EXPLORING SILENT READING FLUENCY

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Stanford E. Taylor is the founder of Taylor Associates and principal designer of the Reading Plus® system. Prior to establishing Taylor Associates, Mr. Taylor was founder and president of Educational Development Laboratories, Inc. (EDL/McGraw-Hill) and subsequently Instructional/Communications Technology, Inc.

A pioneer in the introduction and use of technology to improve reading/listening in the classroom, Mr. Taylor designed, manufactured and distributed a variety of reading improvement devices, initiated the concept of the reading lab, and introduced the first mobile reading lab.

He previously served as a reading technology supervisor in the Bethpage, New York schools, a reading technology instructor at Wagner College in Staten Island, New York, director of the Amackassin School in Blairstown, New Jersey, director of the Taylor Center for Reading Research in Huntington, New York, and comprehension skills editor for *Popular Science* magazine. He is an honorary member of The International Reading Association and the author of the National Education Association publication, *What Research Says to the Classroom Teacher about Listening.* Mr. Taylor has published numerous articles for American Education Research Association journals and contributed to the publication of over 300 books and instructional programs in the area of reading.

EXPLORING SILENT READING FLUENCY

Its Nature and Development

By

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With Contributions by

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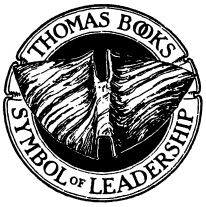

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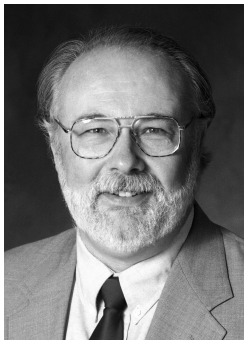
Before joining the University of Minnesota's faculty, Dr. Samuels taught for more than a decade in elementary schools in New York and California. He currently teaches courses in Reading Fluency and Educational Psychology, among others. Dr. Samuels is a frequent contributor to leading reading research journals. He has published hundreds of articles, and has edited or co-edited numerous reading publications.

Dr. Samuels' interests include the development of materials and methods for improving word recognition, fluency, and comprehension. He also investigates how to facilitate young readers' understanding of moral themes as well as how to measure reading fluency.



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Timothy Rasinski is a professor of literacy education at Kent State University. He recently served a three-year term on the International Reading Association's board of directors.

Dr. Rasinski has served as co-editor of *The Reading Teacher,* the most widely read journal of literacy education. He has also served as co-editor of the *Journal of Literacy Research,* and is a past president of the College Reading Association. He was a recipient of the College Reading Association's A. B. Herr and Laureate Awards for his scholarly and lifetime contributions to literacy education. Prior to joining the Kent State faculty, Dr. Rasinski taught literacy education at the University of Georgia. He also taught for several years as an elementary and middle school teacher, as well as a Title I teacher in rural Nebraska.

Dr. Rasinski has written more than 150 articles, and has authored, co-authored, or edited more than 50 books or curriculum programs on reading education. His research on reading has been cited by the National Reading Panel and has been published in journals such as *Reading Research Quarterly, The Reading Teacher, Reading Psychology,* and the *Journal of Educational Research.* He recently led a team that wrote the chapter on fluency for Volume IV of the *Handbook of Reading Research.*

His scholarly interests include reading fluency and word study, reading in the elementary and middle grades, and readers who struggle.

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Alexandra is currently working toward a doctoral degree in instructional design for online learning. She is writing her dissertation on the effects of electronic text presentation formats on silent reading fluency and proficiency development.

This book is dedicated to the memory of my father, Earl A. Taylor, whose pioneering work inspired my lifelong study of silent reading fluency and development of products to help improve reading proficiency. In addition, the book is dedicated to my wife, Dorothea Taylor, whose support over the years has been the foundation of my achievements in reading research, design, and development.

PREFACE

Our common primary goal as reading educators is to improve reading instruction. To do that, we must embrace the advantages computer technology can offer when planning a curriculum for students that will successfully develop proficiency and fluency in silent reading.

It is evident from statistics that our nation's students need to improve their reading proficiency. While progress has been made in National Assessment of Educational Progress (NAEP) scores since 2005, the relatively low scores of fourth and eighth graders at present, the disparity of these scores between affluent and less privileged students, the high dropout rate, and the discontent of many students with traditional classroom learning clearly indicate that something different must be done.

It is encouraging that a growing number of research reports show computer learning can significantly improve student achievement in reading. These reports strongly suggest a reconsideration of what might be best provided by a teacher and what might be more appropriately delivered by computer technology. Studies of the use of computer learning in "before the bell," after school, and home study programs are increasing. These findings will undoubtedly stimulate changes that will affect student appraisal, instruction, management, and achievement. A strong argument for computer learning is also emerging with regard to teacher limitations. Certain aspects of the reading process simply cannot be directed by a teacher, nor controlled by a student, and so must be developed with the assistance of computer technology, as described in this book.

It is generally agreed, I think, by all educators that reading proficiency is the key to success in all learning and that silent reading is the dominant form of learning. Therefore, more attention must be focused on the best means to develop silent reading proficiency, which encompasses a multitude of skills needed to achieve ease and comfort, adequate reading rates, comprehension competency, and vocabulary enhancement in reading.

It is the goal of this book to provide unique and helpful information to reading and curriculum specialists who are looking for ways to improve the silent reading proficiency of their students. While the background informa-

tion is, at times, somewhat technical, the recommendations as to the skill areas that require improvement as well as the computer techniques that can produce this improvement will prove extremely helpful in planning for a more comprehensive reading proficiency course of instruction.

Reading and tutoring centers will naturally be interested in both the diagnostic eye-movement recording techniques as well as the web-based practice techniques available through computer technology. The ability for clients to use this silent reading development technology at home, beyond usual clinic hours, is certainly an advantage in terms of reading remediation.

Reading researchers should also be intrigued by the comprehensive description of the silent reading process as well as the effects of oral reading on the development of proficiency in silent reading. Especially helpful should be the information revealed through eye-movement recordings about the many subliminal factors involved in the process of reading, as well as the changes produced by today's web-based computer techniques to modify the basic visual/functional, perceptual, and information processing skills that comprise the silent reading process.

In addition, higher education curriculum directors may be interested in this book as recommended reading for graduate courses that cover what occurs during silent reading and what outcomes are possible with current reading practice programs using web-based computer technology. Such programs might also be of interest for their use with incoming freshmen who need to improve their silent reading proficiency to deal with the more extensive and higher-level content they will encounter in their post-secondary education.

Classroom teachers may be particularly interested in the chapters that describe what has and can be done in classrooms and labs to improve silent reading proficiency.

The purpose of this book is multifaceted. It discusses the complexity of the reading process and calls attention to the fact that some of the more basic visual/functional, perceptual, and information processing skills that constitute proficient reading are not addressed in most core or basal reading programs today. A brief overview of the contents of the book is as follows:

Chapter 1–"The Dynamic Activity of Reading." Describes the visual/perceptual process of silent reading in terms of the seeing, perceiving, understanding, and divergent thinking functions that comprise this process.

Chapter 2–"Eye-Movement Recording of the Reading Process." Provides an introduction to the only means of analyzing the dynamic activity of reading and describes the detailed information that can be derived about a reader's efficiency or fluency in silent reading. While eye-movement recording may not be possible with all students, certainly the reading process of

struggling readers should be examined to determine the instructional practices that will best meet their needs. The term "struggling reader" applies not only to students who exhibit low achievement, but also to better readers who read in a slow and labored manner. Building proficiency in all students so they can reach their true potential for proficient reading must be the goal of all reading instruction.

Chapter 3–"Technology's Role in Silent Reading Fluency Development." A brief history of the instructional devices that have been used over the past 80 years to both appraise and improve silent reading fluency. From this beginning, today's computer appraisal and reading development techniques have emerged.

Chapter 4–"Oculomotor Activity During Reading." A review of the manner in which word information is fed to the mind in silent reading in a relatively habitual manner. This process is conditioned by a reader's visual/perceptual processes that are fashioned in early reading and can only be effectively and directly altered by today's computerized reading development approaches.

Chapter 5–"Moving Toward Fluency in Silent Reading." Examines the effects of oral reading practice on the development of a student's oculomotor activity in silent reading. Oral reading practices are certainly helpful in terms of word recognition and realization of phrasing, but too much oral reading practice can produce detrimental effects on silent reading behavior. Therefore, a better balance is needed between oral reading fluency practice and silent reading fluency development as delivered by computer assisted instruction if proficiency in silent reading is to emerge.

Chapter 6–"Today's Technology to Develop Silent Reading Proficiency and Fluency." A description of an ideal computerized reading development system that can provide a more comprehensive approach to the development of silent reading fluency and proficiency.

Not only are these software techniques critical to the development of reading proficiency, an ideal practice system must also provide scaffolding of instruction to ensure more targeted individualized instruction for each student. Computer scaffolding goes far beyond what a teacher can provide, as instruction is adjusted step-by-step on the basis of a student's comprehension, rate, and lesson progress. Such instruction also goes far beyond what more reading practice alone can provide.

Now is the time for reading instruction to change and expand in regard to skill development. Computer technology along with teacher direction and traditional book reading can provide students with the means to more fully achieve reading proficiency. Change comes slowly in the educational system, but new research is demonstrating the vital role computer technology can

play in reading instruction. Since changes in most computer programs will be made steadily throughout each year based on extensive analysis of online student records, it is important to realize that studies of efficacy must be an ongoing process, year by year. What was done yesterday will be improved in the future and even greater student gains will result.

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EXPLORING SILENT READING FLUENCY

Chapter 1

THE DYNAMIC ACTIVITY OF READING

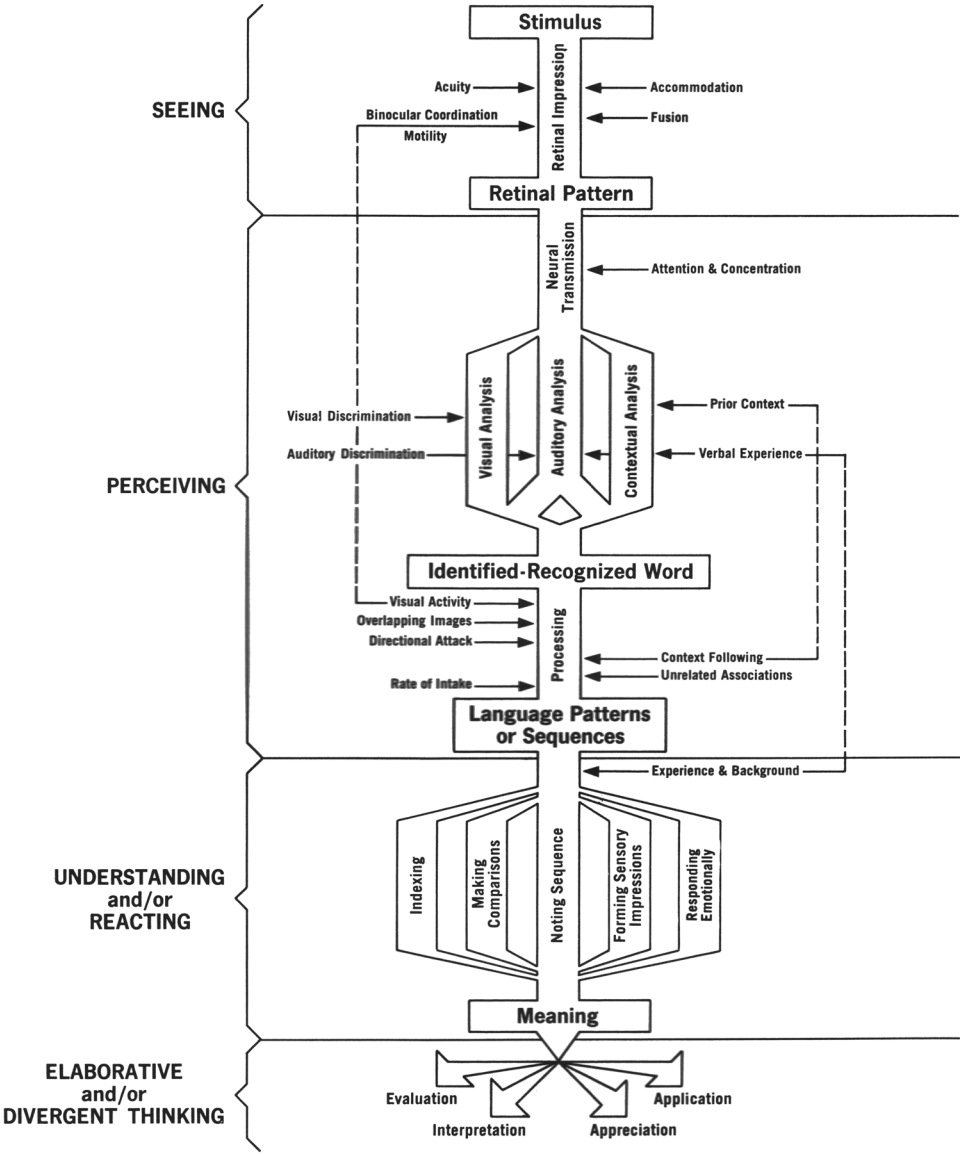
A Model of the Reading Process

STANFORD E. TAYLOR

This chapter will describe the approximate 30 functions, many quite subliminal in nature, that interact during each second of reading. The stages of seeing and perceiving are not typically considered in most reading development programs today. Basal reading programs tend to focus more on phonics and the understanding phases of reading, leaving students on their own to master many of the most basic skills involved in word recognition and processing of information. Undoubtedly, this lack of attention to the development of the subliminal visual and perceptual skills accounts for the considerable increase in struggling readers today as well as the slow reading rates of even better students. Because the reading process is so complex, questions will logically arise such as how to evaluate the efficiency of these processes and how to best improve these functions to increase reading efficiency or fluency in silent reading.

In the chapters to follow, eye-movement recording of the reading process is explored. Additionally, the technology that has been employed over the years to improve these processes will be described, culminating with a review of the opportunities to use today's computer software techniques in a highly scaffolded manner to provide the most individualized program of reading efficiency development for each student that will lead to increased enjoyment of reading, more thorough comprehension, and enhanced success in all study and vocational tasks.

For the purpose of this discussion, the process of reading, as shown in the following diagram, is divided into four steps: seeing, perceiving, understanding and/or reacting, and elaborative and/or divergent thinking.



Seeing refers to the physiological stage of the reading process in which the light reflected from the page that contains the print is transformed by retinal activity into neural transmissions that are dispatched to the brain.

Perceiving refers to the psychological process of becoming aware of the orthography or letter configuration of words. During this stage the reader first identifies and then recognizes printed words through the avenues of visual analysis, auditory analysis, and/or association with meaning. The reader

then processes these words in a manner that permits him or her to become aware of their sequence and the language patterns they constitute.

Understanding and/or reacting refers to a continuation of the psychological process in which word sequences are accepted in light of the reader's experience and background and are translated into meaning through one or more processes of thought: indexing, making comparisons, noting sequence, forming sensory impressions, and responding emotionally.

Elaborative and/or divergent thinking occurs after the reader has established meaning and starts to evaluate, interpret, appreciate, and apply what has been read.

In presenting this diagram, it is acknowledged that the factors involved in the reading process may vary at times in the order in which they occur and will change in their importance from one reading situation to another. Further, many of these factors, while depicted separately, may act in combination or simultaneously.

SEEING

The Stimulus

The reading process starts with the stimulus of the reflected light striking the retina of the reader's eye. When considering the nature of the stimulus in reading, one is concerned fundamentally with aspects of legibility of print. It is sufficient to say that legibility is dependent on the contrast between the print and its background (as presented by Luckiesh & Moss in 1941), the amount of illumination striking the page and being reflected by it (as cited by Tinker in 1963), the typeface, the amount of leading (as determined by Buckingham in 1931), and other such factors that affect the quality and quantity of the reflected light impinging on the retina of the eye. Since the reader has little control over the nature of the stimulus (except control over illumination during reading), we shall concern ourselves in this discussion with what happens when the stimulus is presented to the retina of the eye and what happens from that point forward, as depicted in the following diagram.