

Research Brief

Complexity of University Texts in the United Kingdom



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ABSTRACT

The study aimed to quantify the complexity of textbooks commonly used in universities in the UK, and to compare this with texts used in the United States of America (USA) by postsecondary educational institutions (universities, and colleges).

The hypothesis of the research was that the median and range of complexity of texts used in universities of the UK is similar to the median and range of complexity of texts used in postsecondary education in the USA.

MATERIALS

The units of analysis were textbooks used in selected universities of the UK. A two-stage process was used to identify texts for inclusion in the study. During the first stage of the selection process, prospective universities were identified for inclusion in the study based on rankings provided by The Complete University Guide (CUG) (University League Table, 2015). The CUG ranking system is based on entry standards, student satisfaction, research assessment and graduate prospects. The focus was on UK universities ranked in the Top 50. Then as a practical condition for inclusion in the study, the universities were required to have open access to reading lists, university bookshops, or course syllabi. Ten universities that met these conditions were selected for the study.

In the second stage, specific texts were selected by searching university libraries and bookstores for introductory course syllabi (Semester 1). Classes in the UK are referred to as modules, and many universities provide course information in searchable module indexes (e.g., Knox, 2015). In some cases, some modules were not updated for the current term, so the research relied on university bookstores for required texts (e.g., Smith, 2015). The study endeavoured to balance the selected texts across science, business and English disciplines, and always checked to verify whether a title used at one university was also used at another.

PROCEDURE

The ten universities selected for inclusion in the study are listed in **Table 1**. These universities are among the top thirty UK universities in the 2015 CUG rankings. Table 1 also presents the number of texts selected from each university. A total of 99 textbook titles were selected from the ten universities. A number of texts were used at multiple universities; however, texts were only counted once for analysis purposes. Among the 99 texts, there were 70 unique titles, which comprised the data set for this study.

To expedite text measurement once texts were selected for inclusion in the study, portions of each text were sampled for measurement. Rather than measuring the entire text, three chapters

from each book were selected —one chapter from the beginning of the book (but never including the first chapter), one chapter from the middle and one chapter near the end. The three chapters were pooled to form a representative sample of reading material to characterise the text complexity of the entire book.

Table 1: Number of Texts Selected for Study, by University

University	Number of Texts
Durham University	9
Newcastle University	10
The University of Warwick	10
University of Bath	10
University of Birmingham	10
University of Glasgow	10
University of Leeds	10
University of Southampton	10
University of St. Andrews	10
University of Surrey	10
Total	99

MEASURES

MetaMetrics® measured the text complexity of each textbook sample using The Lexile® Framework for Reading and the Lexile Analyzer®. The resulting Lexile® measures of text complexity were statistically summarised for the 70 UK university texts. In the Results and Discussion section, we observe the characteristics of the UK university text collection relative to text collections from universities in the USA, as well as for texts more generally used in postsecondary education in the USA by universities and colleges.

Lexile measures (Stenner, H. Burdick, Sanford & D.S. Burdick, 2007) are measures of reader ability and text complexity that are based on semantic and syntactic factors and are reported on a developmental scale. Independent psychometric studies of the Lexile scale (Mesmer, 2008; White & Clement, 2001) indicate that it is a valid and reliable measure of reader ability and text complexity.

A Lexile measure is the numeric representation of an individual's reading ability or a text's complexity (or, difficulty) followed by an "L" (for Lexile). The Lexile scale is a developmental scale for measuring reader ability and text complexity, ranging from below 0L for beginner readers and beginner reader materials to above 2000L for advanced readers and materials.

Extensive information about the development of the Lexile Framework for Reading can be found in the "Research and Publications" section of the Lexile website (www.Lexile.com/research-and-publications).

ANALYSIS

Using SAS PROC UNIVARIATE, sufficient statistics for the Lexile measures of UK university texts were calculated. In addition, selected percentiles of the distribution of text complexity measures provide the basis for constructing a modified box-and-whiskers plot featuring the 95th, 75th, 50th, 25th, and 5th percentiles of the UK text complexity distribution. Corresponding statistics for the USA text collections were available from previous work (Williamson, 2012).

RESULTS

The average Lexile measure for UK university texts was 1280L and the standard deviation of the distribution was 114L. **Table 2**, provides a summary of selected percentiles of the distribution of UK university text-complexity measures and the distributions of analogous text collections assembled from postsecondary institutions in the USA. **Figure 1** affords a visual representation.

The university text distributions for the UK and the USA are very similar. The observed differences are too small to be educationally important in most cases. For example, the corresponding percentiles of the UK and USA university text collections are within 30L of each other except for the 95th percentile, where the difference is 80L. This larger difference at the upper extreme of the distributions can be partly due to the difference in sample sizes between the two text collections (the USA text collection being larger).

Understandably, there are larger differences between the UK university text collection and the broader postsecondary text collection from the USA because the latter represents community college

and technical college texts in addition to university texts. Even so, the difference between the medians is just 40L and the boundaries of the interquartile ranges are quite close to each other (within 30L). The slightly larger spread between the 5th and 95th percentiles of the USA postsecondary text collection (450L) versus the corresponding spread for the UK university text collection (400L) is also probably due to the sample sizes of the different text collections.

Figure 1. Text Complexity Distributions for University Texts in the UK Relative to Postsecondary Text Distributions in the USA (Box-and-Whiskers Plots Display 5th, 25th, 50th, 75th and 95th Percentiles)

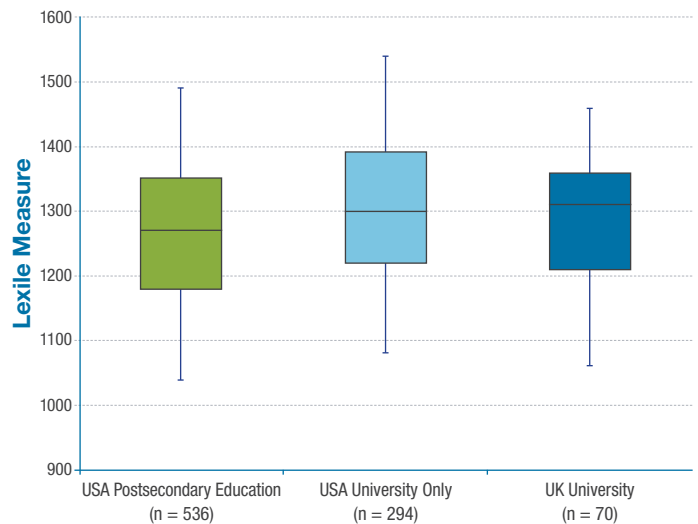


Table 2: Selected Percentiles for Postsecondary Text Distributions

	USA Postsecondary Education	USA University	UK University
95th Percentile	1490L	1540L	1460L
75th Percentile	1350L	1390L	1360L
Median	1270L	1300L	1310L
25th Percentile	1180L	1220L	1210L
5th Percentile	1040L	1080L	1060L
n	536	294	70

DISCUSSION/CONCLUSION

Naturally in Figure 1, the visual impression is one of striking similarity between the text-complexity distributions of university texts in the UK and the USA.

The research hypotheses for this study are retained. Nevertheless, the results of any text study depend on the particular collections of texts analysed. These in turn are always restricted by availability and resources to gather and measure the requisite text samples. As work in this area continues, findings will build upon the provisional baseline established by this study.

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