DIBELS Information

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. They are designed to be short (one minute) fluency measures used to regularly monitor the development of early literacy and early reading skills.

DIBELS were developed to measure recognized and empirically validated skills related to reading outcomes. Each measure has been thoroughly researched and demonstrated to be reliable and valid indicators of early literacy development and predictive of later reading proficiency to aid in the early identification of students who are not progressing as expected. When used as recommended, the results can be used to evaluate individual student development as well as provide grade-level feedback toward validated instructional objectives.

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History of DIBELS

DIBELS were developed based on measurement procedures for Curriculum-Based Measurement (CBM) by Deno and colleagues through the Institute for Research and Learning Disabilities at the University of Minnesota in the 1970s-80s (e.g., Deno and Mirkin, 1977; Deno, 1985; Deno and Fuchs, 1987; Shinn, 1989). Like CBM, DIBELS were developed to be economical and efficient indicators of a student's progress toward achieving a general outcome.

Initial research on DIBELS was conducted at the University of Oregon in the late 1980s. Since then, an ongoing series of studies on DIBELS has documented the reliability and validity of the measures as well as their sensitivity to student change. The DIBELS authors were motivated then, as now, by the desire to improve educational outcomes for children, especially those from poor and diverse backgrounds. Research on DIBELS continues at the Dynamic Measurement Group (DMG) and at numerous universities and research institutions around the world.

Which skills do the DIBELS measures assess?

The DIBELS measures were specifically designed to assess the core components of reading: Phonological Awareness, Alphabetic Principle, Accuracy and Fluency with Connected Text, Vocabulary, and Comprehension. The measures are linked to one another, both psychometrically and theoretically, and have been found to be predictive of later reading proficiency. Combined, the measures form an assessment system of early literacy development that allows educators to readily and reliably determine student progress.
Measures of Phonemic Awareness:
- **Initial Sound Fluency (ISF):** Assesses a child's skill at identifying and producing the initial sound of a given word.
- **Phonemic Segmentation Fluency (PSF):** Assesses a child's skill at producing the individual sounds within a given word.

Measure of Alphabetic Principle and Phonics:
- **Nonsense Word Fluency (NWF):** Assesses a child's knowledge of letter-sound correspondences as well their ability to blend letters together to form unfamiliar "nonsense" (e.g., ut, fik, lig, etc.) words.
- **Oral Reading Fluency (ORF):** Assesses a child's skill at reading connected text in grade-level materials.
- **Oral Reading Fluency (ORF) and Retell Fluency (RTF):** Assesses a child's understanding of verbally read connected text.

Measure of Accuracy and Fluency with Connected Text:
- **Oral Reading Fluency (ORF):** Assesses a child's skill at reading connected text in grade-level materials.

Measure of Comprehension:
- **Oral Reading Fluency (ORF) and Retell Fluency (RTF):** Assesses a child's understanding of verbally read connected text.

Measure of Vocabulary and Oral Language:
- **Word Use Fluency (WUF):** Assesses a child's ability to accurately use a provided word in the context of a sentence.

**DIBELS as Indicators**
The role of DIBELS as indicators is described in Kaminski, Cummings, Powell-Smith, and Good (2008) as follows:

DIBELS, by design, are indicators of each of the Basic Early Literacy Skills. For example, DIBELS do not measure all possible phonemic awareness skills such as rhyming, alliteration, blending, and segmenting. Instead, the DIBELS measure of phonemic awareness, Phoneme Segmentation Fluency (PSF), is designed to be an indicator of a student’s progress toward the long-term phonemic awareness outcome of segmenting words. The notion of DIBELS as indicators is a critical one. It is this feature of DIBELS that distinguishes it from other assessments and puts it in a class of assessments known as General Outcome Measures.

DIBELS were developed based on measurement procedures used for Curriculum-based Measurement (CBM) by Deno and colleagues through the Institute for Research on Learning Disabilities at the University of Minnesota in the 1970s-80s (e.g., Deno & Mirkin, 1977; Deno, 1985; Deno & Fuchs, 1987; Shinn, 1989). Like CBM, DIBELS were developed to be economical and efficient indicators of a student’s progress toward achieving an important outcome. Although DIBELS materials were initially developed to be linked to the local curriculum like CBM (Kaminski & Good, 1996), current DIBELS measures are generic and draw content from sources other than any specific school’s curriculum. The use of
generic CBM methodology is typically referred to as General Outcome Measurement (GOM) (Fuchs & Deno, 1994).

General Outcome Measures (GOMs) like DIBELS differ in meaningful and important ways from other commonly used formative assessment approaches. The most common formative assessment approach that teachers use is assessment of a child’s progress in the curriculum, often called mastery measurement. End of unit tests in a curriculum are one example of mastery measurement. Teachers teach skills and then test for mastery of the skills just taught. They then teach the next set of skills in the sequence and assess mastery of those skills. Both the type and difficulty of the skills assessed change from test to test; therefore scores from different times in the school year cannot be compared. Mastery-based formative assessment such as end of unit tests addresses the question, “has the student learned the content taught?” In contrast, GOMs are designed to answer the question, “is the student learning and making progress toward the long-term goal?”

In much the same way as an individual’s temperature or blood pressure can be used to indicate the effectiveness of a medical intervention, GOMs in the area of education can be used to indicate the effectiveness of our teaching. However, the powerful predictive validity of the measures does not mean that their content should become the sole components of our instruction. In other words, unlike mastery based assessment in which it is appropriate to teach the exact skills tested, each DIBELS indicator represents a broader sequence of skills to be taught. (For an example of sequence of skills related to and leading to the goals, please see Curriculum Maps at http://dibels.uoregon.edu/c_maps.php.) DIBELS measures are designed to be brief so that our teaching doesn’t have to be.

**Why use DIBELS?**

**Teaching with the odds in your favor**

The purpose of the DIBELS Benchmark goals is to provide educators with standards for gauging the progress of all students. The Benchmark goals represent minimum levels of performance for all students to reach in order to be considered on track for becoming a reader. The DIBELS goals and cut scores are research-based, criterion-referenced scores. They indicate the probability of achieving subsequent early literacy goals. Benchmark goals for each measure and time period were established using a minimum cut point at which the odds were in favor of a student achieving the next benchmark goal. For a score to be considered a benchmark goal, at least 80% to 85% of students in the sample with that score at that point in time had to achieve the next goal. So, for a child with a score at or above the benchmark goal at a given point, the probability is high for achieving the next goal; the probability of need for additional support to achieve the next goal is low.

In addition to these goals, DIBELS also include cutoff scores where the odds against achieving subsequent literacy goals are indicated. These cutoff points represent scores at which 20% or fewer students typically achieve subsequent goals. Students with scores at or
below these cutoff points are extremely unlikely to meet subsequent early literacy goals unless additional instructional support is provided.

A unique feature of the DIBELS benchmark decision rules is the inclusion of a zone where a clear prediction is not possible. Scores that fall between the benchmark goal and the cutoff score represent patterns of performance where approximately 50% of students achieved subsequent literacy goals. Students with scores in this category require strategic planning on the part of educators to determine appropriate strategies to support the students to meet subsequent early literacy goals.

To demonstrate the instructional utility nature of these decision rules, look at Figure 1, below, demonstrating the relation of kindergarten phonological awareness and first grade alphabetic principle on end-of-first-grade reading proficiency.

The Role of Phonological Awareness in Kindergarten on End-of-First-Grade Reading Proficiency

The scatter plot in Figure 1 displays all first grade students in a school using their kindergarten May phonological awareness performance (measured by PSF) with their end-of-first-grade accuracy and fluency with connected text performance (measured by ORF). Each dot represents an individual student. If you track down from a dot, you will get that student's end of Kindergarten performance on the PSF measure (horizontal axis). If you track left to the vertical axis, using the same student, you will get that child's end of first grade ORF score. The green lines within the plot depict the benchmark goal levels for each measure. In this example, the green vertical line is at 35 because that is the goal level for all children to be at or above on the PSF measure by the end of kindergarten. Any child to the right of the green vertical line met the end of kindergarten goal on phonological awareness. The green horizontal line is at 40 because that is the goal level for all children to be at or above on the ORF measure by the end of first grade. Any child above the green horizontal line has met the end-of-year ORF goal. The red line depicts the scores that are predictive of later reading difficulty. Children to the left of the red vertical line had a score of less than 10 on the PSF measure and are at serious risk for reading difficulties without a change in instructional program. Students below the red horizontal line had a score of less than 10 on ORF at the end of first grade and are considered to be non-readers.
Odds of being an Established Reader on ORF in May of First Grade when Established with PSF in May of Kindergarten is 37 out of 44, or 84%.

Odds of being an Established Reader on ORF in May of First Grade when Deficit with PSF in May of Kindergarten is 1 out of 6, or 16%.

The relation between the PSF and ORF measures illustrates the way in which DIBELS benchmark goals may be used to allocate resources and plan student support. For example, for the students finishing Kindergarten established on phonological awareness, 84 percent of them were established readers by the end of first grade. This means that the odds are in the child’s favor of being a reader in first grade if they have established PA in kindergarten. Conversely, the odds are stacked against students finishing kindergarten with a score of 10 or less on PSF. Only 16 percent of those students were established readers at the end of first grade.

Table 1 shows the scores of one classroom of first graders from the scatter plot example. One column has the end-of-Kindergarten PSF performance and the right hand column has that same student’s end-of-first-grade ORF performance. You can use these scores to put a name to the dots in the grade-level scatter plot. In this classroom, of the 5 children finishing kindergarten with a score of less than 10 on PSF, only 1 was an established reader at the end of first grade. For the 7 students finishing kindergarten with established PA, six were established readers at the end of first grade.
Table 1.

<table>
<thead>
<tr>
<th>Student</th>
<th>PSF Score</th>
<th>Skill Status</th>
<th>ORF Score</th>
<th>Reading Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matt P.</td>
<td>0</td>
<td>Deficit</td>
<td>65</td>
<td>Established</td>
</tr>
<tr>
<td>Sally S.</td>
<td>4</td>
<td>Deficit</td>
<td>2</td>
<td>Nonreader</td>
</tr>
<tr>
<td>Beth A.</td>
<td>4</td>
<td>Deficit</td>
<td>4</td>
<td>Nonreader</td>
</tr>
<tr>
<td>Tony D.</td>
<td>8</td>
<td>Deficit</td>
<td>5</td>
<td>Nonreader</td>
</tr>
<tr>
<td>Nick W.</td>
<td>9</td>
<td>Deficit</td>
<td>35</td>
<td>Emerging</td>
</tr>
<tr>
<td>Corina H.</td>
<td>14</td>
<td>Emerging</td>
<td>48</td>
<td>Established</td>
</tr>
<tr>
<td>Rich T.</td>
<td>15</td>
<td>Emerging</td>
<td>36</td>
<td>Emerging</td>
</tr>
<tr>
<td>Chris D.</td>
<td>20</td>
<td>Emerging</td>
<td>53</td>
<td>Established</td>
</tr>
<tr>
<td>Kayla N.</td>
<td>22</td>
<td>Emerging</td>
<td>4</td>
<td>Nonreader</td>
</tr>
<tr>
<td>Emily H.</td>
<td>23</td>
<td>Emerging</td>
<td>20</td>
<td>Emerging</td>
</tr>
<tr>
<td>John G.</td>
<td>32</td>
<td>Emerging</td>
<td>42</td>
<td>Established</td>
</tr>
<tr>
<td>Liz T.</td>
<td>38</td>
<td>Established</td>
<td>43</td>
<td>Established</td>
</tr>
<tr>
<td>Fred M.</td>
<td>40</td>
<td>Established</td>
<td>42</td>
<td>Established</td>
</tr>
<tr>
<td>Mike H.</td>
<td>41</td>
<td>Established</td>
<td>80</td>
<td>Established</td>
</tr>
<tr>
<td>Sheila D.</td>
<td>43</td>
<td>Established</td>
<td>17</td>
<td>Emerging</td>
</tr>
<tr>
<td>Troy M.</td>
<td>44</td>
<td>Established</td>
<td>58</td>
<td>Established</td>
</tr>
<tr>
<td>Patty B.</td>
<td>46</td>
<td>Established</td>
<td>81</td>
<td>Established</td>
</tr>
<tr>
<td>Emily T.</td>
<td>49</td>
<td>Established</td>
<td>94</td>
<td>Established</td>
</tr>
</tbody>
</table>

First grade teachers can use students' kindergarten performance to identify students who will most likely require more intensive instruction at the beginning of first grade to prevent the likelihood of being a nonreader at the end of first grade. The figures on this page also demonstrate how much kindergarten instruction impacts later reading performance.

Because the goals and cut scores are based on longitudinal predictive probabilities, they are not set in stone. A score at or above the benchmark indicates an 80% probability of achieving the next goal; but it is not a guarantee. Rather, we recommend that educators carefully consider the progress of all their students on all measures administered as they evaluate their instruction. Most students who meet a benchmark goal will need continued, high-quality instruction to hit the next target. However, the odds are that approximately 20% of students who achieve scores at or above the benchmark goal may still need supplemental support to achieve the next goal. Teachers will use additional information that they have about their students, as well as a pattern of performance across all of the DIBELS measures, to plan support for their students.
What might an established reader look like?

The most researched, efficient and standardized measure of reading proficiency is Oral Reading Fluency. It is the culminating measure of the DIBELS assessment system. The ORF measure has students read an unfamiliar passage of grade-level material for one minute. The final score is the number of words read correctly in that minute. With this robust measure, we can readily determine how a student's reading development is progressing and whether that student is on the path to becoming a proficient and fluent reader.

An established first grade reader would be reading over 40 words correct per minute. While he isn't a perfect reader, if he were the lowest performing reader in a first grade classroom, his performance would indicate that the reading program being used in the classroom is meeting the needs of all the students because it is getting each student to a level of reading proficiency that is predictive of later reading success.

How do I use DIBELS in my school?

DIBELS is an assessment system designed to assess all students' progress (kindergarten thru sixth grade) on the big ideas of early literacy development in a standardized, time efficient manner. We recommend assessing students at the beginning, middle, and end of an academic year to allow for timely instructional feedback. Because each school has its own academic schedule (i.e., traditional track, year-round), specific months of assessment must be tailored to each school. Figure 2 provides information on which measures to administer depending on grade and time of year. Materials are already created for each grade level.

Figure 2.
Administering and Scoring the DIBELS Measures

Each DIBELS measure has standardized administration and scoring procedures so that the measures are given and scored the same way each time for all students. When all students are offered the same opportunity to respond to a particular task, educators can interpret scores relative to research-based benchmark goals as well as compare them across students and over time. Deviating from or modifying the administration or scoring procedures of any of the measures decreases or minimizes the validity of the score's meaning.

Collecting Schoolwide Assessment Data

Collecting student performance data on all students sounds intimidating at first. However, because testing takes less then 10 minutes per child, it can be accomplished in each school with a little planning. To help your school decide on the best method for you, please review the Approaches and Considerations to Schoolwide Data Collection (available at http://dibels.uoregon.edu/cswad.php).
Acknowledgment

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References


