



Linking *DIBELS Next*[®] with the Lexile[®] Framework

*A Study to Link DIBELS Next with
The Lexile[®] Framework for Reading
(Overview)*

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Linking the DIBELS Next Composite Scores with The Lexile Framework for Reading

What is the Lexile Framework?

The Lexile[®] Framework for Reading is a psychometric system for matching readers with texts of appropriate difficulty. With the Lexile Framework, both the reader and the text can be placed on the same measurement scale. A Lexile measure is the numeric representation of an individual's reading ability or a text's complexity (or, difficulty), followed by an "L" (for Lexile). The Lexile scale is a developmental scale for reading that ranges from below 200L for early readers and beginning texts to above 1600L for advanced readers and texts. Values below 0L are reported as "BRxxxL" (e.g., a Lexile measure of -75 is reported as BR75L) where "BR" stands for "Beginning Reader." The smaller the number following the BR code, the more advanced the reader is. For example, a BR150L reader is more advanced than a BR200L reader. Above 0L, measures indicate increasing reading ability as the numbers increase. For example, a 200L reader is more advanced than a 150L reader. The lowest reported value below 0L is BR400L. Knowing the Lexile measures of both a reader and a text helps to predict how the text matches the reader's ability—whether it may be too easy, too difficult, or just right.

A Lexile text measure is obtained through analyzing the readability of a piece of text. The Lexile Analyzer[®], a software program specially designed to evaluate the reading demand of text, analyzes the text's semantic and syntactic characteristics and assigns it a Lexile measure. A multi-step process is required to prepare the text before it is submitted to the Lexile Analyzer for a measure. Noting the Lexile measure of a text can assist in choosing reading materials that present an appropriate level of challenge for a reader.

A Lexile reader measure is typically obtained by administering a test of reading comprehension to a reader. When a test has been linked with The Lexile Framework for Reading through a field study, a Lexile measure for the reader can be reported.

Developed by the psychometric research organization MetaMetrics, Inc., the early work that led to the Lexile Framework was funded in part by a series of grants from the National Institutes of Child Health and Human Development. The Lexile Framework reporting scale is not bounded by grade level, although typical Lexile measure ranges have been identified for students in specific grades. Because the Lexile Framework reporting scale is not bounded by grade level, it makes provisions for students who read below or beyond their grade level.

Extensive information about the development of the Lexile Framework for Reading can be found in the "Research and Publications" section of the Lexile website (www.Lexile.com). A white paper (Lennon & Burdick, 2004) entitled *The Lexile Framework as an Approach for Reading Measurement and Success* (www.lexile.com/research/1/) provides detailed descriptions of each component of The Lexile Framework for Reading.

Study to Link DIBELS Next with The Lexile Framework for Reading

The study to link the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next began with initial discussions in 2012 and 2013 between MetaMetrics, Inc., Roland Good of Dynamic Measurement Group, Inc., and Amplify (formally Wireless Generation). A study was designed to link The Lexile Framework for Reading with the DIBELS Next Composite Score measure. Data was collected between January and May 2014 and analyses were completed in May and August 2014.

Assessments. Each student in the study was administered the DIBELS Next assessment and a Lexile Linking Test.

DIBELS Next is comprised of a series of measures that function as indicators of phonemic awareness, alphabetic principle, accuracy and fluency with connected text, reading comprehension, and vocabulary. DIBELS Next has been designed to identify children experiencing difficulty in acquisition of basic early literacy skills in order to provide support early and prevent the occurrence of later reading difficulties (Good et al., 2011). The measures that comprise DIBELS Next are listed in *Table 1* along with the grade levels in which they are administered. The measures are administered during a beginning-, mid-, or end-of-year testing session. Some measures are not administered at all three time points. For example, First Sound Fluency is administered in only the first two testing sessions in Kindergarten. Other measures such as DIBELS Oral Reading Fluency, is first administered at the mid-year testing session of Grade 1.

Table 1. DIBELS Next measures administered at each grade level.

Measure	K	1	2	3	4	5	6
First Sound Fluency	X						
Letter Naming Fluency	X	X					
Phoneme Segmentation Fluency	X	X					
Nonsense Word Fluency (NWF)	X	X	X				
DIBELS Oral Reading Fluency (DORF)		X	X	X	X	X	X
DAZE (Maze procedure)				X	X	X	X

The DIBELS Composite Score provides an overall estimate of the student’s reading proficiency. The Composite Score for each testing session is a combination of multiple DIBELS measures, which vary by grade and testing session. The data collected for the linking study was for the middle-of-year for Grades 2 through 6 and the end-of-year for Grade 1.

The Lexile Linking Test consisted of six levels. Using items from the Lexile Item Bank, Lexile Linking Tests were developed for administration at Grades 1 through 6. Using response-

illustrated items, the Lexile Framework measures reading comprehension by focusing on skills readers use when studying written materials sampled from various content areas. These skills include referring to details in the passage, drawing conclusions, and making comparisons and generalizations. Lexile items do not require prior knowledge of ideas outside of the passage, vocabulary taken out of context, or formal logic. Each test form contained 35 four-choice, multiple-choice items that had been previously field-tested and had known statistics, except for Grade 1 which consisted of 30 items. For Grade 1, the first four items were picture vocabulary items, the next four items were single-sentence items with one word missing. The students selected the answer that best completed the sentence from a list of four word choices. The remaining items contained a short passage with a question stem at the end. For Grade 2, the first two items were single sentence items with one word missing and the remaining items contained a short passage with a question stem at the end. This latter item type was the sole item type used on the Grades 3 through 6 linking test forms. The test specifications were as follows: Grade 1, 152L; Grade 2, 415L; and Grade 3, 525L; Grade 4, 665L; Grade 5, 780L; and Grade 6, 890L.

Sample. The sample for this study was recruited by DMG and Amplify and consisted of students in Grades 1 through 6 from ten states. A total of 6,900 students in Grades 2 through 6 participated in Phase 1 of the study by taking the DIBELS Next and the Lexile Linking Test. A total of 3,404 students in Grades 1 through 2 participated in Phase 2 of the study by taking the DIBELS Next and the Lexile Linking Test.

Table 2. Sample of students administered the Lexile Linking Test.

Phase of Study/Grade	DIBELS Next N	Lexile LT N	Matched	Percent Matched
<i>Phase 1</i>				
2	2,011	1,698	1,342	79.0
3	2,116	1,379	1,332	96.6
4	1,509	1,379	1,335	96.8
5	1,609	1,428	1,372	96.1
6	1,014	1,106	952	93.7
<i>Phase 2</i>				
1	2,216	1,943	1,913	98.5
2	1,810	1,640	1,491	90.9

Analyses. The data for the Lexile Linking Tests was analyzed using the Winsteps item-response theory model (Rasch model). There was a high degree of agreement between the combined grades analysis and the individual grades analyses with respect to the relative item difficulties. It was concluded that one construct was being measured across all grade levels.

The samples were examined and students were removed from further analysis for the following reasons:

- 0% or 100% correct on the Lexile Linking Test,
- Missing the DIBELS Composite Score on DIBELS Next,
- Misfit to the Rasch model, or
- Showed greater than a 35-percnetile-rank difference between the DIBELS Composite Score and the Lexile Linking Test Lexile measure within grade.

The final linking sample consisted of 4,778 students in Phase 1 (Grades 2 through 6) and 2,524 students in Phase 2 (Grades 1 and 2).

Table 3. Final sample statistics for Lexile Linking Test, by grade.

Grade	Final Matched Sample <i>N</i>	Correlation Between DIBELS Next Composite Score and Lexile Linking Test Lexile Measure
<i>Phase 1</i>		
2	1,042	0.838
3	980	0.809
4	1,019	0.829
5	983	0.820
6	754	0.805
<i>Phase 2</i>		
1	1,468	0.837
2	1,056	0.818

Using the means and standard deviations of the DIBELS Next Composite Scores and the Lexile Linking Test Lexile measures collected from the match sample, linear linking functions relating the scores were developed for each grade level (and administration, where appropriate). Lexile linking functions were developed for Grade 1 EOY, Grade 2 MOY, and Grades 3 through 6. The final step in the process was to develop linking functions between the DIBELS Composite Scores from different administrations. This research was completed by Roland Good and Beth Dewey with DMG.

Interpretations and Uses of Lexile Measures

The Lexile Framework for Reading provides teachers and educators with tools to help them link assessment results with subsequent instruction. When a reader takes an assessment that is linked with the Lexile Framework, his or her results are reported as a Lexile measure. This means, for example, that a student whose reading ability has been measured at 500L is expected to read with 75-percent comprehension a book that is also measured at 500L. When the reader and text are matched (same Lexile measures), the reader is “targeted.” A targeted reader reports confidence, competence, and control over the text.

When reading a book within his or her Lexile range (50L above his or her Lexile measure to 50L below), the reader should comprehend enough of the text to make sense of it, while still being challenged enough to maintain interest and learning. When a text measure is 250L above the reader's measure, comprehension is predicted to drop to 50 percent and the reader will likely experience frustration and inadequacy. Conversely, when a text measure is 250L below the reader's measure, comprehension is predicted to go up to 90% and the reader is expected to experience control and fluency. When reading a book within his or her Lexile range (50L above his or her Lexile measure to 100L below), the reader is forecasted to comprehend enough of the text to make sense of it, while still being challenged enough to maintain interest and learning.

Using the Lexile Framework to Select Books. Teachers, parents, and students can use the tools provided by the Lexile Framework to plan instruction. Use the free Find a Book website (at www.lexile.com/fab) to support book selection and create booklists within a student's Lexile range to help the student make more informed choices when selecting texts. When teachers provide parents and students with lists of titles that match the students' Lexile measures, they can then work together to choose appropriate titles that also match the students' interest and background knowledge. *The Lexile Framework does not prescribe a reading program, but it gives educators more control over the variables involved when they design reading instruction.* The Lexile Framework yields multiple opportunities for use in a variety of instructional activities. After becoming familiar with the Lexile Framework, teachers are likely to think of a variety of additional creative ways to use this tool to match students with books that students find challenging, but not frustrating. More than 135,000 books, 60 million periodical articles, and many newspapers have been given Lexile measures using this tool.

Remember, there are many factors that affect the relationship between a reader and a book. These factors include text content, age of the reader, interests of the reader, suitability of the text, and text difficulty. The Lexile measure of a text, a measure of text difficulty, is a good starting point in the selection process, but other factors also must be considered. The Lexile measure should never be the only piece of information used when selecting a text for a reader.

Communicate With Parents Meaningfully to Include Them in the Educational Process. Teachers can make statements to parents such as, "Your child will be able to read with at least 75 comprehension these kinds of materials which are at the next grade level." Or, "Your child will need to be able to increase his/her Lexile measure by 400-500 Lexiles in the next few years to be prepared for college reading demands. Here is a list of appropriate titles your child can choose from for reading this summer."

Improve Students' Reading Fluency. Educational researchers have found that students who spend a minimum of three hours a week reading at their own level for their own purposes develop reading fluency that leads to improved mastery. Not surprisingly, researchers have also found that students who read age-appropriate materials with a high level of comprehension also learn to enjoy reading.

Apply Lexiles Across the Curriculum. Over 450 publishers Lexile their trade books and textbooks, enabling educators to link all of the different components of the curriculum to more effectively target instruction. With a student's Lexile measure, teachers can connect him or her

with tens of thousands of books (www.Lexile.com) and tens of thousands of newspaper and magazine articles (through periodical databases) that also have Lexile measures.

References

Good, R. H., Kaminski, R. A., Cummings, K., Dufour-Martel, C., Petersen, K. Powell-Smith, K., Stollar, S., & Wallin, J. (2011). *DIBELS Next Assessment Manual*. Retrieved from <http://dibels.org/>.