

1978

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Recommended Citation

Davis, George R. (1978) "Determining Textbook Readability," *Iowa Science Teachers Journal*: Vol. 15: No. 2, Article 17.

Available at: <https://scholarworks.uni.edu/istj/vol15/iss2/17>

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DETERMINING TEXTBOOK READABILITY

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Introduction

Since student success in science is related to reading ability, the selection of a readable text is crucial to classroom instruction. The determination of reading level is probably the single most important factor in textbook selection. If textbooks are unreadable for students, few students will read them and the other reasons for selecting texts will be lost to the reading audience. What determines the reading level of a textbook and how is the reading level of a textbook evaluated? This article discusses the answers to these questions and includes a quick method for reading level determination.

Reading Level Determination

It has been found that sentence length and the number of words of three or more syllables are the best indicators of the reading level of a book (2). Using these criteria, laboratory manuals are usually easier to read than their accompanying texts. The SMOG test developed by McLaughlin (2) uses sentence length and polysyllabic word frequency in assessing the reading level of books. The procedure outlined is as follows:

1. Select ten consecutive sentences near the beginning, middle and end of a book to be assessed. Count as a sentence any series of words ending with a period, question mark or exclamation point.
2. Of the thirty sentences selected, count every word with three or more syllables. Any series of letters or numerals beginning and ending with a space or punctuation mark should be counted if you can distinguish at least three syllables when read aloud in context. If a polysyllabic word is repeated, count each repetition.
3. Estimate the square root of the number of polysyllabic words counted. This is done by taking the square root of the nearest perfect square. For example, if the polysyllabic word count is 95, the nearest perfect square is 100, which yields a square root of 10. If the count is roughly between two perfect squares, choose the lowest square root. For instance, if the count is 110, use the square root of 100 rather than 121.
4. Add the number three to the estimated square root. The final number computed is the reading level that a student must attain if he or she is to be expected to comprehend the book assessed.

The SMOG test of reading level is used at Reinbeck because it is quick and measures reading level at a higher predictable level of comprehension than many other tests (3). The SMOG test is based on a predictive criterion of an expected 90-100 percent comprehension while other tests are valid at a 50 to

