

The Foundational Years of Reading

Reading is anchored in a formative history that dates back to the advent of symbolic representation dating back over 4,000 years—used as a vehicle for records and the pursuit of negotiations, through print and its antecedents such as tokens used for trade and ceremony (a practice that goes back perhaps over 150,000 years). The significance of these systems (as records of commercial transactions, legal negotiations, artistic expressions, everyday communications (letters, notes, lists), historical events, and spiritual guidance) is evidenced by documentation of the philosophic debates and literary works of antiquity, the creation of the first libraries (e.g., Alexandria, 300 B.C.), and eventually the first universities (e.g., University of Bologna, 1088 A.D., and the University of Timbuktu, circa 1100 A.D.). Print itself became the vehicle for inscribing rituals and laws, designating rights of ownership, liberties, and citizenship. At the same time, the notion of reading texts became an object of study among prominent philosophers, who debated whether texts were tools of subjugation or liberation. For instance, as captured in Plato's *Meno*, Socrates related his concern for displacement of a dialectic with written text. Philosophers thus debated the merits of oral and written renditions and intended meanings among scholars, priests, and their disciples.

Literacy was further propelled by technologies, most notably various systems of representation, tools such as various scribing tools and—of course—the invention of the printing press. Additionally, the spread of religions (Christianity, Buddhism, Islam) and the expansion of empires beginning in the 1600s propelled the range of potential literacy participants. In terms of literacy's intellectual "DNA," one of the strongest influences upon literacy research was the advent of psychology in Germany in the 1800s; perhaps most influential for reading was the laboratory of Wilhem Wundt, whose work was aligned with positivism, behaviorism, and observational studies tied to measurement of a plethora of human attributes and performances. Befitting the metaphor of a wave, the influence of psychological studies upon views of reading has been and remains substantial. Indeed, despite the growth of socio-cultural considerations, psychology has remained a mainstay in terms of our theoretical conceptualizations of reading, and their applications to pedagogy. Largely due to the fact that many American scholars traveled to Germany to be apprenticed in this new "science" and brought their theories and methods back to the United States. Specifically, our theories, research, and practices in literacy and

literacy education were (and in some cases, still are) heavily influenced by *behaviorism*, a restricted research regimen tied to largely *correlational studies* of variables. Such studies emanated in particular from the advancement of *testing* technologies and new measures of reading, intelligence, and various other variables. In turn, literacy was separated into reading, writing, speaking, and listening, and primarily approached as an area of skill development in a fashion that had behavioristic leanings—that is, rote, focused upon skills in isolation from one another, and mastery-oriented rather than developmental, clustered, or situation-specific. Essentially, reading was viewed mostly as reception rather than as a form of meaning making or production. It was as if readers were expected to glean the meaning of the explicit text prior to any inferencing. These views shifted dramatically with the cognitive turns and other shifts in the 1970s.

The influence of the fledging field of psychology aligned with its bias to measurement, behaviorism and positivism was foundational from the mid-1800s on (Side Comment II.1b.1). Reading researchers from 1850 until the 1960s (and many still today) have been primarily psychologists, seeking recognition of their field as a “true” measurable science. Thus, in terms of reading, eye movement research and ways to test reading flourished. Since the 1880s, eye movement research has flourished at several sites in Europe (e.g., with Louis Émile Javal at the University of Paris, B. Erdmann and R. Dodge at the University of Halle, and J.M. Cattell at Leipzig) and, beginning in the 1900s, in the U.S. (e.g., with C.H. Judd at Yale, J.M. Cattell at Columbia and W. F. Dearborn and J. O. Quantz at Wisconsin).¹

¹ See Venezky, R. L. (1984). The history of reading research. In P. D. Pearson, R. Barr, M. L. Kamil & P. Mosenthal (Ed.), *Handbook of reading research* (pp. 3–38). New York: Longman; and Pearson, P. D. (2000). Reading in the twentieth century. In T. Good (Ed.), *American Education: Yesterday, today, and tomorrow* [Yearbook of the National Society for the Study of Education] (pp. 152–208). Chicago: University of Chicago Press.

Side Comment II.1b.1.

The 1800s: The Origins of Psychology and Reading Research

Studies of reading in the early 1900s to some extent reflected an aspirational researcher trend to be scientific and was rooted in a psychological experimental tradition dating back to the global fathers of psychology: Wilhelm Wundt (1832–1920), who founded the first formal laboratory for psychological research at the University of Leipzig in 1879; and William James (1842–1910), who trained as a physician but who has been deemed America’s foremost philosopher and the founder of psychology. James is also purported to have written the first book on psychology and taught the first course offered on psychology at a university. Over time, these leaders and their students shaped the new field of psychology and, in turn, the study of reading.

Wilhelm Wundt’s students included:

- *James McKeen Catell (1860–1944), who had tenure at Columbia and the University of Pennsylvania. His students included Arthur Gates, who worked with notable reading researchers such as Guy Bond, Miles Tinker, Ruth Strang, and Margaret Mead (all of whom focused on reading diagnosis and treatment). Gates’ work also extended beyond his focus on testing to a wide range of interests reflected by others with whom he worked, such as David Russell (who worked in the areas of reading and thinking);*
- *Charles H. Judd (1873–1946), who taught at the University of Chicago and guided William S. Gray (1885–1960) in his studies and pursuits. Gray was the author of the first diagnostic test in reading and the Scott Foresman Basic Reading Series that dominated American reading instruction. He was the first President of the International Reading Association and author of several books on teaching reading.*

William James’ students included:

- *Edward L. Thorndike (1874–1949), the leading US experimental psychologist of the early part of the 1900s;*
- *John Dewey (1859–1952) (and Granville Stanley Hall [1844–1924], with whom John Dewey also studied when Hall was a professor at Johns Hopkins University);*
- *Lewis M. Terman (1877–1956), whose work informed early intelligence testing;*
- *Edmund Burke Huey (1870–1913) and Arnold Gesell (1880–1961) (who studied with Hall at Clark University). Burke went on to write what was deemed the first book focused on reading research, in which he reviewed various experimental studies, including his own work examining eye movements.*

There were several foundational developments in the early 1900s. First, we saw the advent of the first tests in reading and other areas. William S. Gray developed the Gray Oral Reading Test—widely recognized as the first diagnostic reading test which, in turn, became the

model for a number of diagnostic instruments designed by others (Side Comment II.1b.2). E. L. Thorndike was involved in developing entrance examinations for universities (that included, as some have suggested, a preset bias to exclude certain ethnicities). Alfred Binet was involved in developing the first intelligence test. All of these tests exist in some form today and propelled a proliferation of testing and research tied to these tests, including a surge in correlation studies as a basis for predicting reading success.

Side Comment II.1b. 2.

The first edition of the Gray Oral Reading Tests (GORT) involves a test wherein the reader answers questions based on passages that the test administrator reads aloud. The reading of these passages continues until a ceiling is reached in terms of accuracy. The GORT was designed to measure oral reading abilities (i.e., Rate, Accuracy, Fluency, and Comprehension) of students in Grades 2 through 12. The test was originally published in 1923 and again in 1967 with revisions in 1986 (GORT-R), 1992 (GORT-3), and 2001 (GORT-4). The later edition published (e.g., GORT-5) included updated developmental norms extending from 6 years 0 months to 23 years 11 months; more streamlined basal and ceiling rules; revised items that were passage dependent; and additional studies showing evidence of psychometric properties. However, shortcomings remain. It could be argued that the method measuring oral reading performance had not been informed by miscue research, the passages to assist comprehension were quite short, the ceiling was likely to cut off students prematurely, and the reliabilities report befit group comparisons but those of individuals (Tierney, 1990).

Second, from some of the correlational studies emerged the notion of reading readiness, which included notions of a prerequisite mental age and the necessity of select pre-reading skills such as letter name or alphabet knowledge (i.e., skills that had been shown to be highly correlated to reading ability). This work coupled with other developmental work appearing in the 1920s by developmental psychologists (e.g., Gesell, Halverson, Thompson, Castner, Ilg, Ames, & Amatruda, 1940) who undertook extensive observational studies of reading development and argued for a view of reading as unfolding over time in accordance with a gradient that they proposed. Informing this work were Jean Piaget's interview and observational studies of how children assimilate and accommodate ideas or knowledge—based upon their existing schema and across stages from ego-centrism to socio-centrism, reflection, abstraction, and complex

reasoning.²

Third, simultaneously, notions of readability emerged as a corollary to using scores to compare students and match them with books that befitted their reading ability. Beginning in the 1920s, a number of scholars published word lists and various formulae in an attempt to assess the difficulty level of material or design material for students at different levels. This involved well-known researchers such as E.L. Thorndike, Edgar Dale, and William S. Gray.

Fourth, studies correlating various variables with reading comprehension indicated that vocabulary was one of the best predictors of reading comprehension—leading to the assumption of the importance of teaching vocabulary as a precursor to reading comprehension development. As we stated above, methodologically, correlational studies tended to dominate, while their findings—highlighting key relationships—in turn influenced practice. These led to such emphases as the teaching of vocabulary, reading rate, and select pre-reading skills such as alphabetic knowledge. Their influence remained in place despite subsequent studies that suggested such findings were more indicators of reading ability than essentials for learning to read or improving comprehension.

At the same, developments that were sidelined, but later became foundational included a shift from behaviorism to cognition. For example, studies of reading comprehension seemed somewhat overlooked despite the challenge they presented for the emphasis on oral reading and widely held views of reading comprehension. Specifically, in 1917, Thorndike conducted a highly heralded study of the “errors” in the meaning making of a paragraph, highlighting that reading involved reasoning tied to a careful balancing and weighing of ideas. He argued that teaching practices should place more emphasis on oral reproduction of the text and reasoning via opportunities to read silently for understanding. As Thorndike (1917) stated: “Understanding a paragraph is like solving a problem in mathematics. It consists in selecting the right elements in the situation and putting them together in the right relations, and also with the right amount of

² For influential work in development psychology see: Gesell, A., Halverson, H. M., Thompson, H. Ilg, F. L., Castner, B. M., Ames, L. B., & Amatruda, C. S. (1940). *The first five years of life: A guide to the study of the preschool child*. New York: Harper & Row; Ilg, F., Ames, L., Haines, J., & Gillespie, C. (1964, 1965, 1972, 1978). *School readiness: Behavior tests used at the Gesell Institute*. New York: Harper & Row; Piaget, J. & Warden, M. (trans.) (1926). *The language and thought of the child*. London: Paul, Trench, Trubner & Co.; Piaget, J., & Tomlinson, J. & A. (trans.) (1929) *The Child's conception of the world*. London: Routledge. [Originally published as an article, 1925]; Piaget, J. & Gabain, M. (1932) *The moral judgment of the child*. London: Trench, Trubner & Co.

weight or influence or force for each” (p. 329).

Similarly, most scholars, some from ignorance and others from rejection, did not take up the work of social psychologist Frederic Bartlett at the University of Cambridge (especially his landmark book, *Remembering* [1932]), on the nature of remembering. Bartlett delved into the nature of shifts in schema (abstract representations of knowledge in memory), the nature and role of imaging, and the ongoing reconstructive nature of remembering to highlight the influence of past and ongoing experiences upon meaning making. Indeed, his work indicated a major break from the notion that meaning was something one derived from the text; rather, he posited, it was what one brought to the text. It would take a 1970s’ revolution in psychologists’ theories and methods for studying the very nature of cognition for Bartlett’s work to become foundational to the cognitive turn and perhaps among the most cited studies. In a complementary initiative, this period saw the beginning of efforts to teach machines to think and the growth of informational sciences tied to a major shift to understanding meaning-making. This development was somewhat popularized with the 1990s film *Breaking the Code* (and again with the 2014 film, *Imitation Game*), which introduced film audiences to Alan Turing’s efforts enlisting binaries to program machines to think during the 1940s.

Behaviorism and 20th Century Models of Reading Instruction

In the 1950s, under the influence of William S. Gray (the most influential reading scholar of the day), a diet of reading selections with teacher guidance and supplemental activities became the mainstay of reading in the U.S. and elsewhere. While Gray’s views on reading across cultures touted notions of meeting local needs, his studies and overall approach reflected more of a skill- than experientially-based orientation to reading curricula. The curricular models of reading instruction focused on a scope and sequence of reading skills that were taught in concert with a diet of reading material leveled in accordance with readability measures. Teachers were expected to deliver a preset reading curriculum specified by educational governing bodies using published materials such as basal readers. Accordingly, this standard curricular model deemed a basal reader approach for teaching reading skills focused on diet of reading material befitting a canon of approved selections, a regimen of skill and drill activities, along with an emphasis

reading aloud, some silent reading silent, and teacher questioning as a check on accuracy of understanding.³ Undergirding curricula (as is still evident in many curricular models today) was the notion that “learning to read” preceded “reading to learn” (see Side Comment II.1b.3), and J. Chall’s 1983 *Stages of Reading Development*). Further, as is still touted today, reading was viewed by some as a form of meaning making closer to translation than reader-based understanding.

1) Readiness skills

- Letter names and sounds
- Alphabet
- Visual discrimination
- Auditory discrimination
- Left to right sequence

2) Primary reading skills

- Word recognition skills
- Phonics
- Sight words
- Context clues
- Syllabification

3) Comprehension

- Literal, inferential, interpretative, and critical
 - Details
 - Main ideas
 - Relationships
 - Causal
 - Temporal
 - Making inferences
 - Drawing conclusions
 - Identifying Themes

4) Study skills

- Making notes
- Varying reading speed

³ See Pearson, P. D. & Goodin, S. (2010). Silent reading pedagogy: An historical perspective. In Hiebert, E. H., & Reutzel, D. R. (Eds.), *Revisiting silent reading: New directions for teachers and researchers*. (pp. 3-23). Newark, DE: IRA.

The widespread alignment with this model of curriculum resulted in the separation of reading and writing, the notion of reading as reception, and an emphasis on learning to read prior to reading to learn. In general, the approach to reading development was based upon a canon of reading material representing selected values (middle class white Anglo-Saxons). The core of the reading lesson was a guided reading of selections, which included some pre-teaching of vocabulary, creating interest, and setting purposes for reading, followed by the reading of the selection with teacher questioning to assess comprehension. Follow-up activities focused on teaching skills related to the reading selection and occasionally involved additional skill instruction (if needed), independent work, or suggestions for independent reading by the students. To meet the needs of different students, especially students of different abilities and with different needs, classes would be broken down into 3-5 reading groups of different overall abilities (with selected individuals sometimes receiving small group or individual attention). Informal and standardized tests were often enlisted to suggest these classroom groupings and identify students with specific needs. Estimates suggested that the majority of classrooms enlisted this type of program—that is, a reading curriculum built on a model of learning to read *before* reading to learn (a model that, by the end of the 1950s, was about to be challenged). This curriculum engendered forms of teaching reading that concentrated on skill and drill to mastery and, more and more, relied upon what was tested.

In terms of teaching reading, these developments befitted the creation of methods informed by a mix of aspirations tied to enculturation and teaching and learning undergirded by largely behavioristic science—largely, in ways that were perhaps piece-meal and assembled toward curricular that were akin to elaborate systems intended to enculturate learners with a shared heritage. In most countries, the teaching of reading was aligned with 1. Canons of selected works intended to advance patriotism, religious or the values of the motherland; and 2. Learning a scope and sequence of prescribed skills deemed essential for reading.

Side Comment II.1b.3.

Jeanne Chall's Stages of Reading Development

Chall's stages of reading has had a strong influence on views of the progression of reading, especially from "learning to read" to "reading to learn." Building upon a Piagetian approach to development and a potpourri of research support (but not a longitudinal study), Chall postulated that reading development followed a certain progression. Though she did claim the stages aligned with chronological age, suggesting that they occurred in a defined order, she also suggested that students might shuttle back and forth between stages. The stages were as follows:

- Stage 0. *Prereading*: The learner gains familiarity with the language and its sounds—i.e., recognizes sound similarities between words, learns to predict the next part in a familiar story, and may start to recognize a few familiar written words.
- Stage 1. *Initial Reading or Decoding Stage*: The learner becomes aware of the relationship between sounds and letters, and begins applying this knowledge to text.
- Stage 2. *Confirmation, Fluency*: The learner, now familiar with basic sound-symbol relationships and a greater number of words, improves decoding skills, expands the number of words recognized by sight, and builds fluency.
- Stage 3. *Reading for Learning*: The reader has enough reading skill to focus on content and learn new information and facts from reading.
- Stage 4. *Multiple Viewpoints*: The reader at this stage begins to be able to analyze what they read, understand different points of view, and react critically.
- Stage 5. *Construction and Reconstruction - A World View*: The reader has the ability to select reading material and is building a personal view or model of the world and truth.

Longitudinal studies have since raised concerns about the rigid sequence Chall outlined, arguing that readers often are engaged in stages 4, 5 & 6 from the outset of their reading and that it is beneficial instead to approach reading in a meaning-centered fashion.

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