and the Reading Composite Score (RCS). Additional information on the design specifications of Acadience Reading measures and the formulas for calculating the RCS are available in the *Acadience Reading K–6 Technical Manual* (Good et al., 2019), available at www.acadiencelearning.org.

Procedures

The data used to set the preliminary cut points for Acadience Spelling were exported from Acadience Data Management. To be included in the analysis, students needed to have both an Acadience Spelling entry and an Acadience Reading Composite Score. After being exported, the data were cleaned for data entry or scoring errors. Participants without both an RCS and a Spelling score were dropped from the data set. The data were collected across the 2019-20, 2020-21, 2021-22, and 2022-23 school years. The beginning and middle of year cut points were created on data from the first three school years listed above, while the end of year cut points were created on data from the 2022-23 school year.

Analyses

Data analyses included descriptive statistics and logistic regression. Descriptive statistics include the typical scores on both measures of spelling performance and the amount of variability in performance. Logistic regression provides a way to predict which students are meeting the benchmark on the RCS, as a function of spelling performance. Details regarding how logistic regression was used to establish cut points is explained in more detail below.

Results

In this section we present the results of this study, including descriptive statistics, logistic regression results, and the preliminary cut points for risk. Results are provided for both Acadience Spelling scores, CSS, and CSW.

Descriptive Statistics

Descriptive statistics are presented in Tables 1 and 2 for CSS, CSW, and RCS for students who were assessed with Acadience Spelling and had an RCS score. The data for creating the beginning and middle of year cut points show performance that is high performing, as most students are scoring At or Above Benchmark on the Reading Composite Score, while the data for the end of year showed performance that is lower on Acadience Reading. This suggests a lower performing sample from the 2022-23 school year, which manifests in lower means for the RCS and Spelling scores.

Table 1

Descriptive Statistics of Acadience Spelling Correct Spelling Sequences (CSS) and Correctly Spelled Words (CSW) by Grade and Time of Year

| | <i>n</i> | <i>M</i> | <i>SD</i> | Min | Max |
|-----------------------------|----------|----------|-----------|-----|-----|
| Kindergarten Middle of Year | | | | | |
| CSS | 130 | 19.32 | 10.66 | 0 | 37 |
| CSW | 130 | 3.60 | 2.50 | 0 | 8 |
| Kindergarten End of Year | | | | | |
| CSS | 130 | 11.07 | 10.97 | 0 | 38 |
| CSW | 130 | 1.86 | 2.74 | 0 | 9 |
| Grade 1 Beginning of Year | | | | | |
| CSS | 649 | 23.29 | 14.72 | 0 | 54 |
| CSW | 649 | 2.22 | 2.44 | 0 | 11 |
| Grade 1 Middle of Year | | | | | |
| CSS | 116 | 38.12 | 11.11 | 0 | 57 |
| CSW | 116 | 5.27 | 2.93 | 0 | 12 |
| Grade 1 End of Year | | | | | |
| CSS | 128 | 30.90 | 16.11 | 0 | 58 |
| CSW | 128 | 3.88 | 3.66 | 0 | 12 |

Note. CSS = Correct Spelling Sequences. CSW = Correctly Spelled Words

Table 2*Descriptive Statistics of the Reading Composite Score by Grade and Time of Year*

| | Reading Composite Score | | | | |
|-----------------------------|-------------------------|----------|-----------|-----|-----|
| | <i>n</i> | <i>M</i> | <i>SD</i> | Min | Max |
| Kindergarten Middle of Year | 109 | 117.5 | 67.5 | 0 | 259 |
| Kindergarten End of Year | 114 | 80.0 | 44.87 | 0 | 220 |
| Grade 1 Beginning of Year | 649 | 102.6 | 51.7 | 0 | 280 |
| Grade 1 Middle of Year | 116 | 162.2 | 92.1 | 0 | 419 |
| Grade 1 End of Year | 115 | 82.6 | 89.57 | 0 | 329 |

Preliminary Cut Points for Risk

Cut points for risk were created by examining the logistic regression curve for predicting a concurrent or subsequent RCS. Using this logistic regression, we examined the probability that a student was meeting reading benchmarks given a specific CSS or CSW score. The cut points corresponding to At- versus Some-Risk and Some- versus Low-Risk are 40% and 60% respectively. Students who score at the cut point separating At-Risk and Some-Risk have a 40% chance of meeting later reading benchmarks, and students who score at the cut point separating Some-Risk and Low-Risk have a 60% chance of meeting later benchmarks. The logistic regression curves for CSW and CSS are shown in Figures 1 through 6. The preliminary cut points are presented in Table 3.

The Acadience Spelling preliminary cut points for risk (see Table 3) aid educators in their use and interpretation of Acadience Spelling data. Specifically, the cut points provide educators with an additional piece of information useful for identifying students who are at increased risk with respect to their literacy outcomes and for identifying additional targets for instruction and intervention. Acadience Spelling offers two indices of spelling performance with its two scores: Correct Spelling Sequences (CSS) and Correctly Spelled Words (CWS). Both CSS and CSW are highly correlated, but in the rare case where a student falls into different risk categories, their performance on CSS should be given precedence.

Figure 1

Logistic Regression Curve Predicting Kindergarten Middle-of-Year At or Above Benchmark from Middle-of-Year Correct Spelling Sequences (CSS)

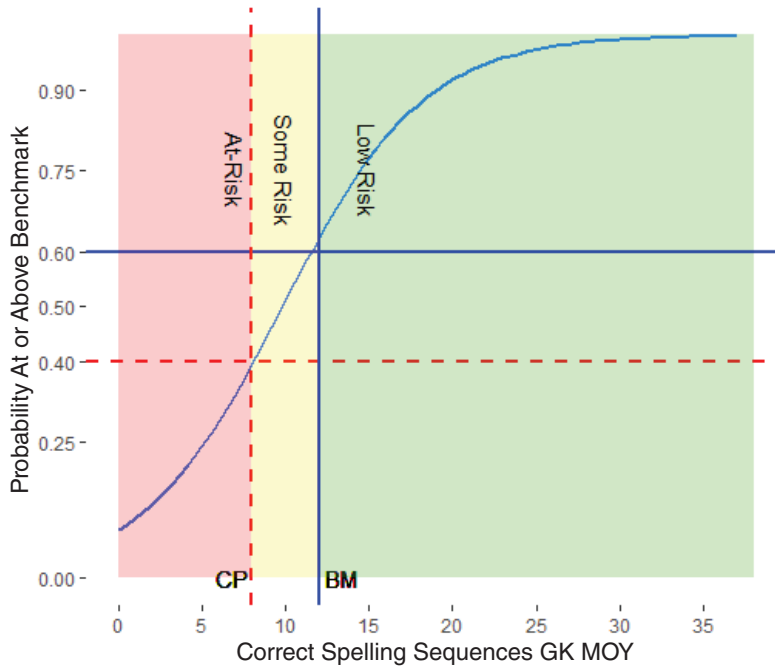


Figure 2

Logistic Regression Curve Predicting Kindergarten End-of-Year At or Above Benchmark from End-of-Year Correct Spelling Sequences (CSS)

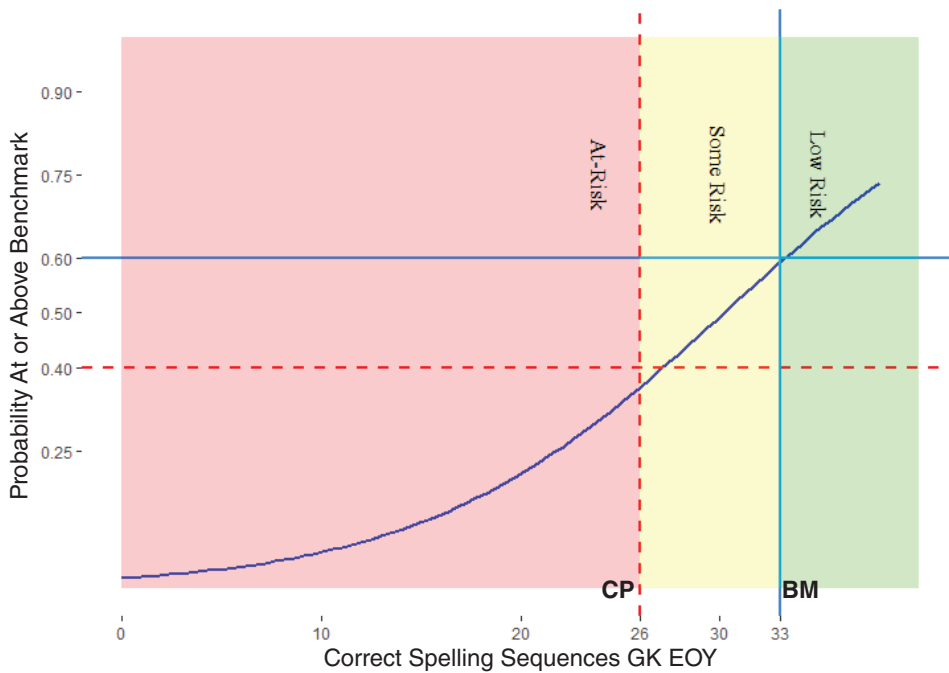


Figure 3

Logistic Regression Curve Predicting First Grade Beginning-of-Year At or Above Benchmark from Beginning-of-Year Correct Spelling Sequences (CSS)

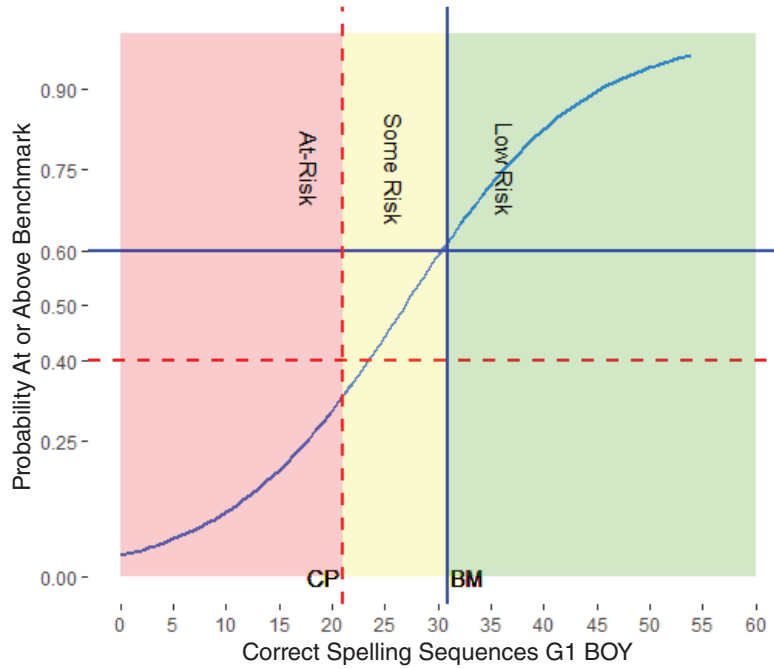


Figure 4

Logistic Regression Curve Predicting First Grade Middle-of-Year At or Above Benchmark from Middle-of-Year Correct Spelling Sequences (CSS)

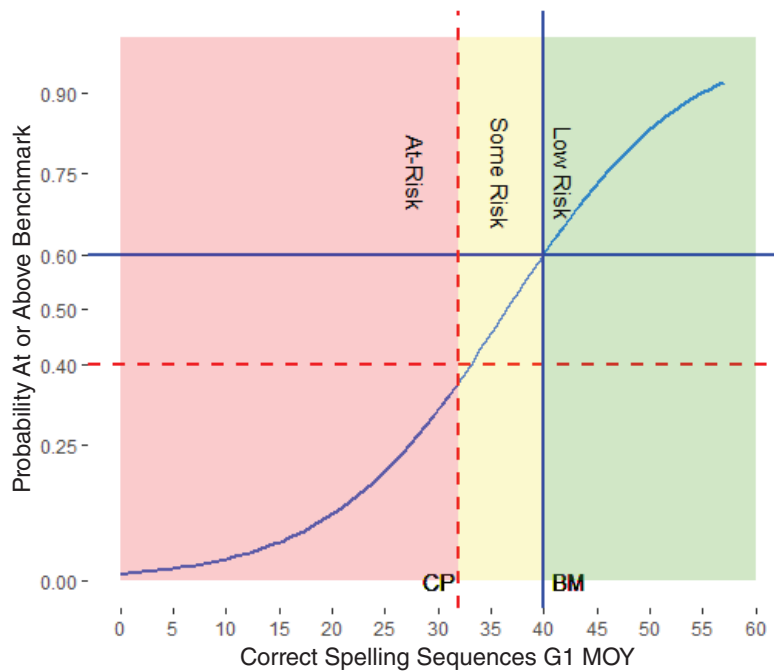


Figure 5

Logistic Regression Curve Predicting First Grade End-of-Year At or Above Benchmark from End-of-Year Correct Spelling Sequences (CSS)

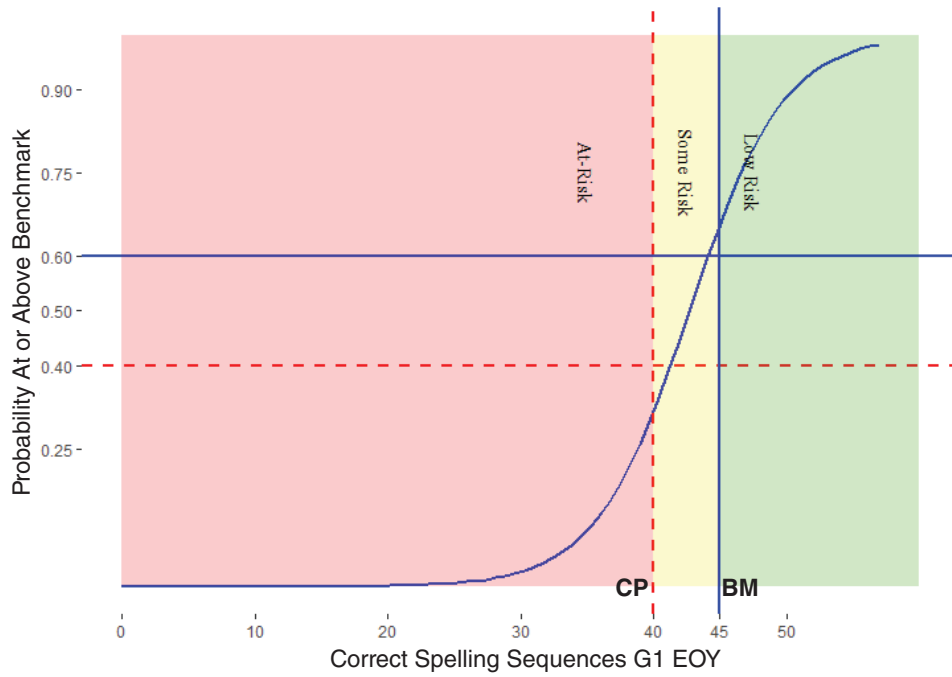


Figure 6

Logistic Regression Curve Predicting Kindergarten Middle-of-Year At or Above Benchmark from Middle-of-Year Correctly Spelled Words (CSW)

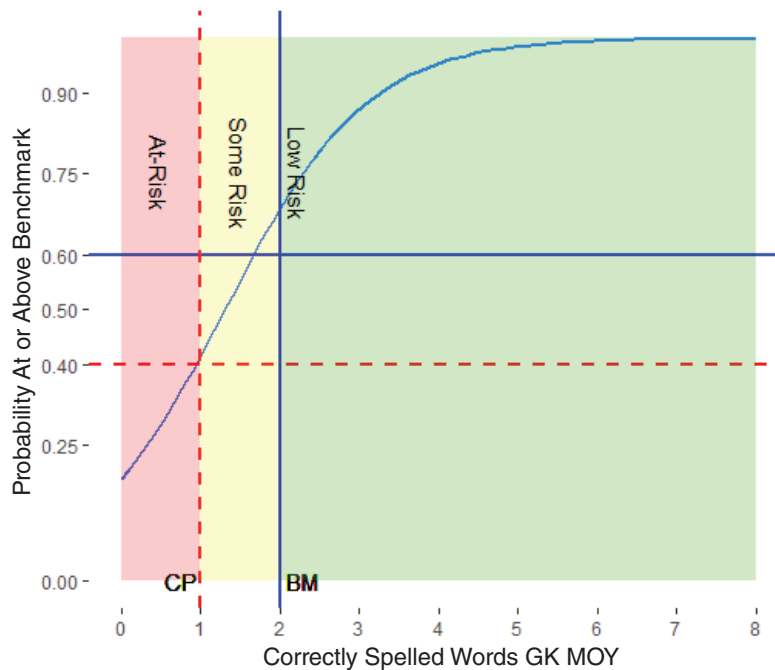


Figure 7

Logistic Regression Curve Predicting Kindergarten End-of-Year At or Above Benchmark from End-of-Year Correctly Spelled Words (CSW)

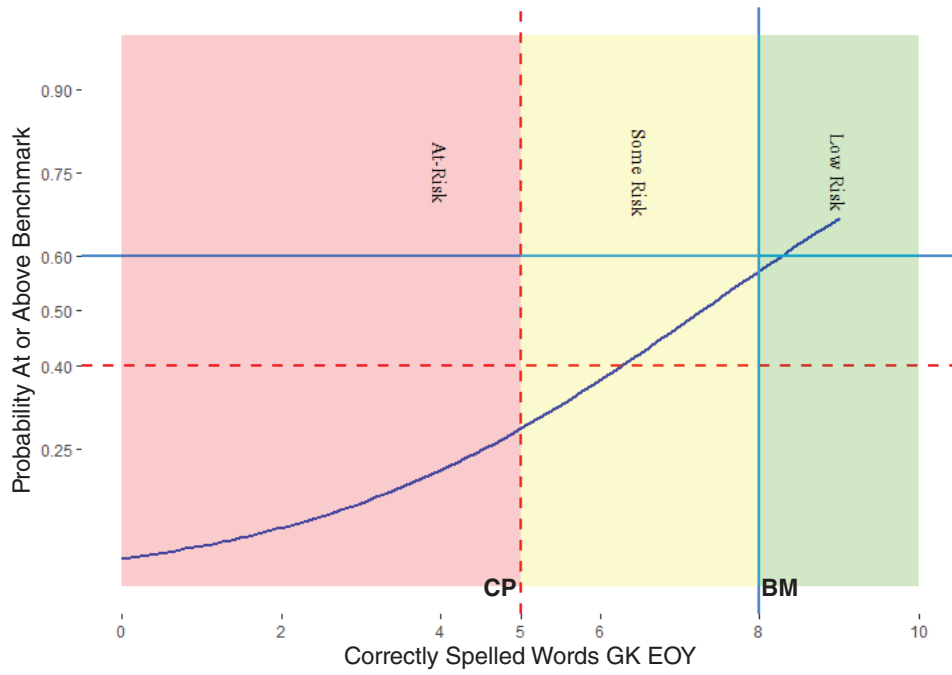


Figure 8

Logistic Regression Curve Predicting First Grade Beginning-of-Year At or Above Benchmark from Beginning-of-Year Correctly Spelled Words (CSW)

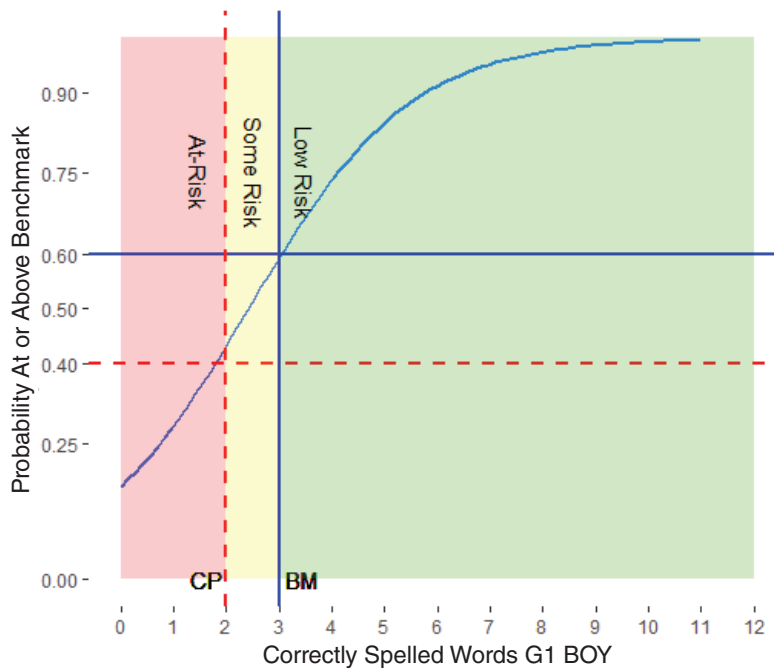


Figure 9

Logistic Regression Curve Predicting First Grade Middle-of-Year At or Above Benchmark from Middle-of-Year Correctly Spelled Words (CSW)

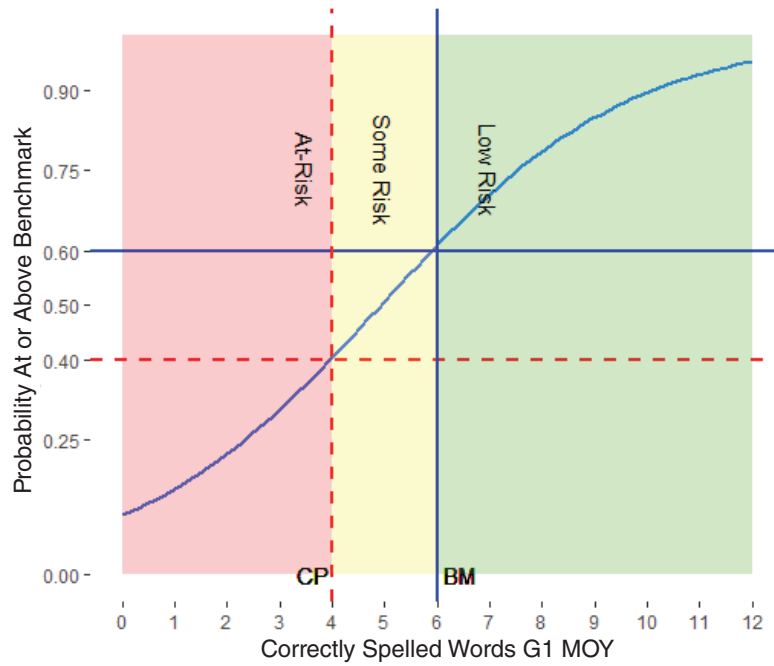


Figure 10

Logistic Regression Curve Predicting First Grade End-of-Year At or Above Benchmark from End-of-Year Correctly Spelled Words (CSW)

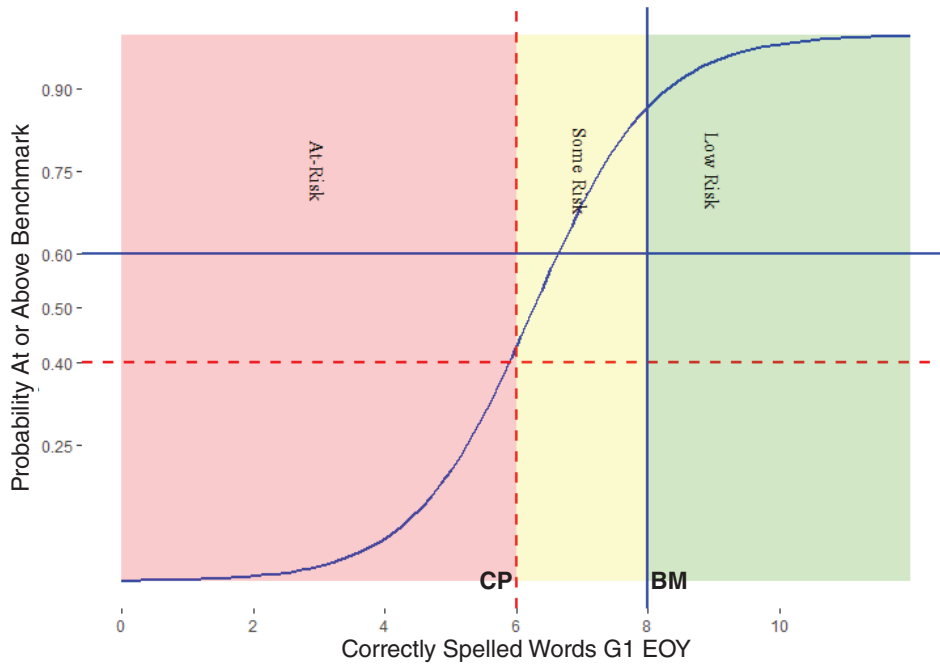


Table 3
Acadience Spelling Preliminary Cut Points for Risk

| Grade | Measure | Risk Status | Beginning of Year | Middle of Year | End of Year |
|--------------|-------------------------|-------------|-------------------|----------------|-------------|
| Kindergarten | Correct | Low-Risk | - | 12+ | 33+ |
| | Spelling Sequences | Some-Risk | - | 8-11 | 26-32 |
| | | At-Risk | - | 0-7 | 0-25 |
| | Correctly Spelled Words | Low-Risk | - | 2+ | 8+ |
| | | Some-Risk | - | 1 | 5-7 |
| | | At-Risk | - | 0 | 0-4 |
| First Grade | Correct | Low-Risk | 32+ | 40+ | 46+ |
| | Spelling Sequences | Some-Risk | 21-31 | 32-39 | 40-45 |
| | | At-Risk | 0-20 | 0-31 | 0-39 |
| | Correctly Spelled Words | Low-Risk | 3+ | 6+ | 8+ |
| | | Some-Risk | 2 | 4-5 | 6-7 |
| | | At-Risk | 0-1 | 0-3 | 0-5 |

Discussion

This study provides initial evidence to support the Acadience Spelling preliminary cut points. These cut points provide educators with an additional piece of information useful for identifying students who are at increased risk with respect to their literacy outcomes, and for identifying additional targets for instruction.

Implications

Students who earn Acadience Spelling scores in the Low-Risk range are unlikely to be at additional risk, provided their scores on other Acadience Reading K–6 measures are At or Above Benchmark and they are receiving high-quality, evidence-based core reading instruction. Students whose Spelling scores fall in the Some-Risk range may be at increased risk, in particular if their scores on other Acadience Reading measures fall into the Below or Well Below Benchmark range. These students may need strategic or intensive support to achieve important reading outcomes in the future. Students who earn Acadience Spelling scores in the At-Risk range are at increased risk of reading difficulties, in particular if their scores on other Acadience Reading measures fall in the Below or Well Below Benchmark range. Students with scores in the At-Risk range likely will need intensive support to meet subsequent reading outcomes.

Limitations

Like all research, there are limitations to consider when interpreting the findings of this study. First, all measures were administered under uncontrolled, real-world conditions; however, these conditions represent the way these measures are likely administered and scored in typical educational settings. Second, the data collected may not be representative of national or local demographics and performance, potentially limiting the generalizability of results. Third and finally, this study included data gathered during the COVID-19 pandemic and did not differentiate between mode of administration (i.e., remote vs. in-person). It is possible there may be differences in scores as a result of these factors.

Future Research

Preliminary cut points are provided for grades and times of year for which there are sufficient data for analysis. In addition, the data examined to create the cut points were from a convenience sample. Thus, future research should replicate these analyses with a larger, more diverse sample of students. As more data becomes available, these cut points may be adjusted and expanded. In addition, future research should evaluate results limiting the sample to schools using Acadience Spelling as a universal screener, rather than selectively administering the measure, as this will help address issues related to pandemic effects and small sample sizes noted above. Furthermore, future research could explore the contribution of Acadience Spelling in predicting future reading outcomes relative to other Acadience Reading measures. Finally, additional research exploring the reliability of Acadience Spelling measures as well as user feedback about the utility of the measures would be helpful.

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