

Consulting Editors (cont'd.)

Carl Koenig
Consultant
Kansas City, Missouri

Sarah Kyrklund
Hennepin Technical Centers
Minneapolis, Minnesota

Peggy Albrecht
Precision Teaching Project
Great Falls, Montana

Abigail Calkin
Topeka Public Schools
Topeka, Kansas

Beatrice H. Barrett
Walter E. Fernald State School
Belmont, Massachusetts

Thomas C. Lovitt
University of Washington
Seattle, Washington

Charles P. Olander
Center for Individualized Instruction
Jacksonville, Alabama

Susan Ryberg
Utah Learning Resource Center
Murray, Utah

Nancy Johnson
Consultant
DeKalb, Illinois

Charles Merbitz
Rehabilitation Inst. of Chicago
Chicago, Illinois

William D. Wolking
University of Florida
Gainesville, Florida

Marie Eaton
Western Washington University
Bellingham, Washington

Sheila Fox
Western Washington University
Bellingham, Washington

Dagmar Neal
Kuring-Gai College
Lindfield, NSW, Australia

Bob Bower
Wayne State College
Wayne, Nebraska

SEVEN WAYS OF DESCRIBING READING--
MCGUFFEY'S AND SIX MORE: PART I

Malcolm Neely
Federal Way Public Schools

Abstract

A literature review reveals six traditional ways of describing reading with problems and confusions. Two describe the reading stimuli and four measure reading performance. A solution is to measure the teaching product, learning. Reading learning is measured by ratios and becomes the seventh way of describing reading. The review of the six ordinal methods plus the ratio way to describe reading has both historical and systemic value. The review is divided into four parts: Part I - Lay categories, grade levels, readability formulas, rate, and accuracy; Part II - Reading mastery levels; Part III - Problems and confusions of the six measures and introduction to Precision Teaching, the seventh measure; Part IV - Sixteen Precision

Teaching picture components, discussion, and conclusions. The present article represents Part I of the review.

This paper reviews the seven different ways reading experts have described reading over the past 140 years. The first six--lay categories, grade level, readability formulas, rate, accuracy, and reading levels--have extensive histories. The seventh way, measurement and description by conventions using Standard Celeration Charts (Standard Behavior Charts), and known as Precise Behavioral Management and as Precision Teaching, has a history since 1964. Table 1 lists these seven different reading descriptions, what they measure, how they measure, who behaves, and who sets the description standards.

TABLE 1
Seven Reading Descriptions

| <u>Name</u> | <u>Year^a- Author</u> | <u>Measures (What?)</u> | <u>Measures (How?)</u> | <u>Behavior (Who?)</u> | <u>Standards Set By</u> |
|------------------------|-------------------------------------|-----------------------------|--|----------------------------|-----------------------------|
| 1. Lay Categories | Antiquity | Response to reading | Subjective opinion | Reader | Expert |
| 2. Grade Level (14) | 1840 McGuffey | Material complexity | Vocabulary size | Expert | Expert |
| 3. Readability Score | 1920 Dale | Material complexity | Weighted formulas | Expert | Expert |
| 4. Rate Correct | 1884 Romanes | Reading frequency | Count per unit of time | Reader | Peers |
| 5. Reading Accuracy | 1917 Gray | Reading ratio correct | % read correctly | Reader | Expert |
| Comprehension Accuracy | | Comprehension ratio Correct | % read correctly | | |
| 6. Mastery Levels (4) | 1919 Gray | Difficulty of reading | Rate, accuracy, or opinion | Reader | Expert |
| 7. Precision Teaching | 1965-70 Lindsley | Reading pictures | Reading correct and error charts | Reader | Peers |
| | | Comprehension pictures | Comprehension correct and error charts | | |

^a±10

Lay Categories

Lay words have described reading and readers since antiquity. Someone, usually an "expert", subjectively evaluates a reader's reading responses. As more people read and some became more accomplished, qualitative words, good and poor, were used as descriptors. Today, top, poor, slow, fast, careful, normal, and comfortable are used frequently by teachers as subjective qualifiers of reading achievement.

Because subjective opinions are variable, educators searched for standardization. Grade levels of basal readers and coefficient factors from readability formulas were used to number degrees of difficulty. Even with attempts at standardization, lay words were still used. Curtis (1914), Harris (1956), and Kunzelmann (Washington State Superintendent of Public Instruction, 1973), tied lay words to reading rates, i.e. word frequencies. Poor reading with word errors, hesitations, and self-corrections resulted in correct-error percentages. The percentages of the number of questions correctly answered or directions accurately followed after reading measured quantitatively, poor, good, careful, or careless reading. Educators noted lay words were not descriptive for classroom reading distinctions; instructional, independent, potential, and frustration were more useful (Betts, 1946). However, mastery levels still required lay words as qualifiers.

Grade Levels

Grading basal materials by difficulty started around 1840 with the McGuffey Readers (Betts, 1946; Chall, 1958, 1967; W. S. Gray, 1917; Spache, 1972). Initially the size of the vocabulary determined the complexity and sequence of the material. McGuffey, the expert, studied the stimuli and set the standards for his series.

The grading of basal readers gained heavy momentum in the 1920's (Chall, 1977). The total number of words, different words, and word repetitions, among other factors, influenced book writers (Chall, 1958). At least 14 different reading levels came into existence, from pre-primer and primer to grade 12. Some experts subdivided these. Chall (1958) and Spache (1964) wrote that basal readers became more and more simplified through the processes, but readability levels across basal reading series and reading tests remained widely different. Grading basal readers is still not standardized and is often debated (Chall, 1977).

Readability Formulas

Readability formulas, scores, and research began in the 1920's, 80 years after McGuffey's start using vocabulary size (Betts, 1946; Chall, 1958). Subjective expert judgment gave such inadequate predictions that objective readability formulas and word lists were sought for educational book writers and classroom teachers (Chall, 1958, 1967, 1977; Dale & Tyler, 1934; Dolch, 1928; Spache, 1953; Vogel & Washburne, 1928).

Books became known by the average number of prepositions in a sentence, the average number of words in a sentence, the length of a line, the height of the letters, the type of print, the percentage of difficult words, the number of "new" words per running 100 words, etc. Numbers and weights were assigned to these characteristics and formulas were derived with

relationship to grade levels.

George Spache and Lester Wheeler are both known for their different primary grade formulas. The Dale-Chall formula was most used for middle and upper grades. Rudolph Flesch's formulas achieved wide use for rating adult reading materials (Harris, 1956). Edgar Dale is listed in Table 1 for his long-term contribution to the reading formula, reading matter measurement.

Rate

Rate of reading and rate of comprehension were the measurements Romanes used in his 1884 reading study. Romanes' work is recognized as the first scientific investigation in the field of reading in the United States and England (W. S. Gray, 1925; Hyatt, 1943).

By 1914 Courtis was using children's performance rates in all elementary curricula to determine year-to-year progress. He selected pupil performance aims by measuring the fluencies of successful people at their jobs.

As scientific as rate studies were considered, little standardization existed. Other contributors reported words per second, reading selections per minute and seconds, and words per minute (C. T. Gray, 1922; W. S. Gray, 1919; Harris, 1956; McCracken, 1963; Spache, 1963).

Measuring the rate of reading did measure the reader's response rather than the expert's response to the reader's stimulus. Measuring the reader's response matches the common sense basis of the lay categories. Instead of opinion setting standards, however, comparison with peers at different levels of achievement set performance standards.

After reviewing the reading performances of over 3,000 2nd and 3rd graders, Kunzelmann (Washington State Superintendent of Public Instruction, 1973) reported that the students designated as top readers by their teachers read, orally, between 150 and 210 correct words per minute with few errors. Those designated as poor readers by their teachers read between 22 and 55 correct words per minute with many repeats and errors, and with low comprehension. Kunzelmann observed that 100 correct words per minute was a comfortable performance and should be an appropriate aim for 1st and 2nd graders.

Concerned that pupils be competently prepared for both oral and silent reading, Haughton (1977) raised his earlier data-based aim estimates (1972) of 100 "see to say" words per minute to 200 to 400 "see to say" words per minute, stressing high oral fluency. Having such high aims may be necessary to achieve those oral rates which teachers consider to exemplify their top readers, as well as being necessary to achieve the transition to silent reading, "see to think".

High aims appear to be in keeping with the data presented by McCracken (1963) and with the data of Courtis (1915), Harris (1956), and Spache (1963), as McCracken's oral reading rates for pupil independent reading approximate the others' silent reading rates from the 2nd grade to the 7th grade. Courtis' data labeled such fluency as "careful" silent reading, and progressed from 120 words per minute in the 4th grade to 200 words per minute by the 8th grade. This fluency increased to grade 12 and decreased below 200 words per minute in adult ages.

According to Courtis, "normal" silent reading speed increased from 180 words per minute at grade 4 to 330 words per minute at grade 9. Only a slight decrease in the "normal" silent reading rate distinguished adults from older school-age pupils.

Although Harris (1956) reported lower silent reading rates for normal, 270 words per minute, and careful, 130 words per minute, both Harris and Courtis agree that adults reading normally read 1.7 to 2.0 times faster than when they read carefully. Harris also included the qualitative category of rapid reading, 400 words per minute, and acknowledged the reported silent reading rates of 1,000 to 2,000 words per minute. If these rapid silent reading rates are our ultimate aim, then Haughton's high oral reading rate aims for primary and older youngsters make sense.

Accuracy

Perfect accuracy (100%) for success or failure was the only accuracy standard used prior to W. S. Gray's 1917 doctoral dissertation, which presented a measurement standard for accuracy. Gray measured time to read paragraphs and accuracy in number of errors. He scored the reading by four arbitrary criteria for success and failure, resulting in accuracies ranging between 85% and 99%.

Since then, Betts (1946), Gray and Leary (1935), Karlin (1967), Hegge, Kirk and Kirk (1940), McCracken (1963), Smith and Harris (1963), Spache (1963, 1964), Strang (1964), and others have contributed to accuracy measurement, setting standards for reading, comprehension, and interpretation.

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FOOTNOTE

Dr. O. R. Lindsley is acknowledged for his counseling, editing, and gift for seeing trees within the forest, making Tables 1, 2, and 3 visible from my notation collage.

Malcolm Neely was formerly a school psychologist with the Federal Way Public Schools, Federal Way, Washington. He recently requested and received reassignment as a first grade teacher. Dr. Neely resides at 29811 Sixth Avenue South, Federal Way, Washington 98003.

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EDITOR'S NOTE: Because of its length, this article was divided into four parts. The remaining parts contain data displayed on the Standard Behavior Chart and will appear in future issues.

IT IS OFTEN HELPFUL TO HAVE
A CHART MYLAR HANDY WHEN YOU
ARE READING THE JOURNAL.