Chapter 8
Measuring Text Readability Using Reading Level

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ABSTRACT

Reading grade level calculations have been in use for over a century in the United States and have guided the selection of texts used in school programs. Government agencies at all levels, the military in its various branches, and editors of publications have found such formulas of use in setting policy or determining who can participate in programs. As readership is now a worldwide phenomenon with English as the primary language of the internet, reading grade level calculations can also be useful in creating web pages and assigning reading texts to large multi-user classes (MOOCs) run over the internet. In this regard, it is possible for faculty to be assured that the material is reachable to a wide audience by checking reading grade level and providing additional guidance for the more difficult items in the form of discussion or focused questions. Authors can use the formulas as a tool to check the quality of their own writing and improve sections which are unnecessarily complex.

INTRODUCTION

Reading Level is a calculation by formula which assigns a number to a text in order to represent the grade level at which a reader should be able to comprehend written English-language material. A variety of such formulas are in use, with the Flesch-Kincaid Grade Level as the best known and most widely used in the United States. The computation is supported by a variety of Web tools and by some of the most popular word processing tools. The formula is based on work done by Rudolf Franz Flesch (1911-1986) to develop the Flesch Reading Ease formula—as distinct from the Flesch-Kincaid Grade Level—which assigns a number between zero and one hundred twenty (120) to a text when expressing its reading difficulty. Zero means practically unreadable and numbers up to one hundred twenty (120) mean easier to read. (Theoretically, numbers less than zero are possible for extreme cases.) Examples are *Reader's Digest* at 65 and the *Harvard Law Review* in the low 30s. Note that for a journal, individual articles will be at different reading levels, and for this reason a journal will have a range or average value to describe

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its reading level. Following the work of Flesch, J. Peter Kincaid (1942-) used the Flesch Reading Ease formula as a basis for the computation today called the Flesch-Kincaid Grade Level. When comparing several different texts, the Flesch Reading Ease formula can be used as a measure of which of the texts is more difficult. The Flesch-Kincaid Grade Level allows a grade number to be assigned to reading material as suitable for that grade level. Publishers of children's literature and school texts are often users of technologies to assign reading level to their published materials, but a much wider range of users can be found: producers of technical manuals which need to reach a range of educational backgrounds, those who create medical consent forms, and state and federal government agencies that produce documents covering insurance benefits or driver education manuals and tests, for example. Within the classroom or online education setting, reading level can also provide benefits to alert presenters and instructors about the complexity of the material that is introduced.

BACKGROUND

In mid-nineteenth century America schoolrooms were generally not divided into grade levels. Over time grade levels were added and methods were developed to measure the grade level of texts. As the need for graded material grew, there was an extensive push for more scientific methods to measure the grade level of specific texts used in the classroom. The result was the first readability formulas coming in to use in the 1920s. (Wolf, 2013) Much of the early work on the Flesch-Kincaid Grade Level formula was done by Rudolf Flesch in the 1940s (Flesch, 1979). Flesch had been conducting reading studies, observing readers and how they approach long words, and examining punctuation and sentence length. He was an active proponent of "plain English" and was known though many books, in particular *Why Johnny Can't Read: And What You Can Do About It* (1955). He was a critic of the "look-say" method of teaching reading popular in the 1950s, and he advocated a method for teaching reading that became known as the "look and guess" method and started a revival of phonics which taught learners to sound out words using rules (Blumenfeld, 2015). The Flesch-Kincaid Readability Test and Reading Ease Test came about from the initial work of Rudolf Flesch and subsequent refinements by J. Peter Kincaid. These changes were added by Kincaid while performing work for the United States Navy. Noting that the Flesch-Kincaid grade level was developed for adults, J. Peter Kincaid pointed out:

Among other things we can reasonably measure: the number of commonly understood words, sentence complexity, the number of abstract ideas, and the use of personal pronouns. Beyond these factors, it takes the expertise of the writer and editor to judge organization of the text and whether or not the text conveys the proper information. (McClure, 1987)

In a 1987 interview J. Peter Kincaid stated:

I derived the formula [Kincaid Readability Formula] by testing a large sample of Navy technical personnel on their understanding of Navy technical passages. Next, I determined the personnel's reading ability level with the Gates-MacGinitie Reading Test. I used a procedure devised for an Army study to calculate the actual equation. (McClure, 1987)

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