

1977

A Comparison of the reading levels of children's books and the age/grade levels assigned to them by reviewers

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Abstract

Media specialists of today face the challenging task of obtaining appropriate materials to meet the particular needs of the school. Numerous reviewing media are available for guidance in the selection of children's books. Along with evaluative comments, age or grade level ranges are provided for specific books. In an attempt to determine whether reading levels are included in the age/grade level ranges, the readability estimates of forty selected primary books were obtained using the Spache Readability Formula and compared to the age/grade levels assigned to them by *Booklist* and *School Library Journal*. Thirty-one or 77.7 percent of the books yielded readability estimates that fell within the designated age/grade level ranges.

A COMPARISON OF THE READING LEVELS OF CHILDREN'S BOOKS
AND THE AGE/GRADE LEVELS ASSIGNED TO THEM BY REVIEWERS

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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April 6, 1977

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Date April 14, 1977

ABSTRACT

Media specialists of today face the challenging task of obtaining appropriate materials to meet the particular needs of the school. Numerous reviewing media are available for guidance in the selection of children's books. Along with evaluative comments, age or grade level ranges are provided for specific books. In an attempt to determine whether reading levels are included in the age/grade level ranges, the readability estimates of forty selected primary books were obtained using the Spache Readability Formula and compared to the age/grade levels assigned to them by Booklist and School Library Journal. Thirty-one or 77.7 percent of the books yielded readability estimates that fell within the designated age/grade level ranges.

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Chapter 1

THE PROBLEM

Introduction

Reading instruction in today's schools is seldom limited to a textbook. Students are encouraged to read beyond the textbook--to find other sources of information and pleasure. Clifford L. Bush discussed the importance of literature reading in a recent book.

Reading skills will not operate in a vacuum. In fact, they may die from misuse when children do not have personal reasons for reading. Part of the school day can profitably be spent in literature reading--library books and children's magazines and newspapers. Reading habits fostered through such reading in school will usually persist beyond the school day and the school years. Thus a major objective of education is accomplished, when schools produce citizens who have the habit of reading newspapers, magazines, and books.¹

What is to be gained from reading? For both children and adults it can be used to satisfy many needs. "One can read to gain solace or understanding of self, for the fun or pleasure it may bring, for emotional release, or stimulation of imagination, and for information or food for thought."²

Studies conducted by Waples and his associates at the University of Chicago found the most powerful determinants of adult reading to be

¹Clifford L. Bush and Mildred H. Huebner, Strategies for Reading in the Elementary School (London: Macmillan, 1970), p. 257.

²Patricia Cianciolo, "To Each His Own" Top of the News, v. 27, June 1971, p. 414.

1) accessibility, 2) readability, and 3) interest.³ One may reasonably² infer that these determinants also affect the reading of children. Certainly accessibility--the ready availability of books--is essential to reading. One cannot read what is not obtainable. The readability of a book plays a major part in its usefulness to a particular child. The closer the readability level of the book to the child's reading level, the more likely he is to read it. He is not apt to read a book that is too difficult to understand. Interest, too, greatly influences the use of a book. A child who has no interest in a book will probably not open its covers.

While the researcher recognized the major role that both accessibility and interest play in a child's reading, this study was limited to the readability aspect of the reading task.

As students and teachers seek books to pursue their reading interests, the media specialist faces the challenging task of selecting books that will best meet the needs of the school. One more fully appreciates the difficulty of this task by observing the number of new juvenile books published each year. The Bowker Annual of Library and Book Trade Information reported a total of 2,336 new juvenile books published in 1974 and 2,098 in 1975.⁴ Few, if any, media specialists are able to examine and evaluate each new book personally. Fortunately, numerous

³Douglas Waples and Ralph Tyler, What People Want to Read About (Chicago: University of Chicago Press, 1931), Bernard Berelson, and Franklyn R. Bradshaw, What Reading Does to People (Chicago: University of Chicago Press, 1940)

⁴Madeline Miele, Roberta Moore, and Sarah Prakken, eds., The Bowker Annual of Library and Book Trade Information (21st ed.; New York: Bowker, 1976), p. 179.

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reviewing media can be consulted when personal evaluation is impossible or when the opinion of others is sought. Along with evaluative comments, these reviews provide age or grade level designations for specific books. The common practice is to assign a range of age/grade levels rather than a single age/grade level. Since Booklist and School Library Journal were selected for use in the study, letters were sent to the children's books editor of Booklist and the editor of School Library Journal to determine what the designations indicate and how they are assigned. Betsy Hearne of Booklist responded as follows:

The grade levels in the regular review section are determined by our full-time professional staff and based on a combination of the content appeal, reading level, format, character's age, subject, and so on. The reviewers, all of whom are librarians, base this estimation on their experience with children and books. The editor checks all grade levels for consistency among reviewers. The grade levels assigned are meant to be approximate guidelines and not used rigidly or too literally.⁵

Lillian Gerhardt of School Library Journal provided the following response:

Our reviewers are asked to assign grade levels to books that are sent for review. These grade levels involve both vocabulary levels and interest levels. An assignment of "Gr. 1-3" is our reviewers' suggestion for audience.⁶

Both responses suggest that the age/grade level ranges indicate student interest levels with reading level or vocabulary level being a factor in determining the range.

Statement of the Problem

This study was conducted in an attempt to answer the following

⁵Letter from Betsy Hearne, children's books editor, The Booklist, January 21, 1977.

⁶Letter from Lillian N. Gerhardt, editor, School Library Journal, February 10, 1977.

question: What percentage of fiction books assigned grade level ranges by reviewers from preschool through grade three or age level ranges from four through eight will yield a readability estimate of 1.3-3.9 which falls within the assigned age/grade level when tested by the Spache Readability Formula?

Hypothesis

No studies were found in the literature on which to base the following hypothesis. It was merely a prediction by the researcher based on the practice of reviewers in assigning primary age/grade levels to many books that are intended to be read aloud to students rather than to be read independently by students.

Less than 25 percent of the fiction books assigned grade level ranges from preschool through grade three or age level ranges from four through eight will yield a readability estimate from 1.3-3.9 which falls within the assigned age/grade level when tested by the Spache Readability Formula.

Although Spache gave no specific statement defining the lower limit of his formula, two tables provided for use in rapid computation of the formula revealed the lower limit to be 1.3.⁷ He discussed the upper limit of the formula by stating, "Although estimates of reading difficulty greater than 3.9 can be found by the formula, it is doubtful that these have any accuracy or even any real meaning."⁸

⁷George D. Spache, Good Reading for Poor Readers (Champaign, Illinois: Garrard, 1974), p. 205.

⁸Ibid.

Importance of the Study

This study indicated the relationship of reviewers' age/grade level designations of books to their reading levels. A close relationship would suggest that age/grade level designations may be used as a major factor in considering the usefulness of a book including its readability with a particular individual or group of students.

Assumptions

An assumption of this study was that a readability formula can provide an accurate estimation of readability.

A second assumption was that age/grade levels designated in reviews indicate interest levels.

A third assumption was that some books reviewed as appropriate by interest for designated age/grade levels are readable by some students at those levels.

Limitations of the Study

This study was limited to forty fiction books, picture books and folk literature, labeled as appropriate for children from preschool through grade three or from ages four through eight. The books selected were limited to those reviewed in 1975 issues of Booklist and also appearing in 1974 or 1975 issues of School Library Journal. The determination of readability estimate was limited to the Spache Readability Formula. Only books that were available to the researcher for personal examination were included.

Definition of Terms

Fiction book - a literary work whose content is produced by the

imagination and is not necessarily based on fact.⁹ This includes the several types of picture books and folk literature.

Reviewer - a person who writes either an objective or a subjective essay about some particular book.¹⁰

Readability estimate - the degree of comprehensibility of written language based on the Spache formula $.121$ times average sentence length plus $.082$ times number of hard words plus $.659$.¹¹

⁹William Morris, ed., The American Heritage Dictionary of the English Language (Boston: American Heritage, 1969), p. 488.

¹⁰John E. Drewry, Writing Book Reviews (Boston: The Writer, 1966), p. 7.

¹¹Spache, p. 198.

Chapter 2

REVIEW OF RELATED LITERATURE

The literature selected for inclusion in this review centers around two concepts--1) reviewing of children's books and 2) the estimation of readability. Numerous studies and articles are available in the literature relating to both concepts. Those included in this review have been selected for their relevance to the present study.

Book reviewing is not a new development in the literary world. In fact, reviewing began to rise in importance at the beginning of the nineteenth century.¹² At that time most reviewers were anonymous and it was their task "partly to inform the public, partly to criticize the book and partly to advertize its existence."¹³ The role of the reviewer has changed somewhat during the present century. "The critic is separate from the reviewer; the function of the reviewer is partly to sort current literature; partly to advertise the author; partly to inform the public."¹⁴

In an article that examined a variety of reviewing media, Rachael W. DeAngelo discussed the situation faced by individuals responsible for selecting books. As they "continue to lack both time and opportunity

¹²P. Heins, "Out on a Limb With the Critics: Some Random Thoughts on the Present State of Criticism of Children's Literature" Horn Book, v. 46, June 1970, p. 268.

¹³Virginia Woolf, Reviewing (London: Hogarth Press, 1939), p. 7.

¹⁴Woolf, p. 10.

to see and examine new books while they are still new, it becomes obvious that book selection must be increasingly dependent on the current reviews."¹⁵ Since no one source reviews all new books, the selector must utilize several media to obtain more complete exposure to the available books.

In order for a review to be an effective source of help to book selectors, it must contain certain elements. DeAngelo outlined them:

1. A précis of the content, the scope of the book.
2. The author's aim and, in the reviewer's judgment, how well he succeeded in achieving it.
3. The format (quality of design, make-up, and binding) and illustrations (type, quality, use, placement).
4. The accuracy, up-to-dateness, clarity, organization, and practical aids of information books.
5. The strength of theme and plot, characterization, style and quality of writing in books of fiction.
6. Some comparison with similar books or other books by the same author, when appropriate.
7. An approximation of the grade-and/or age-level range.
8. The weaknesses or limitations, the strengths, and an overall evaluation.¹⁶

Harriet B. Quimby recently identified the key journals for following reviews of current children's books. They include Booklist, Bulletin of the Center of Children's Books, Horn Book Magazine, Kirkus Reviews, Publisher's Weekly, and School Library Journal.¹⁷ A close look at the reviewing patterns for primary books in each journal produced the following characteristics:

¹⁵Rachael W. DeAngelo, "Media for Disseminating Critiques," Evaluating Books for Young Children, ed. Helen Huus (Newark, Delaware: International Reading Association, 1968), p. 111.

¹⁶DeAngelo, p. 112.

¹⁷Harriet B. Quimby and Clara O. Jackson, Building a Children's Literature Collection (Middletown, Connecticut: Choice, 1975), p. 5.

Booklist

1. reviews only books recommended for purchase.
2. stars titles of exceptional quality.
3. notes age or grade levels for each book.
4. arranges books under the heading "Children's Books" with two subdivisions, "Easy Reading" and "Professional Reading."
5. reviews are written by a staff of professionally trained, experienced librarians.

Bulletin of the Center for Children's Books

1. includes books recommended for purchase as well as books not recommended for purchase.
2. relates strengths and weaknesses of books.
3. assigns grade levels to books except for preschool years for which age levels are given.
4. arranges books alphabetically by author under the heading "New Titles for Children and Young People."
5. reviews are written by the editor who discusses them with an advisory committee of teachers and librarians.

Horn Book Magazine

1. includes books usually recommended.
2. assigns general maturity levels in which books are grouped including "Picture Books," "Stories for Younger Readers," "Stories for Intermediate Readers," "Stories for Older Readers."
3. reviews are critical as well as descriptive.
4. reviews are written by a staff of skilled reviewers.

Kirkus Reviews

1. prints reviews on loose-leaf sheets usually six to eight months ahead of publishing date.
2. indicates outstanding books with an asterisk.
3. assigns age levels to books.
4. reviews are more critical than those found in similar media.
5. reviews are written by staff members and highly qualified subject specialists.

Publisher's Weekly

1. provides detailed, often critical reviews of forthcoming children's books.
2. assigns age levels to books.
3. arranges books under the general heading "PW Forecasts" with the subheading "Children's Books" which is subdivided into "Picture Books," "Nonfiction," and "Fiction."
4. reviews are written by staff members.

School Library Journal

1. indicates books of exceptional quality with an asterisk.
2. arranges books into categories including "PreSchool and Primary Grades," "Grades 3-6," "Beginning to Read," "Mystery and Suspense for Elementary Grades," and "Sports Books" all under the general heading "The Book Review."

3. assigns grade levels to books.
4. reviews are written by school and public librarians, teachers of library science, and teachers of special subjects.

The number of juvenile books reviewed by each journal in 1974 and 1975 was provided in the 1976 Bowker Annual.¹⁸ The figures are reported below:

	<u>1974</u>	<u>1975</u>
Booklist	1,091	844
Bulletin of the Center for Children's Books	409	435
Horn Book Magazine	326	375
Kirkus Reviews	--	1,321
Publisher's Weekly	639	483
School Library Journal	1,977	2,129

School Library Journal reviewed more books by far than any other journal both years. The Kirkus Reviews was second in number of juvenile books reviewed in 1975 with Booklist ranking second in 1974 and third in 1975.

At the end of her article, DeAngelo made the following observations of media for disseminating critiques of children's books:

1. There is need for and value in utilizing both the basic book selection and the current reviewing media by all who are responsible for choosing books for young people.
2. A variety of such media exists to use in selecting books for each school level, for varying abilities, interests, and needs, both personal and curriculum-related in many subject fields.
3. Familiarity with and use of many reviewing media are essential, since each has its own purpose, values, unique features, and limitations.

¹⁸Miele, Moore, and Prakken, op. cit., p. 191.

4. Two aspects of the total reviewing deserve consideration for improvement: evaluation of the series books and utilization of "outside" reviewers for more books on specialized and technical subjects. Cooperative and comparative reviewing at the city, county, or district level could do much to bridge this gap.

5. Much of the reviewing today conforms to the principles of sound book evaluation: it is impersonal, objective, informed and substantiated, and utilitarian. On the other hand, some of it disregards these principles, is superficial, and therefore does little service. The difference must be recognized so that the reviewing media can be used with understanding and imagination.¹⁹

Another article that analyzed reviewing of children's books was written by Zena Sutherland. It centered around the following question as it pertains to the needs of the consumer: "What is the character and the measure of my access to current publication of children's literature via the sources of critical evaluation?"²⁰

Sutherland began by examining two unpublished studies of reviewing. One study was conducted by Evelyn Anderson in a master's thesis at the University of Chicago in 1957. Anderson chose to analyze one year of reviewing found in "The Big Four" including Booklist, Bulletin of the Center for Children's Books, Horn Book Magazine, and School Library Journal. Reviews of titles appearing in all four journals were analyzed by applying a complete list of criteria to each review. Based on her findings, Anderson concluded that Booklist and the Bulletin would best serve as basic selection tools while Horn Book Magazine and School Library Journal should be supplemental. The other study, conducted by

¹⁹DeAngelo, op. cit., pp. 122-123.

²⁰Zena Sutherland, "Current Reviewing of Children's Books" Library Quarterly, v. 37, January 1967, p. 110.

Louise Galloway in a doctoral dissertation at Columbia University in 1965, also analyzed one year of reviewing. In addition to "The Big Four", Galloway analyzed the reviews in The New York Herald Tribune, The New York Times, Elementary English, and Saturday Review. A list of criteria similar to the Anderson list were applied to reviews of titles found in all the selected media. Galloway summarized her findings by stating that reviewing for both school and library purposes was inadequate in quality and in quantity. She also stated that, since School Library Journal and Booklist reviewed more than 50 percent of the books included in the study, they were the two media out of the eight that offered the greatest review coverage for persons choosing juvenile books.²¹

Sutherland responded to the two studies by stating that the methods employed by each researcher produced a detailed content analysis; however, they did not give a broad picture of reviewing.²²

Rather than conducting a similar third study which would produce "corroborative evidence", Sutherland chose to analyze 1965 reviewing rather than 1965 titles. Again "The Big Four" were selected for the analysis. Sutherland found 2,299 books out of 2,473 juvenile titles published in 1965 reviewed by one or more of the four media. Of the 2,299 books, 1,501 were reviewed by only one publication. The largest number of books reviewed only once was found in School Library Journal-- 927 books; the Bulletin had 350; Booklist had 139; and Horn Book Magazine had 85. There were 466 books reviewed by two of the four media. Of these School Library Journal had 405; Booklist, 203; Horn Book Magazine, 175; and the Bulletin, 149. Books reviewed by three out of the

²¹Sutherland, pp. 110-113.

²²Sutherland, p. 114.

four media totaled 238; School Library Journal, 211; Booklist, 198; Horn Book Magazine, 176; the Bulletin, 129. Only 94 books were covered by all four of the media. Of the 2,473 titles published in 1965, School Library Journal reviewed 1,619; the Bulletin, 748; Booklist, 608; and Horn Book Magazine, 530.²³

Upon examination of the content of reviews, Sutherland found the coverage given science books to be a low percentage. This was explained by the increased number of science books published on technical subjects, advanced research, or new mathematics unfamiliar to many reviewers.²⁴ In most instances twice as many fiction books were reviewed as opposed to nonfiction books.

Of the books reviewed by one medium only, 721 titles out of 1,501 were nonfiction. Of the 466 titles in the two-media group, 244 were nonfiction. Of the 238 books reviewed in the three-media category, 105 were nonfiction; and there were 28 nonfiction titles in the small group of 94 books reviewed by all four media.²⁵

Sutherland found little disagreement among the four media in reading level. Since she referred to grades 6-9 and grades 7-10 designations as indicating reading level, the researcher would question the accuracy of her terminology and suggest that she in fact was referring to grade level. Sutherland further indicated that only ten reviews of the 376 reviews considered in the 94 book review differed to any noteworthy degree in the assigned grade level ranges. She concluded that Booklist and the Bulletin had the "highest degree of agreement."²⁶

²³Sutherland, p. 115.

²⁴Ibid.

²⁵Ibid.

²⁶Ibid.

In conclusion Sutherland stated,

No journal gives complete coverage, and no one of the four so intensively scrutinized is without some flaws. . . . The nature of the inadequacies in current reviewing would indicate that those inadequacies are only partially superable. A cooperative arrangement combined with a proliferation of media for special areas would help. So would governmental or foundation subsidies. Eventually, the computer will come to the help of the librarian selecting books, but that is not imminent."²⁷

Sutherland's study provided interesting facts and comparisons of the four media. Of special significance to the present study were the findings showing close agreement in grade level designations by the four media. Since there was no indication of how grade level designations were determined, the researcher can only speculate on various methods that could have been employed. Publisher's grade level assignments, subjective evaluations by professional persons, and/or readability formulas may have been used. The following discussion examines several methods of estimating readability.

Experimental research in the field of readability began over forty years ago when works by Dale and Taylor (1934) and Gray and Leary (1935) were published.²⁸ Since then studies of both subjective and quantitative methods of estimating readability have appeared in the literature. Professional judgments, comprehension tests, and readability formulas are the three methods commonly employed. Several interesting studies have been conducted concerning these three methods.

²⁷Sutherland, p. 116.

²⁸Erich Vanuuck, "Measuring Readability--A Fundamental Part of Reading Research" Bookbird, v. 11, 1973, p. 17.

Russell and Merrill²⁹ designed a study to determine if librarians can effectively judge the difficulty of children's books. Twelve children's books were rated in difficulty by sixty-three librarians representing ten states. Six traditional readability formulas--the Dale-Chall, Flesch, Lewerenz, Lorge, Washburne-Morphett, and Yocum formulas--were used to check the readability levels. The librarians' ratings varied but so did the estimates made by the formulas. The findings indicated that the average estimates of the librarians approximated, within one year, the average rating based on the formula estimates. So, on the average, the group of librarians and the group of readability formulas were in fairly close agreement.

In a study patterned after the Russell and Merrill study, Jongsma³⁰ investigated the extent to which librarians could judge the difficulty of children's books as compared to difficulty estimates determined by various readability formulas. Twelve Newbery Award winning books were rated by forty-four randomly selected school and public librarians in Indiana. Readability estimates for each book were obtained by five readability formulas--two established, traditional formulas, the Dale-Chall and Flesch, and three newer, quicker, easier-to-use formulas, Fry's Readability Graph, Gunning's Fog Index, and McLaughlin's Smog Formula. The results indicated that the librarians differed widely in their estimates of each given book. One book was rated all the way from

²⁹David H. Russell and Anna F. Merrill, "Children's Librarians Rate the Difficulty of Well-Known Juvenile Books" Elementary English, v. 28, May 1951, pp. 262-268.

³⁰Eugene A. Jongsma, "The Difficulty of Children's Books: Librarian's Judgments Versus Formula Estimates" Elementary English, v. 49, January 1972, pp. 20-26.

third grade to twelfth grade in level of difficulty. The formula estimates also varied but not as greatly as the librarians. However, the mean of the librarian estimates was found to closely approximate the formula results. This suggested to Jongsma that "on the average, librarians can determine the difficulty of children's books as well as most readability formulas."³¹ He further concluded,

It is important to recognize that although readability formulas can provide objective, quantitative estimates of a book's difficulty, librarians, in making their judgments of difficulty, can bring subjective factors into consideration that are out of reach of formulas. An awareness of the conceptual difficulty of the material, the way the material is organized, and, more importantly, the motivation and interests of the young clients she serves, are all vital factors available to the librarian which cannot be quantified in formulas. In short, judgments concerning the readability of a book should be based on sound knowledge of stylistic elements of difficulty, tempered with a common-sense understanding of the interests of young readers.³²

This conclusion seems valid when applied to experienced librarians but what about new, inexperienced librarians who are unable to judge the conceptual difficulty of a book and who are unfamiliar with the clientele they serve? Then, too, experience does not necessarily guarantee reliable and valid judgments of readability. With the changing vocabulary of basal readers and other reading materials, librarians must update their pre-conceived notions of reading level.

Another study also examined professional judgments in estimating readability. Jorgenson³³ conducted a study to determine whether elementary school teachers were skillful in judging the difficulty of reading

³¹Jongsma, p. 25.

³²Ibid.

³³Gerald W. Jorgenson, "An Analysis of Teacher Judgments of Reading Level" American Educational Research Journal, v. 12, Winter 1975, pp. 67-75.

paragraphs from various grade levels. Eighty-four teachers from two school districts assigned reading levels to six paragraphs selected from the Informal Reading Inventory of the Betts Basic Readers reading series. Results indicated that "elementary school teachers vary widely in their ability to judge accurately the difficulty level of paragraphs from various grades, and that a common sense of 'grade level' does not exist."³⁴ Jorgenson suggested some possible explanations for the varied responses. Perhaps teacher expectations differ greatly and thus affect the levels of judgment. Or perhaps the teachers work with students whose achievement levels differ widely from students of another teacher at the same grade level. Differences in undergraduate training programs or types of district inservice activities may also account for the varied responses.³⁵ Whatever the cause, a teacher with an "inaccurate conception of grade level may make inaccurate judgments about reading ability and reading materials, and thereby, affect the type and quality of reading instruction received by students."³⁶ This study seemed to indicate that some teachers should use more reliable methods of estimating readability than their own professional judgment in order to best meet the needs of students.

Thus far, professional judgment and readability formulas have been discussed as methods of estimating readability. Another method developed by Taylor in 1953 is called the cloze procedure. This procedure is described by E. F. Rankin:

³⁴Jorgenson, p. 73.

³⁵Jorgenson, pp. 74-75.

³⁶Jorgenson, p. 74.

Construction and scoring of cloze tests are fortunately very easy. A text is mutilated by deleting each n-th word, perhaps each fifth element, which is replaced by an underlined blank of constant length. It is the subject's task to fill in the correct words. Only in the case of perfect correctness are the entries scored. The underlying rationale of this method is as follows: the reader receives information from the source of the written words of an author. If both writer and reader have utmost similar semantical and syntactical language habits, the percentage of predictable information is considerably high. Thus, cloze procedure measures the degree of redundancy or predictability of text passages.³⁷

He further states, "the results of many studies have shown the cloze technique as a useful and valid tool for scientists and teachers."³⁸

While other readability scales have been based on previously scaled passages, on carefully graded books, and on the combined judgments of a group of experts, the cloze procedure tests a reader's ability to supply words deleted at regular intervals.

Ekwall and Henry³⁹ have devised a method for classroom teachers to use in assigning grade level ratings to books for independent reading. The process involves having a child read aloud a 100-word passage randomly selected from a book. As he reads, the recorder tabulates the number of errors made. The child is then asked four to six questions about the material. If four questions are asked, he should be able to answer all of them. If six questions are asked, he is allowed to miss one. If the child does not miss more than one or two words and comprehends at or near 90 percent, the recorder may conclude that he will

³⁷E. F. Rankin, "The Cloze Procedure--Its Validity and Utility," Measurement and Evaluation of Reading, ed. R. Farr (New York: Harcourt, Brace and World, 1970), pp. 18-19.

³⁸Rankin, p. 22.

³⁹E. E. Ekwall and I. B. Henry, "How To Find Books Children Can Read" Reading Teacher, v. 22, December 1968, pp. 230-232.

probably be able to read the book without too much difficulty. The researcher must question the validity of this method by asking, Is not the validity of the readability estimate greatly affected by the particular child who reads the passage? Are the children given reading level labels which can then be assigned to books?

A method of determining readability that is similar to but more precise than the Ekwall and Henry method was devised by McLeod.⁴⁰ First reading ages of children are determined on a test of word recognition. Then the children read extracts from the books. From the proportions of children at different reading levels who read the extracts with no more than two errors, the tester is able to "express each book's readability as a threshold in the manner of the Constant Method of psychophysics."⁴¹ Although this method appears to be more accurate than the Ekwall and Henry method, it is also more time-consuming.

In discussing the use of comprehension tests to determine readability, Klare stated,

Comprehension tests, of course, can provide desirable evidence of the reliability and validity of the scores they yield. And such scores can be presented in terms of grade or age scales. . . . For most writers and teachers, building a comprehension test over material to determine its readability is not a practical solution. A readability formula, which has been devised statistically to predict comprehension test scores, is more likely to be actually used. Some notion of the acceptance of readability formulas for this purpose can be seen from the development and popular use of over thirty such formulas, plus at least ten variations, up to 1960.⁴²

⁴⁰John J. McLeod, "The Estimation of Readability of Books of Low Difficulty" The British Journal of Educational Psychology, v. 32, 1962, pp. 112-118.

⁴¹McLeod, p. 112.

⁴²George R. Klare, "Assessing Readability" Reading Research Quarterly, v. 10, 1974-1975, p. 65.

Indeed a number of readability formulas are available for use but they are not without criticism. Rankin pointed out that reading formulas "can be fooled" by highly abstract words or unusual sentences. In addition, they are unable to measure the reading difficulty of a message for a particular group of readers with varying experiences and interests.⁴³ On a similar note, Koenke reports Klare's findings that "readability formulas are limited to imperfectly measuring difficulty of style. Formulas do not rate content, organization, word order, format, imagery, or the qualities of the readers."⁴⁴ Recognizing these weaknesses, Spache commented on the need for readability formulas in certain situations such as when fine discriminations of reading difficulty in materials for young children and for poor readers are needed. When basic book lists are not available, or when new trade books appear, readability formulas are helpful. Formulas can be used to check the accuracy of publisher's grade level designations, or of texts that seem inappropriate for certain pupils.⁴⁵ Monteith supported the use of readability formulas but cautioned the user against their misuse. She explained that they simply help rank the difficulty of materials and should be used only as guidelines. She compared them to probability statements as opposed to scientific formulas as tools for book selection.⁴⁶

The following discussion of specific readability formulas includes those identified for and validated for use with primary grade

⁴³Rankin, p. 18.

⁴⁴Karl Koenke, "Another Practical Note on Readability Formulas" Journal of Reading, v. 15, 1971-1972, pp. 204-205.

⁴⁵Spache, p. 34.

⁴⁶Mary K. Monteith, "Readability Formulas" Journal of Reading, v. 19, April 1976, p. 607.

materials and that are widely used today.

The Fry Readability Graph was developed in 1965 by Edward Fry.⁴⁷ He recommended it as a way of saving the user's time and effort. Variables of syllables per 100 words and words per sentence are used in the formula. The user enters the counts of the variables in the graph and reads the readability grade score directly from it. It has been validated on both primary and secondary materials. However, as pointed out by Spache, "It yields estimates too gross for book selection in the primary grades. Readability estimates are expressed only in full grade levels, e.g. first grade, second grade."⁴⁸

The Spache⁴⁹ formula was developed in 1953 specifically for children's materials grades one to three. Two variables, the average number of words outside a basic list of common, easy words, and the average sentence length, are used in the formula. Initially the Dale "Easy Word List" was used with the formula. Later "Stone's Revised Word List" was used and finally in 1974 the formula was revised on the basis of use of the Harris-Jacobson Basic Elementary Reading Vocabularies. Spache has reported a correlation of .95 between formula scores and grade level of supplementary books, basal readers, science and social science materials for the primary grades with readability estimates based on the old Spache formula, readability data supplied by publishers, and their use in classrooms. The formula provides fine distinctions of

⁴⁷Edward Fry, "A Reading Formula That Saves Time?" Journal of Reading, v. 11, April 1968, pp. 513-516.

⁴⁸Spache, p. 206.

⁴⁹Spache, pp. 195-199.

grade level ranging from 1.3 to 4.0.

The Botel⁵⁰ formula predicts reading levels from the median difficulty of samples of words whose grade levels are determined through the presence in or absence from a "Graded Vocabulary List." Each word in the list has an assigned level. The tester tallies each word of the sample into the appropriate category on a worksheet and arrives at a readability estimate of first reader and below, 2-1 (second grade, first semester), 2-2 (second grade, second semester), 3-1, 3-2, or fourth reader and above. The formula was validated by comparing the vocabulary with that used at various levels of reading materials not extending below fourth grade. The score obtained may vary from pre-primer level to grade twelve in difficulty. One might question its validity with reading materials below the fourth grade.

The RIDE scale was proposed by Carver in 1974. It is simply the average number of letters per word using certain decision rules. Validity was established by comparing it to the values from five traditional readability formulas. Five levels of difficulty of reading materials are obtained including Level 1, or approximately beginning reading; Level 2, or approximately elementary school materials; Level 3, or approximately secondary school materials; Level 4, or approximately college level materials; Level 5, or approximately graduate school materials. Obviously reading level designations are very broad.⁵¹

⁵⁰Morton Botel, Botel Predicting Readability Levels (Chicago: Follett, 1962)

⁵¹Klare, p. 86.

The Harris-Jacobson⁵² Primary Readability formula developed in 1973 for grades one through three was found to correlate .90 with reader-grade level and to have a standard error of estimate of .38 years. Two variables, the percent of unique unfamiliar words and the average sentence length or mean number of words per sentence, are used in the formula. Words are considered familiar when found in the Harris-Jacobson Short Readability Word List. Readability estimates obtained are pre-primer (1.0-1.53), primer (1.54-1.74), first reader (1.75-1.98), low second (1.99-2.37), high second (2.38-2.84), low third (2.85-3.30), high third (3.31-3.74) and fourth (3.75 and up).

A number of quality reviewing media available to book selectors provide a ready means for gathering opinions about new children's books. No one journal is all inclusive in its reviews. A book selector wisely uses a combination of media in order to carefully select the best items for the school. The estimation of readability, in like manner, is not always determined in the same way. The best method to employ at a given time depends on the purposes and needs of the user.

⁵²Albert J. Harris and Edward R. Sipay, How to Increase Reading Ability (6th ed.; New York: David McKay, 1975)

Chapter 3

METHODOLOGY

A selected group of relatively current fiction books, picture books and folk literature, were tested by the Spache Readability Formula. In order to obtain a workable sample of books, issues of Booklist beginning with January 1975 and issues of School Library Journal from 1974 and 1975 were used to gather forty titles that appeared in both journals. The Booklist and School Library Journal were selected for a variety of reasons. First, they are considered to be among the key journals in the reviewing of children's books. Second, they rank high in the number of books reviewed each year. Third, according to a recent study conducted by Dale Birch⁵³, school librarians at all building levels felt that Library Journal of which School Library Journal was a part at the time of the study, assisted them most frequently in book selection while Booklist ranked second.

The selection of specific reviews to be included in the sample was based on age/grade level designations assigned to the books. A procedure was developed to test the feasibility of a method for arriving at a sample. After examining the January 1975 issues of Booklist and School Library Journal, the following age/grade level designations and their frequencies for primary books were found:

⁵³Dale F. Birch, "A Study on Book Selection Among Selected Iowa Public School Librarians" (unpublished research paper, University of Northern Iowa, 1976), p. 57.

<u>Age/Grade Level</u>	<u>Number of Books</u>
PreS-K	1
PreS-1	7
PreS-2	2
PreS-3	5
K-1	1
K-2	11
K-3	4
K-4	0
K-6	2
1-2	1
1-3	6
1-4	4
1-5	0
1-6	0
2-3	4
2-4	7
2-5	3
2-6	1
Ages 4-6	3
4-7	3
5-7	5
5-8	4
5-10	1
Grades 1-3	2
2-3	2
2-4	4
3-5	4
3-6	1

Since this study examined primary books, those designated for use by third graders and below were selected as the universe of the study. When a book was assigned a grade level of PreS-K, PreS-1, PreS-2, PreS-3, K-1, K-2, K-3, 1-2, 1-3, 2-3, or an age level of 4-5, 4-6, 4-7, 4-8, 5-6, 5-7, or 5-8 in either journal it was considered for inclusion in the sample.

Based on selection of the foregoing age/grade level designations, the researcher examined the April and May issues of Booklist and identified titles with the appropriate designations. The titles were then checked in issues of School Library Journal from March through September to determine if they had been reviewed in that journal. Six titles

appearing in the April issue of Booklist also appeared in School Library Journal while five titles found in the May issue of Booklist also appeared in School Library Journal. Although it appeared that forty titles could easily be selected in 1975 issues, the researcher selected eighty titles in order to have a greater possibility of obtaining forty books for personal examination.

Books were obtained for personal examination from the University of Northern Iowa Library Youth Collection. Because of the high emphasis on developing reading skills in schools at the present time, the researcher used books reviewed in 1975. These books were relatively current and were available to the researcher.

The Spache Readability Formula was selected because of its validity and reliability in testing primary reading materials. Spache reported on the accuracy of the formula as compared to other relevant formulas by stating:

Most other primary formulas have a probable error of estimate of six months to a year. In contrast, the standard error of estimate of our new formula is 2 months, i.e. in 68% of the samples, the true reading level will be within plus or minus two months of the estimate found. In about one third of the samples, the estimate may be in error by a larger amount.⁵⁴

The fine distinctions of reading level produced by the formula, such as 1.4, 2.6, and 3.7 enabled the researcher to make better comparisons of reading level than would have been possible if scores of 1, 2, or 3 were produced.

⁵⁴Spache, p. 198.

In applying the formula three samples of approximately 100 words were selected from the beginning, middle, and end of the book. All of the words in the sentence containing the 100th word were counted. The average sentence length of each sample was computed by dividing the number of words by the number of sentences. Then the number of hard words was determined by checking against the Revised Word List available in Spache's Good Reading for Poor Readers. Finally a chart for use with the formula provided by Burmeister⁵⁵ was used to find the approximate reading level by identifying the point of intersection of the average sentence length and the number of hard words (see appendix C). The final reading level was determined by averaging the results from each sample. The possibility of obtaining three 100-word samples from each book was slight. When 100 words were not available, the book was excluded. When only one sample of 100 words was available, the book was tested and in recording the results, the researcher noted that only one sample was used. When only two samples were possible, both were used and this, too, was recorded in the results. All necessary data for each book was recorded on a worksheet provided by Spache (see appendix B).

The researcher followed the above procedure in obtaining a readability estimate of a book labeled for ages 4-6 in a 1975 issue of Booklist and K-3 in School Library Journal. Three samples were taken with the following results: 2.5, 2.6, and 2.0. The final estimate was 2.4. The entire procedure was conducted in fifty minutes. From this

⁵⁵Lou E. Burmeister, "A Chart for the New Spache Formula" Reading Teacher, v. 29, January 1976, pp. 384-385.

"trial run", the researcher determined to use forty titles in the study to comply with the time and resources available to her.

Chapter 4

RESULTS AND CONCLUSIONS

Table 1 displays the readability estimates obtained when the Spache Readability Formula was applied to selected primary books reviewed in both Booklist and School Library Journal. Thirty-one books from the forty book sample yielded readability estimates of 1.3-3.9 that fell within at least one of the age/grade levels assigned by Booklist and School Library Journal and are included in Table 1. Nine books that did not yield readability estimates of 1.3-3.9 or whose readability estimates did not fall within at least one of the assigned age/grade levels are displayed in Table 2 (see page 31). Each book title in both tables is listed with the corresponding age/grade level assigned by Booklist and School Library Journal and the number of 100-word samples used in the testing. See appendix A for complete bibliographic information for the forty books used in the study.

Table 1

Readability Estimates of 1.3-3.9 Based On the Spache Readability Formula That Fell Within At Least One of the Age/Grade Levels Assigned to Selected Primary Books in Booklist and SLJ

Title of Book	Number of 100-Word Samples	Readability Estimate	Age/Grade Levels*	
			<u>Booklist</u>	<u>SLJ</u>

Readability Estimates of 1.3-1.9

Eat!	1	1.8	Ages 5-7	PreS-2
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*Unless specified as age levels, the number ranges indicate grade levels.

Table 1 (continued)

Title of Book	Number of 100-Word Samples	Readability Estimate	Age/Grade Levels <u>Booklist</u>	Levels <u>SLJ</u>
I'll Be the Horse If You'll Play With Me	2	1.8	Ages 5-7	PreS-2
Owliver	1	1.9	Ages 4-7	PreS-2
<u>Readability Estimates of 2.0-2.9</u>				
The Lace Snail	3	2.0	1-3	PreS-2
Scram, Kid!	3	2.0	Ages 5-7	K-2
Song of the Boat	3	2.2	3-4	K-3
Dorrie and the Witch's Imp	3	2.3	3-4	K-3
Mary Louises' Heyday	3	2.3	Ages 5-8	PreS-2
Michael	3	2.3	1-3	K-3
The Hole in the Dike	3	2.4	Ages 4-6	K-3
My Brother Fine With Me	3	2.5	2-3	1-3
The Winter Wife	3	2.6	1-3	1-3
Cunningham's Rooster	3	2.7	Ages 5-8	2-4
The Quitting Deal	3	2.7	1-4	K-3
Teeny-Tiny and the Witch Woman	3	2.7	2-3	1-4
Abdul	2	2.8	Ages 4-7	K-2
Do You Love Me?	3	2.8	Ages 5-8	K-3
The Gingerbread Boy	3	2.8	Ages 3-6	PreS-3
The Summer Night	3	2.8	Ages 4-6	K-3
Old Man Whickutt's Donkey	3	2.9	Ages 5-8	K-3

Table 1 (continued)

Title of Book	Number of 100-Word Samples	Readability Estimate	Age/Grade Levels <u>Booklist</u>	<u>SLJ</u>
<u>Readability Estimates of 3.0-3.9</u>				
Grizzly Bear	3	3.1	3-5	2-3
New Life, New Room	3	3.1	3-5	K-3
Strega Nona	3	3.1	2-3	K-3
The Terrible Thing That Happened at Our House	3	3.1	Ages 5-8	K-2
War and Peas	3	3.2	2-3	PreS-2
The Maggie B.	3	3.3	1-3	PreS-3
Marc and Pixie	3	3.3	Ages 4-6	K-3
As I Was Crossing Boston Common	3	3.4	Ages 4-6	PreS-3
Blue Moose	3	3.4	3-5	K-3
The Squire's Bride	3	3.5	2-3	2-6
Jack and the Beanstalk	3	3.7	3-4	K-3

Table 2

Readability Estimates of Selected Primary Books That Did Not Fall
Within At Least One of the Age/Grade Levels Assigned to Them
By Booklist and SLJ or That Did Not Yield Readability
Estimates of 1.3-3.9 When Using the
Spache Readability Formula

Title of Book	Number of 100-Word Samples	Readability Estimate	Age/Grade Levels <u>Booklist</u>	<u>SLJ</u>
Jack and Fred	2	2.0	Ages 4-6	PreS-1
Who Said Meow?	3	2.5	Ages 3-6	PreS-1

Table 2 (continued)

Title of Book	Number of 100-Word Samples	Readability Estimate	Age/Grade Levels <u>Booklist</u>	<u>SLJ</u>
I Hate to Take a Bath	1	2.7	Ages 3-5	PreS-1
Kisses and Fishes	3	3.0	Ages 5-7	K-2
The Old Woman and the Red Pumpkin	3	3.0	Ages 4-6	K-2
Kevin's Grandma	3	3.2	Ages 4-6	PreS-2
Izzie	3	3.5	Ages 4-7	PreS-2
Tales of Thunder and Lightning	3	4.0	3-5	PreS-3
Farmer Palmer's Wagon Ride	3	4.1	2-4	PreS-3

Based on the results of the study in which thirty-one or 77.7 percent of the books in the sample yielded readability estimates of 1.3-3.9 that fell within the assigned age/grade levels when tested by the Spache Readability Formula, the researcher must reject the hypothesis in which the result was predicted to be less than 25 percent. Although the researcher did not anticipate comparing the findings unique to Booklist and to School Library Journal, it was interesting to note that twenty-six or 65 percent of the books found in Booklist yielded readability estimates that fell within the age/grade level range compared to 29 or 72.5 percent of the books found in School Library Journal. Three books had readability estimates from 1.3-1.9, twenty books fell in the 2.0-2.9 range, and fifteen books fell in the 3.0-3.9 range. One book had a 4.0 readability estimate and another was estimated at 4.1.

From observing the high percentage of books with readability estimates that fell within the assigned age/grade level range, it seems apparent that reading level is a major consideration by Booklist and School Library Journal reviewers when assigning age/grade level ranges. Neither Hearne nor Gerhardt indicated the method used in determining reading level. Perhaps readability formulas are used. Perhaps children's editors of publishing companies offer guidance to reviewers in the designations they assign. Perhaps the subjective determination of reading level by the experienced and practicing librarians is used and, as in the Jongsma study, is quite accurate. In the hypothesis section, the researcher stated that many children's books are intended to be read aloud to students rather than to be read independently by students. However, the results indicated that the majority of books in the sample are readable by some students who fall within the assigned age/grade level range. From her recent teaching experience and work with children's books, the researcher has observed increasing vocabulary difficulty in primary reading materials within the past five years. Perhaps the Spache 1974 Revised Word List has incorporated some of the more difficult words and thus, books that appeared to be intended for reading aloud to children yielded lower readability estimates than expected.

The slightly higher percentage of books falling within the assigned ranges in School Library Journal as compared to Booklist is especially interesting considering that the grade levels in School Library Journal are determined by practicing librarians and teachers whereas the age/grade levels in Booklist are assigned by professional staff members. Although the sample is small for generalizing, it is interesting to speculate that perhaps through their continual contact

with students, the practicing librarians and teachers are able to predict reading level more accurately.

The largest number of books fell within the 2.0-2.9 range while the smallest number fell within the 1.3-1.9 range. This may be due to the practice in both Booklist and School Library Journal of isolating controlled vocabulary books for special review in "Beginning to Read" columns which do not appear in the regular reviewing section. Another reason for the small number in the 1.3-1.9 range may be that books in that range often contain less than 100 words and were not included in the sample. Table 3 displays the number of 100-word samples used in books at the 1.3-1.9, 2.0-2.9, and 3.0-3.9 ranges along with the number of books in each range.

Table 3
Number of 100-Word Samples Used in Determining the
Readability Estimates of Selected Primary Books
Reviewed in Booklist and SLJ

Readability Estimate Range	Number of Books	One 100-Word Sample	Two 100-Word Samples	Three 100-Word Samples
1.3-1.9	3	2	1	0
2.0-2.9	20	1	2	17
3.0-3.9	15	0	0	15

Two of the three books in the 1.3-1.9 range had only one 100-word sample while the third book had two 100-word samples. No three 100-word samples were found in books in the 1.3-1.9 range. One book in the 2.0-2.9 range had only one 100-word sample, two books had

two 100-word samples and seventeen books had three 100-word samples. All books in the 3.0-3.9 range had three 100-word samples.

Based on the results of this study, it appears that the age/grade level ranges assigned to primary books by Booklist and School Library Journal include the reading levels of books in the majority of cases. A media specialist can thus place some confidence in the age/grade level assignments provided in both journals as indicators of both interest level and reading level.

APPENDIX A

Primary Books Selected From Booklist and SLJ
Used In This Study

- Wells, Rosemary. Abdul. New York: Dial, 1975.
- Farber, Norma. As I Was Crossing Boston Common. New York: Dutton, 1975.
- Pinkwater, Manus. Blue Moose. New York: Dodd, Mead, 1975.
- Brenner, Barbara. Cunningham's Rooster. New York: Parents, 1975.
- Gackenbach, Dick. Do You Love Me? New York: Seabury, 1975.
- Coombs, Patricia. Dorrie and the Witch's Imp. New York: Lothrop, Lee, and Shepard, 1975.
- Paterson, Diane. Eat! New York: Dial, 1975.
- Steig, William. Farmer Palmer's Wagon Ride. New York: Farrar, Straus, Giroux, 1974.
- Galdone, Paul. The Gingerbread Boy. New York: Seabury, 1975.
- Freschet, Berniece. Grizzly Bear. New York: Scribner, 1975.
- Green, Norma. The Hole in the Dike. New York: Crowell, 1974.
- Barrett, Judith. I Hate to Take a Bath. New York: Four Winds, 1975.
- Alexander, Martha G. I'll Be the Horse If You'll Play With Me. New York: Dial, 1975.
- Pearson, Susan. Izzie. New York: Dial, 1975.
- Barton, Byron. Jack and Fred. New York: Macmillan, 1974.
- Jacobs, Joseph. Jack and the Beanstalk. New York: Walck, H.Z., 1975.
- Williams, Barbara. Kevin's Grandma. New York: Dutton, 1975.
- Skorpen, Liesel Moak. Kisses and Fishes. New York: Harper and Row, 1974.
- Byars, Betsy Cromer. The Lace Snail. New York: Viking, 1975.
- Haas, Irene. The Maggie B. New York: Atheneum, 1975.
- Fatio, Louise and Duvoisin, Roger Antoine. Marc and Pixie. New York: McGraw-Hill, 1975.
- Carlson, Natalie. Mary Louise's Heyday. New York: Scribner, 1975.

- Skorpen, Liesel Moak. Michael. New York: Harper and Row, 1975.
- Clifton, Lucille. My Brother Fine With Me. New York: Holt, Rinehart and Winston, 1975.
- Jordan, June. New Life, New Room. New York: Crowell, 1975.
- Calhoun, Mary. Old Man Whickutt's Donkey. New York: Parents, 1975.
- Bang, Betsy. The Old Woman and the Red Pumpkin. New York: Macmillan, 1975.
- Kraus, Robert. Owliver. New York: Windmill, 1974.
- Tobias, Toby. The Quitting Deal. New York: Viking, 1975.
- McGovern, Ann. Scram, Kid! New York: Viking, 1974.
- Graham, Lorenz B. Song of the Boat. New York: Crowell, 1975.
- Absjornsen, P. C. The Squire's Bride. New York: Atheneum, 1975.
- DePaola, Thomas Anthony. Strega Nona. Englewood Cliffs, N.J.: Prentice-Hall, 1975.
- Zolotow, Charlotte. The Summer Night. New York: Harper and Row, 1974.
- Devlin, Harry. Tales of Thunder and Lightning. New York: Parents, 1975.
- Walker, Barbara K. Teery-Tiny and the Witch Woman. New York: Pantheon, 1975.
- Blaine, Marge. The Terrible Thing That Happened At Our House. New York: Parents, 1975.
- Foreman, Michael. War and Peas. New York: Crowell, 1974.
- Polushkin, Maria. Who Said Meow? New York: Crown, 1975.
- Crompton, Ann Eliot. The Winter Wife. Boston: Little, Brown, 1975.

APPENDIX B

Worksheet for Application of the Spache Readability Formula
for Grades I-III

Book _____ Date _____

Author _____ Publisher _____

Page _____ Page _____ Page _____

From _____ From _____ From _____

To _____ To _____ To _____

1. Total Number of words _____

2. Number of sentences _____

3. Number of words not on Revised
List _____4. Average sentence length
(Divide 1 by 2) _____

5. Multiply 4 by .121 _____

6. Multiply 3 by .082 _____

7. Add constant .659 .659 .659

8. Estimated grade level
(Add 5, 6 and 7) _____

Average of estimate _____

Analyzed by _____

Date _____

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