

WHAT TESTS TELL US

Making Sense Out of Data

By Don Burger

Holistic (single) test scores are useful for policymakers but are seldom useful for teachers and administrators. For example, a reading score of 70% tells only what percentage of the questions was answered correctly; it does not tell what skills the student has or how good the score is. One way to make more sense of test data is to separate it into components and convert the results to rubric scores.

Rather than rely on one global reading measure, the Pacific Communities with High-performance In Literacy Development (Pacific CHILD) project has developed a battery of early reading assessments in English, Chuukese, Kosraean, Marshallese, Palauan, Pohnpeian, and Yapese. The assessment battery includes Concepts About Print, Alphabet Sound/Symbol Recognition, Phonemic Awareness, Listen and Retell, Sight Word Identification, Written Story Construction, and the Open-Ended Reading Test from Harcourt Educational Measurement. Altogether, 14 different measures are used to gauge students' progress in learning to read.

The following four-step process explains how to make meaning out of test data. It uses the Alphabet Sound/Symbol Recognition Assessment as an example, but you can apply the method to a wide range of assessment data.

1. Determine what tests measure.

The Alphabet Sound/Symbol Recognition Assessment measures how well a student knows upper- and lowercase letters. Recognizing letters and knowing their sounds is an important skill in learning how to read.

Administer the assessment to students individually, each on a separate form (see Figure 1). A complete form would include all the letters of the alphabet.

Summarize the data into two scores, upper- and lowercase, and use it to identify the specific letters a student knows

well or has difficulty with. This data is available and in your hands immediately after the assessment.

2. Set achievement levels.

The next step is to make the test scale – the total number of points scored on the test – more meaningful. The English version of the Alphabet Sound/Symbol Recognition Assessment has 26 possible points for uppercase and 28 for lowercase. Lowercase has two more because the lowercase “a” and “g” have two different forms.

Now convert the scale into a rubric

that has meaning. Pacific CHILD teachers and staff developed the rubric in Figure 2, setting “cut scores” that made meaning out of the data. Cut scores are the number ranges associated with each achievement level; the most important is the one that separates “Meets Standard” from “Below Standard.” For uppercase letters, a score of 24 or 25 met the achievement standard, 26 exceeded it, and 23 or lower did not meet it.

How do you determine cut scores? You need to set the “Meets Standard” level first and then move on to the other levels. For the Alphabet Sound/Symbol Recognition Assessment, grade level teachers came together and agreed on the number of letters they expected 1st grade students to be able to identify correctly by the end of the year – namely, 24 of 26 uppercase

Figure 1. Teacher Recording Form
English Alphabet Sound/Symbol Recognition

Upper-case	L √	S √	Word	Other	Lower-case	L √	S √	Word	Other
A					a				
O					o				
T					t				
D					y				
C					k				
V					v				
					a				
					g				
Known letters & sounds					Known letters & sounds				

L=letter or symbol S=sound

Figure 2. Rubric for the English Alphabet Sound/Symbol Recognition Assessment Conversion Table

Achievement Standards (1st Grade)	Uppercase Letters (26 Possible)	Lowercase Letters (28 Possible)
Exceeds Standard (4)	26	28
Meets Standard (3)	24-25	26-27
Below Standard (2)	12-23	12-25
Well Below Standard (1)	0-11	0-11

letters and 26 of 28 lowercase letters. Next they set criteria for the “Exceeds Standard” level, followed by the “Below Standard” level.

Cut scores for “Below Standard” should identify students who are catching on but still make frequent mistakes. Students in the “Well Below Standard” category do not yet understand the concepts being taught, which in this case means that they frequently do not associate letters with names or sounds.

Notice that the scale is divided into four unequal achievement standards based on the teachers’ expectations for student learning. The range of points is not divided into four equal parts, nor is the scale segmented by percentage scores. To do so would be to impose an arbitrary structure that, while symmetrical, does not reflect teachers’ expectations for student achievement.

3. Profile the class.

Step 3 creates the big picture of the class using the achievement standards.

Programs like *Microsoft Excel* are very handy for this step. Create a worksheet for the class (see Figure 3) by entering each student’s name and raw scores.

Next, convert the raw scores to achievement level scores using the rubric conversion table (Figure 2).

These new achievement level scores range from 0-4. For these six students, only one, Rita, met or exceeded the standard in uppercase letters, and only Cathy met or exceeded the standard for lowercase letters.

Next, tally the number of 4s, 3s, 2s, and 1s for upper- and lowercase. Create a table indicating the number and percentage of students in each achievement level, as in Figure 4.

What does Figure 4 tell you? You can see that 83.3% of the students do not meet the standard for uppercase letters and 83.3% do not meet the standard for lowercase letters. If you gave this assessment early in the school year, you would know that nearly all students need work on upper- and lowercase letters. If you gave the assessment at the end of the year, you would know that only one student met the standard for lowercase letters and only one student met the standard for uppercase letters.

Student Name	Uppercase Letters Raw Score	Lowercase Letters Raw Score	Uppercase Letters Achievement Score	Lowercase Letters Achievement Score
Eduardo	19	12	2	2
Kimo	11	16	1	2
Rita	26	20	4	2
Marcia	6	5	1	1
Cathy	22	26	2	3
Jane	8	6	1	1

Achievement Level	Uppercase Achievement Score	Lowercase Achievement Score
Exceeds Standard (4)	1 – 16.7%	0 – 0.0%
Meets Standard (3)	0 – 0.0%	1 – 16.7%
Below Standard (2)	2 – 33.3%	3 – 50.0%
Well Below Standard (1)	3 – 50.0%	2 – 33.3%
Total	6 – 100.0%	6 – 100.0%

4. Group students for learning.

Figure 4 also shows that three students scored in the “Well Below Standard” category for uppercase letters. These students might need different instruction from the two students in the “Below Standard” category. Two students also need in-depth instruction in lowercase letters, while three students are beginning to identify them. The individual score sheet you created in the first step pinpoints the letters students have not yet learned. You can use this information to plan class instruction.

From the individual score sheets, you also know that Rita already knows her uppercase letters, so there is no need for her to sit through more instruction on this. Cathy knows her lowercase letters.

One of teachers’ most effective and least understood “power tools” is the use of assessment information to inform instruction. Through the four steps described above, you can quickly and easily put assessment data to work. Both you and your students will benefit.

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