

Profiling readability: electronic text analysis and its implications for EAP test design

Abstract

The purpose of this research is to explore the readability of academic written texts through electronic text analysis and discuss the consequences for English for Academic Purposes (EAP) test design. It builds on an expanding research base in the field with a view to better understand which electronic measures are the most useful in determining text difficulty.

It is generally accepted that input texts in a test of reading comprehension should reflect the target language domain in terms of linguistic and conceptual difficulty. However, this is not always the case in practice.

Historically, the selection of appropriately difficult texts has been mainly confined to expert intuition and the employment of readability formulas that address a limited number of readily accessible surface features. Advances in cognitive science and the availability of online instruments have made a more sophisticated multi-dimensional measurement of text difficulty, providing a more comprehensive coverage of the processes involved in reading, more accessible to test developers.

This research aims to report on the use of such instruments in the evaluation of text suitability in the academic reading paper of an international EAP test. The instruments offer the test developer a number of quantitative measures of difficulty that can be used to create a profile of the texts that typify a domain.

A corpus of representative texts are to be identified from the compulsory reading lists of a first year undergraduate programme popular with overseas students at a UK university. These texts are then to be analysed electronically and compared to external criteria, such as learner rankings of text difficulty, to create a practically useful set of measures, specifying the ranges within which the texts typically fall. The resulting profiles are to be used to evaluate the suitability of the texts selected for different versions of the academic reading paper of an international EAP test for the population in question.

The results of the text profiling are to be presented and the implications for both the test in question and for tests of reading comprehension in general are to be discussed.

An area for future research will be to profile texts for other first year programmes popular with overseas students in order to make inter-programme comparisons and determine the generalizability of the initial results.

Introduction

Text readability or difficulty is a key aspect of context validity as defined in Weir's (2005) socio-cognitive framework for the validation of tests of reading. More specifically, a text imposes a cognitive load on the reader by making a whole host of linguistic and conceptual demands.

Some writers from a pedagogical perspective would be in favour of managing the cognitive load placed on readers by grading the associated task (the cognitive aspect) and not the text (the context aspect). However, such an approach in assessment is at risk of leading to a superficial engagement with the text, such as scanning for word

matches, and candidate frustration when the text is beyond their zone of proximal development (Vygotsky 1978).

Mesmer (2008) in her discussion of the importance of matching readers with texts, claims that learners need to know at least 95% of the running words in a text to be able to read it independently, with 90-94% word coverage requiring teacher scaffolding, and less than 90% word coverage leading to learner frustration. Indeed, many writers take the position that vocabulary range is the biggest contributing factor to text difficulty. However, not all writers would agree. For example, Shiotsu and Weir (2007) found that syntactic knowledge was a better predictor of reading comprehension test performance than vocabulary breadth. The relative importance of other textual characteristics such as cohesion is still open to debate.

The recent development of open access to sophisticated electronic text analysis tools, such as Compleat Lexical Tutor and Coh-Metrix online, means that texts can now be more fully analysed quantitatively. Indeed, Compleat Lexical Tutor provides vocabulary profiles at 20 levels of the British National Corpus, while Coh-Metrix provides a list of 62 parameters of textual difficulty. However, operationally, such a vast array of variables lacks practicality. The challenge is to find a useful subset of these parameters.

It should be remembered that a quantitative electronic analysis of texts, while potentially very informative about key aspects of text difficulty, is unable to identify and scale texts on all levels of language. As Graesser et al (2011) observe, computer systems cannot fully comprehend deep metaphors and literary devices, which are better served by a more human qualitative approach. Moreover, Graesser et al (2011) add that text comprehension does not just reside in the text, but additionally in the prior knowledge, inferencing mechanisms and skills the reader brings to the interaction.

References

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