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Teacher Survey of the Accessibility and Text Features of the Computerized Oral Reading Evaluation (CORE)

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Abstract

There is strong theoretical support for oral reading fluency (ORF) as an essential building block of reading proficiency. The current and standard ORF assessment procedure requires that students read aloud a grade-level passage (≈ 250 words) in a one-to-one administration, with the number of words read correctly in 60 seconds constituting their ORF performance. The current study was part of a larger project to develop and validate a computerized ORF assessment system – Computerized Oral Reading Evaluation (CORE) – to reduce limitations in current ORF measures and procedures. The purposes of this technical report are to: (a) document whether the CORE system was accessible and useful for teachers, (b) explore potential differences between CORE and traditional ORF (i.e., easyCBM) passages, and (c) identify potential deficits in the three CORE lengths (≈ 25, 50, or 85 words). This information contributes to the response-process evidence for the CORE system's validity. Our results suggest that delivering, scoring, and storing ORF assessments online may be feasible, and desirable, for classroom teachers across Grades 2 through 4. In addition, although there were no distinct differences between CORE and traditional ORF passages, teacher reports suggest that the CORE short passages are most appropriate for Grade 2 students while CORE long and medium passages are preferred by teachers for students in Grades 3 and 4.

Teacher Survey of the Accessibility and Text Features of the Computerized Oral Reading Evaluation (CORE)

As the most prevalent reading assessment in response-to-intervention (RTI) models, measures of oral reading fluency (ORF) are used in elementary schools across the country to universally screen for students at risk of low reading proficiency, to ensure students are meeting teacher expectations, to monitor progress of students receiving reading intervention or identified as having a disability, and to predict year-end performance on large-scale reading achievement tests. The current and standard ORF administration requires that students read aloud a grade-level passage, with the number of words read correctly in 60 seconds constituting their ORF performance score, reported as words correct per minute (wcpm).

There is strong theoretical support for ORF as an essential part of reading proficiency. Assessing reading fluency is critical because it functions as an indicator of comprehension and overall reading achievement (e.g., Deno, 1985; Fuchs, Fuchs, & Maxwell, 1988; Hosp & Fuchs, 2005; Pinnell et al., 1995). Research also indicates that the measurement of ORF growth within or across years is important to predict future reading outcomes (e.g. Baker et al., 2008; Kim, Petscher, Schatschneider, & Foorman, 2010; Speece & Ritchey, 2005).

The current study was part of a larger project to develop and validate a computerized ORF assessment system – Computerized Oral Reading Evaluation (CORE) – to reduce limitations in current ORF measures. The innovations of our proposed assessment system are intended to provide more reliable and valid measurement of students' ORF for universally screening students at risk of poor reading outcomes and monitoring the progress of those identified. Our proposed CORE assessment system will change both existing ORF assessment and delivery to increase efficiency and improve accuracy of measurement. Traditional ORF

measures use long passages (approximately 250 words), in which all sentences are sequentially dependent, such that students' reading is subject to local dependence. To reduce the potential local dependence, CORE presents multiple, shorter ORF passages in a single test administration. Psychometrically, an added benefit of this approach may be that repeated responses to multiple ORF passages will yield less measurement error. CORE passages vary in word length, with three lengths of passages offered: short ≈ 25 words, medium ≈ 50 words, and long ≈ 85 words.

In this study, we compared the CORE passages to traditional ORF passages to explore whether all CORE passage lengths function adequately across grades. We surveyed teachers' observations of students' test-taking to explore potential differences between CORE and easyCBM passages and potential deficits in the three CORE passage lengths. The teacher survey was based on the work of Hiebert and colleagues (e.g., Fitzgerald et al., 2015; Mesmer, Cunningham, & Hiebert, 2012) to help shape the questions about the features (or text complexity) of the CORE and traditional ORF passages. The survey was partitioned in two parts: (a) feedback on the recordings and software, with questions about the *usability* of the software, the *sound quality* of the recordings, and the *usefulness* of the software; and (b) specific feedback about the passage type: traditional ORF (easyCBM passage) along with each of the CORE short, medium, and long passages. This information contributes to the response-process evidence for CORE validity. We hypothesized that all CORE versions would function appropriately; however, if an inconsistency was identified for any CORE version, we would consider eliminating the problematic CORE version in future system development.

Methods

Sample

Two local districts that use easyCBM as part of district RTI policy agreed to participate in the study for a reduction in the annual cost of the district version of easyCBM. District A identified nine teachers (three in each of Grades 2-4) in two schools who agreed to participate in the study. In District B, school principals emailed teachers eligible to participate with study information, and 10 teachers (three in Grades 2 and 4, and four in Grade 3) in two schools agreed to participate in the study. All participating teachers were paid a research incentive ($50 gift card) for participation, which required the online scoring of selected passages and the completion of a survey. The 19 teachers included 17 females across the three grades, with 1 male in each of Grades 2 and 3; no other demographic information was requested from the teachers.

Measures

Traditional ORF assessment. We administered the easyCBM (Alonzo, Tindal, Ulmer, & Glasgow, 2006) ORF measures as the traditional ORF assessments for comparison to the CORE passages. Developed in 2006, easyCBM is an online screening and progress monitoring assessment system for use in schools working under an RTI framework, available for an annual fee for district-wide adoption.

The ORF passages used in easyCBM were developed to assess students' ability to fluently read narrative text. During instrument development, each form for a given grade level was created to be consistent in length and the readability of each form was verified to fit appropriate grade-level, initially using the Flesch-Kincaid index feature available on Microsoft Word (Alonzo & Tindal, 2008), with further refinement based on field tests with grade-level students. The easyCBM assessment system includes 20 alternate ORF passages at each grade

level, with three passages specifically identified for use as universal screeners (fall, winter, spring) and 17 passages for progress monitoring. The passages were developed to be of equivalent difficulty for each grade level following word-count, grade-level guidelines (e.g., Flesch-Kincaid readability estimates), and form equivalence empirical testing using repeated measures ANOVA to evaluate comparability of forms (Alonzo & Tindal, 2007).

These traditional ORF measures have demonstrated features of technical adequacy that suggest they are sufficient to meet the needs as the comparative example of an existing traditional ORF system. During administration, students are given one minute to read as many words as possible in a connected narrative passage of approximately 250 words. The reported alternate form reliability across Grade 2 forms ranged from .91-.95 (Anderson, Lai, et al., 2012). Predictive (fall, winter) and concurrent (spring) relations between Grade 2 PRF and spring SAT-10 reading scale scores were .59-.62 and .66, respectively (Jamgochian, et al., 2010). Grade 2 PRF performance was strongly correlated (r = .95) with Grade 2 performance on the DIBELS ORF measure (Good & Kaminski, 2002; Lai, Alonzo, & Tindal, 2013). The reported alternate form reliability across Grade 3 PRF forms ranged from .92-.96 (Park, Anderson, Alonzo, Lai, & Tindal, 2012). Test-retest reliability for Grade 3 PRF ranged from .84-.94 (Park et al., 2012). Grade 3 PRF performance was strongly correlated (r = .94) with Grade 3 performance on the DIBELS ORF measure (Good & Kaminski, 2002; Lai et al., 2013). Predictive (fall, winter) and concurrent (spring) relations between Grade 3 PRF and year-end state achievement reading scores were .67, .66, and .67, respectively (Sáez et al., 2010). For Grade 4 PRF forms, alternate form reliability ranged from .83-.98 (Alonzo, Lai, Anderson, Park, & Tindal, 2012). Test-retest reliability ranged from .86-.96 (Alonzo et al., 2012). Grade 4 PRF performance was also strongly correlated (r = .93) with Grade 4 performance on the DIBELS ORF measure (Good & Kaminski,

2002; Lai et al., 2013). Predictive (fall, winter) and concurrent (spring) relations between Grade 4 PRF and year-end state achievement reading scores were .67, .64, and .66 respectively (Sáez et al., 2010).

CORE assessment. We recruited a former teacher to write the CORE passages. The teacher held a Master's degree in counseling psychology and had worked as a high school history teacher in California as well as a school counselor, working with students from pre-K through high school, in Colorado. In addition, she was part of the team that developed the easyCBM reading comprehension and ORF passages, writing 1500-1800 word narrative texts for use as reading comprehension passages and 150-350 word narrative texts for use as ORF passages across Grades 1-8. She was hired to write the CORE passages primarily because of her familiarity with and expertise in passage-writing for this context, and also in recognition of her familiarity with the population of students for whom the measures were being written.

The passage writer was given the following specifications. Each passage was to be an original work of fiction, and be ±5 words of the target length (i.e., short = 25, medium = 50, long = 85). Each passage was to have a beginning, middle, and end; this broad specification was intended to give the passage writer freedom in meeting the word constraint specification, which was crucial in this project. The passage was to follow either a *problem/resolution* format, or *sequence of events* format. The problem/resolution format included: a character, a setting, an action, a problem, and a solution or an ending. The sequence of events format included an expanded description of a particular setting with a starting event that leads to direct and indirect consequences (but not a problem/resolution). The particular setting could be geographical, historical, or other special place. In both types of formats, there was a minimum use of dialogue and symbols. Exclusion rules for what cannot appear in passages included: religious themes;

trademark names, places, products; cultural/ethnic depictions; age inappropriate themes (e.g., violence, guns, tobacco, alcohol, drugs). The inclusion of character feelings was optional, and left to the discretion of the passage writer, given that all other specifications (e.g., exclusions) were met.

Final Year 1 passages included 162 passages total; 54 at each of Grades 2-4, with 9 long passages (80-90 words), 15 medium passages (45-55 words), and 30 short ORF passages (20-30 words). Each passage was an original work of narrative fiction; complete with a beginning, middle, and ending; and was written with grade-level appropriate vocabulary and readability estimated at the mid-year level for each grade. A single readability score was computed for each passage, rounding the average of the Flesch-Kincaid Grade Level (Mac), Spache Readability Index (Revised), and Automated Readability Index. All passages were then reviewed by an expert in assessment of screening and progress monitoring for errors (e.g., format and grammatical), bias (e.g., gender, cultural, religious, and geographical), and alignment with grade-level readability. All final readability indices were recorded for each passage; passages with an average readability outside the targeted grade level were adjusted to either increase or decrease readability, as appropriate.

Procedures

Participating teachers were asked to listen to the oral reading recordings from three of their students and score each recording using the online system developed for this research study. Each student had recordings from the easyCBM PRF passage (≈250 words); a long CORE passage (≈85 words); two medium CORE passages (≈50 words each); and three short CORE passages (≈25 words each). Teachers then responded to a questionnaire intended to elicit feedback on the passage audio recordings and software, and provide passage-specific feedback

on the short, medium, and long CORE passages, as well as the easyCBM passage. The passage-specific items focused on the familiarity of the content type, word decodability, frequency of words, the extent to which the passage included words meaningful to students, and the amount of text per page (Fitzgerald et al., 2015; Mesmer et al., 2012). An example of the passage type (easyCBM, CORE long, CORE medium, CORE short) was displayed with the passage-specific items. Please see APPENDIX A for questionnaire items.

The online CORE system was used to administer, score, record, and save all passage readings (i.e., both easyCBM and CORE passages). The selected recorded audio files were scored by teachers at a later date and in a setting different from that in which the data were collected. Teachers listened to each recorded audio file (with the ability to rewind, replay, and adjust audio), using the same scoring rules as the traditional ORF procedures.

Results

Audio Recordings and Software

We asked teachers about their experience with the ORF audio recordings and CORE software (See Tables 1-4). The majority of teachers across all three grades (16 of 18, 89%) reported that accessing the recordings was *somewhat easy* or *very easy*, while two Grade 2 teachers (11%) reported it was *somewhat difficult*. Nearly all teachers (17 of 18, 94%) reported that the sound quality of the recordings was *somewhat good* or *very good*; one Grade 3 teacher (6%) reported it was *somewhat poor*. All teachers reported that having an audio recording of their students' oral reading fluency would be at least *somewhat useful* for SST or IEP meetings, with 15 of 18 (83%) reporting it would be v*ery useful*.

Most teachers (13 of 18, 72%) reported that scoring a passage online was *somewhat* or *much easier* than scoring a passage with paper and pencil; two teachers (11%) reported it was *about the same*, and three teachers (17%) reported it was *somewhat more difficult*.

Familiarity with Content Type

To understand students' familiarity with the content of the passages we asked teachers about (a) how closely the passages matched the types of texts used in the classroom for reading instructional activities, and (b) the content difficulty of the passage relative to their students' background knowledge (Tables 5 - 12).

Match to instructional materials. Most teachers (14 of 18, 78%) reported that the easyCBM passage was a *good* or *strong match* to the types of texts they use in their classroom for reading instructional activities (Tables 5 - 8). Similarly, 14 teachers (78%) reported that the CORE long passage was a *good match* while four teachers (22%) reported it was *fair* (all seven Grade 4 teachers reported the CORE long passage was a *good match*). No teacher reported that the easyCBM or CORE long passages were a *poor match* to classroom reading instructional materials.

Comparatively, 13 teachers (67%) reported that the CORE medium passage was a *good* or *strong match* to classroom reading instructional texts. Two teachers reported a *fair match*, a majority of Grade 3 teachers reported a *poor match*.

Finally, 10 teachers (56%) reported the CORE short passage was a *good* instructional match, four reported it was *fair* (22%), and four reported it was *poor* (22%). All six Grade 2 teachers reported the match was *good*, suggesting that shorter passages are more grade-appropriate for Grade 2. Three of the five Grade 3 teachers reported the CORE short passage was

a *poor* match, one reported it was *fair*, and one reported it was *good*. Three Grade 4 teachers reported the match was *good*, three reported it was *fair*, and one reported the match was *poor*.

Match to background knowledge. Teachers were asked about the content difficulty of the passage relative to their students' background knowledge (Tables 9 - 12). Generally, as passages got shorter, teachers felt the passages became easier relative to their students' background knowledge. Specifically, 15 teachers (83%) reported the content difficulty of the easyCBM passage was *about right*; one teacher (6%) reported it was *somewhat difficult*, and two teachers (11%) reported it was *somewhat easy*.

Similarly, a majority of teachers (12 of 18, 67%) reported the content difficulty of the CORE long passage was *about right*, five reported it was *somewhat difficult* (28%), and one reported it was *somewhat easy* (6%). Response patterns were fairly similar across grades. No teacher reported that the content difficulty of the easyCBM or CORE long passages was either *very difficult* or *very easy*.

For the CORE medium passage, 11 teachers (61%) reported the content difficulty was *about right*, five reported it was *somewhat easy* (28%), and two reported it was *very easy* (11%). The majority of teachers in Grades 2 and 4 reported it was *about right*; however, four of five Grade 3 teachers reported it was *somewhat* or *very easy*.

Similar to the reports of instructional match, the CORE short passage was generally rated as easier than the other passages. Only seven teachers (none of whom were Grade 3 teachers) reported the content difficulty of the CORE short passage was *about right* (39%), eight reported it was *somewhat easy* (44%), and three reported it was *very easy* (17%). The majority of Grade 2 teachers reported it was *about right*; however, the majority of Grade 3 and 4 teachers reported the short passage was *somewhat easy*.

Targeted Readers

We asked teachers to indicate for which groups of readers the study passages would be most appropriate (Tables 13 - 16). The majority of teachers across grades (12 of 18, 67%) and within Grades 3 and 4 reported that the easyCBM passage would be most appropriate for *average* readers. The majority of Grade 2 teachers reported that the passage would be most appropriate for *average* or *all readers*. No teacher reported that the easyCBM passage would be most appropriate for *struggling* readers.

Half of teachers across grades reported that the CORE long passage would be most appropriate for *average* readers. For Grades 3 and 4, the majority of teachers reported for *average* readers (however, it should be noted all response options were endorsed at Grade 4, indicating the variance of responses). Two-thirds of Grade 2 teachers reported the CORE long passage would be most appropriate for *strong* readers, indicating that perhaps these passages were viewed as comparably difficult.

Half of teachers across grades reported that the CORE medium passage would be most appropriate for *average* readers. The majority of Grade 2 and 4 teachers reported that the CORE medium passages were most appropriate for *average* readers, whereas 80% of Grade 3 teachers reported that the CORE medium passages were most appropriate for *struggling* readers, suggesting that these teachers viewed these passages as less challenging than the easyCBM and CORE long passages. Similarly, half of teachers across grades reported that the CORE short passage would be most appropriate for *average* readers. The majority of Grade 3 and 4 teachers reported that the CORE short passages were most appropriate for *struggling* readers while the majority of Grade 2 teachers endorsed the CORE short passages for *average* readers in their classes.

Word Difficulty, Decodability, and Frequency

To understand the characteristics of the words in the study passages, we asked about specific word difficulty, word decodability, and word frequency (Tables 17 - 28).

Word difficulty. We asked teachers whether the passages contained specific words that would be difficult for students in their classes (Tables 17 – 20). The majority of teachers (14%) *agreed* that there were specific words in the easyCBM passage that would be difficult for their students (all Grade 2 teachers responded this way). In both Grade 3 and 4, two teachers *disagreed,* reporting the easyCBM passage did not contain any specific words that would be difficult for their students.

For the CORE long passage, the majority of teachers (14 of 18, 78%) *agreed* or *strongly agreed* that the passage contained specific words that would give their students difficulty. This result was found for both Grade 2 and Grade 4 teachers; however, while two Grade 3 teachers responded similarly, three Grade 3 teachers *disagreed* that the CORE long passage contained specific words that would challenge their students.

For the CORE medium passage, a majority of teachers overall (11 of 18, 61%) reported that the passage did *not* contain specific difficult words, a result found in Grades 2 and 3 as well. However, the majority of Grade 4 teachers *agreed* that the CORE medium passage contained specific words that might be difficult for their students.

For the CORE short passages, a majority of teachers overall (14 of 18, 78%) reported that the passage did *not* contain specific difficult words. Grade 2 teachers were split; half *agreed* and half *disagreed* that the passages contained specific challenging words for their students. All Grade 3 teachers reported that the short passages did *not* contain specific difficult words, and two

Grade 4 teachers *strongly disagreed* that the short passages contained difficult words, while only one teacher reported the short passages contained difficult words.

Word decodability. We asked teachers about the grade-level of the decodability of the passage words for the average student in their class (Tables 21 – 24). Nearly all teachers across grades (17 of 18, 94%) reported that the words in the easyCBM passages were *on grade-level* (one Grade 3 teacher reported the words were *above grade-level*).

For the CORE long passages, the majority of teachers within and across grades reported that the words were generally *on grade-level*. Two Grade 2 teachers reported the words were *above grade-level*, and one teacher in each of Grades 3 and 4 reported the words were *below grade-level*.

Similarly, for the CORE medium passages, the majority of teachers across grades reported that the words were generally *on grade-level*. All Grade 2 teachers and six of seven Grade 4 teachers (86%) reported the words were *on grade-level*; however, the majority of Grade 3 teachers reported that the words were *below grade-level*.

For the CORE short passages, the majority of teachers across grades, and within Grades 3 and 4, reported that the words were generally *below grade-level*. All Grade 2 teachers again reported that the words were *on grade-level*.

Word frequency. We asked teachers about the frequency of the words in the passages relative to average readers in their class (Tables 25 - 28). For the easyCBM passage, a majority of teachers (15 of 18, 83%) across all grades reported the words were of *moderate frequency*. One teacher in each grade reported the words were of *high frequency*. For the CORE long passages the majority of teachers across grades (72%), and within Grades 2 and 4, reported the words were of *moderate frequency*. Grade 3 teachers endorsed each of the response options,

suggesting less agreement in this group. For the CORE medium passages, half the teachers reported the words were of *high frequency*, but results varied by grade, making interpretations tenuous. For the CORE short passages, the majority of teachers across grades (61%), and within Grades 3 and 4, reported the words were of *high frequency*; the majority of Grade 2 teachers reported the words were of *moderate frequency.*

Text Quantity

We asked teachers about the amount of text on the screen for each passage (Tables 29 - 32). A majority of teachers across passages and grades reported that the amount of text was *just fine*. The CORE long passages received almost unanimous support for this response option (17 of 18, 94%), followed by the CORE medium passages (15 of 18, 83%), the CORE short passages (13 of 18, 72%), and finally the easyCBM passages (12 of 18, 67%). Comparing the easyCBM to the CORE passages: For the easyCBM passages, the remaining six teachers, evenly split across the three grades, reported that rated the amount of text on the screen was *too much*; whereas for the CORE passages (long, medium, or short) the remaining teachers reported that the amount of text in the CORE passages was *too little* for a computer screen.

Discussion

One purpose of this survey was to understand whether the CORE system was accessible and useful for teachers. Teachers reported that: accessing the ORF audio recordings via the teacher-user interface was relatively easy; the sound quality of those recordings was generally good; having an audio recording would be useful for SST or IEP meetings; and scoring a passage online was easier than scoring a traditional ORF passage with paper and pencil. In addition, teachers generally reported that the amount of text presented on the screen by the CORE (and

traditional ORF passages) was appropriate. These results suggest that delivering, scoring, and storing ORF assessments online may be feasible, even desirable, for classroom teachers.

The primary purpose of the teacher survey, however, was to explore any potential difference between CORE and traditional ORF (i.e., easyCBM) passages, and any potential deficits in the three CORE lengths. Survey questions targeted text complexity features of the passages, focusing on the familiarity of the content type, word decodability, frequency of words, and the extent to which the passage included words meaningful to students. It is important to note that across survey items, the Grade 3 teachers tended to rate passages as easier than their Grade 2 and 4 peers, which may influence some interpretations across grades, described below.

The reported instructional match slightly decreased as passage length decreased, such that the easyCBM and CORE long passages were better matches with the instructional materials for older students and the CORE medium and short passages were better matches for younger students. However, in general, the majority of teachers reported that the easyCBM and CORE passages were a *good match* to the types of texts teachers use in their classrooms for reading instructional activities.

Relative to their students' background knowledge, the majority of teachers reported the content difficulty was *about right* for the easyCBM and the CORE long and medium passages, and results skewed toward *easy* for the CORE short passages. Results varied slightly across grades and suggested that the content difficulty of the CORE short passages may be better suited for Grade 2 students, as other grade teachers rated the passages easier as length decreased.

Grade 2 teachers generally reported that all passage lengths were appropriate for *average* readers, except the CORE long passages which were most appropriate for *strong* readers. The teachers in Grades 3 and 4 rated the longer passages more appropriate for *average* readers, and

the CORE short passages more appropriate for *struggling* readers in their class, indicating short passages are perceived as perhaps less difficult. Note that there was not unanimous agreement for any group of grade-level teachers for any passage length.

Across passages and grades, teachers reported more difficult words within passages of increased length. This pattern may have emerged because shorter passages contain fewer words and therefore fewer opportunities to challenge their students. Similarly, as passage length decreased, teachers from the upper grades reported the word decodability became easier, whereas Grade 2 teachers reported that words in the shorter passages were generally more aligned with grade-level decodability. Overall, teachers generally reported that the shorter passages contained higher frequency words and viewed them as generally easier than longer passages. This finding aligns with the teachers' rating that the shorter passages were generally easier, despite the fact that the readability indices previously indicated about the same level of difficulty across passages and relative to grade-level.

A broad conclusion can be drawn that there are no distinct differences between CORE and traditional ORF (i.e., easyCBM) passages. The teachers in our sample appeared to find the CORE passages generally appropriate for their students, and the functionality of the software suitably accessible for their use. However, our results also suggest that the CORE short passages might be most appropriate for Grade 2 students while the CORE long and medium passages might be preferred by teachers for students in Grades 3 and 4. Caution is warranted, of course, due to the small sample size of this initial field test study. Additional research is needed to draw more robust conclusions.

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I. Recording Software

Table 1. *Response Results for the Question: "Accessing student recordings was*:"

	Grade						Total	
	2		3		4			
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Very difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat difficult	33	(2)	0	(0)	0	(0)	11	(2)
Somewhat easy	0	(0)	20	(1)	57	(4)	28	(5)
Very easy	67	(4)	80	(4)	43	(3)	61	(11)

Table 2. *Response Results for the Question: "The sound quality of the recordings was*:"

	Grade						Total	
	2		3		4			
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Very poor	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat poor	0	(0)	20	(1)	0	(0)	6	(1)
Somewhat good	17	(1)	40	(2)	29	(2)	28	(5)
Very good	83	(5)	40	(2)	71	(5)	67	(12)

Table 3. *Response Results for the Question:* "*Having an historical record of your students' oral reading (for SST/IEP meetings, parent conferences, etc.) would be*:"

	Grade						Total	
	2		3		4			
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Not at all useful	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat useful	17	(1)	0	(0)	0	(0)	6	(1)
Useful	33	(2)	0	(0)	0	(0)	11	(2)
Very useful	50	(3)	100	(5)	100	(7)	83	(15)

Table 4. Response Results for the Question: *"Compared to scoring a passage with paper and pencil, scoring a passage online was:"*

	Grade						Total	
	2		3		4			
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Much more difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat more difficult	17	(1)	40	(2)	0	(0)	17	(3)
About the same	0	(0)	0	()	29	(2)	11	(2)
Somewhat easier	67	(4)	40	(2)	29	(2)	44	(8)
Much easier	17	(1)	20	(1)	43	(3)	28	(5)

II. Familiarity Content Type

Table 5. *Response Results for the Question: "How close a match is this [**easyCBM**] passage to the types of texts that you use in your classroom for reading instructional activities?"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Poor Match	0	(0)	0	(0)	0	(0)	0	(0)
Fair Match	17	(1)	20	(1)	29	(2)	22	(4)
Good Match	33	(2)	40	(2)	57	(4)	44	(8)
Strong Match	50	(3)	40	(2)	14	(1)	33	(6)

Table 6. *Response Results for the Question: "How close a match is this [**LONG**] passage to the types of texts that you use in your classroom for reading instructional activities?"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Poor Match	0	(0)	0	(0)	0	(0)	0	(0)
Fair Match	33	(2)	40	(2)	0	(0)	22	(4)
Good Match	67	(4)	60	(3)	100	(7)	78	(14)
Strong Match	0	(0)	0	(0)	0	(0)	0	(0)

Table 7. *Response Results for the Question: "How close a match is this [**MEDIUM**] passage to the types of texts that you use in your classroom for reading instructional activities?"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Poor Match	0	(0)	60	(3)	0	(0)	17	(3)
Fair Match	17	(1)	20	(1)	0	(0)	11	(2)
Good Match	67	(4)	20	(1)	100	(7)	67	(12)
Strong Match	17	(1)	0	(0)	0	(0)	6	(1)

Table 8. *Response Results for the Question: "How close a match is this [**SHORT**] passage to the types of texts that you use in your classroom for reading instructional activities?"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Poor Match	0	(0)	60	(3)	14	(1)	22	(4)
Fair Match	0	(0)	20	(1)	43	(3)	22	(4)
Good Match	100	(6)	20	(1)	43	(3)	56	(10)
Strong Match	0	(0)	0	(0)	0	(0)	0	(0)

Table 9. *Response Results for the Question: "Relative to my students' background knowledge, the content difficulty of this [**easyCBM**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Very difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat difficult	17	(1)	17	(0)	0	(0)	6	(1)
About Right	67	(5)	67	(4)	100	(7)	83	(15)
Somewhat easy	17	(1)	17	(1)	0	(0)	11	(2)
Very easy	0	(0)	0	(0)	0	(0)	0	(0)

Table 10. *Response Results for the Question: "Relative to my students' background knowledge, the content difficulty of this [**LONG**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Very difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat difficult	33	(2)	40	(2)	14	(1)	28	(5)
About Right	67	(4)	60	(3)	71	(5)	67	(12)
Somewhat easy	0	(0)	0	(0)	14	(1)	6	(1)
Very easy	0	(0)	0	(0)	0	(0)	0	(0)

Table 11. *Response Results for the Question: "Relative to my students' background knowledge, the content difficulty of this [**MEDIUM**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Very difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat difficult	0	(0)	0	(0)	0	(0)	28	(0)
About Right	83	(3)	20	(1)	71	(5)	61	(11)
Somewhat easy	17	(1)	40	(2)	29	(2)	28	(5)
Very easy	0	(0)	40	(2)	0	(0)	11	(2)

Table 12. *Response Results for the Question: "Relative to my students' background knowledge, the content difficulty of this [**SHORT**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(n)
Very difficult	0	(0)	0	(0)	0	(0)	0	(0)
Somewhat difficult	0	(0)	0	(0)	0	(0)	0	(0)
About Right	83	(5)	0	(0)	29	(2)	39	(7)
Somewhat easy	17	(1)	80	(4)	43	(3)	44	(8)
Very easy	0	(0)	20	(1)	29	(2)	17	(3)

III. Target Readers

Table 13. *Response Results for the Question: "This [**easyCBM**] passage would be most appropriate for which groups of readers in your class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Struggling readers	0	(0)	0	(0)	0	(0)	0	(0)
Average readers	50	(3)	80	(4)	71	(5)	67	(12)
Strong readers	17	(1)	20	(1)	14	(1)	17	(3)
All readers	33	(2)	0	(0)	14	(1)	17	(3)

Table 14. *Response Results for the Question: "This [**LONG**] passage would be most appropriate for which groups of readers in your class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Struggling readers	0	(0)	0	(0)	14	(1)	6	(1)
Average readers	17	(1)	80	(4)	57	(4)	50	(9)
Strong readers	67	(4)	20	(1)	14	(1)	33	(6)
All readers	17	(1)	0	(0)	14	(1)	11	(2)

Table 15. *Response Results for the Question: "This [**MEDIUM**] passage would be most appropriate for which groups of readers in your class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Struggling readers	0	(0)	80	(4)	29	(2)	33	(6)
Average readers	67	(4)	20	(1)	57	(4)	50	(9)
Strong readers	0	(0)	0	(0)	0	(0)	0	(0)
All readers	33	(2)	0	(0)	14	(1)	17	(3)

Table 16. *Response Results for the Question: "This [**SHORT**] passage would be most appropriate for which groups of readers in your class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Struggling readers	0	(0)	60	(3)	57	(4)	39	(7)
Average readers	83	(5)	40	(2)	29	(2)	50	(9)
Strong readers	0	(0)	0	(0)	0	(0)	0	(0)
All readers	17	(1)	0	(0)	14	(1)	11	(2)

IV. Word Decodability and Word Frequency

Table 17. *Response Results for the Question: "This [**easyCBM**] passage contains specific words that might be difficult for students in my class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Strongly disagree	0	(0)	0	(0)	0	(0)	0	(0)
Disagree	0	(0)	40	(2)	29	(2)	22	(4)
Agree	100	(6)	60	(3)	71	(5)	78	(14)
Strongly agree	0	(0)	0	(0)	0	(0)	0	(0)

Table 18. *Response Results for the Question: "This [**LONG**] passage contains specific words that might be difficult for students in my class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Strongly disagree	0	(0)	0	(0)	0	(0)	0	(0)
Disagree	0	(0)	60	(3)	14	(1)	22	(4)
Agree	83	(5)	40	(2)	86	(6)	72	(13)
Strongly agree	17	(1)	0	(0)	0	(0)	6	(1)

Table 19. *Response Results for the Question: "This [**MEDIUM**] passage contains specific words that might be difficult for students in my class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Strongly disagree	0	(0)	20	(1)	0	(0)	6	(1)
Disagree	67	(4)	80	(4)	29	(2)	56	(10)
Agree	33	(2)	0	(0)	71	(5)	39	(7)
Strongly agree	0	(0)	0	(0)	0	(0)	0	(0)

Table 20. *Response Results for the Question: "This [**SHORT**] passage contains specific words that might be difficult for students in my class:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Strongly disagree	0	(0)	0	(0)	29	(2)	11	(2)
Disagree	50	(3)	100	(5)	57	(4)	67	(12)
Agree	50	(3)	0	(0)	14	(1)	22	(4)
Strongly agree	0	(0)	0	(0)	0	(0)	0	(0)

Table 21. *Response Results for the Question: "For average students in my class, the decodability of the words in the [**easyCBM**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Below grade level	0	(0)	0	(0)	0	(0)	0	(0)
On grade level	100	(6)	80	(4)	100	(7)	94	(17)
Above grade level	0	(0)	20	(1)	0	(0)	6	(1)

Table 22. *Response Results for the Question: "For average students in my class, the decodability of the words in the [**LONG**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Below grade level	0	(0)	20	(1)	14	(1)	11	(2)
On grade level	67	(4)	80	(4)	86	(6)	78	(14)
Above grade level	33	(2)	0	(0)	0	(0)	11	(2)

Table 23. *Response Results for the Question: "For average students in my class, the decodability of the words in the [**MEDIUM**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Below grade level	0	(0)	60	(3)	14	(1)	22	(4)
On grade level	100	(6)	40	(2)	86	(6)	78	(14)
Above grade level	0	(0)	0	(0)	0	(0)	0	(0)

Table 24. *Response Results for the Question: "For average students in my class, the decodability of the words in the [**SHORT**] passage is:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Below grade level	0	(0)	80	(4)	86	(6)	56	(10)
On grade level	100	(6)	20	(1)	14	(1)	44	(8)
Above grade level	0	(0)	0	(0)	0	(0)	0	(0)

Table 25. *Response Results for the Question: "For average students in my class, the words in the **[easyCBM]** passage are:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Low frequency	0	(0)	0	(0)	0	(0)	0	(0)
Moderate frequency	83	(5)	80	(4)	86	(6)	83	(15)
High frequency	17	(1)	20	(1)	14	(1)	17	(3)

Table 26. *Response Results for the Question: "For average students in my class, the words in the **[LONG]** passage are:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Low frequency	17	(1)	40	(2)	0	(0)	17	(3)
Moderate frequency	83	(5)	40	(2)	86	(6)	72	(13)
High frequency	0	(0)	20	(1)	14	(1)	11	(2)

Table 27. *Response Results for the Question: "For average students in my class, the words in the **[MEDIUM]** passage are:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Low frequency	0	(0)	40	(2)	0	(0)	11	(2)
Moderate frequency	50	(3)	0	(0)	57	(4)	39	(7)
High frequency	50	(3)	60	(3)	43	(3)	50	(9)

Table 28. *Response Results for the Question: "For average students in my class, the words in the **[SHORT]** passage are:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Low frequency	0	(0)	20	(1)	0	(0)	6	(1)
Moderate frequency	67	(4)	0	(0)	29	(2)	33	(6)
High frequency	33	(2)	80	(4)	71	(5)	61	(11)

V. Text Quantity

Table 29. *Response Results for the Question: "The amount of text in this [**easyCBM**] passage is _____ for a computer screen:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Too little	0	(0)	0	(0)	0	(0)	0	(0)
Just fine	67	(4)	60	(3)	71	(5)	67	(12)
Too much	33	(2)	40	(2)	29	(2)	33	(6)

Table 30. *Response Results for the Question: "The amount of text in this [**LONG**] passage is _____for a computer screen:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Too little	17	(1)	0	(0)	0	(0)	6	(1)
Just fine	83	(5)	100	(5)	100	(7)	94	(17)
Too much	0	(0)	0	(0)	0	(0)	0	(0)

Table 31. *Response Results for the Question: "The amount of text in this [**MEDIUM**] passage is _____ for a computer screen:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Too little	17	(1)	20	(1)	14	(1)	17	(3)
Just fine	83	(5)	80	(4)	86	(6)	83	(15)
Too much	0	(0)	0	(0)	0	(0)	0	(0)

Table 32. *Response Results for the Question: "The amount of text in this [**SHORT**] passage is _____for a computer screen:"*

	Grade							
	2		3		4		Total	
Responses	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Too little	17	(1)	40	(2)	29	(2)	0	(5)
Just fine	83	(5)	60	(3)	71	(5)	72	(13)
Too much	0	(0)	0	(0)	0	(0)	0	(0)

Appendix A
Teacher Questionnaire

Note that each teacher answered item 7 (a through g) for each of the study passage types (i.e., easyCBM, CORE long, CORE medium, and CORE short).

1. Enter your last name:
2. Please briefly describe the three selected students as readers:
3. Accessing the student recordings was:

Very Difficult	Somewhat Difficult	Somewhat Easy	Easy

4. The sound quality of the recordings was:

Very Poor	Somewhat Poor	Somewhat Good	Very Good

5. Having an historical record of your students' oral reading (for SST/IEP meetings, parent conferences, etc.) would be:

Not at All Useful	Somewhat Useful	Useful	Very Useful

6. Compared to scoring a passage with paper and pencil, scoring the passage online was:

Much More Difficult	Somewhat Difficult	About the Same	Somewhat Easy	Much Easier

The items below pertain to the [passage type, with example].

7a. How close a match is this passage to the types of texts that you use in your classroom for reading instructional activities?

Poor Match	Fair Match	Good Match	Strong Match

7b. Relative to my students' background knowledge, the content difficulty of this passage is:

Very Difficult	Somewhat Difficult	About Right	Somewhat Easy	Very Easy

7c. This passage would be most appropriate for which groups of readers in your class:

Struggling Readers	Average Readers	Strong Readers	All Readers in my Class

7d. This passage contains specific words that might be difficult for students in my class:

Strongly Disagree	Disagree	Agree	Strongly Agree

7e. For average students in my class, the decodability of the words in the passage is:

Below Grade-Level	On Grade-Level	Above Grade-Level

7f. For average students in my class, the words in the passage are:

Low Frequency Words	Moderate Frequency Words	High Frequency Words

7g. The amount of text in this passage is _____ for a computer screen:

Too Little	Just Fine	Too Much