Readability estimates of the "Best of the Best, 1970-75"

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Abstract

*Booklist*'s "Best of the Best, 1970-75," is a recommended reading list for young adults. No readability levels are included. The Dale-Chall, the Flesch, and the Fry readability formulas were, therefore, applied to the books on this list. Each formula is based upon a 100 word sample. The number of samples varies, depending upon the formula used. The Fry formula requires the use of a graph and the Dale-Chall formula uses the Dale word list. No auxiliary devices are needed for the Flesch formula. Using these three formulas, the readability estimates for the books on this list varied as much as eight grade levels for the same book. Eighty-six percent of the books had readability estimates that were lower than grade six or higher than grade ten. Usually, the Fry readability estimate was the lowest, the Dale-Chall estimate in between, and the Flesch readability estimate was the highest.
READABILITY ESTIMATES OF

THE "BEST OF THE BEST, 1970-75"

A Research Paper
Presented to the
Faculty of the Library Science Department

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

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July 12, 1976

Read and approved by
Leah Hiland
Gerald G. Hodges

Accepted by Department
Elizabeth Martin
Date  

July 12, 1976
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Chapter 1

INTRODUCTION

As early as 900 A.D., there was concern among religious writers about readability. The Talmudists counted words and ideas so "they could use frequency of occurrence to distinguish usual from unusual sense (meanings)."\(^1\) In 1840, the difficulty of the vocabulary in the *McGuffey Reader* was being studied. In 1920, E.L. Thorndike's *The Teacher's Word Book* set the stage for the development of readability formulas. The first real readability formula was developed in 1923 by Bertha A. Lively and S.L. Pressey. Systematically, they selected 1000 word samples throughout a text. To determine vocabulary range the number of different words were counted. Using Thorndike's *Teacher's Word Book*, each word was given an index of difficulty, depending upon its frequency on the list, or, if a word did not appear on the list it was given a value of zero. Then, the "weighted median index number" was calculated. This was the median of the index numbers of the words with zero-value words counted twice. Thus, the higher the median index number, the easier the vocabulary.\(^2\)

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\(^2\)Ibid., p. 38.
Approximately three hours were needed to apply this formula. One of the criteria often used to establish readability formulas, The Standard Test Lessons in Reading, was developed in 1925 by W.A. McCall and Lelah Mae Crabbs. This book was a series of 376 passages from children's readings. These passages have already been graded in difficulty on the basis of comprehensibility of questions at the end of each passage.3

The purposes of the tests are to teach pupils to comprehend rapidly many kinds of reading matter, to help them enjoy reading, and to motivate and improve oral expression.4 Since 1968, at least thirty-one different readability formulas, plus about ten variations of these formulas have been used. The amount of time required and techniques used to apply these formulas vary greatly. The Dale-Chall, the Flesch, and the Fry formulas were studied in this paper.

The original Flesch formula was developed to aid in finding reading material, especially, magazine articles, that could be used for adult education. The original Flesch scores "correlate .7047 with McCall-Crabbs test scores."5 Flesch attempted to make his formula known in a variety of

5Ibid., p. 59.
circles, in government, in business, in journalism, in education, etc.

In 1948, Edgar Dale and Jeanne Chall developed a readability formula. The Dale-Chall formula arose because of a need for a formula that would estimate the difficulty of health pamphlets published by the National Tuberculosis Association. It was designed to correct some of the shortcomings of the original Flesch formula. "The Dale-Chall formula correlated .70 with the McCall-Crabbs criterion test scores."6

Edward F. Fry developed his readability graph while in Uganda, using a set of African readers. To establish grade level divisions, Fry used several publishers' recommended readability levels and then plotted points. Sentence length and word length determined where a book was plotted on the Fry graph. The graph was an attempt to greatly simplify the effort needed to determine the grade level of reading material.

Reading is one of the major skills taught in schools. Readability formulas can help both teachers and media specialists provide children with books easy enough to master, yet, difficult enough to be challenging. Knowing the readability level of materials can help get the right book to the right person.

A readability formula is a method of estimating the probable success a reader will have in reading and understanding a piece of writing. It is predictive in the sense that it provides an estimate of difficulty for the writing without requiring the reader to read it and undergo tests on it. In other words, it provides the kind of information about readability that a writer or teacher would have to judge through experience, or measure through a reading test.7

Chall states that

There are three major purposes for predicting readability: 1) to discover the factors which validly distinguish easy from hard materials, 2) to find a reliable means of measuring these factors, and 3) to formulate an expression of some combination of these factors in terms of the reading skill required to read and understand the material.8

Three items which affect readability of material are: 1) the book or article itself, 2) the reader, and 3) the criterion used to measure readability.

Readability has no standard meaning; different writers have varying perspectives about readability. Readability has been viewed as legibility, interest, or ease of reading. In this study, "readability indicates the ease of understanding or comprehension due to the style of the writing."9 How a readability formula is to be defined can present problems. A readability formula was defined as "a method of measurement intended as a predictive device,

8 Jeanne S. Chall, Readability (Columbus: Ohio State University, 1958), p. 155.
that will provide quantitative, objective estimates of the style difficulty of writing." Formulas measure difficulty of style, not whether a piece of writing is good style.

Two major characteristics to consider when choosing a formula are 1) the speed of application and 2) the predictive accuracy of the formula.

Which formula to use must, of course, depend first upon the users needs; if he has a special purpose, he may be able to find just what he wants. Under such circumstances, formulas are likely to have their maximum predictive validity.\(^11\)

The validity of a readability formula is important.

The requirements that a measuring device actually measure what it is intended to measure, commonly called validity is the most critical of the three characteristics a readability formula must have. The sampling procedure and analyst reliability of most recent formulas need further investigation, but are probably not seriously inadequate. If they were, something could be done about them by a change in the sample used or instructions to the analysts. But if a formula does not measure—in this case, predict—readability adequately, little can be done about it. It is not as easy to add a factor or two to a formula as it is to add sample to measure.\(^12\)

The criterion used most often in developing readability formulas has been a set of graded passages, with the number of occurrences of a given style factor in the passage being related to grade levels. The measure to express the rela-

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The relationship used most often is correlation.

The resulting coefficient can be used to indicate the accuracy of the formula in accounting for the readability of the criterion passages. Correlation coefficients have hovered around .70.¹³

"The most highly predictive readability formula is the Dale-Chall formula,"¹⁴ which relies on word familiarity and sentence length. Using the Flesch formula, Jeanne Chall and Edgar Dale evaluated educational materials for the National Tuberculosis Association. They felt the Flesch formula to be adequate, but it had some shortcomings. Counting the number of affixes presented problems; different people would arrive at different numbers. Also, counting the number of personal references presented problems. Dale and Chall decided to try and find a more efficient way of establishing readability.

Dale and Chall applied their formula, based on word familiarity and sentence length, to the same passages from the McCall-Crabbs Standard Test Lessons in Reading as Flesch did and then checked the results using other passages.

On fifty-five passages of health education material we found that our two factor formula correlated .92 with the judgment of readability experts and .90 with the reading grades of children and adults who were able to answer at least three questions out of four on thirty

¹⁴Ibid., p. 17.
of these passages. 15

The authors believed that the word list is one of the most important predictive devices. They used the Dale list of 3000 words. This list had been made by seeing how many words out of 10,000 fourth graders knew. A word was considered known if eighty percent of the fourth graders knew it. This list was based on familiarity of the word, not frequency of the word use, as some lists are. The complete Dale word list is contained in the February 18, 1948, issue of Educational Research Bulletin (pp. 45-54).

Flesch decided to re-examine his formula to analyze the shortcomings.

The original, 1943 Flesch formula was based on a count of three language elements: average sentence length in words, number of affixes, and number of references to people. 16

Some of the shortcomings were due to the structure of the formula and others because of the differences in applying it. "The structural shortcoming of the formula is that fact that it does not always show the high readability of direct, conversational material." 17 Counting the number of affixes presented problems; people were uncertain in spotting affixes and found this to be a tedious task. The


17Ibid., p. 221.
personal references were often felt to be arbitrary and occasionally lead to misunderstandings.

In the adjusted Flesch formula, average sentence length in words, average word length in syllables, average percentage of "personal words" and the average percentage of "personal sentences" were considered. Syllables were to be counted instead of affixes, since this would be easier and yield similar results. The definition of "personal words" was clarified and "personal sentences" were also defined. The human interest formula, using "personal words and personal sentences" did not have much affect on the measurement of readability.

The Flesch Reading Ease Score puts the material tested on a scale between zero and 100. Zero is very difficult, such as a scholarly journal, and 100 is very easy, such as a comic book. These scores may then be converted to grade levels.

Fry's readability graph plots specific grade levels.

Grade level designations were determined by simply plotting lots of books which publishers said were third grade, fifth grade readers, etc. I then looked for clusters and 'smoothed the curve'. After some use and correlational studies, the grade levels were adjusted.18

Sentence length, which Fry feels is a good measure of grammatical complexity, and word length (represented by the number of syllables) a good measure of vocabulary, are

used to determine where a book should be plotted.

Past studies that compared the Flesch, the Fry, and the Dale-Chall formulas have indicated that there is a high correlation among these formulas when they are applied to the same materials.

In most studies done, the Dale-Chall and Flesch formulas have the most comparable results. Fifty-two books from "What Makes a Book Readable" were used in a study comparing the Flesch, Dale-Chall, Gray-Leary, Washburne-Morphett, and Lewerenz scales. Twenty-five to thirty 100 word samples were taken per book for the Flesch samples. A 100 word sample was taken every ten pages for the Dale-Chall. The results showed that Flesch placed readability at a somewhat higher level. Also, the original Flesch method was found to be more time consuming to apply than the Dale-Chall. "Correlations of book finding show that Dale-Chall and the Flesch formula are most similar; there is some slight evidence that the Dale-Chall is superior." 19 George Klare feels this may be due to the use of a word list.

Using twenty items, Walter Pauk did a study comparing the readability estimates of Dale-Chall, Fry, and McLaughlin. About half the time, the Fry and the Dale-Chall results were the same. In only two cases did Fry vary

more than two grade levels from Dale-Chall. These results were expected.

Both rely on exactly the same datum for inputs—average sentence length within their samples. For the second primary input both methods are similar. The Dale-Chall formula discriminates between 3000 common and non-common words. Fry pays little regard for actual difficulty of individual words, but gives weight to each word by counting every syllable of the word.  

"When Fry compared his formula to the Flesch formula, he got a correlation of .96."  

Fry has tested his graph against Dale-Chall using ten books with a resulting correlation of .94. He found a correlation of .90 with Spache, using seven books. Unfortunately, this is not as good as it sounds. The fact Fry's scores on such a small group of books were almost identical to the results given by the Dale-Chall and Spache is not surprising; the lower the number of items, the higher the correlation is likely to be. Seven or ten books is not really a large enough sample to draw conclusions from.

Readability formulas do not measure every aspect of writing. They do not rate content, organization, word order, format, or imagery. They do not measure the maturity or the intelligence of the reader. Previous knowledge in a subject area might make vocabulary more meaningful and easy. Also, it is difficult to measure the motivation for reading. When working with readability formulas, one should keep


these limitations in mind. Readability is only an approximation.

Statement of Problem

The problem investigated was what is the reading level of the books on Booklist’s “Best of the Best, 1970-75” list when the Dale-Chall readability formula, the Flesch Reading Ease formula, and the Fry readability graph are used to estimate readability levels.

Booklist’s “Best of the Best, 1970-75” is a recommended list of books that media specialists and teachers could easily use. Each year, a committee of the Young Adult Services Division of the American Library Association compiles a “Best of the Best” list.

The books were selected on the basis of young adult appeal; they meet acceptable standards of literary merit and provide a variety of subjects for different reading tastes as well as a broad range of reading levels.23 No readability estimate is included in this list.

Even though “a broad range of reading levels”24 is one criterion for inclusion on this list, the researcher believed that when the Dale-Chall, the Flesch, and the Fry readability formulas were applied, the range of reading levels for seventy-five percent or more of the books listed on the “Best of the Best, 1970-75” would be grades six

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24 Ibid., p. 1037.
through ten.

Teachers and media specialists often depend upon recommended lists when selecting books, but readability estimates are not usually included in the annotations or citations for these selected books.

Limitations

The "Best of the Best, 1970-75" is predominantly fiction, but includes some non-fiction, biography, and autobiography. Not all the books included lend themselves to this type of study, for example, Harlan Ellison's *Deathbird Stories: A Pantheon of Modern Gods*, is a collection of tales, Nikki Giovanni's *The Women and the Men* is poetry, and G.B. Trudeau's *Doonesbury Chronicles* is cartoons. These three books, therefore, are not included. Books on this list were obtained from local libraries or book stores. Not all of the books listed, however, were readily available from the libraries or book stores. A list of the books used in this study is Appendix A. Appendix B is a list of books included on the "Best of the Best, 1970-75, but not used in this study.

Results of this study cannot be generalized to lists other than the "Best of the Best, 1970-75". The formulas themselves have some limitations as noted by the developers.
Chapter 2

METHODOLOGY

The Dale-Chall, the Flesch, and the Fry readability formulas were applied to samples taken from books on the "Best of the Best, 1970-75". Each formula uses approximately a 100 word sample as a base. No single sample size can be considered best for all situations. The Dale-Chall formula recommends the use of about every tenth page of the book. Flesch recommends between twenty-five and thirty samples per book. The Fry formula uses one sample from the beginning, one from the middle, and one from the end of the book. In this study, every tenth page, with a large enough sample, was used for the Dale-Chall formula. For all formulas, the 100 word sample was the first complete paragraph found on the selected pages. When applying the Flesch formula, a sample was used from every fifth page, having a large enough sample size until page 100 was reached. A sample from the tenth page of the book, one from the middle page of the book, and one from the page ten pages from the end of the book were used with the Fry formula. If these designated pages did not have an adequate sample size, the sample was taken from the page immediately following it.

The only instructions Fry gives about counting words is to skip all proper names and to count hyphenated
words as two words. Instructions for use with the Dale-Chall formula are to count numbers as one word, to count compound names and places as one word, and to count initials which are a part of a name as separate words. Flesch instructs one to count numbers or letters separated by space as words.

Using the Fry formula, one counts the number of sentences found in each of the three 100 word samples to the nearest tenth. Dale and Chall say to count the number of complete sentences in the sample. To figure the average sentence length when using the Flesch formula, there is a need to

Find the sentence that ends nearest to the 100 word mark—that might be at the 94th word or the 109th word. Count the sentences up to that point and divide the number of words in those sentences by the number of sentences.25

To determine the readability, both Flesch and Fry use a count of syllables in the passages. Fry says for each vowel sound there is a syllable. Flesch says if in doubt about syllable count, consult a good dictionary. "Webster's New Collegiate Dictionary"26 was used in this study. Flesch does, however, give instructions on how to count the syllabication of symbols and figures—the way they are normally read aloud.


Dale-Chall does not make use of a syllable count. Instead, they employ the Dale List of 3000 words. The list can be found in the February 18, 1948, issue of Educational Research Bulletin (pp. 45-54). This list was made by testing fourth-graders on a list of about 10,000 words. "An attempt was made to include all words that fourth-graders would possibly know." If eighty percent of the students checked a word, then it was considered known. Even though instructions are given on how to use the list, sometimes problems arise, such as the case of cross meanings. The instructions can be found in the same issue of Educational Research Bulletin (pp. 37-41). When using the Dale-Chall formula all words not appearing on the Dale List are to be counted. "In making this count, special rules are necessary for common and proper nouns, verbs, and other parts of speech."28

One item that Flesch takes into consideration that the other two formulas do not is "personal words".

Personal words are all first-, second-, and third-, person pronouns except the neuter pronouns, it, its, itself, and they, them, their, theirs, themselves, if referring to things rather than people.29

Personal words are used in computing the human in-


28 Ibid., p. 38.

interest factor. Since this factor does not affect readability greatly, it was not considered in this study. The reading score was used. To find the reading ease score the average sentence length is multiplied by 1.015 and the number of syllables per 100 is multiplied by .846. These two numbers are totalled and the sum is subtracted from 206.835. The formula for the Flesch Reading Ease score is:

\[ RE = 206.835 - .846(wl) - 1.015(sl) \]

This raw score can be converted to a grade level.

Fry uses a graph to help determine the readability levels. The average number of syllables per 100 words for three samples and the average number of sentences for three samples are then plotted on the graph. "Most plot points fall near the heavy curved line."³⁰

The validity of Fry's graph is based on the fact that grade level ratings were arrived at through 'plotting lots of books' which publishers had designated to be at specific grade levels.³¹

Each formula took a different amount of time to apply. The Fry formula took only about five minutes per book to apply. About half an hour per book was needed to calculate the Flesch Reading Ease score. Approximately, an hour per book was spent applying the Dale-Chall formula. The


The amount of time required when using the Dale-Chall formula will depend upon the user's familiarity with the Dale List.

The Dale-Chall, the Flesch, and the Fry readability formulas were applied to the books included in Appendix A. For each formula, a worksheet for each book was used to record the necessary data. Appendix C is the Dale-Chall formula applied to the book, *The Girls of Hunington House*. A chart converting raw scores to grade levels is also included. Appendix D is a record of the data recorded when applying the Flesch formula to *The Girls of Hunington House*. A chart to convert raw scores to grade levels and a "How Easy" chart are also found there. The Fry readability graph as applied to *The Girls of Hunington House* is shown in Appendix E.
Chapter 3

RESULTS AND CONCLUSIONS

Table One displays the readability estimate obtained when the Dale-Chall, the Flesch, and the Fry readability formulas were applied to selected books on Booklist's "Best of the Best, 1970-75" recommended reading list. After applying the Dale-Chall, the Flesch, and the Fry readability formulas to selected books on the "Best of the Best, 1970-75," only seven of the fifty-three books, or, thirteen percent were found to have a readability level between grades six through ten. Eighty-six percent of the books had readability estimates that were lower than grade six or higher than grade ten, therefore, the author's prediction that seventy-five percent of the books on this list would have a readability estimate between grades six and ten was found to be incorrect. If the range were expanded to include grades five through ten, then twenty-nine of the fifty-three books, fifty-four percent, would be included. Seven of the fifty-three books have readability estimates higher than grade ten. Using these three formulas, readability ranged from grades two to sixteen. Trying Hard to Hear You yielded a two with the Fry formula and Survive the Savage Sea a sixteen, using the Flesch formula. Depen-
ding upon the formulas used, there was as wide a range as eight grades for some individual titles. Both Dove and The Eagle Has Landed have a readability level of 10-12, using the Flesch formula and a level of four, using the Fry formula.

Often, the Fry estimate is the lowest score of the three. The Flesch score for Rockin' Steady is 7, the Dale-Chall score is 5-6, and the Fry score is 3. The Flesch score for Eric is 6, the Dale-Chall is 5-6, and the Fry is 3. I Know Why the Caged Bird Sings has a Flesch score of 8-9, a Dale-Chall score of 5-6, and a Fry score of 3. One possible explanation for this is the large proportion of dialogue found in these books. (Dialogue tends to skew Fry's curve downward.)

Not plotted on the Fry graph were Circus and Survive the Savage Sea. The average sentence length per 100 word sample was two sentences. The Fry graph does not begin to plot a point until there are 3.6 sentences. Circus' average sentence length was 10.6. The average number of syllables for the three samples used was 152. When plotting 152 and 10.6 on the Fry graph they lie in the upper right hand corner where the graph is invalid. The graph is Appendix E.

Most of the time, the Flesch and the Dale-Chall readability levels do not vary greatly. Flesch seems to rate the books somewhat higher than Dale-Chall. Usually,
the Fry score is more similar to the Dale-Chall score than it is to the Flesch score.

Since readability levels are only an estimation and not an absolute, teachers and media specialists must use them with care. If they are included in reviews, inclusion of only one may be questionable, or not give an accurate estimate. The Fry score tends to be lower than the Flesch and Dale-Chall scores. Even though the Fry score for Dove is a third grade reading level, many third graders may find this book to difficult to comprehend and enjoy. The Flesch score for Dove is 10-12. Students in lower grades may be very capable of reading Dove efficiently, since Flesch scores estimate books at a higher readability level. "The Dale-Chall score is the most accurate."

This score usually falls somewhere in between the Flesch and Fry scores. For Dove, the Dale-Chall score is 5-6.

The Dale-Chall score is the most accurate and the most time consuming to apply. Preliminary checking for word inclusion on the 3000 word Dale List takes a great deal of time. Application of the formula, itself, does not take that long. As one becomes familiar with the word list, the word checking process goes much faster. The Flesch formula is not too difficult to work with, since it is only an application of numbers in the correct places. Applying the

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Fry formula is very rapid; only three samples are needed to plot a book on the Fry graph.

Readability estimates need to be used carefully. Most of the time, the Flesch and the Dale-Chall readability levels do not vary greatly. Flesch tends to estimate the readability level of books somewhat higher than Dale-Chall. Usually, the Fry score is more similar to the Dale-Chall score than it is to the Flesch scores. Readability levels offer to teachers and media specialists an approximation of what material may be appropriate for which grades.
### Table 1
Readability Estimates of the "Best of the Best, 1970-75", Using Dale-Chall, Flesch, and Fry Readability Formulas

<table>
<thead>
<tr>
<th>Title of Book</th>
<th>Range of Reading Levels</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Dale-Chall</td>
</tr>
<tr>
<td>Alive</td>
<td>5-6</td>
</tr>
<tr>
<td>All Creatures Great and Small</td>
<td>7-8</td>
</tr>
<tr>
<td>Almost Home</td>
<td>9-10</td>
</tr>
<tr>
<td>The Autobiography of Miss Jane Pittman</td>
<td>5-6</td>
</tr>
<tr>
<td>The Bell Jar</td>
<td>5-6</td>
</tr>
<tr>
<td>Bless the Beast and the Children</td>
<td>7-8</td>
</tr>
<tr>
<td>Buried Alive</td>
<td>7-8</td>
</tr>
<tr>
<td>The Chocolate War</td>
<td>5-6</td>
</tr>
<tr>
<td>Circus</td>
<td>5-6</td>
</tr>
<tr>
<td>A Day No Pigs Would Die</td>
<td>4</td>
</tr>
<tr>
<td>Deathwatch</td>
<td>5-6</td>
</tr>
<tr>
<td>Do Black Patent Leather Shoes Really Reflect Up?</td>
<td>5-6</td>
</tr>
<tr>
<td>Dove</td>
<td>5-6</td>
</tr>
<tr>
<td>The Eagle Has Landed</td>
<td>7-8</td>
</tr>
<tr>
<td>Enchanted Pilgrimmage</td>
<td>5-6</td>
</tr>
<tr>
<td>Eric</td>
<td>5-6</td>
</tr>
</tbody>
</table>

*Plot points for Circus lie in the upper right hand corner, where the Fry graph is not valid.*
<table>
<thead>
<tr>
<th>Title of Book</th>
<th>Range of Reading Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dale-Chall</td>
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<td>Fighting Back</td>
<td>7-8</td>
</tr>
<tr>
<td>The Foxfire Book</td>
<td>7-8</td>
</tr>
<tr>
<td>The Friends</td>
<td>5-6</td>
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<tr>
<td>Gather Together in My Name</td>
<td>5-6</td>
</tr>
<tr>
<td>The Girls of Hunington House</td>
<td>5-6</td>
</tr>
<tr>
<td>Go Ask Alice</td>
<td>5-6</td>
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<tr>
<td>God's Dog</td>
<td>9-10</td>
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<tr>
<td>The Greatest; My Own Story</td>
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<td>Hatter Fox</td>
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<td>Headsman</td>
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<td>A Hero Aint't Nothing But A Sandwich</td>
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<td>House of Stairs</td>
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<td>I Heard the Owl Call My Name</td>
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<td>I Know Why the Caged Bird Sings</td>
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<td>If Beale Street Could Talk</td>
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<td>The Intruders</td>
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<td>Journey to Ixtlan; the Lesson of Don Juan</td>
<td>5-6</td>
</tr>
<tr>
<td>The Lion's Paw</td>
<td>5-6</td>
</tr>
<tr>
<td>Looking for Miracles</td>
<td>5-6</td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Title of Book</th>
<th>Range of Reading Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dale-Chall</td>
</tr>
<tr>
<td>The Massacre at Fall Creek</td>
<td>5-6</td>
</tr>
<tr>
<td>May I Cross Your Golden River?</td>
<td>4</td>
</tr>
<tr>
<td>Minamata</td>
<td>10-12</td>
</tr>
<tr>
<td>Of Love and Death and Other Journeys</td>
<td>5-6</td>
</tr>
<tr>
<td>Our Bodies, Our Minds</td>
<td>5-6</td>
</tr>
<tr>
<td>Rockin' Steady</td>
<td>5-6</td>
</tr>
<tr>
<td>Rublefish</td>
<td>4</td>
</tr>
<tr>
<td>Run, Shelley, Run</td>
<td>5-6</td>
</tr>
<tr>
<td>Serpico</td>
<td>5-6</td>
</tr>
<tr>
<td>Sticks and Stones</td>
<td>5-6</td>
</tr>
<tr>
<td>Survive the Savage Sea</td>
<td>11-12</td>
</tr>
<tr>
<td>The Swarm</td>
<td>5-6</td>
</tr>
<tr>
<td>That Was Then, This Is Now</td>
<td>4</td>
</tr>
<tr>
<td>To Race the Wind; An Autobiography</td>
<td>7-8</td>
</tr>
<tr>
<td>Trying Hard to Hear You</td>
<td>5-6</td>
</tr>
<tr>
<td>Watership Down</td>
<td>4</td>
</tr>
<tr>
<td>You Can Get There from Here</td>
<td>5-6</td>
</tr>
</tbody>
</table>

The average sentence length in Survive the Savage Sea was two sentences. The Fry graph does not begin to plot a point until there are 3.6 sentences.
<table>
<thead>
<tr>
<th>Title of Book</th>
<th>Range of Reading Levels</th>
<th>Dale-Chall</th>
<th>Flesch</th>
<th>Fry High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z for Zachariah</td>
<td>5-6 6 6 6 5</td>
<td>5-6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
APPENDIX A

Books on the "Best of the Best, 1970-75"
Used in this Study


Angelou, Maya. *I Know Why the Caged Bird Sings*. 1970.


Castaneda, Carlos. *Journey to Ixtlan, the Lesson of Don Juan*. 1972.


Craven, Margaret. *I Heard the Owl Call My Name*. 1973.


APPENDIX A (continued)


Hinton, S.E. That Was Then, This is Now. 1972.

Holland, Isabelle. Of Love and Death and Other Journeys. 1975.


MacLaine, Shirley. You Can Get There from Here. 1975.


Montandon, Pat. The Intruders. 1975.

Muhammad, Ali and Durham, Richard. The Greatest; My Own Story. 1975.


Patterson, Harry. The Eagle Has Landed. 1975.


APPENDIX A (continued)


West, Jessamyn. *Massacre at Fall Creek*. 1975.


APPENDIX B

Books on the "Best of the Best, 1970-75"
Not Available

Bell, David. A Time to be Born. 1975.
Sullivan, Tom and Gill, Derek L. If You Could See What I Hear. 1975.
# APPENDIX C

## Application of the Dale-Chall Formula to The Girls of Hunington House

### Dale-Chall

<table>
<thead>
<tr>
<th>Ellman, Blossom. The Girls of Hunington House.</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
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<tbody>
<tr>
<td>1. # of words</td>
<td>103</td>
<td>105</td>
<td>104</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>104</td>
<td>111</td>
<td>111</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2. # of sentences</td>
<td>4</td>
<td>12</td>
<td>15</td>
<td>11</td>
<td>14</td>
<td></td>
<td>13</td>
<td>13</td>
<td>9</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>3. # of unfamiliar words</td>
<td>9</td>
<td>14</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td></td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4. Avg. sentence length (in)</td>
<td>11</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td></td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>5. Date score (s = 1) x 100</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td></td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1.5 x .1579</td>
<td>1.579</td>
<td>1.263</td>
<td>1.263</td>
<td>1.974</td>
<td>1.105</td>
<td></td>
<td>1.431</td>
<td>1.431</td>
<td>1.263</td>
<td>1.1053</td>
<td></td>
</tr>
<tr>
<td>8. Constant = 3.6365</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td></td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
</tr>
<tr>
<td>9. Raw score (1362 + # 9)</td>
<td>5.161</td>
<td>5.9615</td>
<td>5.2965</td>
<td>5.0435</td>
<td>5.0711</td>
<td></td>
<td>5.4741</td>
<td>5.3161</td>
<td>5.4453</td>
<td>5.1386</td>
<td>5.1386</td>
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<tr>
<td>(cont)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Ellman, Blossom. The Girls of Hunington House.

<table>
<thead>
<tr>
<th>Ellman, Blossom. The Girls of Hunington House.</th>
<th>120</th>
<th>130</th>
<th>140</th>
<th>150</th>
<th>160</th>
<th>170</th>
<th>180</th>
<th>190</th>
<th>200</th>
<th>210</th>
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</thead>
<tbody>
<tr>
<td>1. # of words</td>
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<td>109</td>
<td>110</td>
<td>101</td>
<td>101</td>
<td>103</td>
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<td>113</td>
<td>103</td>
<td>103</td>
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<tr>
<td>2. # of sentences</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>11</td>
<td>11</td>
<td>17</td>
<td>12</td>
<td>10</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>3. # of unfamiliar words</td>
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<td>10</td>
<td>14</td>
<td>9</td>
<td>16</td>
<td>14</td>
<td>12</td>
<td>15</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>4. Avg. sentence length (in)</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>13</td>
<td>9</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>5. Date score (s = 1) x 100</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>9</td>
<td>16</td>
<td>14</td>
<td>10</td>
<td>15</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>1.5 x .1579</td>
<td>1.974</td>
<td>1.414</td>
<td>1.414</td>
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<td>1.253</td>
<td></td>
<td>2.246</td>
<td>1.753</td>
<td>3.365</td>
<td>4.737</td>
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<tr>
<td>8. Constant = 3.6365</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
</tr>
</tbody>
</table>

**Average raw score = 5.4892 (5-6th grade)**
APPENDIX C (continued)

Correction Table

<table>
<thead>
<tr>
<th>Formula Raw Score</th>
<th>Corrected Grade Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.9 and below</td>
<td>4th grade and below</td>
</tr>
<tr>
<td>5.0 to 5.9</td>
<td>5-6th grade</td>
</tr>
<tr>
<td>6.0 to 6.9</td>
<td>7-8th grade</td>
</tr>
<tr>
<td>7.0 to 7.9</td>
<td>9-10th grade</td>
</tr>
<tr>
<td>8.0 to 8.9</td>
<td>11-12th grade</td>
</tr>
<tr>
<td>9.0 to 9.9</td>
<td>13-15th grade(college)</td>
</tr>
<tr>
<td>10.0 and above</td>
<td>16(college graduate)</td>
</tr>
</tbody>
</table>

---

APPENDIX D

Application of the Flesch Formula to
The Girls of Hunington House

<table>
<thead>
<tr>
<th>Page</th>
<th>SL</th>
<th>WL</th>
</tr>
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<tbody>
<tr>
<td>5</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>10</td>
<td>55</td>
<td>65</td>
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<td>15</td>
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<td>65</td>
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<td>25</td>
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<td>65</td>
</tr>
<tr>
<td>100</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>

Flesch

$P = \text{page #} \quad SL = \text{total # words}$

$W = \text{# of words} \quad \text{total # sentences}$

$S = \text{# of sentences} \quad RE = 206.835 - .846(WL) - 1.015(SL)$

$SY = \text{# of syllables} \quad WL = \text{total # syllables}$

Number of samples $SL = 18 \quad WL = 2548 \quad 1820\_18$

$RE = 206.835 - .846(142) - 1.015(8)$

$= 206.835 - 120.132 - 8.120$

$= 78.583 \approx 7\text{th grade}$
APPENDIX D (continued)

How Easy?

HOW TO USE THIS CHART
Take a pencil or ruler and correct your
"Words per Sentence" figure (left) with your
"Syllables per 100 Words" figure (right). The
intersection of the pencil or ruler with the
center line shows your "Reading Ease" score.

Reading Ease Score

Very Easy 95-90
Easy 85-80
Fairly Easy 75-70
Fairly Difficult 60-55
Difficult 45-40
Very Difficult 30-25

Flesch Score

90 to 100 5th grade
80 to 90 6th grade
70 to 80 7th grade
60 to 70 8th and 9th grade
50 to 60 10th to 12th grade
(high school)
30 to 50 13th to 16th grade
(college)
0 to 30 College Graduate
APPENDIX E

Application of the Fry Formula to
The Girls of Huntington House

Fry
Eifman, Blossom. The girls of Huntington House.

<table>
<thead>
<tr>
<th>Syllables</th>
<th>Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>p. 10</td>
<td>129</td>
</tr>
<tr>
<td>p. 106</td>
<td>123</td>
</tr>
<tr>
<td>p. 202</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>31524</td>
</tr>
</tbody>
</table>
APPENDIX E (continued)

Fry's Graph

Average number of syllables per 100 words

119 112 116 120 124 128 132 136 140 144 148 152 156 160 164 168 172

20.0
19.7
14.3
12.5
11.1
10.0
9.2
6.3
7.5
7.1
6.7
6.3
5.8
5.5
5.3
5.0
4.8
4.5
4.3
4.2
4.0
3.8
3.7
3.6
BIBLIOGRAPHY


ABSTRACT

Booklist's "Best of the Best, 1970-75," is a recommended reading list for young adults. No readability levels are included. The Dale-Chall, the Flesch, and the Fry readability formulas were, therefore, applied to the books on this list. Each formula is based upon a 100 word sample. The number of samples varies, depending upon the formula used. The Fry formula requires the use of a graph and the Dale-Chall formula the use of the Dale word list. No auxiliary devices are needed for the Flesch formula. Using these three formulas, the readability estimates for the books on this list varied as much as eight grade levels for the same book. Eighty-six percent of the books had readability estimates that were lower than grade six or higher than grade ten. Usually, the Fry readability estimate was the lowest, the Dale-Chall estimate in between, and the Flesch readability estimate was the highest.