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How prepared are students for college-level reading? Applying a Lexile®-based approach

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ISSUES & ANSWERS REL 2010–No. 094

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November 2010

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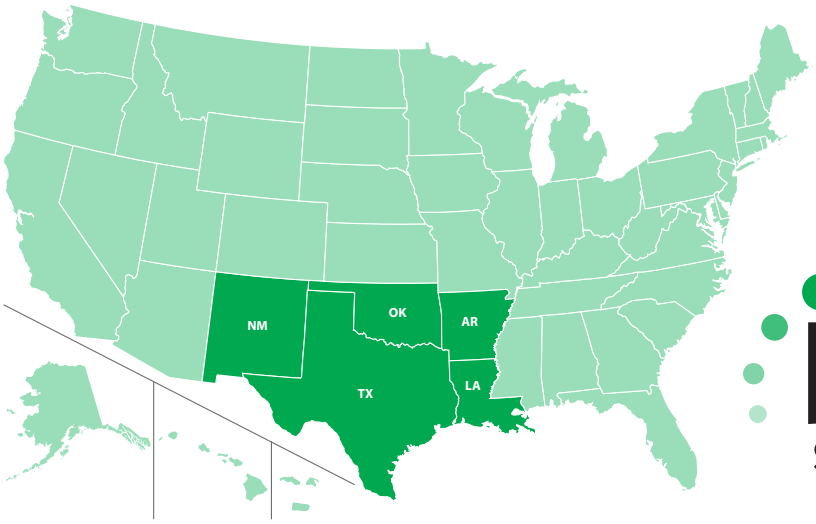

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This report is available on the regional educational laboratory web site at http://ies.ed.gov/ncee/edlabs.

DISCLAIMER

The Lexile Framework® for Reading (a propriety system developed by MetaMetrics, Inc. for matching readers with texts of the appropriate level of difficulty) was used in this study to link student outcome data (Texas Assessment of Knowledge and Skills) with entry-level college English textbooks. As part of normal business practices, MetaMetrics, Inc. provided Lexile measures for the college textbooks selected for this study; MetaMetrics, Inc. was not involved in the study design, analysis, or report. Although Edvance Research, Inc., believes Lexiles to be a valid measure for this study, it has no direct relationship with MetaMetrics, Inc. and takes no position on the utility of the Lexile Framework relative to other measures. Edvance Research, Inc., has no financial interest in MetaMetrics, Inc., or in the use of the Lexile Framework.

Summary

REL 2010–No. 094

How prepared are students for college English courses? Applying a Lexile®-based approach

This study develops and applies a new methodology to determine the proportion of grade 11 students whose scores on a Texas English language arts and reading assessment indicate their readiness to read and comprehend textbooks used in entry-level English courses in the University of Texas system.

Despite recent national- and state-level legislative initiatives focusing on postsecondary success and an increasing emphasis on educational attainment to successfully enter the job market, high rates of enrollment in remedial college courses indicate that many students are graduating from high school unprepared for college-level work (Strong American Schools 2008; Terry 2007). Studies of reading materials required in the workplace (such as employment applications and job training materials) also suggest that students entering the workforce may be graduating from high school unprepared (Williamson 2004).

This study develops and documents a new methodology that uses the Lexile Framework® for Reading to determine the proportion of grade 11 Texas public school students whose scores on the exit-level Texas Assessment of Knowledge and Skills for English language arts and reading (TAKS–ELAR) or the TAKS–ELAR Accommodated indicate the ability to read and comprehend textbooks used in entry-level (freshman) English courses in the University of Texas system.

The Lexile Framework for Reading matches readers with texts of the appropriate level of difficulty (Lennon and Burdick 2004). Developed by MetaMetrics, Inc. (White and Clement 2001), the Lexile framework is a linguistic theory–based method for measuring the reading difficulty of prose texts and the reading capacity of students. It uses sentence length and word frequency to assign reading difficulty values to passages of text. The values are reported on a Lexile scale that ranges from 0L (for emerging readers and beginning texts) to 1700L (for advanced readers and texts). The scale unit (a standardized metric for presenting scores on a measure) is called a Lexile (L). The Lexile Framework can also be used to assign a measure to a student's reading ability (based on reading comprehension) and then calculate the Lexile measure of texts the student is likely to read with 75 percent comprehension. Lexiles are regularly used in K–12 classrooms to ensure that students are reading books at an appropriate level of difficulty based on their level of reading comprehension.

The findings show that at the 75 percent comprehension level, 51 percent of students can read 95 percent of first-year English textbooks

used in entry-level classes in the University of Texas system, 80 percent can read 50 percent of the textbooks, and 9 percent can read no more than 5 percent of the textbooks.

The study demonstrates that the methodology developed and documented in this report can be applied in a real-world context. Providing policymakers with information about the proportion of high school students who are prepared to read entry-level college material at the University of Texas system can help policymakers evaluate and understand the effectiveness of efforts to align high school curriculum and instruction with requirements for postsecondary success.

Because the methodology uses the Lexile Framework, the link between students and textbooks provides information only on reading comprehension. The results do not apply to broader aspects of college readiness or address more specific reading skills such as vocabulary knowledge or use of contextual cues. In addition, the methodology is limited to examining books that can be assigned a Lexile measure (this excludes books with less than 50 percent prose). The findings of this study apply only to the population of grade 11 Texas public school students who took the April 2009 exit-level TAKS–ELAR or TAKS–ELAR Accommodated and to textbooks used in entry-level English courses in the University of Texas system.

In addition, because only aggregated student summary data were used, findings cannot be differentiated by student groups, such as those planning to attend the University of Texas system and those planning to attend other colleges or to enter the workforce. However, the methodology documented in this report could be used in future studies to determine how prepared a particular group of individuals is to read at a given level.

The study extends the technical assistance work conducted in 2007 in response to a request from the Commission for a College Ready Texas to assess college readiness among high school graduates in Texas. The new methodology developed in the current study can be applied in other settings as well.

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This study develops and applies a new methodology to determine the proportion of grade 11 students whose scores on a Texas English language arts and reading assessment indicate their readiness to read and comprehend textbooks used in entry-level English courses in the University of Texas system.

WHY THIS STUDY?

Preparing students for successful participation in college or the workforce after high school is a critical task on which legislators and policymakers have focused attention and resources. However, until recently, little connection has been made between the skills needed for postsecondary success and what is taught in high schools. As a result, many high school graduates are unprepared for college or work. This study examines one aspect of college readiness—the reading comprehension skills required to read entry-level college texts[1]—by developing and applying a methodology that links these skills to the reading levels of grade 11 high school students in Texas.

Recent studies across the country and in Texas indicate that many students are graduating from high school unprepared for college-level work. A national 2008 study found that 29 percent of students enrolled at four-year public institutions required remediation (Strong American Schools 2008). These findings were comparable to those of a Texas study, which found that 24 percent of students were unprepared for college (Terry 2007). Studies examining the difficulty level of reading materials required in the workplace (such as employment applications and job training materials) suggest that students may be graduating from high school unprepared for the workplace as well (Williamson 2004, 2006b).

Federal legislation such as the No Child Left Behind Act (2002) requires the inclusion of graduation rates for all students (disaggregated by demographic and ethnic subgroups) in states' accountability systems. More recent legislation (the American Recovery and Reinvestment Act 2009) designates as a funding priority the development of college- and career-readiness standards and related programs to support increased postsecondary student success. At the state level, Texas has established a goal that all students graduating from high school be college- or career-ready (Texas Higher Education Coordinating Board n.d.). It has also invested in a public-private partnership to boost graduation rates and increase the proportion of high school students prepared for college (Texas High School Project n.d.).

Need for a new indicator

As part of Texas' focus on college readiness, in 2007 the Commission for a College Ready Texas (CCRT) requested that Regional Educational Laboratory (REL) Southwest conduct an exploration and evaluation of empirically based college readiness indicators in reading, which researchers consider "an essential component of college and workplace readiness" (ACT 2006, p. 3).[2] Both the ACT and the SAT measure reading ability, but only 29 percent of Texas high school students who graduated in 2008 took the ACT (ACT 2009) and just 50 percent took the SAT (Texas Education Agency 2008c). Because the students who took these assessments were not representative of all high school students, Texas policymakers could not rely on these assessments in estimating the proportion of public high school students who are ready for college-level reading.

Without an existing indicator that could be used for this purpose, REL Southwest proposed a new methodology, using the Lexile Framework® for Reading, to calculate the proportion of Texas public school students who are prepared to read and comprehend entry-level college texts.

The framework, developed by MetaMetrics, Inc. (White and Clement 2001), is a linguistic theory–based method for measuring the reading difficulty of prose texts and the reading capacity of students. It uses two variables (sentence length and word frequency) to assign reading difficulty values to passages of text. The values are reported on a Lexile scale that ranges from 0L (for emerging readers and beginning texts) to 1700L (for advanced readers and texts). The scale unit (a standardized metric for presenting scores on a measure) is called a Lexile (L). The Lexile Framework also includes a process that assigns a measure to a student's reading ability (based on reading comprehension) and then calculates the Lexile measure of texts the student is likely to read with 75 percent comprehension (White and Clement 2001).

The Lexile framework used in this study is a linguistic theory based method for measuring the reading difficulty of prose texts and the reading capacity of students that uses sentence length and word frequency to assign reading difficulty values to passages of text

Lexiles are regularly used in K–12 classrooms to ensure that students are reading books at an appropriate level of difficulty based on their level of reading comprehension. Recent studies have begun to examine the use of the Lexile Framework to assess student readiness for reading postsecondary texts (Williamson 2006a, 2008). The framework has been used as a part of the state assessment and reporting system in Texas since 1999.[3] MetaMetrics, Inc. (the developer of the Lexile Framework) has been collaborating with the Texas Education Agency to evaluate the reading level required by Texas assessments (MetaMetrics, Inc. 1999); the parent report of the annual Texas Assessment of Knowledge and Skills (TAKS) gives a Lexile measure for each student (Texas Education Agency 2009d). Appendix A provides details about the Lexile Framework.

The current study

At the time of the CCRT's technical assistance request, two Lexile studies had been conducted—a 2005 TAKS–Lexile linking study (Texas Education Agency 2005) and a 2006 textbook study (Williamson 2006b). The 2005 study resulted from a request by the Texas Education Agency to link TAKS English language arts and reading (ELAR) scores of grade 9–11 students with Lexile measures (Texas Education Agency 2005). The outcome was a table that converts TAKS scores into Lexile measures and vice versa.

The 2006 textbook study addressed the "text demand placed on students as they complete high school compared to what they will face in the postsecondary world" (Williamson 2006b, p. 1). It yielded Lexile measures for 150 postsecondary textbooks (100 textbooks from four-year universities and 50 textbooks from community and technical colleges).

REL Southwest used the 2005 and 2006 Lexile studies to fulfill the CCRT's technical assistance

request and calculate the proportion of Texas public school students in grade 11 who are prepared to read entry-level college textbooks. These studies provided relevant information about the use of the Lexile Framework, including TAKS–Lexile conversion tables and evidence that Lexile measures could be assigned to entry-level college textbooks. By comparing the Lexile measures of grade 11 students who took the exit-level TAKS–ELAR or TAKS–ELAR Accommodated and the Lexile measures of entry-level college textbooks, REL Southwest was able to complete the technical assistance activity.[4]

After this technical assistance for the CCRT was completed, another textbook study was conducted (MetaMetrics, Inc. 2008) at the request of the Texas Higher Education Coordinating Board.[5] This study examined the Lexile measures of entry-level college textbooks in Texas. It included 137 textbooks: 52 from two four-year universities (University of Texas at Austin and Texas A&M University), 48 from two community colleges (San Antonio College and Dallas County Community College), and 37 from community/technical colleges (names were not provided).

Examination of the research design of the 2006 and 2008 textbook studies revealed significant limitations; neither used representative samples of institutions or entry-level college textbooks. Therefore, the results of the studies could not be generalized beyond the specific samples of textbooks and institutions being examined.

The current study achieves two goals: it develops a new methodology for assessing reading readiness for college, and it applies the methodology to determine the percentage of grade 11 students in Texas' public schools with the reading readiness to enter the University of Texas system. Specifically, the study examines the following research question:

- Using the Lexile Framework for Reading, what proportion of grade 11 Texas public school students who took the April 2009 exit-level Texas Assessment of Knowledge and Skills for English language arts and reading (TAKS–ELAR) or the TAKS–ELAR Accommodated received scores indicating the ability to read and comprehend textbooks used in entry-level college English courses in the University of Texas system?

By using TAKS scores to link student reading levels to the reading difficulty levels of textbooks, this study provides more complete information than is provided by using ACT or SAT scores, which are not available for all students

The study builds on the earlier technical assistance activity by developing and documenting a more detailed methodology for linking reading levels of students and sets of textbooks. By linking reading levels (in this case reading levels of grade 11 Texas public school students) to the reading difficulty levels of textbooks (in this case textbooks used in entry-level college English courses in the University of Texas system), this study provides policymakers with more complete information than is provided by using ACT or SAT scores, which are not available for all students. The study findings will help inform policymakers' efforts to improve high school curricula and instruction to prepare more students for postsecondary success.

DEVELOPING A NEW METHODOLOGY

This section describes the development of a new methodology that uses the Lexile Framework for Reading to determine the proportion of grade 11 public school students whose scores on the exit-level TAKS–ELAR or the TAKS–ELAR Accommodated indicate the ability to read and comprehend textbooks used in entry-level English courses in the University of Texas system. The study demonstrates that the methodology developed and documented here can be applied in a real-world context.

Selection of the University of Texas system and entry-level English courses

University of Texas system universities were selected as the institutions to be examined for several reasons:

- The universities were included in the original CCRT request.
- More students are enrolled in University of Texas system campuses than in any other individual postsecondary system in Texas.[6]
- University of Texas system universities are public institutions, so textbook data are pub licly available.
- The nine universities in the University of Texas system differ in size, location, racial/ethnic composition, and SAT and ACT scores for first-year students (table 1).[7]

English was selected as the content area because it is a requirement for all college students and because it was hypothesized that most entry-level textbooks would provide a larger amount of text (prose) for analysis. Entry-level English courses were identified by referencing the Texas Common Course Numbering System Online Matrix for 2006/07 in consultation with the Texas Higher Education Coordinating Board.[8]

TABLE 1

Characteristics of the nine universities in the University of Texas system, 2008/09 (percent unless otherwise indicated)

Characteristic	Arlington	Austin	Brownsville	Dallas	El Paso	Pan American	Permian Basin	San Antonio	Tyler
Enrollment									
Total enrollment (number)	25,084	49,984	17,197	14,943	20,458	17,534	3,496	28,413	6,117
International enrollment	10.7	8.1	3.0	15.3	10.2	5.3	0.7	3.3	1.3
Admissions rate	76.2	43.5	100.0	53.7	99.0	85.1	90.5	88.0	80.0
Gender (fall 2009)									
Female	53.0	50.7	60.0	44.9	54.9	57.1	60.4	50.9	60.7
Male	47.0	49.3	40.0	55.1	45.1	42.9	39.6	49.1	39.3
Race/ethnicity[a]									
Asian	11.9	17.0	0.4	21.3	1.3	1.4	1.4	6.6	2.3
Black	15.6	4.8	0.4	7.7	3.1	0.7	5.4	8.2	9.7
Hispanic	17.0	17.7	94.2	10.9	83.6	91.1	36.8	44.1	6.9
White	52.8	59.3	4.3	58.9	11.2	6.0	54.5	40.3	78.8
Other	2.7	1.2	0.6	1.3	0.7	0.7	1.9	0.8	2.2
Test scores for middle 50 percent of first-year students									
SAT composite[b]	950–1190	1100–1360	Not required	1080–1350	810–1030	830–1040	910–1100	920–1140	960–1170
ACT composite	20–25	24–30	Not required	24–30	16–21	17–21	19–23	19–24	20–25

a. For noninternational students only; universities do not report these data for the international student population.

b. SAT Math and Critical Reading scores are reported as a composite value; writing scores, required by only four of the nine universities, were omitted.

Source: Authors' compilation based on data from the College Board 2009; University of Texas at Arlington 2009; University of Texas at Austin 2009; University of Texas at Brownsville 2009; University of Texas at Dallas 2008; University of Texas at El Paso 2009; University of Texas–Pan American 2009; University of Texas of the Permian Basin 2009; University of Texas at San Antonio 2009; University of Texas System 2009; University of Texas at Tyler 2008.

Data needed

The methodology requires data on students and on textbooks. Aggregate data on students are needed in the form of a cumulative frequency distribution of Lexile measures. A list of all textbooks used in entry-level English courses is needed, along with the Lexile measures for each textbook and the number of "textbook-uses" (described below) for each book.

Student data. The student population for this study is all Texas public school students enrolled in grade 11 during the 2008/09 school year who took the exit-level TAKS–ELAR or TAKS–ELAR Accommodated in April 2009 (table 2).[9] All the necessary student data come from publicly available TAKS frequency distribution tables and the TAKS–Lexile conversion table produced in the 2005 linking study (Texas Education Agency 2005). As a result, there was no need to sample this population.

TABLE 2
Demographic characteristics of students who took the grade 11 exit-level TAKS–ELAR or TAKS–ELAR Accommodated in April 2009

Characteristic	Percentage of students
Gender	
Female	50.2
Male	49.7
Race/ethnicity	
American Indian	0.4
Asian	4.0
Black	13.9
Hispanic	41.1
White	40.7
Economic status	
Economically disadvantaged	41.8
Not economically disadvantaged	58.1
Limited English proficient status	
Classified Limited English proficient	4.5
Not currently classified Limited English proficient	95.4
Special education status	
Receiving special education services	5.7
Not receiving special education services	94.3

Note: Numbers within categories may not sum to 100 percent because of rounding. Sample size is 265,895.

Source: Texas Education Agency 2009b.

Conducted at the request of the Texas Education Agency, the 2005 TAKS–Lexile linking study involved a sample of about 500 English-speaking public school students in Texas. Students completed both the 2005 TAKS and a MetaMetrics, Inc. reading comprehension test designed to provide Lexile measures. Lexile-linking tests were developed to have test content and psychometric properties similar to the TAKS in order to provide a Lexile measure. A series of calibration equations was developed using a linear median-anchored approach with the one parameter logistic model (the Rasch model). These data were then used to calculate grade-specific linking constants, which were used to develop the TAKS–Lexile conversion tables (Texas Education Agency 2005).[10] Because TAKS scores from 2003 are considered equivalent to TAKS scores in later years (Texas Education Agency 2008d), the conversion tables from the 2005 study could be applied to the 2009 TAKS data to determine the Lexile measure corresponding to each 2009 TAKS score (Texas Education Agency 2005).

Textbook data. The textbooks of interest in this study are all required textbooks with at least 50 percent prose (books that can be assigned a Lexile measure) used in entry-level English courses at University of Texas system universities.[11]

Enrollment information for fall 2008 was available for all courses from the Texas Higher Education Coordinating Board (S. Brown, personal communication, April 29, 2009). Contact with the university bookstores at each University of Texas system campus resulted in the identification of 83 textbooks used in the specified courses. For each textbook, course enrollments were used to calculate the number of textbook-uses.[12] (See appendix E for details on textbook identification, including lists of the entry-level English courses and textbooks included in this study.)

A two-step linking procedure is applied to determine students' ability to read the textbooks at various proficiency levels: first, the reading difficulty of the textbooks is determined; second, the percentage of students who can read at each percentile level is calculated

The 83 textbooks were sent to MetaMetrics, Inc., where all but 9 textbooks (those with less than 50 percent prose content) were assigned a Lexile measure. The final set of textbooks therefore included 74 books. (See appendix A for additional detail about how MetaMetrics, Inc. determines Lexile measures.)

Calculating "textbook-uses"

Identifying the set of textbooks students should be able to read takes into account the use of some textbooks in multiple institutions or courses and in sections with varying student enrollments. To determine the overall reading level of the textbooks students may encounter, a textbook used in many courses across many institutions is weighted more than a textbook used in one course in one institution. (If, for example, a course has 20 sections, 19 of which use one book and one of which uses another book, the two textbooks need to be weighted to reflect the fact that students are much more likely to encounter one book than the other.) Therefore, a *textbook-use* is defined as one student reading one textbook in one of the selected college courses. The weight applied to each textbook is the overall number of textbook-uses for each textbook. Weighting ensures that textbooks used by more students have a larger impact on the calculation of the reading level required to comprehend relevant textbooks and that undue weight is not given to books that are rarely used.

Sampling approaches

This methodology can be applied with one of four possible sampling approaches, depending on the data available (appendix D describes these approaches). Because Lexiles were available for the entire student population of interest (grade 11 public school students who took the exit-level TAKS–ELAR or TAKS–ELAR Accommodated) as well as for the entire textbook population of interest (all required entry-level college English textbooks in the University of Texas system), no sampling was required for this study.[13]

Description of the linking procedure

Once the needed data are obtained, a two-step linking procedure is applied to determine students' ability to read the textbooks at various reading proficiency levels. In the first step, the reading difficulty of the textbooks is determined. In the second step, the percentage of students who can read at each specified percentile level is calculated.

Step 1: Determine the reading difficulty levels (percentiles) of the textbooks. The first step is to select the percentiles, the score at or below which a given percentage of scores is distributed. For example, P_{25} indicates that 25 percent of students received a particular score or lower; P_{40} indicates that 40 percent of students received a particular score or lower. The percentage of interest is called the *percentile rank*.

To obtain the textbook Lexile measures that correspond to the specified percentiles, it is necessary to calculate the cumulative frequency distribution of textbook-use Lexile measures that provides, for each Lexile measure, the number of textbook-uses with that Lexile measure or lower. The following formula, described in more detail in appendix C, is used to obtain each selected percentile:

$$P_{\%} = (T - 5) + 10\left(\frac{n(P_R / 100) - \sum f_b}{f_i}\right)$$

where $P_{\%}$ is the selected percentile, T is the lowest textbook Lexile measure whose relative cumulative frequency is greater than or equal to the selected percentile rank, n is the total number of textbook-uses, P_R is the percentile rank of interest, Σf_b is the number of textbook-uses below T, and f_i is the number of textbook-uses for T.

Step 2: Calculate the percentage of students who can read at each specified percentile level. The cumulative relative frequency distribution for each Lexile

TABLE 3
Sample textbooks with assigned Lexile measure and number of textbook-uses

Textbook	Lexile measure	Textbook uses
Coopman, S., and Lull, J. (2009). *Public speaking: the evolving art.* Boston: Wadsworth/ Cengage.	1190L	222
Crowley, M., and Stancliff, M. (2008) *Critical situations: a rhetoric for writing in communities.* New York: Pearson/Longman.	1240L	570
Ditiberio, J., and Hammer, A. (1993). *Introduction to type in college.* Palo Alto, CA: Consulting Psychologists Press.	1100L	1,103
DiYanni, R. (2008). *Literature: approaches to fiction, poetry, and drama* (2nd ed.). Boston: McGraw-Hill.	1120L	18
Dobkin, B. (2003). *Communication in a changing world.* Boston: McGraw-Hill.	1190L	13
Dodd, C. (2008). *Managing business and professional communication* (2nd ed.). New York: Pearson.	1160L	389
Dollahite, N., and Haun, J. (2006). *Sourcework: academic writing from sources.* Boston: Houghton Mifflin.	1150L	90

Source: Excerpted from table F1 in appendix F.

measure indicates the percentage of students who obtained a particular Lexile measure or lower. These data are then used to determine the percentage of students who obtained a specific Lexile measure or higher. The lowest corresponding student Lexile equal to or higher than the textbook Lexile is identified. The percentage of students at or above this student Lexile represents the percentage of students able to read books that correspond to the textbook's percentile. This procedure results in a description of the student population in terms of ability to read the selected textbooks.

Application of the linking procedure

This section describes the application of the methodology to evaluate how prepared grade 11 students in Texas are to read textbooks used in entry-level English courses at schools in the University of Texas system. Percentiles P_5, P_{25}, P_{50}, P_{75}, and P_{95} were chosen for examination because they represent a range of key points in the distribution of textbook Lexile measures. The methodology can be applied to any percentiles of interest to policymakers.

Determination of these percentiles requires the Lexile measure and the number of textbook-uses for each textbook (see table 3 for examples and table F1 in appendix F for the full list).

TABLE 4
Sample unique textbook Lexile measures by number of textbook-uses

Lexile measure	Textbook uses
1190L	380
1200L	732
1220L	1,750
1240L	783
1260L	3,288
1270L	4,891
1280L	825

Source: Excerpted from table F2 in appendix F.

Where more than one textbook has the same Lexile measure, the information must be combined to develop a list of unique textbook Lexile measures, with the aggregate number of textbook-uses for each Lexile measure (see table 4 for examples and table F2 in appendix F for the full list).

This information is used to develop the cumulative frequency, relative cumulative frequency, and percentage of textbooks at or below each Lexile measure (see table 5 for examples and table F3 in appendix F for the full list).

These results can then be used to determine the percentiles of interest (table 6).

TABLE 5
Sample cumulative frequency, relative cumulative frequency, and percentage of textbooks at or below each Lexile measure

Lexile measure	Textbook uses	Cumulative frequency of Lexile measure	Relative cumulative frequency of Lexile measure	Percentage of textbooks at or below Lexile measure
1190L	380	17,094	0.5449	54.49
1200L	732	17,826	0.5682	56.82
1220L	1,750	19,576	0.6240	62.40
1240L	783	20,359	0.6490	64.90
1260L	3,288	23,647	0.7538	75.38
1270L	4,891	28,538	0.9097	90.97
1280L	825	29,363	0.9360	93.60

Source: Excerpted from table F3 in appendix F.

TABLE 6
Textbook Lexile measures by selected percentiles

Percentile	Lexile measure	T^a	n^b	P_r^c	f_b^d	f_t^e
P_5	1020.43	1020	31,371	5	1,442	233
P_{25}	1106.22	1110	31,371	25	7,502	2,798
P_{50}	1143.98	1140	31,371	50	15,461	250
P_{75}	1264.64	1260	31,371	75	20,359	3,288
P_{95}	1297.05	1300	31,371	95	29,584	1,067

a. Lowest textbook Lexile measure whose relative cumulative frequency is greater than or equal to the selected percentile rank.

b. Total number of textbook-uses.

c. Percentile rank of interest.

d. Number of textbook-uses below *T*.

e. Number of textbook-uses for *T*.

Source: Authors' analyses based on data described in text; see also table F4 in appendix F.

This first step of the two-step linking process yields the reading difficulty levels (percentiles) for the textbooks examined (figure 1). The Lexile measures for textbooks used in entry-level English courses in the University of Texas system range from 670L to 1450L, with the middle 50 percent of textbook-uses ranging from 1110L to 1260L.

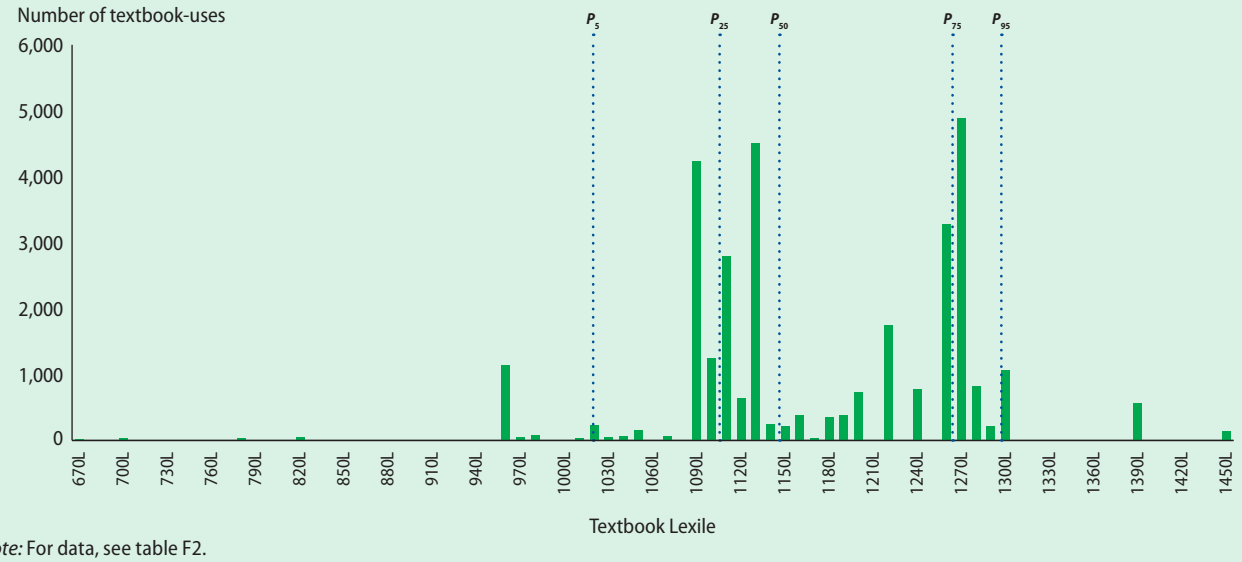
For this study, the frequency distribution of TAKS–ELAR scaled scores for all grade 11 students of interest was examined to determine the percentage of students able to read at each level. The results from the April 2009 TAKS administration were used for this calculation, as illustrated in table 7 (see table F5 in appendix F for full list).

TABLE 7
Sample TAKS–ELAR scaled score frequencies for the April 2009 exit-level administration

TAKS scaled score	Frequency
1848	114
1858	131
1869	129
1879	167
1888	186
1898	190
1907	198

Source: Excerpted from table F5 in appendix F.

FIGURE 1
Distribution of textbook Lexiles and number of textbook-uses for each Lexile



Note: For data, see table F2.

Source: Authors' analyses of Texas data described in text.

The TAKS–Lexile conversion table was used to establish the Lexile measure corresponding to each TAKS score (Texas Education Agency 2005). Linear interpolation was used to establish a Lexile measure for any TAKS score not included in the conversion table. An excerpt from the conversion table, including the interpolated values (shown in bold type), is provided in table 8 (see table F6 in appendix F for full list).

Combining the TAKS scaled score frequency and Lexile measure information in tables 7 and 8 (tables F5 and F6 in appendix F) yielded the frequency distribution of student Lexile measures, as illustrated in table 9 (and shown in full in table F7 in appendix F).

Cumulative frequency and relative cumulative frequency distributions for the student Lexile measures were then determined, calculated in the same manner as for the textbook Lexile measures. To establish how many students are able to read at each Lexile measure, the proportion of students with Lexile measures at that level or higher must be determined (see table 10 for examples and table F8 in appendix F for full list). The second step of the two-stage linking process yields the percentage of students able to read and comprehend textbooks at the designated percentiles of interest.

TABLE 8
Sample TAKS–ELAR scaled score–Lexile measure conversion table including interpolated values

TAKS scaled score	Lexile measure
1848	**655**
1858	655
1869	**655**
1870	655
1879	**663**
1881	665
1888	**675**

Note: Interpolated values appear in bold type. Some of the Lexile measures in this table have been rounded. Table F6 in appendix F from which the data are excerpted contains the precise Lexile measures, which correspond to exact percentiles, and some are therefore displayed to two decimal places.

Source: Excerpted from table F6 in appendix F.

WHAT PERCENTAGE OF STUDENTS ARE PREPARED TO READ AT THE UNIVERSITY OF TEXAS SYSTEM?

This section presents the results of applying the methodology described in the previous section to determine the proportion of grade 11 public school students whose scores on the exit-level TAKS–ELAR or the TAKS–ELAR Accommodated

TABLE 9
Sample frequency distribution of student Lexile measures

TAKS scaled score	Lexile measure	Frequency
1848	655	114
1858	655	131
1869	655	129
1879	663	167
1888	675	186
1898	691	190
1907	706	198

Note: Some of the Lexile measures in this table have been rounded. Table F7 in appendix F from which the data are excerpted contains the precise Lexile measures, which correspond to exact percentiles, and some are therefore displayed to two decimal places.

Source: Excerpted from table F7 in appendix F.

indicate the ability to read and comprehend textbooks used in entry-level English courses in the University of Texas system.

Percentage of students who are college ready

The results of the study show that about half of public school students in grade 11 in Texas are prepared to read at the University of Texas system. At the 75 percent comprehension level, 51 percent are able to read and comprehend 95 percent of the textbooks used in entry-level English courses; 80 percent are able to read and comprehend 50 percent of the textbooks; and 9 percent are able to read no more than 5 percent of the textbooks (table 11).

TABLE 10
Sample percentages of grade 11 students scoring at or above Lexile measures

Lexile measure	Frequency	Cumulative frequency	Relative cumulative frequency	Percentage of students at or below Lexile measure	Percentage of students at or above Lexile measure
655	745	745	0.0028	0.28	100.00
663	167	912	0.0034	0.34	99.72
675	186	1,098	0.0041	0.41	99.66
691	190	1,288	0.0048	0.48	99.59
706	198	1,486	0.0056	0.56	99.52
720	244	1,730	0.0065	0.65	99.44
737	246	1,976	0.0074	0.74	99.35

Note: Some of the Lexile measures in this table have been rounded. Table F8 in appendix F from which the data are excerpted contains the precise Lexile measures, which correspond to exact percentiles, and some are therefore displayed to two decimal places.

Source: Excerpted from table F8 in appendix F.

TABLE 11
Percentage of students able to read and comprehend textbooks at selected percentiles

Percentile	Lexile measure	Percentage of students at or above Lexile measure
5th	1020.43	91.0
25th	1106.22	84.6
50th	1143.98	80.2
75th	1264.64	61.9
95th	1297.05	51.2

Note: Comprehension is measured at the 75 percent level.

Source: Authors' analyses based on Texas data described in text.

Comparison with other studies

The textbooks in this study have lower Lexile measures than the textbooks used in the studies by Williamson (2006b) and MetaMetrics, Inc. (2008). Those studies used nonrepresentative samples of books and studied different types of institutions (four-year universities versus community colleges), course levels (freshman versus sophomore courses), and subject areas (English versus a variety of disciplines) from those used in this study (table 12). Using the results from the earlier studies would have underestimated

TABLE 12
Lexile measures of textbooks in various studies

Variable	Williamson (2006b)	MetaMetrics, Inc. (2008)[a]	Current study
Type of institution	Four-year universities and community colleges	Four-year universities	Four-year universities
Number of courses	Unspecified	2	9
Level	Freshman and sophomore	Introductory	Freshman
Subject area	Humanities, social sciences, business, technology/science	Survey courses from a variety of disciplines	English
Number of textbooks	150	52	31,371[b]
Lexile measure (at given percent level)			
5	1124L	—	1020L
25	1253L	1195L	1106L
50	1355L	1255L	1144L
75	1450L	1330L	1265L
95	1580L	—	1297L

— Not available.

a. The MetaMetrics, Inc. study examined textbooks from four-year universities, community colleges, and community/technical colleges. However, data were disaggregated by institution type. For comparison with the current study, only data for four-year universities are presented.

b. The current study used textbook-uses, not number of textbooks, to calculate results; 74 textbooks were analyzed.

Source: MetaMetrics, Inc. 2008; Williamson 2006b; authors' analyses of data described in text.

the degree to which grade 11 Texas students are prepared for entry-level (freshman) college reading.

STUDY LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The methodology developed for this study was used to answer a specific question: using the Lexile Framework for Reading, what proportion of grade 11 Texas public school students who took the April 2009 exit-level TAKS–ELAR or TAKS–ELAR Accommodated received scores indicating the ability to read and comprehend textbooks used in entry-level college English courses in the University of Texas system? The findings of this study should not be generalized beyond the group of students and textbooks studied. The linking of students and textbooks in this study provides information on only one aspect of college readiness—reading comprehension. The results do not apply to broader aspects of college readiness or address specific reading skills, such as vocabulary knowledge or use of contextual cues. Although the methodology could be applied to textbooks in a variety of subject areas, there are limitations to doing so, because Lexile measures can be calculated only for books that consist of at least 50 percent prose. For some subject areas, it may not be possible to include a representative sample of textbooks that meet this criterion.

Future research could use the study's well defined methodology to address some of the other limitations of this study:

- These results do not reflect improvements in reading skills that may occur during the senior year of high school. Such improvements can be estimated using grade-based norm-referenced standard score information available from measures such as the Wechsler Individual Achievement Test–Third Edition (WIAT–III).[14]

- The results cannot be differentiated for specific groups of students, such as those

planning to attend the University of Texas system versus those planning to attend other colleges or enter the workforce, because the data used were not disaggregated for these subgroups. Future studies could disaggregate these groups to determine whether the level of readiness for college reading differs across these populations.

APPENDIX A
DESCRIPTION OF THE LEXILE FRAMEWORK® FOR READING

The Lexile Framework® for Reading is a linguistic theory–based method for measuring the reading difficulty of prose text and the reading capacity of individuals (White and Clement 2001). The framework uses a mathematical formula to assign reading difficulty values to passages of text known as *slices.* As detailed in Stenner et al. (2006), a text file consisting of the entire contents of a selected book is submitted to the Lexile Analyzer. An auto-edit function removes irrelevant and nontext features (such as figures and tables), and the file is divided into 125-word slices.[15] For each slice two variables are calculated: one using word frequency (the mean $\log_{10}$ word frequency) and one using the mean sentence length. A proprietary regression equation uses the word frequency and sentence length variables to obtain the Lexile measure for that slice of text. This process is repeated for all slices in the text file. The results are combined to obtain the overall Lexile measure for a book.[16]

The difficulty values are reported on a scale called a *Lexile* (L) that ranges from 0L (for emerging readers and beginning texts) to 1700L (for advanced readers and texts). The student Lexile measure indicates the level of text a student can be expected to read with approximately 75 percent comprehension, which is considered "the level at which students can successfully negotiate the material with the use of context clues and other comprehension strategies to fill in the gaps" (Lennon and Burdick 2004, p. 9). Tables A1 and A2 show the Lexile scales for selected books and passages.[17]

In 2001, a panel of reading experts working with the National Center for Education Statistics evaluated the use of the Lexile Framework to compare text difficulty and reader ability (White and Clement 2001). The panel's report emphasized that the Lexile Framework has solid psychometric properties and has been validated across a wide variety of populations. It described the Lexile Framework as a powerful and practical tool for assessing the relationship between text difficulty and reading ability.

The panel report also identified several concerns about the Lexile Framework:

- Within a particular text, high-frequency words *(a, he)* tend to be common and appear many times; low-frequency words appear rarely; and midfrequency words appear several times. Words that appear several times in the text can range widely in semantic complexity (*ahhh* and *salubrious*); this variability

TABLE A1
Samples of Lexile measures for selected books

Lexile measure	Book
720L	*Twilight,* Stephenie Meyer (Little, Brown and Co., 2005)
1010L	*A walk to remember,* Nicholas Sparks (Warner, 1999)
1020L	*Hatchet,* Gary Paulsen (Simon & Schuster, 2007)
1030L	*Harry Potter and the half-blood prince,* J.K. Rowling (Arthur A. Levine, 2005)
1050L	*Uncle Tom's cabin,* Harriet Beecher Stowe (Modern, 1996)
1140L	*Catch-22,* Joseph Heller (Simon & Schuster, 2004)
1150L	*Madame Bovary,* Gustave Flaubert (Oxford, 1998)
1180L	*Sense and sensibility,* Jane Austen (Dover, 1996)
1300L	*Henry VIII,* William Shakespeare (Oxford, 2000)

Note: Because different editions of a book can reflect editorial changes, slight differences in Lexile measures may exist between different publications of the same book. The measures indicated are for the editions indicated.

Source: MetaMetrics, Inc. n.d. b.

TABLE A2
Samples of text passages at various Lexile measures

Lexile measure	Sample
670	Refer to all the physical activities you and your classmates listed at the beginning of this chapter. Put these activities into the appropriate categories of sports, exercises, and martial arts in the chart below. Some activities may belong in more than one category. For example, swimming can be a sport or an exercise. Imagine that a friend has asked you to give suggestions for activities that children can do in order to get exercise. Work with two or three classmates. Make a list of 10 ways that children can get exercise that would be fun for them. When you are finished, write your suggestions on the blackboard. As a class, decide which 10 activities children will enjoy the most. Refer back to the second follow-up activity. Write a letter to your friend and describe your 10 recommendations. Write in your journal. Describe the most exciting sports event you have ever watched or participated in. What was the event? What happened? Why was it exciting for you? (Smith and Mare 2004, p. 78)
	Read the complete passage. When you are finished, you will answer the questions that follow. For thousands of years, people have looked up at the night sky and looked at the moon. They wondered what the moon was made of. They wanted to know how big it was and how far away it was. One of the most interesting questions was "Where did the moon come from?" No one knew for sure. Scientists developed many different theories, or guesses, but they could not prove that their ideas were correct. Then, between 1969 and 1972, the United States sent astronauts to the moon. They studied the moon and returned to Earth with rock samples. Scientists have studied these pieces of rock, the moon's movements, and information about the moon and the Earth. They can finally answer questions about the origin of the moon. Today most scientists believe that the moon formed from the Earth. They think that a large object hit the Earth early in its history. Perhaps the object was as big as Mars. When the object hit the Earth, huge pieces of the Earth broke off. These pieces went into orbit around the Earth. After a brief time, the pieces came together and formed the moon. (Smith and Mare 2004, p. 137–38)
1020	Motivating goals are your goals, not someone else's. You don't want to be lying on your deathbed some day and realize you have lived someone else's life. Trust that you know better than anyone else what you desire. Motivating goals focus your energy on what you do want rather than on what you don't want. So translate negative goals into positive goals. For example, a negative goal to not fail a class becomes a positive goal to earn a grade of B or better. I recall a race car driver explaining how he miraculously kept his spinning car from smashing into the concrete racetrack wall: "I kept my eye on the track, not the wall." Likewise, focus your thoughts and actions on where you do want to go rather than where you don't want to go, and you, too, will stay on course. (Downing 2008, p. 64)
	Get to the exam room early and find a comfortable place. Set up your supplies (pens, pencils, paper, white-out, allowed books, calculator, and so on). Have a clock or watch so you can keep track of time. You might even bring a picture that inspires you, like a photo of your family or a picture of you in a graduation gown. If it's a long exam, you might want to bring water and snacks, if they are allowed. Right before the exam is handed out, relax, say your affirmation(s), and visualize your success once more. If you have read your assignments, studied regularly, attended classes, and done everything that successful students do, this last-minute mental preparation will enable you to do your best work on the test. Take a deep breath and begin. (Downing 2008, p. 170)

(CONTINUED)

TABLE A2 (CONTINUED)
Samples of text passages at various Lexile measures

Lexile measure	Sample
1110	Although many people think of correctness as absolute—based on hard-and-fast, unchanging rules—instructors and students know better. We know that there are rules but that the rules change all the time. "Is it okay to use I in essays for this class?" asks one student. "My high school teacher wouldn't let us." Such questions show that rules clearly exist but that they are always shifting and thus need our ongoing attention. Shifting standards do not mean that there is no such thing as correctness in writing—only that correctness always depends on some context. Correctness is not so much a question of absolute right or wrong as a question of the way a writer's choices are perceived by readers. As writers, we all want to be considered competent and careful. We know that our readers judge us by our control of the conventions we have agreed to use. As Robert Frost once said of poetry, trying to write without honoring the conventions and agreed-upon rules is like playing tennis without a net. A major goal of this book is to help you understand and control the surface conventions of academic and professional writing. Since you already know most of these rules, the most efficient way to proceed is to focus on those that are still unfamiliar or puzzling. (Lunsford 2009, p. 1)
	Does your understanding of the assignment fit with that of other students? Talking over an assignment with classmates is one good way to test your understanding. If you find a great deal of specialized vocabulary, any of the following procedures may prove helpful: Keep a log of unfamiliar or confusing words used in context. Check the terms in your textbook's glossary or in a specialized dictionary. Students entering the discipline of sociology, for instance, may refer to the Dictionary of the Social Sciences. Check to see if your textbook has a glossary of terms or sets off definitions in italics or boldface type. Try to start using or working with key concepts. Even if they are not yet entirely clear to you, working with them will help you come to understand them. For example, try to plot the narrative progression in a story even if you are still not entirely sure of the definition of narrative progression. If you belong to listservs or online discussion groups—or even if you are browsing Web sites related to a particular field—take special note of the ways technical language or disciplinary vocabulary is used there. Look for definitions of terms on a Web site's FAQ page. (Lunsford 2009, p. 32)
1140	Regardless of when anxiety about a speech strikes, the important thing to remember is to manage your anxiety and not let it manage you—by harming your motivation, or by causing you to avoid investing the time and energy required to prepare and deliver a successful speech. How can you do this? The first step is to have a clear and thorough plan for each speech. Making progress on any task increases confidence. Preparing your speech in advance will lessen your nervousness considerably. Remember, just as sitting around wishing you were in better physical shape won't firm you up, merely wishing your speech will be a success won't make it so. To ensure a positive result, prepare the speech well in advance and rehearse it several times. (O'Hair et al. 2007, p. 30)
	People who listen to speeches take a journey of sorts, and they want and need the speaker to acknowledge the journey's end. The more emotional the journey, as in speeches designed to touch hearts and minds, the greater the need for logical and emotional closure. One way to alert the audience that a speech is about to end is to use a transition statement or phrase. Phrases such as *Finally, Looking back, In conclusion,* and *Let me close by saying* all signal closure. You can also signal closure more subtly, by your manner of delivery. For example, you can vary your tone, pitch, rhythm, and rate of speech to indicate that the speech is winding down. Once you've signaled the end of your speech, do finish in short order (though not abruptly). (O'Hair et al. 2007, p. 115)

(CONTINUED)

TABLE A2 (CONTINUED)

Samples of text passages at various Lexile measures

Lexile measure	Sample
1260	Early in the process of jotting down your ideas on a topic, stop to ask yourself, "What might reasonably be offered as an objection to my view?" Critical thinking requires us to use our imaginations, seeing things from perspectives other than our own and envisioning the likely consequences of our positions. This sort of imaginative thinking—grasping a perspective other than our own and considering the possible consequences of positions—is, as we have said, very different from daydreaming, an activity of unchecked fantasy. If we engage in imaginative, analytic, and evaluative thought, we will have second and third ideas; almost to our surprise we may find ourselves adopting a position that we initially couldn't imagine we would hold. As we think about the West Virginia law, we might find ourselves coming up with a fairly wide variety of ideas, each triggered by the preceding idea but not necessarily carrying it a step further. For instance, we may think X and then immediately think, "No, that's not quite right. In fact, come to think of it, the opposite of X is probably true." We haven't carried X further, but we have progressed in our thinking. (Barnet and Bedau 2008, p. 10)
	An example of false dichotomy can be found in the essay by Jeff Jacoby on flogging. His entire discussion is built on the relative superiority of whipping over imprisonment, as though there was no alternative punishment worth considering. But of course, there is, notably community service. "Poverty causes crime," "Taxation is unfair, " "Truth is stranger than fiction"—these are examples of generalizations that exaggerate and therefore oversimplify the truth. Poverty as such can't be the sole cause of crime because many poor people do not break the law. Some taxes may be unfairly high, others unfairly low—but there is no reason to believe that every tax is unfair to all those who have to pay it. Some true stories do amaze us as much or more than some fictional stories, but the reverse is true, too. In the language of the Toulmin Method, oversimplification is the result of a failure to use suitable modal qualifiers in formulating one's claims or grounds or backing. (Barnet and Bedau 2008, p. 364)
1300	Industrial landowners and users, especially lumbermen and stockmen, are inclined to wail long and loudly about the extension of government ownership and regulation to land, but with notable exceptions they show little disposition to develop the only visible alternative: the voluntary practice of conservation on their own lands. When the private landowner is asked to perform some unprofitable act for the good of the community, he today assents only with outstretched palm. If the act costs him cash this is fair and proper, but when it costs only forethought, open-mindedness, or time, the issue is at least debatable. The overwhelming growth of land-use subsidies in recent years must be ascribed, in large part, to the government's own agencies for conservation education: the land bureaus, the agricultural colleges, and the extension services. As far as I can detect, no ethical obligation toward land is taught in these institutions. (Jacobus 2010, p. 755)
	The Greek states were limited in size, not as is often thought solely or even chiefly by the physiography of the country, but by some instinctive feeling of the Greek mind that a state is necessarily a natural association of people bound together by ties of kinship and a common tradition of rights and obligations. There must then, as Aristotle said, be a limit. For if the citizens of a state are to judge and distribute offices according to merit, they must know each other's characters; where they do not possess this knowledge, both the elections to offices and the decisions in the law courts will go wrong. Where the population is very large they are manifestly settled by haphazard, which clearly ought not to be. Besides, in overpopulous states foreigners and metics will readily acquire citizenship, for who will find them out? (Jacobus 2010, p. 111)

(CONTINUED)

TABLE A2 (CONTINUED)
Samples of text passages at various Lexile measures

Lexile measure	Sample
1450	While there are indeed limits to what we will be able to produce from grain, cellulose ethanol production will augment, not replace, grain-based ethanol. The conversion of feedstocks like corn stover, corn fiber and corn cobs will be the "bridge technology" that leads the industry to the conversion of other cellulosic feedstocks and energy crops such as wheat straw, switchgrass, and fast-growing trees. Even the garbage, or municipal solid waste, Americans throw away today will be a future source of ethanol. The ethanol industry today is on the cutting edge of technology, pursuing new processes, new energy sources and new feedstocks that will make tomorrow's ethanol industry unrecognizable from today's. Ethanol companies are already utilizing cold starch fermentation, corn fractionation, and corn oil extraction. Companies are pursuing more sustainable energy sources, including biomass gasification and methane digesters. And, as stated, there is not an ethanol company represented by the RFA that does not have a cellulose-to-ethanol research program. (Easton 2009, pp. 209–10)
	Nuclear energy is a carbon-free, secure, and reliable energy source for today and for the future. In addition to electricity production, nuclear energy has the promise to become a critical resource for process heat in the production of transportation fuels, such as hydrogen and synthetic fuels, and desalinated water. New nuclear plants are imperative to meet these vital needs. To ensure a sustainable future for nuclear energy, several requirements must be met. These include safety and efficiency, proliferation resistance, sound nuclear materials management, and minimal environmental impacts. While some of these requirements are already being satisfied, the United States needs to adopt a more comprehensive approach to nuclear waste management. The environmental benefits of resource optimization and waste minimization for nuclear power must be pursued with targeted research and development to develop a successful integrated system with minimal economic impact. Alternative nuclear fuel cycle options that employ separations, transmutation, and refined disposal (e.g., conservation of geologic repository space) must be contrasted with the current planned approach of direct disposal, taking into account the complete set of potential benefits and penalties. In many ways, this is not unlike the premium homeowners pay to recycle municipal waste. (Easton 2009, p. 346)

Note: See appendix table E2 for full reference information for the books cited; text passages are taken from textbooks examined as part of this study.

Source: Authors' compilation based on MetaMetrics' analysis of books.

in semantic complexity is overlooked when the measure is a word-frequency count, as it is in the Lexile Framework for Reading.

- It was unclear to the panel whether there were sources of measurement error unaccounted for in the Lexile research conducted to that point.

- The Lexile Framework cannot be used to as sess some types of nonliterary or expository text, such as poems, recipes, and lists.

Since the 2001 panel report, MetaMetrics, Inc. (developer of the Lexile Framework) has addressed many of the concerns raised by the panel (White and Clement 2001). For example, the panel noted that estimation of word frequency–related issues could be improved and measurement error reduced by increasing the size of the slices analyzed. At the time of the 2001 report, slices were taken from a portion of each textbook. The entire textbook is now sliced and Lexile measures are assigned to each slice (Stenner et al. 2006).

APPENDIX B
DESCRIPTION OF GRADE 11 EXIT-LEVEL TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS FOR ENGLISH LANGUAGE ARTS AND READING

This appendix describes the grade 11 Texas Assessment of Knowledge and Skills for English language arts and reading (TAKS–ELAR).

Versions of the TAKS–ELAR

As of the 2007/08 school year, four versions of the grade 11 exit-level TAKS–ELAR were available: TAKS, TAKS Accommodated, TAKS–M, and TAKS–Alt. The decision about which version of the TAKS should be taken by a student who is receiving special education services is made by the student's Admission, Review, Dismissal (ARD) Committee. The Texas Education Agency publishes an annual ARD Committee Decision-Making Process for the Texas Assessment Program manual to guide these decisions. For exit-level exams, no exemptions are allowed on the basis of limited English proficiency status (Texas Secretary of State 2005) or disability status (Texas Project First n.d.). The data used in this study are from the TAKS–ELAR and TAKS–ELAR Accommodated versions of the test, the versions that are included in state accountability reporting (Texas Education Agency 2008a).

TAKS Accommodated is a version of the TAKS available to students who are receiving special education services and instruction on or near grade level (Texas Project First n.d.). This version of the test features format changes, such as a larger font and fewer items per page, and does not include field test questions (Texas Education Agency 2008e). These accommodations do not preclude interpreting TAKS Accommodated test scores the same way that scores from the TAKS are interpreted.

TAKS–M is a modified version of the TAKS available to "students receiving special education services who have a disability that significantly affects academic progress in the grade-level curriculum and precludes the achievement of grade-level proficiency within a school year" (Texas Education Agency n.d.). This version of the test features format changes, such as a larger font and fewer items per page, as well as test design modifications, such as fewer answer choices and simpler vocabulary and sentence structure (Texas Education Agency n.d.). Because the test design modifications affect the content of the test, scores from TAKS–M cannot be interpreted the same way as scores from TAKS and TAKS Accommodated.

TAKS–Alt is an alternate version of the TAKS available to "students receiving special education services who have the most significant cognitive disabilities and are unable to participate in the other statewide assessments even with substantial accommodations and/or modifications" (Texas Education Agency 2007). For this test, teachers observe students as they complete state-developed assessment tasks (Texas Project First n.d.). Because the content of the TAKS–Alt differs from that of the TAKS and TAKS Accommodated, scores from the TAKS–Alt cannot be interpreted the same way as scores from TAKS and TAKS Accommodated.

TAKS reading objectives and skills important for postsecondary success

The grade 11 TAKS–ELAR covers three exit-level reading objectives, each with several subsections:

- Objective 1: The student will demonstrate a basic understanding of culturally diverse written texts.
- Objective 2: The student will demonstrate an understanding of the effects of literary elements and techniques in culturally diverse written texts.
- Objective 3: The student will demonstrate the ability to analyze and critically evaluate culturally diverse written texts and visual representations (Texas Education Agency 2004, p. 5).

The description of Objective 1 states, "Before students can form their own ideas about a text, they must be able to understand its basic meaning. To develop an initial understanding of what they read, students must be able to do four things: (1) use context and other word-identification strategies to help them understand the meaning of the words they read, (2) recognize important supporting details, (3) understand what a selection or a portion of a selection is mostly about—in other words, understand the 'gist' of that selection, and (4) produce an accurate summary of a selection" (Texas Education Agency 2004, p. 12). These kinds of basic comprehension skills are reported to be central to college readiness in reading. As leading researchers such as David Conley note, "knowing how to slow down to understand key points, when to re-read a passage, and how to underline key terms and concepts strategically" are core skills for college readiness (Conley 2007, p.12).

The description of Objective 2 notes that a student's "understanding must go beyond mere identification to encompass the ways in which the parts of a story, singly and in combination, contribute to its overall meaning" (Texas Education Agency 2004, p. 14). Objective 3 requires that students "be aware of the way an author crafts a selection . . . purpose for writing, organizational decisions, point of view or attitude toward the subject, and unique use of language" (Texas Education Agency 2004, p. 16).

Objectives 2 and 3 parallel the findings of a widely cited ACT report *Reading between the lines: what the ACT reveals about college readiness in reading,* which states "What appears to differentiate those who are more like to be [college] ready from those who are less likely is their proficiency in understanding complex texts" (ACT 2006, p. 16). The complexity of texts is identified on the basis of the complexity of the relationships between ideas or characters (subtle, involved, or embedded relationships), as well as the text's richness (information conveyed through data, literary devices); structure; style; vocabulary; and purpose (ACT 2006, p. 17).

A common understanding among researchers of college readiness standards is that students who struggle with English language arts will also struggle with other core subjects, such as social studies, science, and mathematics (ACT 2006; Conley 2007). This awareness is echoed in the TAKS–ELAR exit-level information booklet (Texas Education Agency 2004). Demonstration of the skills and strategies required of students to comprehend the range and variety of reading materials encountered in entry-level college courses is indicative of college readiness (Conley 2007). Reading is "an essential component of college" readiness (ACT 2006, p. 3).

APPENDIX C
CALCULATING PERCENTILES FOR THE TEXTBOOK SAMPLE

Step 1 of the linking procedure used in this study is to determine the reading difficulty levels (percentiles) of the textbooks. This step requires use of the following formula (Kirk 2008):

$$P_{\%} = (X_{ll}) + i\left(\frac{n(P_R/100) - \sum f_b}{f_i}\right)$$

where X_{ll} represents the real lower limit of the class interval containing the percentile of interest and i = class interval size. Because textbook Lexiles are presented in increments of 10, the real lower limit for a particular Lexile is 5 points below the Lexile. Therefore, in the formula, X_{ll} is replaced with $T - 5$, where T is the lowest textbook Lexile with a relative cumulative frequency greater than or equal to the selected percentile rank. For a given Lexile, the class interval is $T \pm 5$, yielding a class interval size of 10. Therefore, the value 10 is substituted for i in the formula.

The equation is used to determine how far within the selected class interval the actual percentile is located. In the last term in the equation, the number of scores at or below the percentile of interest is $n(P_R/100)$. The number of scores below the interval containing the percentile is Σf_b, which is defined as the number of scores below the lower limit of the interval. The denominator of the term (f_i) represents the total number of scores in the interval. The last term therefore shows how far into the interval the percentile is located. If, for example, there are 500 scores and the percentile of interest is 10, then the number of scores at or below the 10th percentile is 500(10/100) = 50. If 45 scores were below X_{ll} and 20 scores were in the interval containing P_{10}, then $n(P_R/100) - \Sigma f_b = 50 - 45 = 5$, so that P_{10} is 5 scores above the lower limit of the interval, which has a total of 20 scores in it (P_{10} is 5/20, or 0.25 of the way, into the interval). Multiplying this figure by the interval length and adding it to the lower limit of the interval yields the exact percentile.

APPENDIX D
USING RANDOM SAMPLING

The linking procedure described in this report identifies the proportion of students prepared to read at various ability levels. This study obtained these results without sampling, because data on the entire populations of interest (books and students) were available.

The same methodology could be applied if either population had been randomly sampled. However, because random sampling introduces random error, it would then be necessary to calculate and report the corresponding confidence intervals. The details of calculating confidence intervals differ depending on the sampling approach used (table D1).

In sampling approach 1, both values are obtained from the populations of interest, without sampling error, and there is no need to calculate confidence intervals. In sampling approach 2, the student proportions are obtained without sampling error, but the textbook Lexile percentiles are estimated from a random sample. The calculation of confidence intervals for percentiles requires the use of a bootstrap technique to estimate the standard errors (Efron 1987). Bootstrapping is a resampling technique used to obtain estimates of summary statistics. For each bootstrap sample, the estimated percentile is calculated. These estimated percentiles are aggregated into an estimated sampling distributions. The sampling distribution is used to calculate an estimated standard error, which provides the desired confidence interval.

TABLE D1
Sampling approaches for applying methodology

Lexile measures available	Sampling approach
1. Entire population of students and all textbooks	No sampling
2. All students but only random sample of textbooks	Textbook sampling only
3. All textbooks but only random sample of students	Student sampling only
4. Random sample of both students and textbooks	Textbook and student sampling

Source: Authors.

In sampling textbooks, it is likely that complex sampling, such as cluster sampling, will be employed, as it may be more feasible to sample a subset of universities or courses than to develop a full list of all textbooks and sample directly from them. If complex sampling is used, it will be necessary to calculate the effective sample size of the textbook sample and use it to modify the size of the bootstrap samples drawn from the obtained sample to generate confidence intervals for the textbook Lexile measures identified for the study.[18] It will then be necessary to calculate the corresponding student percentage for both the lower and upper bounds of the confidence intervals to obtain the corresponding confidence intervals for the proportions themselves.

In sampling approach 3, the textbook Lexile percentiles are obtained without error, but the proportion of students who can read at a particular level is estimated from a random sample of students. In this case, proportions must be estimated, under most circumstances using the usual approximate symmetric confidence intervals. However, if the point estimates are close to 0 or 1, it is necessary to calculate exact asymmetric confidence intervals using the Clopper-Pearson technique (Clopper and Pearson 1934) or a similar approach (see Brown, Cai, and DasGupta 2001 for a summary).

In sampling approach 4, both the proportion of students who can read at a particular textbook Lexile percentile and the textbook Lexile percentiles themselves are estimated from random samples. Calculation of confidence intervals in this case requires simultaneously drawing a bootstrap sample from both the student and the textbook samples and calculating both the textbook Lexile percentile and the corresponding student proportion. This process is then repeated using the bootstrap technique to obtain the estimated sampling distribution for the percentages, which is then used to obtain the desired confidence intervals.

APPENDIX E
TEXTBOOKS USED BY UNIVERSITY OF TEXAS SYSTEM SCHOOLS

The textbook population of interest for this study is required textbooks used in entry-level college English courses at each of the nine universities in the University of Texas system in fall 2009. As a first step in identifying the appropriate population of textbooks, entry-level English courses were identified at each university. Texas uses a common course numbering system to ensure the comparability of courses when transferring credits from one Texas institution to another (Texas Common Course Numbering System 2009). This classification system was used in consultation with the Texas Higher Education Coordinating Board to identify the entry-level English courses at each University of Texas system school (table E1).

TABLE E1
Entry-level English courses, by University of Texas system school

University of Texas system school	Course number	Course title
Arlington	ENGL 1301	Critical Thinking, Reading, and Writing I
	ENGL 1302	Critical Thinking, Reading, and Writing II
Austin	RHE 306	Rhetoric and Composition
Brownsville	ENGL 1301	English Composition I
	ENGL 1302	English Composition II
	SPCH 1315	Applied Communication
	SPCHU 1318	Interpersonal Communication
Dallas	RHET 1101	Oral Communication / Critical Thinking
	RHET 1302	Rhetoric
El Paso	COMM 1301	Public Speaking
	COMM 1302	Business/Professional Communication
	ENGL 0111	Expository Composition Workshop
	ENGL 1311	English Composition
	ENGL 1312	Research and Critical Writing
	ESOL 1309	Writing and Reading in English for Non-Native Speakers
	ESOL 1311	Expository English Composition for Speakers of English as a second language (ESL)
	ESOL 1312	Research and Critical Writing for Speakers of English as a second language (ESL)
	ESOL 1406	Basic English Sentence Structure
	ESOL 1610	Intermediate English for Speakers of Other Languages II
	ESOL 1910	Intermediate English for Speakers of Other Languages I
Pan American	COMM 1302	Introduction to Communication
	COMM 1303	Presentational Speaking
	ENG 1301	Composition
	ENG 1302	Rhetoric
Permian Basin	ENGL 1301	Composition I
	ENGL 1302	Composition II
San Antonio	COM 1043	Introduction to Communication
	COM 1053	Business and Professional Speech
	WRC 0103	Developmental Writing
	WRC 1013	Freshman Composition I
	WRC 1023	Freshman Composition II
Tyler	ENGL 1301	Grammar and Composition I
	ENGL 1302	Grammar and Composition II
	SPCM 1315	Fundamentals of Speech Communication

Source: Texas Common Course Numbering System 2009.

Campus bookstores at each institution were contacted to identify required readings for each section of each course. Table E2 lists the 83 textbooks required in entry-level English courses at University of Texas system schools and their corresponding Lexile measures.

Some textbooks included CD-ROMs or other audio CDs. Web-based reading and other electronically provided reading materials and supplemental materials were not included in the analysis; the difficulty of content contained in these materials is thus not reflected in the Lexile measure for those textbooks. Nine of the required textbooks had less than 50 percent prose and could therefore not be assigned a Lexile measure. As a result, the findings presented in this report are based on analysis of the 74 required reading textbooks that were appropriate for analysis.

TABLE E2

Lexile measures for textbooks required by entry-level English courses at University of Texas system schools, fall 2009

Textbook	Lexile measure
1. Aaron, J. (2010). *The Little, Brown compact handbook* (7th ed.). New York: Pearson/Longman.	1110L
2. Adler, R., and Proctor, R. (2006). *Looking out, looking in* (12th ed.). Belmont, CA: Wadsworth/Cengage.	1140L
3. Ainsworth, A. (2008). *75 arguments*. Boston: McGraw-Hill.	1280L
4. Atwan, R. (2008). *The best American essays* (5th ed.). Boston: Houghton Mifflin.	1190L
5. Axelrod, R., and Cooper, C. (2008). *The St. Martin's guide to writing* (8th ed.). Boston: Bedford/St. Martin's.	1240L
6. Axelrod, R., Cooper, C., and Warriner, A. (2007). *Reading critically, writing well: a reader and guide* (8th ed.). Boston: Bedford/St. Martin's.	1240L
7. Barnet, S., and Bedau, H. (2008). *Current issues and enduring questions: a guide to critical thinking and argument, with readings* (8th ed.). Boston: Bedford/St. Martin's.	1260L
8. Barnet, S., Burto, W., and Cain, W. (2007). *Literature for composition* (8th ed.). New York: Pearson/Longman.	1100L
9. Beebe, S., Beebe, S., and Ivy, D. (2010). *Communication: principles for a lifetime* (4th ed.). Boston: Allyn & Bacon.	1190L
10. Berko, R., Wolvin, A., and Wolvin, D. (2007). *Communicating: a social and career focus* (10th ed.). Boston: Houghton Mifflin.	1200L
11. Blanchard, K., and Root, C. (2007). *Writing preparation and practice: book 3.* New York: Pearson Longman.	970L
12. Carson, R. (1998). *Lost worlds: the discovered writing of Rachel Carson*. Boston: Beacon Press.	1300L
13. Cohen, H. (2005). *The naked roommate and 107 other issues you might run into in college* (3rd ed.). Naperville, IL: Sourcebooks.	960L
14. Coopman, S., and Lull, J. (2009). *Public speaking: the evolving art*. Boston: Wadsworth/Cengage.	1190L
15. Crowley, M., and Stancliff, M. (2008). *Critical situations: a rhetoric for writing in communities*. New York: Pearson/Longman.	1240L
16. Dingle, K., and Lebedev, J. (2008). *Vocabulary power 2*. White Plains, NY: Pearson Education.	*
17. Ditiberio, J., and Hammer, A. (1993). *Introduction to type in college*. Palo Alto, CA: Consulting Psychologists Press.	1100L
18. DiYanni, R. (2008). *Literature: approaches to fiction, poetry, and drama (*2nd ed.). Boston: McGraw-Hill.	1120L
19. Dobkin, B. (2003). *Communication in a changing world*. Boston: McGraw-Hill.	1190L
20. Dodd, C. (2008). *Managing business and professional communication (*2nd ed.). New York: Pearson.	1160L
21. Dollahite, N., and Haun, J. (2006). *Sourcework: academic writing from sources*. Boston: Houghton Mifflin.	1150L
22. Downing, S. (2008). *On course* (5th ed.). Boston: Houghton Mifflin.	1020L
23. Easton, T. (2009). *Environmental issues: taking sides—clashing views on environmental issues* (13th ed.). Boston: McGraw-Hill Higher Education.	1450L
24. Eckstut, S. (2006). *Focus on grammar 1: an integrated skills approach (book 1) (*2nd ed.). White Plains, NY: Longman.	*
25. Ewing, J., and Quinn, D. (2005). *Monkeys are made of chocolate*. Masonville, CO: PixyJack Press.	1170L

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TABLE E2 (CONTINUED)

Lexile measures for textbooks required by entry-level English courses at University of Texas system schools, fall 2009

Textbook	Lexile measure
26. Faigley, L. (2009). *The little Penguin handbook* (2nd ed.). New York: Pearson/Longman.	1070L
27. Faigley, L., and Selzer, J. (2009). *Good reasons with contemporary arguments: reading, designing, and writing effective arguments* (4th ed.). New York: Pearson Longman.	1290L
28. Fitzpatrick, M. (2005). *Engaging writing.* New York: Pearson/Longman.	1110L
29. Fowler, H., and Aaron, J. (2010). *The Little, Brown handbook* (11th ed.). New York: Pearson/Longman.	1130L
30. Fuchs, M. (2006). *Focus on grammar 3: an integrated skills approach (full workbook)* (3rd ed.). New York: Pearson/Longman.	*
31. Fuchs, M., and Bonner, M. (2006). *Focus on grammar 4: an integrated skills approach (Full student book with student audio CD)* (3rd ed.). New York: Longman.	*
32. Fuchs, M., Bonner, M., and Curtis, J. (2006). *Focus on grammar 4: an integrated skills approach (Workbook)* (3rd ed.). New York: Longman.	*
33. Fuchs, M., Bonner, M., and Westheimer, M. (2006). *Focus on grammar 3: an integrated skills approach* (3rd ed.). New York: Pearson/Longman.	*
34. Glenn, C., and Gray, L. (2010). *The Hodges Harbrace handbook, 2009 MLA update edition* (17th ed.). Boston: Wadsworth/Cengage.	1030L
35. Glenn, C., and Gray, L. (2010). *The writer's Harbrace handbook, 2009 MLA update edition (4th ed.).* Boston: Wadsworth/Cengage.	1180L
36. Goshgarian, G., and Krueger, K. (2009). *Dialogues: an argument rhetoric and reader* (6th ed.). New York: Pearson/Longman.	1270L
37. Hacker, D. (2006). *The Bedford handbook* (7th ed.). Boston: Bedford/St. Martin's.	1090L
38. Hacker, D. (2007). *A writer's reference with extra help for ESL writers* (6th ed.). Boston: Bedford/St. Martin's.	1110L
39. Hacker, D. (2008). *A pocket style manual* (5th ed.). Boston: Bedford/St. Martin's.	1090L
40. Hacker, D., and Sommers, N. (2010). *The Bedford handbook* (8th ed.). Boston: Bedford/St. Martin's.	1100L
41. Hamilton, C. (2008). *Communicating for results: a guide for business and the professions* (8th ed.). Boston: Thomson Wadsworth.	1220L
42. Hogue, A. (2008). *First steps in academic writing* (2nd ed.). New York: Pearson/Longman.	780L
43. Jacobus, L. (2010). A w*orld of ideas: essential readings for college writers* (8th ed.). Boston: Bedford/St. Martin's.	1300L
44. Kirszner, L., and Mandell, S. (2004). *Patterns for college writing: a rhetorical reader and guide* (11th ed.). New York: Bedford/St. Martin's.	1180L
45. Kirszner, L., and Mandell, S. (2008). *The Blair reader: exploring contemporary issues* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1220L
46. Lamott, A. (1994). *Bird by bird: some instructions on writing and life*. New York: Anchor Books.	1130L
47. Lipson, C. (2006). *Cite right: a quick guide to citation styles–MLA, APA, Chicago, the sciences, professions, and more*. Chicago: University of Chicago Press.	960L
48. Lucas, S. (2009). *The art of public speaking* (10th ed.). Boston: McGraw-Hill Higher Education.	1120L
49. Lucas, S. (2009). *The art of public speaking* (10th ed.) (Custom for UT El Paso). Boston: McGraw-Hill Higher Education.	1120L
50. Lucas, S. (2009). The a*rt of public speaking* (10th ed.) (Custom for UT Pan American). Boston: McGraw-Hill Higher Education.	1120L
51. Lunsford, A. (2008). *St. Martin's Handbook* (6th ed.). Boston: Bedford/St. Martin's.	1130L
52. Lunsford, A. (2009). *EasyWriter: a pocket reference* (3rd ed.). New York: Bedford/St. Martin's.	1110L
53. Lunsford, A., and Walters, K. (2007). *Everything's an argument, with readings* (4th ed.). Boston: Bedford/St. Martin's.	1290L
54. Lunsford, R., and Bridges, B. (2008). *Longwood guide to writing* (4th ed.). New York: Pearson/Longman.	1180L
55. McCarthy, C. (2008). *The road* (6th Ed.). New York: Random House.	670L

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TABLE E2 (CONTINUED)

Lexile measures for textbooks required by entry-level English courses at University of Texas system schools, fall 2009

Textbook	Lexile measure
56. McKibben, B. (2007). *Deep economy: the wealth of communities and the durable future.* New York: Henry Holt and Company.	1270L
57. McMahan, E., Day, S., and Funk, R. (2007). *Literature and the writing process* (8th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	980L
58. Milan, S. (2000). *Public speaking* (1st ed.). Boca Raton, FL: BarCharts Inc.	*
59. Modern Language Association of America. (2009). *MLA handbook for writers of research papers* (7th ed.). New York: Author.	1290L
60. Molinsky, S., and Bliss, B. (2005). *Word by word picture dictionary* (2nd ed.). New York: Longman.	*
61. Muller, G. (2008). *The McGraw-Hill reader: issues across the disciplines* (10th ed.). New York: McGraw-Hill Higher Education.	1270L
62. O'Hair, D., Rubenstein, H., Stewart, R., and Weimann, M. (2007). *Pocket guide to public speaking* (2nd ed.). Boston: Bedford/St. Martin's.	1140L
63. O'Hair, D., and Weimann, M. (2004). *Essential guide to interpersonal communication*. Boston: Bedford/St. Martin's.	1130L
64. Oshima, A., and Hogue, A. (2006). *Writing academic English* (4th ed.). White Plains, NY: Pearson/Longman.	1050L
65. Pollan, M. (2009). *In defense of food: an eater's manifesto*. New York: Penguin.	1390L
66. Ramage, J., Bean, J., and Johnson, J. (2007). *Writing arguments* (7th ed.). New York: Pearson/Longman.	1300L
67. Reid, J. (2000). *Process of composition* (3rd ed.). New York: Pearson/Longman.	1030L
68. Reid, S. (2008). *The Prentice Hall guide for college writers* (8th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1150L
69. Rieke, R. (2004). *Communication in the professions: a working text in communication studies* (2nd ed.). Boston: Pearson Custom Publishing.	1040L
70. Rottenberg, A., and Winchell, D. (2009). *Elements of argument* (9th ed.). Boston: Bedford/St. Martin's.	1280L
71. Sargent, E., and Paraskevas, C. (2005). *Conversations about writing: eavesdropping, inkshedding, and joining in*. Toronto: Nelson Thomson.	1260L
72. Schoenberg. I., and Maurer, J. (2006). *Focus on grammar: an integrated skills approach* (2nd ed.). White Plains, NY: Pearson Longman.	*
73. Sebranek, P., Meyer, V., Kemper, D., and Krenzke, C. (2007). *Write for college: a student handbook*. Wilmington, MA: Write Source, Great Source Education Group.	980L
74. Sims, M. (2009). *The write stuff: thinking through essays*. Upper Saddle River, NJ: Pearson.	1150L
75. Smith, L., and Mare, N. (2004). *Issues for today* (3rd ed.). Boston: Heinle/Cengage.	820L
76. Smith, L., and Mare, N. (2004). *Themes for today* (2nd ed.). Boston: Heinle/Cengage.	700L
77. Trimble, J. (2000). *Writing with style: conversations on the art of writing* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.	1040L
78. Troyka, L., and Hesse, D. (2009). *Simon & Schuster handbook for writers* (9th ed.). New York: Pearson.	1110L
79. University of Texas at San Antonio. (2009–10). *Writing program student handbook* (1st ed.). San Antonio, TX: Author.	1090L
80. VanderMey, R., Meyer, V., Rys, J., and Sebranek, P. (2009). *The college writer: a guide to thinking, writing, and researching, 2009 MLA update edition* (3rd ed.). Boston: Wadsworth/Cengage.	1010L
81. Wilhoit, S. (2010). *A brief guide to writing from readings* (5th ed.). New York: Pearson/Longman.	1260L
82. Wood, N. (2009). *Perspectives on argument* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1200L
83. Wysocki, A., and Lynch, D. (2007). *Compose, design, advocate: a rhetoric for integrating written, visual, and oral communication.* New York: Pearson/Longman.	1280L

* Textbook had less than 50 percent prose and so could not be assigned a Lexile measure and was not included in the study set of textbooks.

Note: Recently published books used in fall 2009 may carry a 2010 copyright.

Source: MetaMetrics, Inc. analysis of books.

APPENDIX F
COMPLETE DATA TABLES FROM APPLICATION OF LINKING METHODOLOGY

TABLE F1

List of textbooks used in study (*n* = 74), with assigned Lexile measure and number of uses

Textbook	Lexile measure	Textbook uses
Aaron, J. (2010). *The Little, Brown compact handbook* (7th ed.). New York: Pearson/Longman.	1110L	40
Adler, R., and Proctor, R. (2006). Looking out, looking in (12th ed.). Belmont, CA: Wadsworth/Cengage.	1140L	17
Ainsworth, A. (2008). *75 arguments.* Boston: McGraw-Hill.	1280L	70
Atwan, R. (2008). *The best American essays* (5th ed.). Boston: Houghton Mifflin.	1190L	11
Axelrod, R., and Cooper, C. (2008). *The St. Martin's guide to writing* (8th ed.). Boston: Bedford/St. Martin's.	1240L	191
Axelrod, R., Cooper, C., and Warriner, A. (2007). *Reading critically, writing well: a reader and guide* (8th ed.). Boston: Bedford/St. Martin's.	1240L	22
Barnet, S., and Bedau, H. (2008). *Current issues and enduring questions: a guide to critical thinking and argument, with readings* (8th ed.). Boston: Bedford/St. Martin's.	1260L	42
Barnet, S., Burto, W., and Cain, W. (2007). *Literature for composition* (8th ed.). New York: Pearson/Longman.	1100L	123
Beebe, S., Beebe, S., and Ivy, D. (2010). *Communication: principles for a lifetime* (4th ed.). Boston: Allyn & Bacon.	1190L	134
Berko, R., Wolvin, A., and Wolvin, D. (2007). *Communicating: a social and career focus* (10th ed.). Boston: Houghton Mifflin.	1200L	59
Blanchard, K., and Root, C. (2007). *Writing preparation and practice: book 3.* New York: Pearson Longman.	970L	49
Carson, R. (1998). *Lost worlds: the discovered writing of Rachel Carson.* Boston: Beacon Press.	1300L	32
Cohen, H. (2005). *The naked roommate and 107 other issues you might run into in college* (3rd Ed.). Naperville, IL: Sourcebooks.	960L	1,103
Coopman, S. and Lull, J. (2009). *Public speaking: the evolving art.* Boston: Wadsworth/Cengage.	1190L	222
Crowley, M., and Stancliff, M. (2008). *Critical situations: a rhetoric for writing in communities.* New York: Pearson/Longman.	1240L	570
Ditiberio, J., and Hammer, A. (1993). *Introduction to type in college.* Palo Alto, CA: Consulting Psychologists Press.	1100L	1,103
DiYanni, R. (2008). *Literature: approaches to fiction, poetry, and drama* (2nd ed.). Boston: McGraw-Hill.	1120L	18
Dobkin, B. (2003). *Communication in a changing world.* Boston: McGraw-Hill.	1190L	13
Dodd, C. (2008). *Managing business and professional communication* (2nd ed.). New York: Pearson.	1160L	389
Dollahite, N., and Haun, J. (2006). *Sourcework: academic writing from sources.* Boston: Houghton Mifflin.	1150L	90
Downing, S. (2008). *On course* (5th ed.). Boston: Houghton Mifflin.	1020L	233
Easton, T. (2009). *Environmental issues: taking sides—clashing views on environmental issues* (13th ed.). Boston: McGraw-Hill Higher Education.	1450L	150
Ewing, J., and Quinn, D. (2005). *Monkeys are made of chocolate.* Masonville, CO: PixyJack Press.	1170L	42
Faigley, L. (2009). *The little Penguin handbook* (2nd Ed.). New York: Pearson/Longman.	1070L	60
Faigley, L., and Selzer, J. (2009). *Good reasons with contemporary arguments: reading, designing, and writing effective arguments* (4th ed.). New York: Pearson Longman.	1290L	40

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TABLE F1 (CONTINUED)

List of textbooks used in study (*n* = 74), with assigned Lexile measure and number of uses

Textbook	Lexile measure	Textbook uses
Fitzpatrick, M. (2005). *Engaging writing.* New York: Pearson/Longman.	1110L	101
Fowler, H., and Aaron, J. (2010). *The Little, Brown handbook* (11th ed.). New York: Pearson/Longman.	1130L	40
Glenn, C., and Gray, L. (2010). *The Hodges Harbrace handbook, 2009 MLA update edition* (17th ed.). Boston: Wadsworth/Cengage.	1030L	20
Glenn, C., and Gray, L. (2010). *The writer's Harbrace handbook, 2009 MLA update edition* (4th ed.). Boston: Wadsworth/Cengage.	1180L	44
Goshgarian, G., and Krueger, K. (2009). *Dialogues: an argument rhetoric and reader* (6th ed.). New York: Pearson/Longman.	1270L	35
Hacker, D. (2006). *The Bedford handbook* (7th ed.). Boston: Bedford/St. Martin's.	1090L	12
Hacker, D. (2007). *A writer's reference with extra help for ESL writers* (6th ed.). Boston: Bedford/St. Martin's.	1110L	1,859
Hacker, D. (2008). *A pocket style manual* (5th ed.). Boston: Bedford/St. Martin's.	1090L	40
Hacker, D., and Sommers, N. (2010). *The Bedford handbook* (8th ed.). Boston: Bedford/St. Martin's.	1100L	20
Hamilton, C. (2008). *Communicating for results: a guide for business and the professions* (8th ed.). Boston: Thomson Wadsworth.	1220L	118
Hogue, A. (2008). *First steps in academic writing* (2nd ed.). New York: Pearson/Longman.	780L	31
Jacobus, L. (2010). *A world of ideas: essential readings for college writers* (8th ed.). Boston: Bedford/St. Martin's.	1300L	52
Kirszner, L., and Mandell, S. (2004). *Patterns for college writing: a rhetorical reader and guide* (11th ed.). NY: Bedford/St. Martin's.	1180L	22
Kirszner, L., and Mandell, S. (2008). *The Blair reader: exploring contemporary issues* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1220L	1,632
Lamott, A. (1994). *Bird by bird: some instructions on writing and life.* New York: Anchor Books.	1130L	60
Lipson, C. (2006). *Cite right: a quick guide to citation styles–MLA, APA, Chicago, the sciences, professions, and more.* Chicago: University of Chicago Press.	960L	40
Lucas, S. (2009). *The art of public speaking* (10th ed.). Boston: McGraw-Hill Higher Education.	1120L	408
Lucas, S. (2009). *The art of public speaking* (10th ed.) (Custom for UT El Paso). Boston: McGraw Hill Higher Education.	1120L	199
Lucas, S. (2009). *The art of public speaking* (10th ed.) (Custom for UT Pan American). Boston: McGraw-Hill Higher Education.	1120L	19
Lunsford, A. (2008). *St. Martin's handbook* (6th ed.). Boston: Bedford/St. Martin's.	1130L	4,184
Lunsford, A. (2009). *EasyWriter: a pocket reference* (3rd ed.). New York: Bedford/St. Martin's.	1110L	570
Lunsford, A., and Walters, K. (2007). *Everything's an argument, with readings* (4th ed.). Boston: Bedford/St. Martin's.	1290L	99
Lunsford, R., and Bridges, B. (2008). *Longwood guide to writing* (4th ed.). New York: Pearson/Longman.	1180L	285
McCarthy, C. (2008). *The road* (6th ed.). New York: Random House.	670L	18
McKibben, B. (2007). *Deep economy: the wealth of communities and the durable future.* New York: Henry Holt and Company.	1270L	1,632
McMahan, E., Day, S., and Funk, R. (2007). *Literature and the writing process* (8th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	980L	37
Modern Language Association of America. (2009). *MLA handbook for writers of research papers* (7th ed.). New York: Author.	1290L	82

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TABLE F1 (CONTINUED)

List of textbooks used in study (*n* = 74), with assigned Lexile measure and number of uses

Textbook	Lexile measure	Textbook uses
Muller, G. (2008). *The McGraw-Hill reader: issues across the disciplines* (10th ed.). New York: McGraw-Hill Higher Education.	1270L	3,224
O'Hair, D., Rubenstein, H., Stewart, R., and Weimann, M. (2007). *Pocket guide to public speaking* (2nd ed.). Boston: Bedford/St. Martin's.	1140L	233
O'Hair, D,. and Weimann, M. (2004). *Essential guide to interpersonal communication.* Boston: Bedford/St. Martin's.	1130L	233
Oshima, A., and Hogue, A. (2006). *Writing academic English* (4th ed.). White Plains, NY: Pearson/Longman.	1050L	158
Pollan, M. (2009) *In defense of food: an eater's manifesto*. New York: Penguin.	1390L	570
Ramage, J., Bean, J., and Johnson, J. (2007). *Writing arguments* (7th ed.). New York: Pearson/Longman.	1300L	983
Reid, J. (2000). *Process of composition* (3rd ed.). New York: Pearson/Longman.	1030L	36
Reid, S. (2008). *The Prentice Hall guide for college writers* (8th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1150L	11
Rieke, R. (2004). *Communication in the professions: a working text in communication studies* (2nd ed.). Boston: Pearson Custom Publishing.	1040L	60
Rottenberg, A., and Winchell, D. (2009). *Elements of argument* (9th ed.). Boston: Bedford/St. Martin's.	1280L	60
Sargent, E., and Paraskevas, C. (2005). *Conversations about writing: eavesdropping, inkshedding, and joining in.* Toronto: Nelson Thomson.	1260L	44
Sebranek, P., Meyer, V., Kemper, D., and Krenzke, C. (2007). *Write for college: a student handbook.* Wilmington, MA: Write Source, Great Source Education Group.	980L	42
Sims, M. (2009). *The write stuff: thinking through essays*. Upper Saddle River, NJ: Pearson.	1150L	120
Smith, L. and Mare, N. (2004). *Issues for today* (3rd ed.). Boston: Heinle/Cengage.	820L	49
Smith, L. and Mare, N. (2004). *Themes for today* (2nd ed.). Boston: Heinle/Cengage.	700L	31
Trimble, J. (2000). *Writing with style: conversations on the art of writing* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.	1040L	11
Troyka, L., and Hesse, D. (2009). *Simon & Schuster handbook for writers* (9th ed.). New York: Pearson.	1110L	228
University of Texas at San Antonio. (2009–10). *Writing program student handbook* (1st ed.). San Antonio, TX: Author.	1090L	4,184
VanderMey, R., Meyer, V., Rys, J., and Sebranek, P. (2009). *The college writer: a guide to thinking, writing, and researching, 2009 MLA update edition* (3rd ed.). Boston: Wadsworth/Cengage.	1010L	42
Wilhoit, S. (2010). *A brief guide to writing from readings* (5th ed.). New York: Pearson/Longman.	1260L	3,202
Wood, N. (2009). *Perspectives on argument* (6 ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.	1200L	673
Wysocki, A., and Lynch, D. (2007). *Compose, design, advocate: a rhetoric for integrating written, visual, and oral communication.* New York: Pearson/Longman.	1280L	695

Note: Recently published books used in fall 2009 may carry a 2010 copyright.

Source: Authors' analyses based on data described in text.

TABLE F2

Unique textbook Lexile measures by number of textbook-uses

Lexile measure	Textbook uses
670L	18
700L	31
780L	31
820L	49
960L	1,143
970L	49
980L	79
1010L	42
1020L	233
1030L	56
1040L	71
1050L	158
1070L	60
1090L	4,236
1100L	1,246
1110L	2,798
1120L	644
1130L	4,517
1140L	250
1150L	221
1160L	389
1170L	42
1180L	351
1190L	380
1200L	732
1220L	1,750
1240L	783
1260L	3,288
1270L	4,891
1280L	825
1290L	221
1300L	1,067
1390L	570
1450L	150

Source: Authors' analyses based on data described in text.

TABLE F3

Cumulative frequency, relative cumulative frequency, and percentage of textbooks at or below each Lexile measure

Lexile measure	Textbook uses	Cumulative frequency of Lexile measure	Relative cumulative frequency of Lexile measure	Percentage of textbooks at or below Lexile measure
670L	18	18	0.0006	0.06
700L	31	49	0.0016	0.16
780L	31	80	0.0026	0.26
820L	49	129	0.0041	0.41
960L	1,143	1,272	0.0405	4.05
970L	49	1,321	0.0421	4.21
980L	79	1,400	0.0446	4.46
1010L	42	1,442	0.0460	4.60
1020L	233	1,675	0.0534	5.34
1030L	56	1,731	0.0552	5.52
1040L	71	1,802	0.0574	5.74
1050L	158	1,960	0.0625	6.25
1070L	60	2,020	0.0644	6.44
1090L	4,236	6,256	0.1994	19.94
1100L	1,246	7,502	0.2391	23.91
1110L	2,798	10,300	0.3283	32.83
1120L	644	10,944	0.3489	34.89
1130L	4,517	15,461	0.4928	49.28
1140L	250	15,711	0.5008	50.08
1150L	221	15,932	0.5079	50.79
1160L	389	16,321	0.5203	52.03
1170L	42	16,363	0.5216	52.16
1180L	351	16,714	0.5328	53.28
1190L	380	17,094	0.5449	54.49
1200L	732	17,826	0.5682	56.82
1220L	1,750	19,576	0.6240	62.40
1240L	783	20,359	0.6490	64.90
1260L	3,288	23,647	0.7538	75.38
1270L	4,891	28,538	0.9097	90.97
1280L	825	29,363	0.9360	93.60
1290L	221	29,584	0.9430	94.30
1300L	1,067	30,651	0.9770	97.70
1390L	570	31,221	0.9952	99.52
1450L	150	31,371	1.0000	100.00

Source: Authors' analyses based on data described in text.

TABLE F4

Textbook Lexile measures by selected percentiles

Percentile	Lexile measure	T^a	n^b	P_r^c	f_b^d	f_l^e
P_5	1020.43	1020	31,371	5	1,442	233
P_{25}	1106.22	1110	31,371	25	7,502	2,798
P_{50}	1143.98	1140	31,371	50	15,461	250
P_{75}	1264.64	1260	31,371	75	20,359	3,288
P_{95}	1297.05	1300	31,371	95	29,584	1,067

a. Lowest textbook Lexile measure whose relative cumulative frequency is greater than or equal to the selected percentile rank.

b. Total number of textbook-uses.

c. Percentile rank of interest.

d. Number of textbook-uses below T.

e. Number of textbook-uses for T.

Source: Authors' analyses based on data described in text.

TABLE F5

TAKS–ELAR scaled score frequencies for April 2009 exit-level administration

TAKS scaled score	Frequency	TAKS scaled score	Frequency
1340	51	1951	326
1480	2	1959	375
1562	3	1968	379
1647	2	1976	442
1676	6	1985	490
1700	3	1993	482
1721	4	2001	570
1740	9	2009	639
1757	16	2018	681
1773	27	2026	767
1787	30	2034	896
1800	47	2045	923
1813	46	2051	1,121
1825	62	2060	1,145
1837	63	2071	1
1848	114	2072	1,461
1858	131	2077	1,495
1869	129	2086	1,838
1879	167	2099	3,670
1888	186	2100	1,717
1898	190	2104	1,983
1907	198	2114	2,426
1916	244	2124	2,784
1925	246	2134	3,306
1934	285	2144	3,886
1942	287	2155	4,594

(CONTINUED)

TABLE F5 (CONTINUED)

TAKS–ELAR scaled score frequencies for April 2009 exit-level administration

TAKS scaled score	Frequency	TAKS scaled score	Frequency
2166	5,457	2400	21,006
2177	6,191	2403	19,270
2189	7,294	2441	14,582
2202	8,511	2485	8,524
2215	9,601	2538	4,767
2229	10,891	2603	5,427
2244	12,421	2687	4,796
2261	13,672	2807	2,664
2278	14,843	2956	356
2298	16,331	3128	90
2319	18,118	3325	17
2344	20,108		

Source: Texas Education Agency 2009b.

TABLE F6

TAKS–ELAR scaled score–Lexile measure conversions, including interpolated values

TAKS scaled score	Lexile measure	TAKS scaled score	Lexile measure
1340	**655**	**1837**	**655**
1364	655	1845	655
1480	**655**	**1848**	**655**
1504	655	1858	655
1562	**655**	**1869**	**655**
1587	655	1870	655
1637	655	**1879**	**663.18**
1647	**655**	1881	665
1674	655	**1888**	**674.55**
1676	**655**	1892	680
1700	**655**	**1898**	**690.91**
1703	655	1903	700
1721	**655**	**1907**	**706**
1728	655	1913	715
1740	**655**	**1916**	**720.45**
1750	655	1924	735
1757	**655**	**1925**	**736.5**
1769	655	1934	750
1773	**655**	**1942**	**763.33**
1787	655	1943	765
1800	**655**	**1951**	**777**
1803	655	1953	780
1813	**655**	**1959**	**790**
1818	655	1962	795
1825	**655**	**1968**	**805**
1832	655	1971	810

(CONTINUED)

TABLE F6 (CONTINUED)

TAKS–ELAR scaled score–Lexile measure conversions, including interpolated values

TAKS scaled score	Lexile measure
1976	**817.5**
1981	825
1985	**831.67**
1990	840
1993	**845**
1999	855
2001	**857.5**
2007	865
2009	**868.33**
2016	880
2018	**883.33**
2025	895
2026	**896.11**
2034	905
2045	925
2051	**933.57**
2052	935
2060	**948.33**
2061	950
2071	**968.18**
2072	970
2077	**977.14**
2079	980
2086	**991.67**
2088	995
2099	**1013.33**
2100	1015
2104	**1018.33**
2106	1020
2114	**1036**
2116	1040
2124	**1052**
2126	1055
2134	**1063.89**
2135	1065
2144	**1081.36**
2146	1085
2155	**1098.5**
2156	1100
2166	1120
2177	1135
2188	1150
2189	**1151.67**
2200	1170

TAKS scaled score	Lexile measure
2202	**1173.33**
2212	1190
2215	**1195**
2224	1210
2229	**1217.69**
2237	1230
2244	**1240.77**
2250	1250
2261	**1265.71**
2264	1270
2278	**1293.33**
2279	1295
2294	1320
2298	**1325.88**
2311	1345
2319	**1359.12**
2328	1375
2344	**1397.22**
2346	1400
2366	1435
2400	1490
2403	**1492.73**
2411	1500
2436	1500
2441	**1500**
2464	1500
2485	**1500**
2495	1500
2530	1500
2538	**1500**
2570	1500
2603	**1500**
2618	1500
2676	1500
2687	**1500**
2749	1500
2807	**1500**
2839	1500
2956	**1500**
2960	1500
3122	1500
3128	**1500**
3325	**1500**

Note: Interpolated values appear in bold type.

Source: Authors' analyses of data described in text.

TABLE F7

Frequency distribution of student Lexile measures

TAKS scaled score	Lexile measure	Frequency
1340	655	51
1480	655	2
1562	655	3
1647	655	2
1676	655	6
1700	655	3
1721	655	4
1740	655	9
1757	655	16
1773	655	27
1787	655	30
1800	655	47
1813	655	46
1825	655	62
1837	655	63
1848	655	114
1858	655	131
1869	655	129
1879	663.18	167
1888	674.55	186
1898	690.91	190
1907	706	198
1916	720.45	244
1925	736.5	246
1934	750	285
1942	763.33	287
1951	777	326
1959	790	375
1968	805	379
1976	817.5	442
1985	831.67	490
1993	845	482
2001	857.5	570
2009	868.33	639
2018	883.33	681
2026	896.11	767
2034	905	896
2045	925	923

TAKS scaled score	Lexile measure	Frequency
2051	933.57	1,121
2060	948.33	1,145
2071	968.18	1
2072	970	1,461
2077	977.14	1,495
2086	991.67	1,838
2099	1013.33	3,670
2100	1015	1,717
2104	1018.33	1,983
2114	1036	2,426
2124	1052	2,784
2134	1063.89	3,306
2144	1081.36	3,886
2155	1098.5	4,594
2166	1120	5,457
2177	1135	6,191
2189	1151.67	7,294
2202	1173.33	8,511
2215	1195	9,601
2229	1217.69	10,891
2244	1240.77	12,421
2261	1265.71	13,672
2278	1293.33	14,843
2298	1325.88	16,331
2319	1359.12	18,118
2344	1397.22	20,108
2400	1490	21,006
2403	1492.73	19,270
2441	1500	14,582
2485	1500	8,524
2538	1500	4,767
2603	1500	5,427
2687	1500	4,796
2807	1500	2,664
2956	1500	356
3128	1500	90
3325	1500	17

Source: Authors' analyses based on data described in text.

TABLE F8

Percentage of grade 11 Texas public school students scoring at or above Lexile measures

Lexile measure	Frequency	Cumulative frequency	Relative cumulative frequency	Percentage of students at or below Lexile measure	Percentage of students at or above Lexile measure
655	745	745	0.002801995	0.28	100.00
663.18	167	912	0.003430093	0.34	99.72
674.55	186	1,098	0.004129651	0.41	99.66
690.91	190	1,288	0.004844254	0.48	99.59
706	198	1,486	0.005588945	0.56	99.52
720.45	244	1,730	0.006506646	0.65	99.44
736.5	246	1,976	0.007431868	0.74	99.35
750	285	2,261	0.008503772	0.85	99.26
763.33	287	2,548	0.009583199	0.96	99.15
777	326	2,874	0.010809306	1.08	99.04
790	375	3,249	0.012219706	1.22	98.92
805	379	3,628	0.013645151	1.36	98.78
817.5	442	4,070	0.015307542	1.53	98.64
831.67	490	4,560	0.017150465	1.72	98.47
845	482	5,042	0.0189633	1.90	98.28
857.5	570	5,612	0.021107108	2.11	98.10
868.33	639	6,251	0.023510429	2.35	97.89
883.33	681	6,932	0.026071716	2.61	97.65
896.11	767	7,699	0.028956454	2.90	97.39
905	896	8,595	0.03232637	3.23	97.10
925	923	9,518	0.035797835	3.58	96.77
933.57	1,121	10,639	0.040013991	4.00	96.42
948.33	1,145	11,784	0.044320413	4.43	96.00
968.18	1	11,785	0.044324174	4.43	95.57
970	1,461	13,246	0.049819093	4.98	95.57
977.14	1,495	14,741	0.055441888	5.54	95.02
991.67	1,838	16,579	0.062354729	6.24	94.46
1013.33	3,670	20,249	0.076157844	7.62	93.76
1015	1,717	21,966	0.082615596	8.26	92.38
1018.33	1,983	23,949	0.090073792	9.01	91.74
1036	2,426	26,375	0.099198141	9.92	90.99
1052	2,784	29,159	0.109668951	10.97	90.08
1063.89	3,306	32,465	0.122103038	12.21	89.03
1081.36	3,886	36,351	0.136718544	13.67	87.79
1098.5	4,594	40,945	0.153996886	15.40	86.33
1120	5,457	46,402	0.174521028	17.45	84.60
1135	6,191	52,593	0.197805794	19.78	82.55
1151.67	7,294	59,887	0.225239016	22.52	80.22
1173.33	8,511	68,398	0.257249457	25.72	77.48

TABLE F8 (CONTINUED)

Percentage of grade 11 Texas public school students scoring at or above Lexile measures

Lexile measure	Frequency	Cumulative frequency	Relative cumulative frequency	Percentage of students at or below Lexile measure	Percentage of students at or above Lexile measure
1195	9,601	77,999	0.29335946	29.34	74.28
1217.69	10,891	88,890	0.33432124	33.43	70.66
1240.77	12,421	101,311	0.381037453	38.10	66.57
1265.71	13,672	114,983	0.43245876	43.25	61.90
1293.33	14,843	129,826	0.488284276	48.83	56.75
1325.88	16,331	146,157	0.549706261	54.97	51.17
1359.12	18,118	164,275	0.617849271	61.78	45.03
1397.22	20,108	184,383	0.693476806	69.35	38.22
1490	21,006	205,389	0.772481778	77.25	30.65
1492.73	19,270	224,659	0.844957538	84.50	22.75
1500	41,223	265,882	1	100.00	15.50

Source: Authors' analyses based on data described in text.

NOTES

1. For the purposes of this study, college readi ness is defined as "what students should know and be able to accomplish in order to succeed in entry-level college courses" (Texas Higher Education Coordinating Board 2009c, p. 1).

2. The CCRT was created in April 2007 to engage all Texans in a discussion of what skills and knowledge a student must possess to be col lege ready and to provide expert resources and general support to the State Board of Educa tion. The CCRT provided findings and recom mendations to state and local policymakers; higher education institutions; education, community, and business leaders; parents; students; and other interested Texans on how to improve the postsecondary readiness of every Texas high school graduate. Although the CCRT is no longer in existence, college readiness continues to be a focus for Texas policymakers, as evidenced by House Bill 3 (Texas Legislature 2009).

3. The Lexile Framework is used as part of the state assessment system in 13 states, including three in the REL Southwest Region (MetaMet rics, Inc. n.d.a).

4. All Texas public high school students must complete the TAKS–ELAR (Texas Project First n.d.). There are four versions of the TAKS–ELAR: TAKS, TAKS Accommodated, TAKS–M, and TAKS–Alt. In 2008, 93.6 percent of grade 3–11 students took the TAKS or TAKS Accommodated (Texas Education Agency 2008b). More information about the TAKS, descriptions of the population of students tak ing each version of TAKS, the skills assessed by the grade 11 exit-level English language arts TAKS, and how those skills align with the reading skills that are important for post secondary success is provided in appendix B. The exit-level TAKS is administered in the spring to grade 11 students. Students who do not pass the test may retake it in grade 12 (Texas Education Agency 2009a).

5. The Texas Higher Education Coordinating Board "was created by the Texas Legislature in 1965 to 'provide leadership and coordina tion for the Texas higher education system to achieve excellence for the college education of Texas students'" (Texas Higher Education Coordinating Board 2009c).

6. Among students who graduated from a Texas high school in the spring of 2008, 21.6 percent were enrolled at a public four-year Texas insti tution of higher education, 27.5 percent were enrolled at a public two-year Texas institution of higher education, and 4.5 percent were en rolled at a private (independent) Texas institu tion of higher education in the fall of 2008 (Texas Higher Education Coordinating Board 2009b). The remaining students either did not attend college or attended college out of state. Among students enrolled at a public four-year Texas institution of higher education in the fall of 2008, 29.7 percent were enrolled at a University of Texas system institution (Texas Higher Education Coordinating Board 2009a).

7. The University of Texas system comprises nine universities (Arlington, Austin, Browns ville, Dallas, El Paso, Pan American, Permian Basin, San Antonio, and Tyler) and six health institutions (Southwestern Medical Center at Dallas, Medical Branch at Galveston, Health Science Center at Houston, Health Science Center at San Antonio, M.D. Anderson Cancer Center, and Health Science Center at Tyler). The University of Texas health institutions are not included in the study because they offer only health-related and graduate-level courses, not entry-level English courses.

8. The Texas Common Course Numbering System classifies courses required by Texas state law and is used to determine the comparability of course content when students transfer across institutions (Texas Common Course Number ing System 2009). Therefore, the courses identi fied in this study as entry-level English courses are the ones identified by the universities and recognized by the state of Texas.

9. There are four versions of the TAKS–ELAR: TAKS, TAKS Accommodated, TAKS–M, and TAKS–Alt (see appendix B for information about the different versions of the TAKS). Students who take the TAKS–M and TAKS–Alt represent only a small proportion of the student population. These students could not take the TAKS or TAKS Accommodated with out modifications that would invalidate those scores. For this reason, they were not included in the population of students examined in this study.

10. The key psychometric property of interest in evaluating a linking study is the standard error of the linking. For the 2005 linking study, the standard error varies by grade; for grade 11, it is 4.3L (E. Sanford-Moore, personal communication, July 31, 2009). This linking error is very small (Lexiles range from 0L to 1700L), and student measures are rounded to the nearest 5L. The standard error of linking is thus less than the rounding ap plied to the Lexile measure.

11. Books that contain less than 50 percent prose cannot be assigned a Lexile measure and are therefore not considered part of the textbook population of interest. A dictionary such as Molinsky and Bliss's (2005) *Word by word pic ture dictionary* (see table E2 in appendix E) is one example of a required textbook that can not be assigned a Lexile measure. Electronic media such as CD-ROMs and web readings are also not considered part of the textbook population of interest.

12. Although textbooks for fall 2009 were available at the time of this study, the latest available enrollment data were from fall 2008. Therefore, fall 2008 course enrollment figures were used for developing the weighting for the textbook-uses.

13. The term population of interest refers to all of the objects (for this study, students and textbooks) that are the focus of a study (in this case, the specified groups of students and text books). A sample is a subset of the population that is actually collected. A subset can include the entire population (as it does here). In this case it is called a census.

14. The average increase on the WIAT–III reading comprehension subtest from grade 11 to grade 12 is approximately two scaled score points, or 0.13 standard deviations (Pearson Education, Inc. 2009).

15. Because the Lexile Analyzer does not end a slice in the middle of a sentence, most slices are longer than 125 words.

16. A Lexile text measure is assigned to a text (such as a book or article) to reflect how dif ficult it is to comprehend. A Lexile reader measure is assigned to an individual to reflect his or her reading skill ability. This study uses the term *Lexile measure* to refer to both Lexile reader measure and Lexile text measure.

17. For illustration, these samples are somewhat longer than the usual slices. Because Lexile measures consider only word frequency and sentence length, while other dimensions of reading comprehension are not directly part of the Lexile measure calculation, text pas sages at the same level of the Lexile scale can vary in structure, complexity, contextual cues, and other features.

18. The precision obtained when using com plex sampling is the same as that obtained when using simple random sampling with a smaller sample size. The smaller sample size is referred to as the effective sample size for the complex sampling design.

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