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ABSTRACT

In this address, the author examines the complex scope of reading achievement, instruction, and research in the United States. The discussion begins with a historical perspective, continues with views of the development of reading as a science and as a profession, and concludes with a discussion of current and future developments in the reading field. Finally, she states that in the future, emphasis should be placed less on stable structures and more on the maneuverability and flexibility of humans--teachers, clinicians, and children--who must make the adjustments to the unexpected turbulances and complexities of even the smallest classroom. (JM)

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ABOUT THE AUTHOR

Professor Jeanne S. Chall, of the Graduate School of Education at Harvard University, has made many contributions to the field of reading research and teacher education. "Reading and Development" was the keynote address presented by Dr. Chall at the Twentieth Annual Convention of the International Reading Association held in New York City in May 1975.

Dr. Chall is the author of other significant works such as, *Learning to Read: The Great Debate; Readability: An Appraisal of Research and Application;* coauthor (with Shirley Feldmann) of *A Study in Depth of First Grade Reading;* coauthor (with Edgar Dale) of the *Dale-Chall Formula for Predicting Readability;* and coeditor (with John B. Carroll) of *Toward A Literate Society.* She has written chapters for books on communication, language, and reading. Her articles on readability, high interest reading materials, vocabulary, and reading have appeared in such journals as *The Reading Teacher, Elementary English, Elementary School Journal, Instructor,* and the *Educational Research Bulletin.*

Dr. Chall has also been deeply involved in testing and has published (with Florence G. Roswell) the *Roswell-Chall Diagnostic Reading Test* and *Roswell-Chall Auditory Blending Test.* She received her Ph.D. from Ohio State University, has taught at Teachers College of Columbia University, City College of the City University of New York, and is currently Professor of Education and Director of the Harvard Reading Laboratory.

A fellow of the American Psychological Association and the American Association for the Advancement of Science, she is currently a member of the Board of Directors of the National Society for the Study of Education. She is a former member of the Board of Directors of the International Reading Association, a former president of the National Conference on Research in English, and is currently president of MACURE (Massachusetts Association for College and University Reading Educators). She has served on such national committees as the National Advisory Committee on Dyslexia and Related Reading Disorders, and the National Reading Council.

READING AND DEVELOPMENT

We celebrate this year the twentieth anniversary of the International Reading Association, the 200th anniversary of our nation, and the completion of the first three quarters of the twentieth century. It is natural at such a time to take stock. Are things better or worse for reading? Are we closer to Jefferson's dream of universal literacy? Have the recent scientific researches made a difference? How have we been developing as a profession?

For the remainder of this discussion, I should like to consider these questions, starting briefly with a historical perspective.

HISTORICAL PERSPECTIVE

In his summary remarks at the conference on The Relationship Between Speech and Learning to Read, George Miller, the noted psychologist, traced the history of written and spoken language (*14*):

> As far as we know, man has always had language . . . . Writing, however, is a much more recent acquisition, perhaps 6,000 years old, and alphabetic writing—which really brought speech and writing together—is probably less than 3,000 years old. In terms of an evolutionary scale, therefore, writing the spoken word was invented only a few moments ago.

What did this historic invention bring? According to some scholars, it signaled the birth of civilization. Indeed, when writing is mastered by a substantial fraction of a society, it is claimed that profound political and social changes occur (*10*).

Miller considers two of these—the birth of history and the invention of logic (*14*).

"In my opinion," Miller says, "the more significant of these two intellectual activities was logic, which directly affected how the mind worked." Writing made possible reacting

to one's thoughts as objects. Thus, the act of thought became the subject of thought, and abstraction became possible.

If a phonographic recording device had been invented instead, Miller continues (*14*):

> My own speculation is that history would have developed in either case, but logic would have been much harder to achieve. Not impossible, . . . but far more difficult. The analysis of words into sounds, and the analysis of syllogistic arguments into premises and conclusions, are, to my mind, closely akin. Writing makes language self-conscious in a way that recorded echoes probably could not.

Let us continue for a while with our historical view. If alphabetic writing was invented only moments ago, mastery of it by a substantial portion of the population is probably happening only now—and for developed countries only. It has been less than 100 years that the majority have attended school long enough to become even minimally literate. As for the people in developing countries, the moment has yet to come. Even today, nearly half of the world cannot read or write, and certainly not on a level adequate to read a newspaper or magazine, write a letter, or read a technical pamphlet needed for one's work.

Overall, the general level of literacy has been increasing. As recent as 1940, the United States census reported the average educational attainment of adults to be about eighth grade. By the 1970s, the average educational attainment rose to about twelfth grade. Thus, in a little over a generation, we have risen from a typically elementary educated to a high school educated population (*20*).

This is a triumph. But it also brings problems. As the general level of literacy rises, the same absolute ability decreases in value. And, for those at the lower end of the scale, there seems to be a greater gap between their achievement

and that of the average. Thus, similar to poverty, literacy has not only an absolute, but a relative value. As the average reading level of society rises, those at the lowest levels may experience their lacks more keenly.

During the past decades, there has been a concerted effort to raise the level of literacy at all age levels and in many ways. With these efforts come the persistent questions: What *is* adequate literacy? At what level should, or could, we expect people to read? Should we simplify written communication to be read by all? Or not use books at all? Or should the major effort go into literacy training?

These are big questions, and approaches to answering them are becoming increasingly possible as more studies are completed on the reading process and on adult reading. But I wonder whether, in the last analysis, the answers can come from the studies alone. Empirical investigations can help us answer questions of *what* and sometimes *why*, but they are not particularly helpful with questions of *what ought to be*. For these we must turn to philosophy, religion, and moral values. Particularly crucial is the fact that each nation must answer these questions for itself.

What is the answer for the United States? I propose we think of it as if we are answering for our own children—each of us. What ought it be for them? For the United States, I submit we consider that any adult is at a disadvantage when he cannot read a serious newspaper like the *New York Times*, a news magazine such as *Time* or *Newsweek*, the Federal income tax forms and instructions, and the bold and fine print on a house or apartment lease (*3*). The approximate readability level of these documents—these modern scriptures—is estimated to be about twelfth grade reading level, add or subtract one or two reading levels. If we accept these as standards—and this is open to debate—it will take all of our

ingenuity as scientists, as teachers, as clinicians, and as administrators to bring this level of literacy about, for we are not now achieving it, even when the average educational attainment is twelfth grade.

THE DEVELOPMENT OF READING AS A SCIENCE

The beginnings of a science of reading came at about the same time as the dramatic increase in literacy—in the late 1800s. By the early 1900s we already had a science that permitted Edmund Burke Huey's synthesis, *The Psychology and Pedagogy of Reading* (12), E. L. Thorndike's *Reading as Reasoning* (18), and William S. Gray's procedure for testing oral reading in his *Standardized Oral Reading Paragraphs* (11). It is significant that all three are still used, and all have been reprinted recently.

In the years since, research in reading has continued to be productive and to attract scholars in psychology, medicine, linguistics, and communication. Despite our perpetual dissatisfication with what we know, our accumulated knowledge compares very favorably with other areas of school learning. Thus, in his analysis of the technology of teaching, Dreeben (9) concludes, "although much remains to be known and formulated about the teaching and learning of reading, other areas of the schooling process are not nearly as well understood."

During the past decade, there has been a particularly dramatic increase in scientific productivity related to reading. More research has been produced than in previous decades and, in some areas, more than in all previous decades combined. Much of this activity has come from federal and state support and from private foundations. There has been an influx of "outsiders"—scientists from other disciplines—who brought new questions and renewed pursuit of old questions.

There has also been an increase in multidisciplinary conferences sponsored by the International Reading Association, the Society for Research in Child Development, the National Council of Teachers of English, the National Institute of Education and other groups.

What has been the effect of all of this scientific activity? Do teachers teach better? And do children (and adults) read better?

It is hard to answer with a simple yes or no. Yet, it seems that the answer has at least some yes in it. I express here the view of the Committee on Reading of the National Academy of Education. In our report in *Toward a Literate Society* (3), we concluded that, in spite of failure points, there seems to be some evidence that children tend to be doing better in reading than did children a decade ago. This can be seen in recent restandardizations of widely used reading tests. Most of these, and especially those for the early grades, require a greater absolute mastery of reading for the same grade equivalents or percentile ranks. The achievement test scores published from time to time in newspapers also show signs of improvement, and again mainly at the lower grades.

Why the difference favoring the lower grades? This really requires a more thorough treatment than can be given here. But there may be some validity in considering that our knowledge and technology for the teaching of reading in the middle grades and higher is much behind that for beginning reading. We know less about comprehension than about decoding. Also, most teachers will tell us that it is harder to teach reading in the middle and higher grades than in the primary grades. Harder, especially, for the child whose general home and school environment does not include books and magazines, and does not stress the value of literacy and reading. Also, most government R & D funds in reading have gone

to the early grades, as compared to funding for the middle and upper grades.

My final question on the science of reading concerns whether we are placing perhaps too great an emphasis on the basic disciplines. For thoughts on this question I turn to Noam Chomsky, the linguist whose studies of syntax and phonology in a real sense revolutionized the thinking in linguistics and cognitive psychology, producing a profound effect on our current thinking in the psychology and teaching of reading. In his paper on "Phonology and Reading" (7), Chomsky wrote:

> There is a natural enough tendency for teachers to turn to the fundamental disciplines (psychology and linguistics) for guidance, but they should do so with skepticism and a critical attitude. The insights that have been achieved into behavior and mental function are limited. Furthermore, there is little reason to doubt that the dominant factor in successful teaching is and will always remain the teacher's skill in nourishing, and sometimes arousing, the child's curiosity and interest and in providing a rich and challenging intellectual environment in which the child can find his own unique way toward understanding, knowledge, and skill.

And from psycholinguist Arthur Blumenthal (2):

> . . . the notion of the theoretician as a giver-of-knowledge and of the practitioner as the applier-of-knowledge is a crucial trend that I believe has worked to the detriment of both practitioner and theorist . . . .
>
> . . . the insightful and intelligent teacher of reading or of language arts has just as much to tell cognitive psychologists as he might learn from them. . . . knowledge of linguistic structures is indeed important but it is *not critical* in the task of understanding how people talk or read. . . . an understanding of how people talk or read may similarly be valuable but again not critical in the task of understanding how *to teach* people to talk or read.

THE DEVELOPMENT OF READING AS A PROFESSION

The practice of reading instruction, as would be expected, predated the science. According to Smethurst's history (17) of teaching young children to read, it started with nonprofessional teachers—the child's parents, most usually the mother.

It is probably only within the present generation, and primarily in the developed countries, that we find reading specialists—teachers, clinicians, consultants, coordinators, administrators, supervisors and directors, curriculum developers, and researchers—concerned primarily with reading. Indeed, graduate training in reading is also relatively new. Twenty-five to thirty years ago few colleges and universities offered a specialization in reading. Today there are approximately 66 universities offering such doctorates and nearly 200 offering master's degrees in reading (22).

International Reading Association, the chief organization for reading professionals in the world, is only twenty years old. From its two parents, the National Association for Remedial Teaching and the International Council for the Improvement of Reading Instruction, it has grown to an association whose attendance at its 1975 conference exceeds the original memberships of 20 years ago.

With all of this growth and strength, we may be tempted to relax and enjoy it all. Yet there is much to be concerned about. First, the relation between researchers and practitioners.

Are they collaborating sufficiently? Are both receiving sufficient recognition? We do have IRA awards for outstanding young researchers through the dissertation awards. Do we have similar awards for talented reading teachers? For gifted clinicians? For ingenious developers of materials?

It seems to me that reading researchers tend to "work around" teachers and other practitioners. It was not always so. Reading researchers and practitioners used to collaborate at all levels of the research enterprise. Indeed, many of the reading researchers during the 1920s and 1930s were themselves classroom teachers or school administrators. Carleton Washburne, for example, was superintendent of the Wennetka Schools when he conducted his pioneering and widely influential studies on reading readiness (15) and readability (21). The research topics stemmed from the concerns of the practitioners and ended in articles, research monographs, and books that were coauthored by the researchers, teachers, and librarians and could be read by all.

In the years that have passed, such collaboration has decreased. Researchers do the research and teachers are presented with the results in the form of instructional packages and tests. Seldom are practitioners invited to participate in the research itself. This is unfortunate, for the reading researcher is bound to gain by a more regular collaboration with practicing teachers and administrators. Indeed, many projects at R & D centers might have saved many steps in the development of their programs by consulting knowledgeable teachers as to whether the projected materials would, in fact, work (4).

Collaboration between researchers and practitioners will not be easy to effect. The conditions that led to a separation—e.g., greater complexity of research design and statistical analysis, greater specialization—exist to an even greater extent today. Yet, if carried off, this can bring about a renaissance in our field—for no power is greater than that generated by people working jointly on what they believe.

Another concern is with our commitment, as a profession, to those children and adults who experience great difficulty in learning to read.

Our commitment has always been strong. Indeed, while one of our parent organizations, the International Council for the Improvement of Reading Instruction, focused our attention on policy and solutions on a worldwide scale, our other parent, the National Association for Remedial Teaching, reminded us that to save but one child is to save the world.

I do not know whether I can substantiate it, but I have a growing fear that we may not have been paying sufficient attention to our remedial parent. If so, it is unfortunate, since it is one of our most glorious areas—in research, in theory, in practice.

Yet somehow I have the feeling, buttressed by reading our publications, that the prestige and status seem to have gone to the development of systems, of technology. I get the impression that the job of the reading clinicians, to diagnose and to teach children with reading and learning problems, is perhaps seen as an admission of failure—by the classroom teacher, by the school, by the field. Hence, one may find it hard to admit the existence of such children and the need for specialists to work with them. Granted that improved teaching of reading in the classroom will reduce the number of reading problems. Granted, too, that early screening and transition classes will lessen the numbers of failures further. But is it realistic to expect that all serious reading problems will then disappear? That there will no longer be a need for a healing profession in reading?

Perhaps we can take a hint from the medical profession. While they work toward systems of health maintenance and preventive medicine, they continue to perfect their knowledge and skill in the care of those who fail to maintain good health.

To make matters even more uncertain, remedial teachers are meeting another group of specialists—usually called learning disability specialists—who have, in less than

ten years, become greatly involved in diagnosis and remediation of reading problems. Their professional preparation is usually different—coming from a department of special education. They may work with children who have problems other than reading. But much of their work involves the diagnosis and treatment of reading problems, since difficulty with reading is the most common presenting problem of children with learning disabilities.

Because of the differences in title, in training, in assignments, and in professional commitment, it is possible that the best qualified persons may not be permitted to work with the children who need them most. Thus it may be that the learning disabilities teacher who may not be required to show competence in reading is assigned remedial work with children who have severe learning disabilities in reading and spelling, while the reading specialist with a strong competence in reading, works only with the so called milder reading cases.

Such uncertainties, which are reported regularly by reading and learning disabilities specialists in schools, need to be clarified. They need our attention. In line with our remedial parent, it would seem appropriate that IRA representatives sit down with representatives from other groups involved in the healing aspects of reading—learning disability specialists, language disability specialists, and the various medical specialists—to solve these problems of mutual concern.

FUTURE DEVELOPMENTS

I turn now to several current and future developments, ones that will be challenging our skill and ingenuity as scientists and as practitioners.

I turn first to the possibility of being sued for malpractice for a child's reading failure. In the November 1974 issue of the *Harvard Educational Review*, David Abel (1) writes of a

unique complaint filed in the California Superior Court. It accuses the San Francisco Unified School District and various of its officers and employees of negligence, of misrepresentation, and of breach of constitutional and statutory duties owed to students and parents.

The complaint was drafted for the eighteen-year-old plaintiff, alias Peter Doe, who asserts he remained functionally illiterate after thirteen years of regular attendance in the San Francisco public schools. The suit is for damages in excess of $500,000.

More specifically, the complaint runs:

Peter Doe graduated from high school. School records indicate his intelligence is average or slightly higher. He had no serious disciplinary problems and he had average attendance and made average grades.

While in school, his parents claim, they repeatedly attempted to get accurate information about his educational progress. They claim that the school employees repeatedly assured them that he was performing at or near grade level and no special, remedial instruction was necessary.

Shortly after graduation, Peter's parents took him for examination by two reading specialists who separately concluded that he had a reading (and writing) ability of approximately fifth grade level at the time of his graduation. "The plaintiff could not, for example, read a job application or fill out the forms an auto accident might require; he felt inadequate to hold any job in which reading was demanded. This prompted his mother, a college graduate, to see an attorney . . ." (*1*).

Since then, Peter Doe has been receiving private tutoring, and has made significant progress in improving his reading level—two grade levels in eight months of special work.

Of course, the Peter Doe case may never reach a court, and it may never win its case. But is the case so strange?

Could there be other Peters graduating this very June from other high schools—with normal intelligence, but practically illiterate? And what about the high school dropouts whose skills are so low that they cannot sit in school any longer? And the new groups of high school graduates entering colleges with reading levels as low as seventh or eighth grade, but who, like Peter, seem to respond well to remedial instruction?

Who screamed for Peter? Who listened?

Another challenge concerns the recent and widely disseminated studies of the factors in verbal and reading achievement. I refer to such studies as the Coleman report on *Equality of Educational Opportunity* (*8*), the IEA Study of Reading Comprehension in 15 Countries (*19*), and the earlier study by Morris in England (*16*).

All of these studies found that the family background of the child—the socioeconomic level of the parents, their education, their profession, their income—has a greater influence on the child's reading achievement than his school.

Let me use the words of Thorndike (*19*):

> In final summary . . . the clear result is that good home and environmental backgrounds provide strong differentiation between countries and, within countries, between students.

Thus, countries and homes that provide an environment in which the parents are educated, in which books and magazines are available, and in which the media of radio and TV are accessible to all children, will have children and adults who read well.

What do such studies mean? How are they to be interpreted for social policy? For educational planning and curriculum development? Unfortunately, some people think the results justify doing little. No amount of work by the school, they say, can improve on what the child comes to school with.

Most educators would disagree with the above interpretation. Indeed, it would seem to me that these studies may lead to profound restructuring of our educational policies and practices. Since the home has such a profound influence on reading achievement, we must take the home into account in our educational planning. We need to know more about the home factors that lead to greater reading achievement. The study by Carol Chomsky (6) would indicate that those parents who read regularly to their children before they enter school and during the primary grades, and who expose their children at all age levels to a wide variety of books and magazines contribute to their children's language *and* reading development. Thus, it would seem that research and development programs designed to stimulate home reading and exposure to books might prove beneficial for the present low achievers.

But we should not, then, drop our concern for those in-school factors that do make a difference. Indeed, we need to look more closely at such school factors, more qualitatively, and less globally than either the Coleman or IEA studies.

For example, if we read the fine print in the Coleman report (8), we find that some school factors do seem to make a difference, and these seem to be teacher variables. Further, the Coleman report shows that school factors are "more important in affecting the achievement of minority group students . . . . This leads to the notion of differential sensitivity to school variations, with the lowest achieving minority groups showing highest sensitivity."

In the IEA reading study one also finds some hints that schools make a difference, and that good schools and teachers make a greater difference for the achievement of students. Thus, for the lower grades, in some countries, the presence of a classroom book corner had a significant effect on reading achievement. For the higher grades, in some countries, the

more the teachers associated with professional and subject-matter societies, the higher the reading achievement of their pupils (*19*: 107).

These also confirm the study of first grade reading that Shirley Feldmann and I did as part of the twenty-seven *USOE Cooperative First-Grade Reading Studies* (5). We were interested primarily in whether teachers made a difference in the reading achievement of their first grade pupils. All of the schools were in low socioeconomic status areas. In contrast to the Coleman and IEA studies that relied on questionnaires and self-reporting by teachers, we observed in 14 classrooms once a week for the entire school year and found that, indeed, the teachers did make a significant difference in the reading achievement of their pupils. Even when the readiness scores were partialled out, four factors were found to account significantly for reading achievement: general teaching excellence, a thinking approach to learning, appropriate level of difficulty, and a decoding emphasis.

Further evidence can be found in the longitudinal study by Philip Kraus (*13*) which showed that schools which provide professional remedial help do make a positive difference. Children in the New York City public schools were followed through elementary and high school. The children who had received individual remedial help from a trained remedial reading teacher at an early age were able to achieve their potential level by the ninth grade. Those who for some reason did not receive help were unable to "catch up" in reading and in general achievement with their estimated potential.

My final professional concern is with the present trend toward greater and greater specificity—both in testing and in teaching reading. I refer to the current development of criterion-referenced reading tests—tests that claim to measure pupil mastery of essential skills rather than assigning them positions in relation to a norm.

Related to criterion-referenced tests are the prescriptive, individualized reading systems. Indeed, most criterion-referenced tests translate results into prescriptions for exercises either in a coordinated instructional system or in a variety of basals and other reading programs.

Both criterion tests and programs purport to organize the learning and teaching of reading into separate, specific skills, arranged in a hierarchy of increasing complexity.

Following Chomsky's advice to question critically, let us ask: Do we really have the knowledge—based on research or on clinical experience—that the skills can be arranged hierarchically, and that staying within the system, whether at a faster or slower pace, is the most effective way to learn? Is there improvement for the poorest readers, those for whom we always seem to be changing our overall methods and materials, but those who seem to gain little from the next changeover?

Will there be time in such systems for the children who work slowly to perhaps read a book and write a story?

These questions should not be interpreted as a rejection of system. The research and development literature of the past 10 years seems to confirm that *a system* is to be preferred to *no system*. But what kind, how much, and for whom must yet be worked out.

My final question concerns the role of the human element in these programs. Do they permit sufficient flexibility for teachers and children?

Flexibility is an essential element in all complex systems, according to James E. Webb, Administrator, National Aeronautics and Space Administration, 1961-1968 (NASA). "I believe NASA's record, covering a brief ten years, shows that for success in its large-scale endeavor an essential supplement to competence in overall management has been the ability to achieve and effectively use maneuverability and

flexibility—that is the capacity to adjust to and to move forward in an unpredictable and sometimes turbulent environment . . ." (23).

Indeed, Webb also attributes the success of the Wright brothers to their abandoning a stable machine for a more flexible and maneuverable one. He writes of this achievement (23):

> It was thus that skillful use of a coordinated system of controls, more than advances in the engine or structure, produced successful flight for the Wright brothers. They developed a new kind of linkage of man and machine. They saw that previous concepts of stability made it impossible to overcome the kind of turbulence that caused previous machines to fail, and they built into their system a certain amount of instability, which furnished the basis for their ability to maneuver.

And so for our complex reading environment, perhaps we can learn from the Wright brothers and from NASA. Perhaps we should place less stress on stable structures and more on the maneuverability and flexibility of the human—teachers, clinicians, and children—who must make the adjustments to the unexpected turbulences and complexities of even the smallest classroom.

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