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ABSTRACT

This progress report on the work done by the National Reading Panel, established at the request of Congress, addresses the research done regarding children mastering essential reading skills and the need for early intervention. It gives a list and short biography of the 14 panel members and discusses logistics of the panel. The paper presents accomplishments to date followed by a section devoted to public response. It discusses the structure of methodology used to assess how children learn to read and, finally, looks at the "Job Ahead" by discussing future objectives of the panel. (SC)

The National Reading Panel Progress Report

February 22, 1999

February 22, 1999
Duane Alexander, M.D.
Director
National Institute of Child Health and
Human Development
Bethesda, Maryland 20892

Dear Dr. Alexander:

On behalf of the members of the National Reading Panel, I submit herewith a progress report on the work of the Panel to date. I think you will find that we have made substantial progress, despite the daunting nature of the task which the Congress has given us. I am pleased and, I must confess, a little surprised. I am confident that the Panel is well on the way to producing a final report that will be both responsive to our charge and an important contribution to the national effort to improve the reading performance of America's children.

Sincerely yours,

Donald N. Langenberg, Ph.D.
Chair

Attachment

cc: Members of the Panel

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Section 1: Background

Introduction

Evidence has been accumulating for a number of years that many of America's school children are not mastering essential reading skills. In 1996, the National Assessment of Educational Progress (NAEP), a national test that follows student learning, showed that 36 percent of nine-year-olds failed to reach the level of "partially developed skills and understanding" and seven percent could not accomplish simple reading tasks. Among 17-year-olds, only 29 percent were able to understand complex information and only six percent reached the highest level of understanding.

Two years earlier, the same national test showed that 42 percent of fourth graders read below basic levels. Further, these problems persisted even in upper grades: 31 percent of eighth graders and 30 percent of 12th graders read below the basic levels.

Even more disturbing, the 1994 NAEP results suggested that reading problems affect students in virtually every social, cultural, and ethnic group. According to the results, 29 percent of whites, 69 percent of African-Americans, 64 percent of Hispanics, 22 percent of Asian-Americans and 52 percent of American Indians read below basic levels in the fourth grade. And the same test showed that 32 percent of fourth graders who could not read basic material were sons and daughters of college graduates (Campbell, Jay, et al., *NAEP 1994 Reading Report Card for the Nation and the States: Findings from the National Assessment of Educational Progress and Trial State Assessment).*

Overall, national longitudinal studies show that more than 17.5 percent of the nation's school children — about 10 million children — will encounter reading problems in the crucial first three years of their schooling. (cite pending)

The Importance of Early Intervention

Unfortunately, for many of the children experiencing reading problems, these

issues will persist throughout their schooling. Approximately 75 percent of the students identified with reading problems in the third grade are still reading disabled in the ninth grade (Shaywitz et al. 1992, *Journal of Educational Psychology;* Francis et al. 1996, *Journal of Educational Psychology*).

These findings suggest that early intervention is critical for problem readers. Those who fall behind in the first three years of their schooling may never become fluent readers. A strong body of research suggests they will continue to fall behind as they move further into their schooling. Because their frustrations build, they are more likely to drop out of school and less likely to find rewarding employment ("Reading: The First Chapter in Education," U.S. Department of Education's *Learning to Read, Reading to Learn* campaign).

Societal Costs

To be sure, reading problems cause incalculable suffering for the individual. But they also have a tremendous impact on society as a whole. According to statistics regularly used by the National Right to Read Foundation:

- 85 percent of delinquent children and 75 percent of adult prison inmates are illiterate;
- 90 million adults are, at best, functionally literate;
- The cost to taxpayers of adult illiteracy is $224 billion a year in welfare payments, crime, job incompetence, lost taxes, and remedial education; and
- U.S. companies lose nearly $40 billion annually because of illiteracy.

These dismal statistics are causing a rising tide of concern among educators and the public. Nearly 70 percent of teachers surveyed in 1994 said reading was the most important skill for children to learn, according to a poll by Peter D. Hart Research Associates for the American Federation of Teachers and the Chrysler Corporation. Parents also understand the importance of teaching reading to their children. A 1996 survey by the National Association of State Boards of Education and Scholastic Inc. found that 93 percent of parents said reading was critically important to their child's future success.

How Much Do Children Read?

Pollster Hart showed that students do not place the same value on reading skills as do their parents or teachers. Only 34 percent ranked reading skills as most important. They ranked reading third behind math and computers. Hart's 1993 poll of students also showed dramatic declines in student reading activity from ages nine to 17.

NAEP's 1994 results similarly showed declining interest in reading among

students as they grow older. Twenty-five percent of 13-year-olds and 22 percent of 17-year-olds reported reading five pages or less per day in school and for homework combined. Equally disturbing, the amount they read for fun diminishes, as they grow older. NAEP found that 54 percent of nine-year-olds said they read for fun every day. Among 13-year-olds, only 32 percent said they read for fun. Still fewer 17-year-olds, 23 percent, read for fun every day.

The Reading Wars

The inability of the nation's schools thus far to improve the reading performance of students has fueled a long debate about the superiority of phonics instruction or whole language reading instruction. In general, phonics instruction emphasizes the process of decoding letter symbols and the relationship between sounds in spoken words and their printed forms. Whole language instruction, on the other hand, puts the greatest emphasis on meaning as determined through letter sounds, grammatical construction, and context and stresses the importance of writing, surrounding children with good literature and generally creating a rich literate environment for students. Proponents of whole language typically encourage students to keep logs, to read along with the teacher, or to write stories about topics of personal interest.

Educator Horace Mann raged against phonics instruction in the 19th century, calling the letters of the alphabet "bloodless, ghostly apparitions." In the late 1930s, Scott Foresman introduced its popular "Dick and Jane" readers that taught children to read by memorizing the look of certain words, rather than the sounds of letters.

In 1955 Rudolf Flesch, author of *Why Johnny Can't Read*, attacked Scott Foresman's so-called look-say instruction, arguing that it threw 3,500 years of civilization "out the window." The pendulum took a decisive swing back to phonics instruction in 1995 when California passed its "ABC" laws requiring instruction to include explicit phonics and spelling skills. Having used the whole language approach since 1987, California made the switch back to phonics after it dropped into a tie for the lowest fourth-grade student reading scores in the 1994 NAEP test. Two other states, Ohio and North Carolina, quickly followed California's example, passing laws encouraging phonics-based instruction.

Reading Research

The reading wars have at once eroded the public's confidence in the education system, while forcing educators to forge paths of their own. Some educators have dug in, clinging to the dogma of one camp or another, while others have tried to blend the strengths of both approaches.

Nevertheless, advances in research are beginning to provide hope that educators may soon be guided by scientifically sound information. A growing number of works, for example, are now suggesting that students need to

master phonics skills in order to read well. Among them are *Learning to Read* by Jeanne Chall and *Beginning to Read: Thinking and Learning about Print* by Marilyn Adams. As Adams, a senior scientist at Bolt Beranek and Newman Inc., writes, "(It) has been proven beyond any shade of doubt that skillful readers process virtually each and every word and letter of text as they read. This is extremely counter-intuitive. For sure, skillful readers neither look nor feel as if that's what they do. But that's because they do it so quickly and effortlessly."

More recently, the National Academy of Sciences' National Research Council's (NRC) Committee on Preventing Reading Difficulties in Young Children concluded that students learn best through a combination of whole language and phonics. The 1998 report concluded that there is no one way to teach reading. It said children need to learn letters and sounds and how to read for meaning. At the same time, children also need the opportunity to surround themselves with many types of books.

The NRC Report outlined critical components necessary to a child's education from birth through third grade to achieve reading fluency. The NRC Report noted, for example, that children should arrive in first grade motivated to learn how to read and equipped with a strong foundation in language and cognitive skills and first-grade students should be taught how to identify words using their letter-sound relationships. Second-grade students should be encouraged to sound out and identify unfamiliar words. And throughout early schooling, students should read for comprehension, develop a rich vocabulary, and receive instruction in comprehension skills.

Next Steps

The task now before the nation is to carefully sift through the research and discover a way to make the research findings useful and relevant to teachers and parents. Teachers should have easy access to these findings as we encourage to let them in teacher practices. In addition, parents need to understand their role in delivering children to the school door equipped to learn about reading.

At the direction of Congress, the National Reading Panel has been established by the director of the National Institute of Child Health and Human Development, in consultation with the Department of Education, to fulfill this mission. Over the last year, it has sought out and listened to the concerns and needs of critical stakeholders, including researchers, educators, parents, community members, and civic and business leaders. In regional meetings, the Panel has learned what these stakeholders know and believe about reading and reading research. The open dialogue of the Panel's regional meetings was designed to give stakeholders — the ones who ultimately will benefit from the Panel's conclusions — a role in guiding the Panel's outcomes. This was a critical step in understanding the needs, concerns, and challenges faced by these audiences. The hearings also helped the Panel determine the readiness of schools to apply the results of research.

Now the Panel is poised to embark on the critical task of determining what information is relevant and useful in the research and how to disseminate it to stakeholders in order to influence the quality and form of reading instruction in our nation's classrooms. Vigorous participation of these stakeholders at the regional meetings, coupled with the detailed methodology criteria developed by the Panel, made it clear that this endeavor should not be rushed. As a result, the Director of the National Institute on Child Health and Research Development has agreed to extend the Panel's efforts, giving it until the beginning of 2000 to fully address the questions set forth in the congressional Charge to the Panel.

Section 2: The National Reading Panel

In 1997, Congress asked the director of the NICHD, in consultation with the Secretary of the Department of Education, to create a National Reading Panel (NRP). According to the congressional charge, the Panel would determine from existing research the most effective approaches for teaching children how to read so that these findings might influence teaching in the classroom and home.

Congress did not expect the Panel to conduct its own research. Rather, it anticipated that the Panel would review the research literature, identify the methods that show the most promise, and then translate the research into key findings that would be disseminated to teachers and ultimately parents. Congress also expected that the Panel would solicit information from the public about pressing needs and about viewpoints toward the research.

Requests for nominations to the Panel were sent to scientists at the Department of Education and NICHD who are involved in reading research, as well as reading and scientific organizations. Electronic mail lists that serve those interested in reading research also were notified of the search for Panel members. Eventually, nearly 300 individuals were nominated to the Panel. From this list, NICHD and the Department of Education selected the 14 individuals who now make up the Panel.

Members of the Panel

The Panel includes prominent reading researchers, leaders in elementary and higher education, teachers, parents, and child development experts. They are:

Dr. Donald Langenberg; Adelphi, Maryland (Chair). Eminent physicist and Chancellor of the 13-member University System of Maryland since 1990. Has served as the Chancellor of the University of Illinois at Chicago, Deputy Director (and Acting Director) of the National Science Foundation, Professor of Physics at the University of Pennsylvania, and President of the American Association for the Advancement of Science and the American Physical Society. Highly respected nationally and internationally for his leadership capabilities, his ability to forge consensus on difficult issues, and his dedication to education at all levels.

Dr. Gloria Correro; Starkville, Mississippi. Professor of Curriculum and Instruction and Associate Dean for Instruction, Mississippi State University. Highly respected educator and teacher educator in Mississippi and the southeast and south central regions of the country. Credited with establishing kindergarten and early childhood programs in Mississippi, as well as the Mississippi Reading Assistant program. Member, National Council of Teachers of Mathematics, Association for Supervision and Curriculum Development, American Association of Colleges of Teacher Education, Association of Teacher Educators, National Association for the Education of Young Children, Association for Childhood Education International, Phi Delta Kappa, and Phi Kappa Phi.

Dr. Linnea Ehri; New York, New York. Distinguished Professor, Ph.D. Program in Educational Psychology, Graduate School and University Center of the City University of New York. Nationally and internationally recognized scientist for her research on early reading development and instruction. Known among cognitive psychologists for her ability to identify aspects of pedagogy that are popular among teachers and to empirically examine the underlying assumptions of the pedagogy. Past President, Society for the Scientific Study of Reading; past Vice President, American Educational Research Association (Division C-Learning and Instruction); past member Board of Directors of the National Reading Conference; recipient of the Oscar S. Causey Award for Distinguished Research (National Reading Conference). Member, International Reading Association, Reading Hall of Fame, National Reading Conference, American Educational Research Association, American Psychological Association (Fellow), and Society for the Scientific Study of Reading.

Mrs. Gwenette Ferguson; Houston, Texas. Reading Teacher, North Forest Independent School District (Houston). Chair, English Language Arts Department; Kirby Middle School Teacher of the Year (1991). Received the Kirby Middle School Award for Outstanding Dedication and Service (1988, 1989,1990); Houston Area Alliance of Black School Educators Outstanding Educator Award, and North Forest Independent School District Achieving Through Excellence Award. Member, National Council of Teachers of English, Texas Council of Teachers of English. Vice President Elect of Affiliates, North Forest District Reading Council, Greater Houston Area Reading Council, and Texas Classroom Teachers Association.

Ms. Norma Garza; Brownsville, Texas. Certified Public Accountant for Law Firm of Rodriguez, Colvin & Chaney, LLP. Founder and chair of the Brownsville Reads Task Force. Serves on the Governor's Focus on Reading Task Force, Governor's Special Education Advisory Committee, Texas panel member of Academics Goals 2000. Received the Texas State Board of Education "Heroes for Children" Award. Member, International Dyslexia Association. Strong advocate for business community involvement in education.

Dr. Michael Kamil; Stanford, California. Professor of Psychological Studies in Education and Learning, Design, and Technology, School of Education, Stanford University. Chair, Stanford University Commission on Technology in Teaching and Learning Grants Committee; Chair, Technology Committee of the National

Reading Conference (NRC). Former member of the Board of Directors of the National Reading Conference and the National Conference for Research in English. Former Editor of the Journal of Reading Behavior (1988-89); Editor NRC Yearbook (1980-82) and Co-editor of Reading Research Quarterly (1991-1995). Co-authored Understanding Research in Reading and Writing and co-edited Volumes I and II of The Handbook of Reading Research. Received Albert J. Kingston Award from the National Reading Conference and the Milton Jacobson Readability Research Award from the International Reading Association. Currently, member of the American Psychological Association, American Educational Research Association, International Reading Association, National Conference for Research in English (Fellow), and the National Reading Conference.

Dr. Cora Bagley Marrett; Amherst, Massachusetts. Vice Chancellor for Academic Affairs and Provost, University of Massachusetts-Amherst. As Assistant Director, National Science Foundation (1992-1996), was first person to lead the Directorate for Social, Behavioral and Economic Sciences. Also served as Director of the United Negro College Fund/Mellon Programs; Associate Chairperson for Department of Sociology, University of Wisconsin; and member, Board of Directors, Center for Advanced Study in the Behavioral Sciences. Served in 1979 on the President's Commission on the Accident at Three Mile Island. Member, Board of Governors, Argonne National Laboratory; Board of Directors, Social Science Research Council; Commission on the Behavioral and Social Sciences and Education, National Research Council; Peer Review Oversight Group for the National Institutes of Health; National Advisory Council for the Fogarty International Center, also of the National Institutes of Health. Fellow, American Association for the Advancement of Science, and Vice President, American Sociological Association.

Dr. S. J. Samuels; Minneapolis, Minnesota. Professor, Department of Educational Psychology, University of Minnesota. Recipient of the College of Education Distinguished Teaching Award. Internationally respected reading researcher. Highly experienced consultant to inner-city schools. Selected for the Reading Hall of Fame. Received the Wm. S. Gray Citation of Merit from the International Reading Association and the Oscar O. Causey Award from the National Reading Conference for Distinguished Research in Reading. Member of the Governing Council, Center for Research in Perception, Learning and Cognition at the University of Minnesota; American Educational Research Association; American Psychological Association (Fellow); International Reading Association; and National Reading Conference.

Dr. Timothy Shanahan; Chicago, Illinois. Professor of Urban Education, Director of the Center for Literacy, and Coordinator of Graduate Programs in Reading, Writing, and Literacy at the University of Illinois at Chicago. Internationally recognized reading researcher with extensive experience with children in Head Start, children with special needs, and children in inner-city schools. Editor of the Yearbook of the National Reading Conference and formerly Associate Editor of the Journal of Reading Behavior. Received the Albert J. Harris Award for Outstanding Research on Reading Disability and the Milton D. Jacobson Readability Research Award from the International Reading

Association. Member, Board of Directors of the International Reading Association. Member, American Educational Research Association, National Council on Research in Language and Literacy, National Council of Teachers of English, National Reading Conference, and Society for the Study of Reading.

Dr. Sally Shaywitz; New Haven, Connecticut. Professor of Pediatrics and Co-Director, Yale Center for the Study of Learning and Attention, Yale University School of Medicine. Neuroscientist nationally and internationally recognized for research contributions in reading development and reading disorders, including recent demonstration of neurobiological substrate of reading and reading disability. Unique for contribution to development of conceptual model of reading and reading disability and for identifying high prevalence of reading disability in girls. Received Distinguished Alumnus Award, Albert Einstein College of Medicine. Most recently served on National Academy of Sciences Panel on Preventing Reading Difficulties in Children. Diplomate, American Board of Pediatrics; member, Institute of Medicine of the National Academy of Sciences, American Academy of Pediatrics, American Association for the Advancement of Science, American Educational Research Association, Council for Exceptional Children, International Dyslexia Association, Society for Developmental and Behavioral Pediatrics, Society for Pediatric Research, Society for Research in Child Development, and Society for the Scientific Study of Reading.

Dr. Thomas Trabasso; Chicago, Illinois. Irving B. Harris Professor, Department of Psychology, The University of Chicago. Cognitive scientist internationally recognized for investigations of comprehension during reading. Has most recently developed a connectionist model that simulates dynamic processing over the course of reading. Has served as Chair of Department of Psychology, Editor of Cognitive Psychology, and Associate Editor of the Journal of Experimental Child Psychology. Member, Psychonomic Society, Society for Research in Child Development, American Educational Research Association, International Reading Association, National Reading Conference, American Psychological Society, Society for Discourse and Text Processing (Founding Member and Chair), and Society for the Scientific Study of Reading.

Dr. Joanna Williams; New York, New York. Professor of Psychology and Education, Columbia University. Internationally recognized scholar for research on linguistic, cognitive, and perceptual bases of reading development and disorders. Fulbright Scholar, University of Paris; Oscar S. Causey Award for Outstanding Contributions to Reading Research from the National Reading Council; elected to Reading Hall of Fame (1994); and recognized as a Guy Bond Scholar by the University of Minnesota (1997). Currently serves as Editor of Scientific Studies in Reading and has served as the Editor of the Journal of Educational Psychology. Member, American Educational Research Association, American Psychological Association (Fellow), Council for Exceptional Children, International Reading Association, National Conference on Research in English, National Reading Conference, New York Academy of Sciences, and Society for the Scientific Study of Reading.

Dr. Dale Willows; Toronto, Ontario, Canada. Professor, Department of Human

Development and Applied Psychology, Ontario Institute for Studies in Education, University of Toronto. Internationally recognized scholar in reading development and reading difficulties. Has served on the editorial boards of the Journal of Research on Reading and Reading Research Quarterly. Member, American Educational Research Association, International Dyslexia Association, International Reading Association, and National Reading Conference.

Dr. Joanne Yatvin; Portland, Oregon. Principal, Cottrell and Bull Run Schools, Boring, Oregon. Forty-one years' experience as a classroom teacher and school administrator. Served as Chair of the Committee on Centers of Excellence for English and the Language Arts, National Council of Teachers of English. President of the Wisconsin Council of Teachers of English and the Madison (Wisconsin) Area Reading Council, and a member of the National Advisory Board, Educational Resources Information Center on Reading and Communication Skills ERIC/RCS. Named Elementary Principal of the Year by the Wisconsin Department of Public Instruction and the Wisconsin State Reading Association. Received the Distinguished Elementary Education Alumni Award from the University of Wisconsin School of Education. Member, National Council of Teachers of English, International Reading Association, Association for Supervision and Curriculum Development, and Oregon Reading Association.

Staff of the Panel

The National Reading Panel also has a number of support staff personnel to direct the Panel's day-to-day efforts. These staff are:

F. William Dommel, Jr., J.D., *Executive Director*

Mary E. McCarthy, Ph.D., *Senior Staff Psychologist*

Vinita Chhabra, M.Ed., *Research Scientist*

Judy Rothenberg, *Secretary*

The Panel receives logistical support from IQ Solutions, Inc. (IQ Meeting Manager Jamie Nusbacher) and communications and strategic counsel from The Widmeyer-Baker Group, Inc. (Project Manager Patrick Riccards).

Charge to the Panel

Implementing the directive of the Congress, Dr. Duane Alexander, director of the National Institute of Child Health and Human Development, charged the Panel as follows:

The Congress of the United States, when it asked that the National Reading Panel be established, directed the Panel to "assess the status of research-based knowledge (of reading development and disability), including the effectiveness of various approaches to teaching children to read." Based on this assessment, the Panel is to "present a report to the Secretary of Health and Human Services, the Secretary of Education, and the appropriate

congressional committees. The report should present the Panel's conclusions, an indication of the readiness for application in the classroom of the results of this research, and, if appropriate, a strategy for rapidly disseminating this information to facilitate effective reading needed regarding early reading development and instruction.

A recent report by the National Research Council Committee on Preventing Reading Difficulties in Young Children summarized converging evidence on what must be in place for children to learn to read and on various approaches to reading instruction. This report provides a valuable foundation on which the National Reading Panel can build.

Accordingly, the Panel is charged to conduct an extensive and critical review, analysis, and synthesis of the research literature on how children learn to read, and on how the components of skilled reading behavior are developed by various approaches to reading instruction for children of differing backgrounds, learning characteristics, and literacy experiences. Taking into account the relevance, methodological rigor and applicability, validity, reliability, and replicability of the reported research the Panel should address the following questions:

1. What is known about the basic process by which children learn to read?
2. What are the most common instructional approaches in use in the U.S. to teach children to learn to read? What are the scientific underpinnings for each of these methodological approaches, and what assessments have been done to validate their underlying scientific rationale? What conclusions about the scientific basis for these approaches does the Panel draw from these assessments?
3. What assessments have been made of the effectiveness of each of these methodologies in actual use in helping children develop critical reading skills, and what conclusions does the Panel draw from these assessments?
4. Based on answers to the preceding questions, what does the Panel conclude about the readiness for implementation in the classroom of these research results?
5. How are teachers trained to reach children to read, and what do studies show about the effectiveness of this training? How can this knowledge be applied to improve this training?
6. What practical findings from the Panel can be used immediately by parents, teachers, and other educational audiences to help children learn how to read, and how can conclusions of the Panel be disseminated most effectively?
7. What important gaps remain in our knowledge of how children learn to read, the effectiveness of different instructional methods for teaching reading, and improving the preparation of teachers in reading instruction that could be addressed by additional research?

In carrying out this charge, the Panel shall use the means necessary to retrieve, review, and analyze the relevant research literature; seek information and viewpoints of researchers and other professionals in reading instruction as

well as of teachers and parents; and exert its best efforts to complete its work of developing responses to the questions above and submit a final report.

Section 3: Accomplishments to Date

Panel Meetings

Thirteen members of the National Reading Panel (NRP) assembled for their inaugural meeting in Bethesda, Md. on April 24, 1998 at the National Institute of Child Health and Human Development (NICHD). At the meeting, Panel members discussed how they would organize themselves, task assignments, and schedule future meetings.

Members also heard a presentation on the report of the National Academy of Sciences' National Research Council (NRC) Committee on the *Prevention of Reading Difficulties in Young Children*. Dr. Alexandra Wigdor, director of the NRC Division on Education, Labor, and Human Performance and Dr. Susan Burns, study director for the Committee on Prevention of Reading Difficulties in Young Children, made the presentations.

Panel members reviewed the literature search engines, databases, and Internet links that are available to help them in their researching tasks. They also reviewed models of methodological approaches for analyzing research, including models recently employed by the Department of Education, models employed by the Cochran Collaboration, the medical model, and a model for evaluation of educational instruction research. Members of the public were invited to present information to the Panel on these and related topics.

The Panel held four more two-day meetings after the inaugural session. The first was on July 24-25 in Bethesda. At this meeting, the Panel agreed that it would be appropriate to study the research on professional development and teacher training. They determined that the topic merits subgroup status, as opposed to including aspects of teacher preparation in review of research being conducted by the other subgroups. *(For a description of the subgroups, see pg. 22)*

At the September 9-10 Panel meeting in Washington, Panelists presented reports of the subgroups, detailing how the subgroups were defining their tasks and the progress they were making.

At the November 19-20 Panel meeting in Washington, Panelists began sorting through the primary areas and assertions about reading instruction that the Panel should investigate. Members then agreed to take the complete list of priorities and select the 10 items that they believed to be most important.

Panel members noted that a substantial amount of work already had been conducted in the areas of phonemic awareness, oral/repeated reading, and strategies/procedures. After a quick tabulation, Panel members determined

that the top 13 areas for exploration should be: assessment instruments, oral language, home/preschool/school age influences, writing instruction, materials/texts in instruction, vocabulary, print awareness, phonemic awareness/letters, phonics instruction, oral reading/repeated reading, reading practice effects in fluency, etc., knowledge base for reading standards in teacher education, and strategies/procedures.

At the January 21-22 Panel meeting in Washington, the Panel adopted the methodology the Panel would follow in conducting its analysis of research pertinent to reading instruction. The methodology is described in depth in Section 5.

Regional Meetings

Despite their diverse professional expertise, interests, and approaches to teaching children how to read, Panel members determined they could not effectively carry out their congressional mandate of assessing the readiness of research-based knowledge for application in homes or schools without gaining valuable perspectives and insights from practitioners and other stakeholders engaged in the teaching and learning of reading across America.

By unanimous decision, Panel members felt it was of paramount importance to supplement their review and scrutiny of research findings by listening to and learning from the many voices of parents, educators, students, community members, and civic and business leaders whose own practical experiences and knowledge of the craft would balance and inform the Panel's inquiry. To accomplish this objective, Panel members decided to organize a series of regional meetings in Chicago, IL (May 29, 1998), Portland, OR (June 5, 1998), Houston, TX (June 8, 1998), New York, NY (June 23, 1998), and Jackson, MS (July 9, 1998).

Through news releases and articles, public service announcements, notifications and letters of invitations, the NRP blanketed the nation and host communities with information on its mandate and approach — encouraging concerned individuals, reading experts, parents, teachers, researchers, and representatives of national, state, and local organizations to attend one or more of the regional meetings, request presentation opportunities in advance, or sign-up on-site to provide public comment that would contribute to the Panel's work.

In total, close to 400 people attended regional meetings. Panelists heard from 44 invited presenters and 73 members of the public who addressed their concerns about reading. The regional meetings helped Panel members better understand how reading is currently taught, what the challenges and opportunities are in changing reading instruction, and how to translate the Panel's findings to meet the information needs of various audiences.

Subgroups

From the start, the Panel recognized that the task ahead was so broad that it

would be necessary to separate into subgroups. Initially, the Panel used as guideposts the main themes outlined in the report of the National Academy of Sciences' National Research Council's *Preventing Reading Difficulties in Young Children*. Accordingly, subgroups were appointed to review the following areas: alphabetics, fluency, comprehension, and technology.

In September, after reviewing the comments presented at the regional meetings, the Panel supplemented the original themes with a fifth subgroup. Because many of the comments were about teacher education and preparation, the Panel added a fifth subgroup to assess research-based activity on teaching standards and practices. In January 1999, the scope of the Technology Subgroup was expanded to include the task of identifying eligible and useful topics that are not now being addressed by the other subject matters.

Section 4: What The Public Told Us

The Panel embarked on a process to yield far more than a compendium of research and research findings for academics. In five regional meetings, it sought voices from the field so that it would be possible to craft a final report that took into account where educators and other stakeholders currently stand on the teaching of reading. Throughout the regional hearings, Panel members remained strong in their conviction that a good faith effort to learn from all who would come forward, as well as those who have long studied reading research, would undoubtedly help them prepare a final report that would speak to the broad spectrum of professions and individuals who work with children, educators, and schools.

The meetings also demonstrated the Panel's respect for the practice and knowledge of those who work with children. This qualitative research into the beliefs and opinions of parents, educators, and members of the general public will provide a vital balance to the investigative research conducted by the Panel subgroups.

Several dominant themes emerged from the regional meetings. They include:

- validity of research;
- breadth of research;
- importance of educators;
- definition of reading instruction and goals;
- phonics and comprehension;
- reading as a cross-disciplinary skill;
- multiple approaches to instruction;
- professional development;
- the role of parents and other concerned persons;
- special-needs individuals and situations; and
- dissemination priorities and recommendations.

Following are summaries of what the Panel heard, synthesized generally around these key themes.

Research: What is Valid?

Many presenters at the regional meetings provided their own experience and opinions about how reading should be taught, or they described their own programs that were designed to help children learn to read. As the purpose of the regional meetings was to learn how reading instruction is perceived by those working with children, very few of the presenters addressed the research issues and the question of what forms of research are valid.

Those who did, however, criticized the accuracy and utility of existing research in reading. Some discussed the problems facing the NRP in determining what research is valid and reliable, noting that the biggest challenge and most important charge facing the NRP is to agree on formal rules of evidence that can help in the selection of research studies meeting the highest evidentiary standards.

The Gold Standard: Scientific Rules of Evidence

At the Houston meeting, Darvin Winick of the Governor's Business Council also stipulated that scientific criteria for determining the acceptability of research findings must be developed. According to Winick, knowledge about how to teach reading does exist but it is not used in many classrooms. For example, Winick said, when Texas business leaders tried to help implement Governor George W. Bush's goal of having all children reading "on grade level" by grade three, they were surprised to receive confusing advice from the experts. "Advocates for various approaches to the teaching of reading quickly came forward. But many were unable to provide us with any credible proof that their approach worked."

In conducting its own research analysis, the Governor's Business Council was surprised to find "an enormous variation in the quality of evidence of effectiveness that was available for various reading instructional programs." Winick said that some approaches were well-supported by controlled experimentation, while others were backed by what he labeled "poor or inappropriate research." Too many studies lacked the standards for proper scientific inquiry, which he characterized as "clear statements of hypotheses, controlled experimental conditions, standardized treatment, and reliable and objective measurement." He blamed this on a tendency in the field of education to inadequately develop data and a hesitancy to look at research in psychology, physiology, and other fields for models.

Winick called on the NRP to eliminate misinformation about how reading skills are acquired. When, for example, his group announced it was looking for research-based programs, everyone claimed that their program was based upon research. But the quality of this research varied. "I just wonder," said Winick, "should it be necessary for people outside of education to go through

the high level of effort to protect our investment in the schools. Should educational researchers not have a higher standard? Why is there no accountability for the quality of investigation and reporting?"

Winick also warned the Panel against writing a compromised document that supports every theory. Instead, the NRP should adhere to its charge by "taking into account the relevance, methodological rigor and applicability, validity, reliability, and replicability of the reported research." Only experimental evidence should be used to set a high standard for future research, he asserted. For this reason, Winick did not give his own opinion on how reading should be taught. Instead, he encouraged debate over reliably obtained performance data.

Establishing a High Degree of Confidence in the Research Base

David Denton, the Southern Regional Education Board's director of Health and Human Services Programs, expressed a greater degree of confidence in the reliability of the research. He said that reading research is "as valid as research can be, as long as we recognize that knowledge is not static, and that tomorrow, or next week, or next year, there will be new research that will inevitably alter our understanding of today's research findings." And while more research is always needed, the research we currently have is sufficient to use as the basis for policy and conclusions as long as we are willing to change our minds should we develop different evidence.

However, Denton expressed this confidence only about the research conducted by the National Institute of Child Health and Human Development (NICHD), not about other studies. He said that, "[NICHD] research has been characterized by the highest scientific standards, and it has provided invaluable knowledge about how good readers read, and why many children do not become good readers. The NICHD research has clearly shown us that phonemic awareness, the knowledge that certain letters and letter combinations correspond to certain sounds is a critically important skill that all good readers must master."

Furthermore, he added that much of this research does not make it into the classroom and that some reading programs lack evidence of their effectiveness. "The biggest problem posed by the research on reading today is that we haven't yet figured out how to make sure that all teachers have that full range of instructional tools at their disposal, and that they have the ability to use appropriate assessments to make the right choices for different children. And the piece of those tools which seems to be most missing, particularly among new graduates, is the ability to assess and teach specific skills such as phonemic awareness."

Denton described the NICHD research as supporting the claims of non-extremists from both the phonics and whole language camps. "It is clear from that research that the best reading programs provide many opportunities for children to read a wide variety of good literature. There is nothing in the research that supports the idea that a program based exclusively on skills

instruction or phonics, with little emphasis on reading for meaning and pleasure, is an appropriate way to teach reading. Children must master the necessary skills, but they must also be engaged and given reasons for wanting to read." He found that "the great contribution of the NICHD research is that it tells us how important it is to make sure that one particular piece of the reading puzzle, phonemic awareness, is in place for all children at least by third grade." Ultimately, he supported a balanced approach that recognizes that this balance could be different for different children.

Although only a few of the speakers examined the question of the validity of the research, many who did supported a hard, scientific approach. Without such a scientific approach, they maintained there is a danger in relying merely on opinion or being seen as a combatant in the false dichotomy between phonics and whole language that has been dubbed the "reading wars."

Reading Research: Cast the Net Broadly

The NRP was advised by presenters to cast its net broadly — making sure to capture the essence of reading research. In general, presenters appeared to convey that while the graphophonemic system of language and its relevance to the reading process has been well documented, other areas that also directly bear on reading acquisition have been neglected or not conveyed to teachers.

Specifically, speakers petitioned for the inclusion of emerging brain research, writing as part of reading instruction, and anthropological considerations to become part of a reading research "package" that is made available to educators.

Jennifer Monaghan, founder of the History of Reading Special Interest Group of the International Reading Association, questioned why writing is not an integral part of the reading process. "Why is there a National Reading Panel, but no National Writing Panel?" she queried. "Why are we so obsessed by children's failure to read when we are relatively cavalier about their failure to write?"

One way Monaghan linked reading and writing is through phonemic segmentation, a basic requirement of both. She encouraged those in the field of reading to focus on teaching teachers about the orthography and phonology of their own language.

Reading research also should devote time to the study of emerging brain research, particularly in early childhood, noted Kathy Grace, an early childhood expert from Tupelo, Mississippi. She cited a national program involving physicians that helps disseminate reading information to parents. Noting her familiarity with the program locally, she said pediatricians in Greenville, South Carolina, regularly give parents a "prescription" that says: "Read to your child." They also give them a book. Said Grace; "The physician gives the book because it is a health issue. It is a development of the brain issue. It is not just an educational issue."

A number of presenters advised the Panel to include in its study a review of research on the impact of technology on reading. Mark Horney, from the Center for Advanced Technology in Education at the University of Oregon, described two research projects designed to make better use of technology to teach reading: "Project Literacy High," which uses electronic versions of text to help hearing-impaired students improve reading skills, holds significant promise for all readers; and the "de Anza Multimedia Project," currently under construction, applies the "supported text" notion to create a Web-based learning environment "where you would study from a whole collection of texts all with resources on a particular domain of study," explained Horney. He added that his work centers on reading to learn, rather than learning to read.

Educational anthropology is missing from the reading research equation, according to Jan Lewis, a professor at the Pacific Lutheran University in Tacoma, Washington. In presenting to the Panel, she defined educational anthropology as a "way of taking what we know from anthropology, that of looking at cultures... from the perspective of the participant or the stakeholder or the person who was involved." In the education field, that means examining the players involved in schools — primarily the student and teacher — and observing, from their perspective, what is happening in the classroom. "We look at the perspective of the teacher," said Lewis. "We look at the perspective of the child and how those [perspectives] may interact."

Becky McTague, an Illinois teacher, also counseled the Panel to consider research from a variety of fields. She called the Reading Recovery program effective because of its ability to answer questions about a child's reading development within a "broader base and context" than is generally the case with other reading programs.

Panel Urged to Avoid Skirting Tough Issues

A few speakers stated that, contrary to media headlines and professional judgments that various approaches to reading instruction are segments of a broad spectrum associated with child development and acquisition of reading skills as opposed to competing camps, the "reading wars" are not over — at least not on the frontlines of education. They called on the NRP to clear up the muddied waters.

For example, rather than adding new items to the reading research agenda, Ali Sullo, editorial director of reading language arts at Houghton-Mifflin Company, made a case for addressing issues only partially covered by the recent National Research Council (NRC) report. Sullo claimed the artillery is still firing between phonics and whole language forces because the NRC report failed to "come to grips with some of the most contentious issues... including organizing or grouping for reading instruction, the role of phonics, and the advantages and disadvantages of various beginning reading texts." She hoped the Panel would "further the fine work of the NRC committee and... address some of these contentious issues as well as establish a research agenda."

Charles Arthur, a first-grade teacher in Portland, also expressed concern over the "very murky" view of reading caused by "statements made by this particular panel and other councils on this subject." He maintained that political balance "was king," rather than helping teachers make good choices. According to Arthur, the one question that must be answered is: "Are there good starting skills that lead more successfully to the full act of reading than others?"

Teachers: The Missing Voice

Numerous presenters praised the NRP for seeking out the perspective of classroom teachers. They repeated a common refrain among American teachers about the lack of respect afforded them by the public and policymakers. Panel members were urged to "continue to put human faces on this issue," and to extend to teachers "the trust and the expectation that they will make effective professional decisions about how to use them."

Portland English-Language Arts Coordinator Michael Ann Ortloff discussed the need to respect the knowledge and work of teachers. Ortloff underscored that respect for the professional efforts of reading teachers should be "implicit" in the work of this Panel or any other that may be assigned the task of tackling a subject as complex as reading.

One speaker blamed schools of education, state legislative bodies, and others for disempowering teachers by taking instructional decision-making out of their hands. James Hoffman, professor of language at the University of Texas, said disempowerment occurs when teacher educators promote a particular method of teaching, when researchers study "method A versus method B," or when policy makers "who control the curriculum through mandated assessments manipulate the teacher incentive or reward systems to reflect a particular conception of teaching, who impose standards for student performance with high-stakes consequences for both teachers and students, who control the very nature of the curriculum materials that enter classrooms."

Hoffman suggested that the Panel stamp out these disempowering factors by first visiting state testing plans that define the curriculum. He looked no further than his home state of Texas, to challenge what he considers to be the false claims of increased reading scores as demonstrated by the state's TASS test. He compared the increase in TASS scores to the fact that reading achievement scores on norm-referenced tests have remained relatively flat. "How can this be?" he queried. "Could it be that we are only teaching to the test?"

Hoffman clearly stated that his position does not suggest that empowering teachers alone is sufficient to produce effective teaching. He acknowledged that "you cannot empower ignorance and expect results." Instead, "we must educate and empower. Both are necessary."

Teachers As Researchers

A more common theme echoed by other speakers was to highlight teachers'

roles as classroom researchers. Kim Patterson, with the Mississippi Writing-Thinking Institute, and Pacific Lutheran University Professor Jan Lewis discussed the merits of examining the role of teachers as researchers. Patterson's Institute promotes professional development opportunities that allow teachers to develop instructional strategies based on research. She urged the Panel to hear the voices of front-line teachers who have conducted "action research" that provides "valuable information about how kids learn to read."

Lewis depicted teachers as "classroom researchers" who are "critical to our understanding" of how reading takes place. She encouraged the Panel to seek out teachers who best exemplify solid teaching, "support their work, encourage the publication of their own classroom stories, consider the successes."

While teachers' voices as "classroom researchers" should be heard, several speakers underscored that teachers should not work in isolation to advance student reading skills. Paula Costello, English language arts coordinator for a large suburban school district outside Buffalo, New York, relayed to the Panel the benefits of teacher study groups in describing her recent work with seventh- and eighth-grade English teachers who formed such a group to examine remedial practices.

Collaboration is a requirement for success in the classroom, according to New York University Professor Trika Smith-Burke. Unfortunately, collaboration among teachers, central administrators, researchers, and others is an onerous task. Smith-Burke's first-hand experience of trying to mesh schedules between the university and the classroom often ended in defeat, she noted.

Obstacles to Teaching Success

Scheduling conflicts pale in comparison to other obstacles that block teacher success, especially for beginning teachers. University of Southern Mississippi Professor Dana Thames elaborated on these dilemmas to Panel members at the Mississippi meeting. Many teachers decide to begin their teaching career on the road easiest to travel, partly due to the lack of respect and compensation awarded American teachers, she noted.

Other obstacles cited include:

- family members who harp on the new teacher that they are working too hard;
- the lack of effectiveness of student-teacher mentors;
- the role played by the building and school administration, especially if it is one that hinders creativity and innovation;
- state accountability and school-level accreditation, which may lead to higher test scores and a high accreditation level, but do not "necessarily indicate success in literacy, because most assessments focus on

isolated segments of decoding rather than on comprehension;" and

- peer pressure from older teachers that causes the new teacher to try to fit in by not doing things "too far out of the norm."

Effective Reading Instruction and Goals: Some "Big Ideas"

Skepticism prevailed among the speakers over the status of the "reading wars." Even if overt fighting has ceased, fundamental questions have been left unanswered and information on the teaching of reading reaches the hands of too few teachers.

One speaker observed that the introduction of new state-driven standards has added a new dimension to the reading debate. A paradigm shift in education has left reading research languishing in a past era, according to Dick Allington, professor and chair of reading at the State University of New York, Albany. "Research has not caught up with policy and practice," he argued, since new student standards have been introduced in schools nationwide. The new standards "offer a different vision of what it means to be literate from the old minimum competency definitions that have been so pervasive," he observed.

An example Allington offered is the preponderance of research that supports the importance of phonemic awareness and phonemic segmentation. This, he said, stands in stark comparison with the paucity of information on how to develop phoneme awareness and segmentation in young students. He also reported that while research studies exist that "describe the nature of teacher training," few "describe the impact of the training in terms of how teachers teach, much less whether student learning is affected."

Allington raised concerns that few studies tease out why something is working. He noted that often long-term effects might significantly differ from short-term effects that are evident in a program under study.

Ken Pugh, representing Haskins Laboratories in Connecticut and Yale University School of Medicine, offered a detailed description of neurobiological research that examines brain functions of dyslexic adults compared to a control group that is underway as a collaborative effort between Haskins and Yale. The research detected that when both sets of readers moved from orthography to orthography plus phonology, there was a noted difference in the way their brain systems responded. The bottom line: "the signature of a phonological deficit" in the dyslexic adults is evident. Pugh called for additional studies to ascertain how intense phonological remediation affects brain patterns.

One critic of the recently released report by the National Academy of Sciences' National Research Council's Committee on Preventing Reading Difficulties in Young Children, urged Panel members to pick up the pieces by addressing several research issues. Jerome Harste, vice president of the National Council of Teachers of English, claimed the NRC report offers no consistent model of learning, which results in teachers receiving a "mixed message" regarding how

to teach. The NRC report also did not offer a consistent definition of reading, said Harste, nor did it allocate sufficient time to research surrounding comprehension issues.

Another theme that emerged from regional meetings was the stated dangers of "tinkering around the edges of reading." Most who spoke to the issue believed that minor changes would not lead to more effective reading instruction. Mike Walters, director of the Mississippi Association of School Superintendents, said he learned that tinkering with the system "will result... in the disappointment of us all." For him, the reading problem transcends the schools, forcing the community and family to evaluate their role in student achievement.

While some speakers urged professional development opportunities to focus on providing teachers with knowledge of multiple strategies for enhancing reading programs, other speakers focused on more discrete issues. For example, Seattle University Professor Katherine Schlick Noe said helping children see themselves as readers and writers is a key component of effective reading instruction. She suggests that children learn to read and write "within a context of its application in the real world."

Barbara Foorman, professor and director of the Center for Academic and Reading Skills at the University of Texas, Houston, asserts that to teach reading effectively, instruction must "promote reading success, specifically success in identifying words and understanding text." Foorman contended that a first step is the child's ability to segment the sounds of words. Programs that focus on the most frequent spelling patterns for the approximately 44 phonemes of English "can bring children at risk for learning to read to a national average in decoding words." She coupled the phonological approach with an emphasis on reading for comprehension, the ultimate goal of reading. According to Foorman, an effective reading program would include word recognition, spelling, vocabulary, and comprehension. All are linked. Word recognition allows children to develop memory and attention, which are key for comprehension. Spelling takes students beyond phonics to "learn about word meanings and writing conventions." It is hard to read and spell, said Foorman, without broadening one's vocabulary. Comprehension is the ultimate goal of reading.

Other speakers offered their opinions on whole language, phonics, and other strategies for teaching reading skills. For example, University of Utah Professor Kathleen Brown underscored at the New York meeting that research indicates reading by context alone is an unreliable and inefficient aspect of any reading program. Although many teachers encourage their nascent readers to rely on context clues for decoding unknown words, Brown finds it an abhorrent practice. "Using context to identify words only works about approximately 25 percent of the time and it is poor readers who rely on these strategies to identify words," she said. A more effective strategy, she noted, is decoding by analogy. In other words, when confronted by an unknown word, effective readers use chunks they remember from other words to discover an approximate pronunciation of the unknown word.

Seattle Pacific University Professor Bill Nagy focused his presentation on the important role vocabulary plays in reading comprehension. However, he cautioned that spending more time doing vocabulary activities is not the correct route. Instead, teachers "need to be more intentional about doing what we can to promote vocabulary growth in our students." He suggested a multi-pronged approach, with "wide reading" as a cornerstone, including individual word education, word learning strategies, and word consciousness promotion.

"Big ideas" tangential to reading acquisition also surfaced during the meetings. According to many speakers, improved reading achievement is not possible without addressing such issues as class-size reduction, teacher training, consideration of different learning styles, and early intervention. Portland parent Lisa Leslie advised, "If your desire is to accomplish something other than stirring the reading debate pot, you are going to have to look beyond just finding the best practice and the research and look at some of the big ideas that would apply to any reading method that is used in the classrooms."

Stepping Stones for Reading: From Phonemic Awareness to Comprehension

To borrow from Dr. Seuss, reading is a great balancing act, according to most speakers. Most presenters supported reading instruction that combines systematic phonics with good children's literature. Susan Stires, a staff developer in New York City representing the National Council of Teachers of English, spoke for many when she endorsed a reading approach that combines "phonology and meaning-making [as] both are essential to children's learning to read."

While not dismissing whole language, other presenters cheered phonics as the "come-back kid" in the great debate. Portland parent and educator Sharim Wimbley Gouveia insisted that children must be taught how to decode the language using phonics since "our system of spelling and reading was created as a sound-symbol relationship."

Several presenters discussed the needs of children who do not require phonics instruction to break the code. Some argued that if reading instruction was truly individualized, the needs of these children could easily be met. On the other hand, Dorothy Whitehead, a veteran reading teacher with 38 years of experience, spoke up in favor of a whole language program that does not "completely ignore the 20 percent of the children who need the phonics to decode the words."

One speaker questioned an approach to reading instruction that includes both phonemic awareness and whole language strategies. Jimmy Kilpatrick, director of READ BY GRADE 3.com, insisted that a program including phonics and whole language only confuses children. Said Kilpatrick, "In actuality, I believe public schools in this country have been teaching the balanced approach for reading for years. This is why our students cannot read. Most teachers have

been providing a smattering of phonics with whole language lessons. The children have been totally confused because whole language means teach the children to read from the whole to the part; phonics means to teach children to read from the part to the whole... How can children keep from being confused when the two approaches are mixed or balanced?" Kilpatrick unequivocally concluded that whole language is "educational malpractice for the bottom 20 percent of our student population."

Striking a Balance in Reading Instruction

Flexibility is key to a successful reading program, stated David Denton, the Southern Regional Education Board's director of the Health and Human Services Program, because "children aren't all the same." He called for a "flexible, multi-faceted approach to reading, or a 'balanced approach,' for want of a better term," a theme echoed by a broad range of speakers. Denton stressed that balance means different things for different children.

Officials from Chicago, Portland, Houston, New York, and Jackson presented their schools' plans to improve reading achievement. All promoted balance in their reading programs. Student standards were set and assessments developed to measure progress.

"A Balanced Approach to Reading" is the title given to Houston Public Schools' reading program. Phyllis Hunter, reading manager for Houston Independent School District, explained the six key features of the reading program: phonological awareness; print awareness; alphabetic awareness; orthographic awareness; comprehension strategy; and reading practice. These principles are imbedded in a literature- and language-rich environment.

Early Identification of Weaknesses

One issue that united presenters is the need for an early screening test to detect a weakness in phonological awareness. Yolanda Proust, a linguist who addressed the Houston meeting, called upon researchers to develop tests for teachers to use to assess "on-the-spot" a "poor reader" who has not grasped phoneme awareness skills.

To respond to this need, Hofstra University Psychology Professor Charles Levanthal has been engaged for the past eight years in developing a "quick and effective screening instrument for the detection of reading difficulties based upon the acknowledged role of phonological coding skills in the process of reading." His instrument, "The Quick Rhyming Test" (QRT) is based on phonological and orthographic similarity and dissimilarity. It is a 15-minute test for both children and adults that Levenathal claimed correlates with subscores on the Stanford Achievement Test and the Woodcock Reading Subtests for adults.

Reading: A Cross-Disciplinary Approach that Requires Systemic Change

Steve Bingham, representing the Southeast Regional Vision for Education

(SERVE) -- a consortium of educators in the southeast United States -- at the Jackson meeting, described what teachers need to build a strong reading program. Such a program is based on the following principles:

- stated goals and expected student outcomes are discussed and shared;
- goals and outcomes are consistent across a school, not just a classroom;
- texts and other materials fit the program goals;
- individualized instruction is available for students needing more support than others;
- students read frequently from "relevant-leveled books of their choice;"
- student progress is assessed and documented in an ongoing fashion;
- teachers receive more reading research information;
- teachers get continual feedback on how to apply new instructional approaches;
- reading is considered a cross-disciplinary skill;
- the program is modeled, possibly through school-wide reading events and through activities that involve the community.

Another champion of system-wide reform was Amy Alday-Murray, from the Oregon Department of Education, who described the comprehensive educational standards-setting process underway in her state. Common curriculum goals guide local educators in developing a curriculum, while content standards "identify the essential knowledge and skills expected of all students. These standards are assessed statewide. The benchmarks, set for grades three, five, eight, and 10, serve as indicators and can be used by teachers as diagnostic tools."

Oregon has a multiple-choice assessment and a requirement for local performance assessments, also given at grades three, five, eight, and 10. Statewide scoring guides have been developed, and training for reading teachers is underway. Future goals include engaging parents in home and school literacy activities and providing support in reading instruction for secondary-level teachers.

Chicago Public Schools also produced a comprehensive plan to increase student reading achievement. As told by Cozette Buckney, chief education officer for the city's school system, the plan covers pre-K through 12th grade. The system made headlines by putting 109 schools on probation, with the administration providing extensive help to upgrade programs, including reading. The school system then placed reading coordinators in the 76 next lowest performing schools to help redesign the reading program. Academic

standards were established systemwide, and social promotion was eliminated. According to Buckney, students cannot enter high school unless they are reading at the 7.2 grade level, up from 6.8. Strong support systems were put in place, including after-school and summer programs to help students achieve at least grade level in reading.

Mary Ann Graczyk, president of the Mississippi American Federation of Teachers, Paraprofessionals and School-Related Personnel, called upon the Panel to champion a variety of conditions for reform of the many systems that support teaching and learning in individual schools and districts. "This means teachers and students must be guaranteed a safe, orderly environment of learning where there are expectations of high standards of discipline and achievement of all students," she explained. She called for necessary planning time for teachers and an "end to the excessive use of teachers' time for non-teaching duties." For Graczyk, systemic change also means an end to using poverty as an excuse for the lack of achievement. "Poverty is not a synonym for stupidity, laziness, ineptitude, or lack of learning or caring."

Successful Reading—A Lifelong Learning Experience

A focus on reading should start early in a child's life and extend beyond the walls of the classroom. "Early education has got to start earlier and earlier," said William Winters, former Governor of Mississippi. He explained that one of his greatest challenges as governor was to pass a public kindergarten bill in Mississippi. The state now makes kindergarten possible for every child.

Deborah Shaver, a primary teacher from Portland, encouraged the Panel to include in its study the importance of capitalizing on eager attitudes toward learning that youngsters typically bring to first grade. Shaver advocated that more resources and time be devoted to first-grade reading. Teachers must find a way to capture the eagerness first graders bring to school to learn to read, she said. "That is where our biggest payback will be because we are getting children who are engaged and who want to learn and who do not have to carry the baggage of 'I cannot do this, or I have tried, or I am not as good as everybody else,'" she said.

Other presenters called upon the Panel to continue reading education beyond the early years of school. Dawn Tyler, an eighth-grade reading teacher in Mississippi, who just completed her first year in the classroom, addressed the need for reading instruction beyond third grade. She urged Panel members to give special consideration to the needs of older students and to children from rural communities.

Ellen Fader, youth service coordinator for Multnomah County Library, offered insight into how libraries can participate in reading instruction. Libraries in 18 counties in Oregon participate in the Reading for Healthy Start Project, which receives federal and state funding. An emergent literacy program for expectant and new parents is part of the program run out of the Multnomah County Library. Called "Born to Read," the program is affiliated with the American Library Association. Other programs run under the auspices of local libraries

are "Ready to Read" and "Similar Books to You," which send trained individuals into third- to fifth-grade classrooms in low-income schools to help with academics.

While underscoring the importance of libraries in supporting reading instruction, Janice Cate, an English-as-a-Second-Language teacher, decried the lack of books in school and classroom libraries. Not only do more books need to be made available to students, she said, children and adults also need to choose what they want to read.

David Wizig, a Houston middle school teacher, reported on the importance of having students choose their own books. He found self-selection to be a great motivational tool.

Reading: There's No Single Magic Bullet

There are many ways up a mountain, said one presenter in describing the various approaches he believes must be corralled to produce effective reading instruction. Other presenters agreed that a one-size-fits-all reading model fails to address the needs of all children. Several presenters added that reading instruction should be part of a cross-disciplinary practice that includes at least writing and spelling.

Learning to read should be a universal goal, presenters maintained, with multitudinous paths leading to goal achievement. Speakers were unequivocal that the one-size-fits-all reading model has failed students nationwide. Instead, teachers must first be able to recognize different learning styles and then be able to match appropriate strategies to the individual needs of the child.

In broader strokes, several speakers distinguished the earliest readers into two groups: those who have phonemic awareness skills and those who require direct instruction to acquire the skills that support reading. Along these lines, Kathryn Ransom, president of the International Reading Association, emphasized the different learning styles of early readers. She noted that phonemic awareness is an "essential element of learning to read," but "universal intensive direct instruction of the alphabetic principle is not as clearly necessary for all children."

More information must get into the hands of educators for them to provide high-quality teaching practice that best fits the needs of any individual or group. Mississippi Teacher of the Year Tina Scholtes hailed the Success for All model because it addresses all learning styles. A belief that all children can learn to read undergirds the program. It also is designed to start reading instruction wherever the child lies on the ready-to-read spectrum, rather than "throw[ing children] into something that they are not prepared for."

One Size Does Not Fit All

Kittye Copeland, a 31-year veteran teacher, urged the Panel to reject ideas about whole group instruction, claiming that it forces "teachers to fragment

language and it also sets up situations that children have to sit through things that they already know and they do not need to hear or they are not ready to hear." Children, then, are unable to pay attention and grab hold of what is being presented to them. Copeland stated that the "personalization of reading is ignored and often individual learners are devalued."

Speaking to the issue of whether it is feasible to individualize instruction in the average American classroom, Sholtes maintained, "You can do it. It is not impossible." She added that her school has built into its daily schedule 90 minutes of uninterrupted reading instruction every day. All teachers become reading teachers, with children divided into groups based on "where they felt comfortable."

Yet, most teachers are trained in only one method of reading instruction, noted Miriam Balmuth, professor at the Hunter College School of Education, at the New York Panel meeting. She observed several pitfalls with this approach. First, many first-year teachers trained in one method often end up in a school system that expects them to teach reading requiring the application of the principles of another method. Culpability for this one-method dilemma rests on the faculty of schools of education and reading researchers, who often travel down the "well-trodden path of... research that focuses on examining whole programs..."

Faculty and researchers mistakenly have been searching for a "teacher-proof method," she claimed. Said Balmuth, "What may be needed, instead of one well-grounded teacher-proof method, is a universe of well-grounded, method-proof teachers."

The divide between instructional paths should not be carved between special-needs and regular populations, but on the specific needs of the individual child. One parent attributed the reading success of her profoundly hard-of-hearing child to the individualized instruction she receives at her school. "This should be a goal for all of mainstreamed children," declared parent Lisa Leslie. She conceded, however, that the teacher-student ratio in most classrooms prohibits reading instruction designed to meet the particular needs of an individual child; and she called for "reducing the ratio."

Both Portland primary teacher Deborah Shaver and Peter Thacker, a teacher at Portland's Cleveland High School, supported Leslie's call for individualized instruction. "It is very important to follow the lead of the kids," said Thacker. "No one strategy works for all children," echoed Shaver. Thacker also offered a critical view of reading research, which he said, "looks at the mean." Instead, teachers should "look at the individual," he declared.

Concurring that the one-size-fits-all approach to reading excludes hordes of students, Shirley Tipton, from the Coalition for Citizens with Disabilities, urged the Panel to pursue multiple approaches to reading instruction that consider a wide variety of learning styles. She also advocated persistence. "Do not change from one type of reading instruction to another so often that the child or the adult, in sheer desperation, simply gives up or drops out and becomes

another illiteracy statistic."

Professional Development: The Cornerstone of Reading Achievement

Presenters at all sites implored Panel members to address the need for effective, research-based pre-service and in-service professional development opportunities for teachers charged with teaching children how to read and comprehend. However, it was the prospective teacher's undergraduate coursework in reading, or lack thereof, that received the most attention.

Far too often, teachers unprepared to handle the complexity of reading instruction are sent to the frontlines of education, and, as noted by one speaker, through default refer only to the teacher's manual in a basal reading program. These teachers, at best, do little to advance the reading skills of students who easily break the code; at worst, they wreak havoc on the reading abilities of children who require direct instruction in phonological awareness.

Kay Allen, associate director of the Neihaus Education Center in Houston, was one speaker who called for the renewal of pre-service reading education. The Center is a not-for-profit education foundation that offers teachers ongoing professional development in reading instruction, emphasizing the needs of students at-risk for reading failure.

Many of the teachers who troop through the Center's doors leave complaining, "'why wasn't I taught this information in my education classes at the university?'" reported Allen, in summarizing the Center's propositions to:

- give pre-service teachers the information they will need in order to help all of their students achieve their potential in reading and writing, particularly the 15 to 20 percent who are at risk for reading failure without explicit instruction;

- strengthen training requirements for those teaching reading to first, second, and third graders;

- provide in-service training for teachers already in the classroom whose pre-service training did not provide them with what they need and whose awareness of research does not include more recent findings such as the role that phonological awareness plays in the reading process.

Allen concluded, "To fail to provide teachers with the necessary knowledge base is to fail them in their professional preparation and ultimately to fail those students who look to them to unlock the door to literacy."

Norfolk State University's Reading Partners Clinic is a university-based program that tries to accomplish this training requirement. Carmelita Williams, professor in the School of Education at Norfolk State University, highlighted the Clinic's success with education majors and their young students. The program provides "practical and hands-on experiences [that are] useful in promoting successful readers," she noted.

Teacher training in reading should stress linguistics and language acquisition, according to Glenellen Pace, professor at Lewis and Clark University. She told the Panel this background would allow teachers to see that "the notion of phonics and whole language are not parallel constructs." Pace held that whole language is a philosophy, while phonics is a "little, tiny piece of teaching reading."

While acknowledging an urgent need for a "broadly grounded, scientifically credible, and educationally appropriate knowledge base" of reading instruction to serve as the "foundation for professional development," several speakers also highlighted formidable obstacles hindering progress in this area.

International Reading Association President Kathryn Ransom cautioned in Chicago that teachers are leery of change. "Teachers have grown tired and weary of today's magic bullet," she lamented. She and others also noted the lack of time afforded teachers during the school day to reflect on cutting-edge reading research and innovative ways to bring theory into practice. "I am sure each of you have been in a classroom and realized how little time there is for the professional educator to sit and think, to communicate with colleagues, to visit, to read research. They constantly have children in front of them," she told Panel members. "For any research-based recommendation to be effective it must be adapted to meet the needs of each school and community."

More Resources Are Needed to Improve Teacher Professional Development

Several speakers pointed to a paucity of resources dedicated to reading instruction as plaguing many schools. The lack of available funding, for example, often leads to bad decisions at the local level. IRA's Ransom reported that in some districts, untrained paraprofessionals provide reading instruction in an attempt to save money. Or a student with special needs has less time with a "highly qualified — and, yes — expensive professional reading teacher," she added.

Paula Costello, an English language arts coordinator for a large suburban school district outside of Buffalo, New York, echoed Ransom's dismay over lack of funds. Often, districts purchase "canned program[s]" that they drop in the laps of teachers, who then spend one day sifting through the manuals; and "they consider that professional development," said Costello. She warned that if the Panel develops recommendations that "leave leeway for districts" to grab hold of the basal programs, they will do that because it's easier than constructing more meaningful professional development opportunities.

Reinforcing the necessity of professional development for teachers, speakers from Oregon and Texas equated their cities' and states' reading success to their ability to target funds specifically to teacher-training needs.

According to Michael Ann Ortloff, targeting funds for professional development that focuses on beginning reading strategies is a key element of early literacy programs in Portland Public Schools. Ortloff has worked as a pre-school

through eighth-grade teacher, a middle school assistant principal, and elementary school principal. She also was co-director of the Oregon Writing Project, and currently is the English language arts administrator for Portland Public Schools.

Portland's plan, which emphasizes professional development that allows teachers to "learn, revise, and implement effective literacy practices," also calls for extensive ongoing professional development in reading for all teachers.

Robin Gilchrist, assistant commissioner at the Texas Education Agency, highlighted her state's financial commitment to reading and the required professional development. All of the state's Goals 2000 funds were directed to staff development in reading, "particularly on continued, sustained professional development," remarked Gilchrist.

Methods to help teachers predict a child's reading difficulty and strategies to help young children at-risk of reading problems also were considered a critical piece of the reading puzzle by many speakers. Knowledge of appropriate early intervention strategies is considered essential to help place children on the road to reading, according to numerous speakers.

Patty Braunger, a 25-year teaching veteran, credited her training as a Reading Recovery teacher for allowing her to be a successful teacher of reading, even with children who are severely learning disabled. She joined the choir of reading teachers and researchers who strongly advocate early intervention. Said Braunger, "There are those children that are labeled learning disabled because of a system that has not put the money into early intervention," including teacher training.

Parents and Reading: A Child's First Teacher

The Panel's recognition of the importance of parents as stakeholders met with much applause at each of the meeting sites. For many speakers, the learning at home/learning at school connection is a vital, yet often underutilized, tool for teaching reading. The role of parents as a child's first teacher has gained status as breakthroughs in brain research have lent credence to what many teachers, psychologists, and social workers intuited through clinical experiences: learning takes place at a very early stage in life, and the interaction between child and parents and caregivers can make a significant impact on the child's future academic career.

Despite the potential of parental instruction on a child's future reading ability, Portland teacher Deborah Shaver alerted Panel members to an "us versus them" atmosphere that she has observed, pitting school staff against parents.

One Portland parent-volunteer, Mary Kelly Kline, offered that some educators are hesitant to reach out to parents because it "involves changing parent behavior" in some cases. The dirty little secret that no one wants to disclose, according to Kline, is that "unless a lot of parents' behaviors change...

regarding their children and reading in the home, it is unlikely that all the literacy strategies that we have heard today are going to be ultimately successful."

Mary Hardy, representing the Mississippi PTA, echoed Kline's concern, calling on the Panel to help get the message to parents that it is important for them to read with and to their children. Reading must be "advertised like McDonald's," she said.

The Value of Volunteers

Other speakers described successful parent volunteer or parent-education programs that help parents encourage reading among their children and also promote intergenerational literacy skills. For example, Margaret Doughty, executive director of the Houston Reads Commission, described the Houston Reads to Lead Program — a program that depends on total community engagement to improve literacy skills. Catering to parents and children, the Program operates in schools, parks, churches, community learning centers, and libraries. Doughty: "Family literacy as an intervention strategy has been proven to work. It ties family needs for self-sufficiency together and puts learning at the heart of change within a family."

Portland reading teacher Kathy Baird pointed to the strong parent-training component for the Reading Recovery program as a model for parent involvement. Miriam Westheimer represented the Home Instruction Program for Preschool Youngsters (HIPPY) at the New York meeting. HIPPY works, according to Westheimer, because it does more than simply tell parents they should read to their children. It helps them get started by providing guidance on how to read to a child. HIPPY also is based on home visits conducted by paraprofessionals.

Joanne Wilson-Keenan, a language arts teacher from Springfield, Massachusetts, informed the Panel of the Springfield Learning Community Collaborative, which she directs. The program was designed to "tap families' funds of knowledge and to change the relationships between urban families and schools." The Collaborative involves teachers, students, their families, and the University of Massachusetts at Amherst.

Jill Brennan, chairman and president of Reading is Fundamental (RIF) in Chicago, and Nedra Whittig, executive director of RIF in Chicago, discussed RIF's strong parent component. Brennan clearly stated that the program's mission is not to teach children how to read, but to motivate them to want to read. Making parents partners is a critical element of RIF, and its subsidiary program, Project Open Book at Children's Memorial Hospital.

Whittig, director of Project Open Book, also acknowledged that parents are key to the program she directs. Similar to the emphasis on parents in the HIPPY program, Project Open Book gives parents pointers on how to help their child read and organizes meetings of parents, giving opportunities for parents to learn from each other.

In Mississippi, Nadine Coleman described the Parents As Teachers program, which operates under the Petal School District parenting center. Coleman, director of the center, explained that the parent program involves home visits, in which staff make monthly visits to the parents of children ages zero to three.

Special Needs: No Child Benefits from a "Wait and Fail Model"

Prevailing commentary among speakers focused on the similarities of special-needs and regular-tracked students, rather than on their differences. For example, early intervention for reading was hailed by numerous presenters as imperative for both special-needs and general-education students.

Individualized reading programs also were identified as essential for both special-needs and general-education students. However, many presenters acknowledged that learning-disabled students who are not appropriately taught how to read are especially vulnerable to failure.

Sandra Britt, from the Learning Disability Association of America, described the path far too many learning-disabled (LD) children travel. "Unless these children are identified early, and appropriate instruction provided, they may be passed along in school until basic reading instruction is no longer available," she said.

She added that many LD children require a multi-sensory phonics-based approach with instruction in phonemic awareness. Others need a "more meaning-based approach, while other students need interventions to address comprehension problems."

Some presenters asserted that it is not the child who is at risk of a reading disability, but a school that is at risk for failing to teach children how to read. Cheryl Ames, from the Beaverton School District in Oregon, stressed that "policy and practice should emphasize effective early intervention prior to labeling [children as] disabled." In support of her view, Ames cited an International Reading Association publication statement that identifying a child as learning disabled based simply on reading problems is inappropriate unless that child has received proper early intervention in reading instruction. She added that instruction for these children should be led by a reading specialist, carried out in small groups, if not one-on-one, and consist of at least 30 minutes each day for at least one full year.

Houston parent Synda Frost echoed Ames by stating that some children are "disabled by instruction." She said she is "no longer moved by the common excuse given by schools that begins with, 'If only the parents would do their part.'" According to Frost, an effective school-based reading program would preclude any need for parental involvement in order to achieve reading success.

Informed instruction is key for reading achievement for all students, including learning-disabled children, notes G. Emmerson Dickman, board member of the

International Dyslexia Association. He also advocated early intervention, quoting Tom Hehir, director of the Office of Special Education Programs in the U.S. Department of Education, who said, "Special education for pupils with learning disabilities in the United States is a wait and fail model."

In Louisiana, a 1991 law mandates identification and treatment of dyslexic students. However, staff development models were, and still are, desperately needed, said Mary Scherff, from the Louisiana State Board of Education. She urged the Panel to identify and distribute to schools information on reading programs appropriate for "normal readers, inadequate readers, dyslexic students, and special-education students."

For children whose primary language is not English, Lupita Hinojosa, president of the Texas Association for Bilingual Education, urged reading programs to begin in the child's first language. "Reading is reading is reading," she told the Panel. "In whatever language the children bring to the school, reading is reading and they will be able to read." She also urged the Panel to examine teacher-preparation programs and instructional materials that serve bilingual students.

The Paramount Task: Dissemination of Findings and Successful Practices

"How to deliver the goods in the professional development market" is a daunting task, but one that must top the Panel's agenda, according to Sheldon Horowitz of the National Center for Learning Disabilities. Most presenters concurred with the general sentiment that the Panel's greatest contribution would be to deliver a report that moves "beyond research" and tells educators and parents what steps to take to improve student reading achievement. However, they acknowledged that it is a formidable task to get the report into the hands of all the right people.

Broad distribution — not only to teachers, administrators and other policymakers, but also to parents — was the clarion call of most speakers. "Until the parents are informed of what is happening in reading, I don't think we are going anywhere," cautioned Mississippi State Representative Rita Martinson.

Presenters in all regions of the country called upon the Panel to be aggressive and creative in the tactics used to disseminate the results of its study. Not only were Panel members counseled to address diverse audiences — parents, educators, members of the community, and business and civic leaders — they were encouraged to use a variety of media and tools to get out news and information of the findings.

Effective Programs Can Serve as Models for Dissemination Strategies

The Panel heard about a number of successful programs that offered a series of initiatives and ideas that could be used as models for dissemination. These programs include:

- Reading is Fundamental
- Reading Recovery
- March of Dimes "Reading Champions"
- Start Making a Reader Today (SMART)
- Time Warner's "Time to Read"
- Project Read
- Success for All
- Reading Partners Clinic

Section 5: Methodology

The importance of the issues under consideration by the Panel cannot be overstated. For decades educators have been studying how children learn to read, often producing conflicting results. More recently, science has opened windows that allow researchers to observe how the brain functions as reading skills develop. Although these advances have afforded a clearer understanding of how the brain processes information transmitted through the written word, the issues remain complex; the debates continue.

Many believe the debates have gone on long enough. Congress has recognized the urgency of sorting through the research and, based on trustworthy evidence, developing recommendations and strategies that can be used directly by educators in the classroom. That is the Panel's task.

The Panel believes that it would not have been possible to accomplish the mandate of Congress without first hearing directly from consumers of this information -- teachers, parents, and students -- about their needs and their understanding of the research. Although the regional hearings were not intended as a substitute for scientific research, the hearings gave the Panel an opportunity to listen to the voices of those who will need to implement any determination(s) the Panel develops. The hearings gave members a clearer understanding of the issues important to the public.

As a result of these hearings, the Panel altered and broadened its own agenda. It decided, for example, that it would be important to examine issues related to teaching standards and practices, since it was clear that the public was very concerned about these matters. The Panel also decided that the issue of research evaluation methodology itself was so important that it should spend time defining a methodology that would constitute a rigorous and replicable scientific exploration.

Meanwhile, the Panel understood that criteria had to be developed as it considered which research studies would be eligible for assessment. There are two reasons for determining such guidelines or rules from the beginning. First, the use of common search and selection, analysis, and reporting procedures will allow this effort to proceed, not as a diverse collection of independent—and possibly uneven—synthesis papers, but as parts of a greater whole. The use of common procedures will permit a more unified presentation of the combined methods and findings. Second, the amount of

synthesis needed is great, and, consequently, the Panel must work in diverse subgroups to complete the reports. However, in the end the Panel will need to arrive at findings that all members of the NRP will be able to endorse. Common procedures should increase the Panel's ability to reach final agreements.

Conceptualization of Research Questions and Problem Identification Procedures

Congress mandated that the NRP conduct a series of research reviews on the teaching of reading. The Panel, through an examination of various public databases, determined that there is a universe of approximately 100,000 studies on reading published since 1966, and, perhaps another 15,000 completed before that time. It was apparent that the Panel could not review all of this material adequately, in the time allotted.

To ensure success, several actions were taken. First, a request was made to extend the Panel's timeline by one year. This request was granted. Second, support for hiring research assistants and consultants was sought from the National Institute of Child Health and Development and this was provided. Third, decisions were made to narrow the search by limiting the reviews to only those studies that focus directly on children's reading development (preschool through grade 12) and are published in English in a refereed journal. The Panel was asked to defer issues of second language learning and bilingual education, as these were to be the focus of future panels and new research efforts.

Following its Charge, the Panel's reviews will seek research-based answers to seven questions that the Panel carefully determined to be of great importance in children's reading development and essential to its Charge:

1. Does instruction in phonemic awareness improve reading? If so, how is this instruction best provided?

2. Does phonics instruction improve reading achievement? If so, how is this instruction best provided?
3. Does guided oral reading instruction improve fluency and reading comprehension? If so, how is this instruction best provided?
4. Does vocabulary instruction improve reading achievement? If so, how is this instruction best provided?
5. Does comprehension strategy instruction improve reading? If so, how is this instruction best provided?
6. Do programs that increase the amount of children's independent reading improve reading achievement and motivation? If so, how is this instruction best provided?
7. Does teacher education influence how effective teachers are at teaching children to read? If so, how is this instruction best provided?

These questions represent topics of widespread interest in the field of reading education. They have been articulated in a wide range of theories, research studies, instructional programs, curricula, assessments, and policies as being central issues in reading achievement. It is likely that clarification of the matrix of the evidence supporting this approach will lead to improved instruction and to greater learning. Each subgroup will generate a list of additional subordinate questions that they will attempt to pursue within each of these major questions.

It must be remembered, however, that these are not the only issues of importance in learning to read. The Panel's silence on other issues should not be interpreted as indicating that other issues have no importance or that improvements in those areas would not lead to greater achievement. The review of other areas of potential value must be left to the later work of this or future panels or independent scholars.

Search Procedures

Each subgroup will conduct a search of the literature using common procedures, describing in detail the basis and rationale for its topical term selection, the strategies employed for combining terms or delimiting searches, and the search procedures used for each topical area.

Each subgroup will limit the period of time covered by its searches on the basis of relative recentness and how much literature the search will generate. For example, it may be wise to limit the years searched to the number of most recent years that will identify between 300-400 potential sources. This scope can be expanded in later iterations if it appears that the nature of the research has changed qualitatively over time, or, if the proportion of useable research identified is small (e.g., less than 25 percent), or if the search simply represents too limited a proportion of the total set of identifiable studies. Although the number of years searched may vary between subgroup topics, decisions regarding the number of years to be searched will be made in accord with shared criteria.

Applying the restriction that any study selected must focus directly on children's reading development (preschool through grade 12) and be published in English in a refereed journal, each subgroup will search both PsycINFO and ERIC databases. Subgroups may use additional databases when appropriate. Although the use of a minimum of two databases will identify much duplicate literature, it will also afford the opportunity to expand perspective and locate articles that would not be identifiable through a single database.

Identification of each study selected will be documented for the record and each will be assigned to one or more members of the subgroup who will examine the title and abstract. Based upon this examination the subgroup member(s) will, if possible at this stage of review, determine whether the study addresses issues within the purview of the research questions being investigated. If it does not, the study will be excluded and the reason(s) for its

exclusion will be detailed and documented for the record. If it does, the study will undergo further examination.

After this initial examination, the study, if not excluded in accord with the preceding criteria, will be located and examined further to determine whether the following criteria for inclusion in the subgroup's analysis are met:

Study participants must be carefully described (age, demographic, cognitive, academic, and behavioral characteristics);

Study interventions must be described in sufficient detail to allow for replicability, including how long the interventions lasted and how long the effects lasted;

Study methods must allow judgments about how instruction fidelity was insured; and

Studies must include a full description of outcome measures.

These criteria for assessing research literature are widely accepted by scientists in every discipline, and using them assures that all studies included in the final analysis meet rigorous standards that enhance the validity of any conclusions drawn.

If the study does not meet these criteria or cannot be located, the study will be excluded from subgroup analysis and the reason(s) for its exclusion will be detailed and documented for the record. If the study is located and meets the criteria, the study will become one of the subgroup's core working set of studies. The core working sets of studies gathered by the subgroups will be coded as described below and then analyzed in search of answers to the questions posed in this chapter and in the charge to the Panel.

If the core set of studies is insufficient to answer these questions, less recent studies may be screened for eligibility for, and inclusion in, the core working sets of studies. This second search may employ such resources as the reference lists of all core-working studies and known literature reviews to identify cited studies that may meet the Panel's criteria for inclusion in the subgroups' core working sets of studies. Any second search will be described in detail and will apply precisely the same search, selection, exclusion, and inclusion criteria and documentation requirements as were applied in the subgroups' initial search.

Manual searches, again applying precisely the same search, selection, and exclusion criteria and documentation requirements as were applied in the subgroups' electronic searches, may be conducted as a supplement to

electronic domains. Manual searching of recent journals that publish research on specific topics of the subgroups' analyses will compensate for the delay in appearance of these journal articles in the electronic databases. Other manual searching will be done in relevant journals to include eligible articles that should have been selected, but were missed in electronic searches.

Source of Publications: The Issue of Refereed and Non-Refereed Articles

In preparation for issuing its final report, the subgroup searches will focus exclusively on research that has been published or has been scheduled for publication in refereed journals. Determinations and findings for claims and assumptions that guide instructional practice will depend on such studies. Any search or review of studies that has not been published through the peer review process may be identified and published only as separate and distinct from evidence drawn from peer reviewed sources (i.e., in an appendix) and will not be referenced in the Panel's report. These non-peer-reviewed data may be treated as preliminary/pilot data that illuminate potential trends and areas for future research. Information derived in whole or in part from such studies may not be represented at the same level of certainty as findings derived from the analysis of refereed articles.

Orders of Evidence and Breadth of Research Methods Considered

Each type of research (descriptive-interpretive, correlational, experimental) lays claim to particular warrants, and these warrants differ markedly. It is important that we use a wide range of research, but that we use such research in accordance with the purposes and limitations of the various research types

To make a determination that any instructional practice could be or should be adopted widely to improve reading achievement indicates a belief, an assumption, or a claim that the practice is causally linked to a particular outcome. The highest standard of evidence for such a claim is the experimental study, in which it is proved that treatment can make such changes and effect such outcomes. Sometimes when it is not feasible to do a genuine experiment, a quasi-experimental study is done. This type of study provides a standard of evidence that, while not as high, is acceptable to many investigators. To sustain a claim it is necessary that there be experimental or quasi-experimental studies of sufficient size or number, and scope (in terms of population served), and that these studies be of moderate to high quality. When there are either too few studies of this type, or they are too narrowly cast, or they are of marginally acceptable quality, then it would be essential to have substantial correlational or descriptive studies that concur with the findings if a claim is to be sustained. No claim can be determined on the basis of descriptive or correlational research alone. The use of these procedures should increase the possibility of reporting findings with a high degree of internal validity.

Coding of Data

Characteristics and outcomes of each study that has met the screening criteria

described earlier will be coded and analyzed, unless otherwise authorized by the Panel. The data gathered in these coding forms will be the information used in the final analyses and so it is important that the coding be done systematically and reliably.

The various subgroups will rely on a common coding form developed by a working group of the Panel's scientist members and modified and endorsed by the Panel. However, some changes may be made to the common form by the various subgroups for addressing different research issues. As coding forms are developed, any changes to the common coding form will be shared with and approved by the Panel to ensure consistency across various subgroups.

Unless specifically identified and substantiated as unnecessary or inappropriate by a subgroup and agreed to by the Panel, each form for analyzing studies will be coded for the following categories:

1. **Reference**

    - Citation (standard APA format)
    - How this paper was found (e.g., search of named data base, listed as reference in another empirical paper or review paper, hand search of recent issues of journals)
    - Narrative summary that includes distinguishing features of this study

2. **Research Question: the general umbrella question that this study addresses**

3. **Sample of Student Participants**

    - States or countries represented in sample
    - Number of different schools represented in sample
    - Number of different classrooms represented in sample
    - Number of participants (total, per group)
    - Age
    - Grade
    - Reading levels of participants (prereading, beginning, intermediate, advanced)
    - Whether participants were drawn from urban, suburban, or rural setting
    - List any pretests that were administered prior to treatment
    - List any special characteristics of participants including the following if relevant:
        - SES

- Ethnicity
- Exceptional Learning Characteristics,e.g.,:
  - Learning Disabled
  - Reading Disabled
  - Hearing Impaired
  - English Language Learners (LEP)

- Explain any selection restrictions that were applied to limit the sample of participants (e.g., only those low in phonemic awareness were included)
- Contextual information: concurrent reading instruction that participants received in their classrooms during the study

  - Was the classroom curriculum described in the study (code yes/no)

  - Describe the curriculum

- Describe how sample was obtained:

  - Schools or classrooms or students were selected from the population of those available

  - Convenience or purposive sample

  - Not reported

  - Sample was obtained from another study (specify study)

- Attrition:

  - Number of participants lost per group during the study
  - Was attrition greater for some groups than for others? yes/no

4. **Setting of the Study**

   Classroom
   Laboratory
   Clinic
   Pullout program (e.g., Reading Recovery)
   Tutorial

5. **Design of Study**

- Random assignment of participants to treatments (randomized experiment)
    - With vs. without a pretest
- Non-equivalent control group design (quasi-experiment) (Example: existing groups assigned to treatment or control conditions, no random assignment)
    - With vs. without matching or statistical control to address non-equivalence issue
- One-group repeated measure design (i.e., one group receives multiple treatments, considered a quasi-experiment)
    - Treatment components administered in a fixed order vs. order counterbalanced across subgroups of participants
- Multiple baseline (quasi-experiment)
    - Single-subject design
    - Aggregated-subjects design

6. **Independent Variables**

a. Treatment Variables

- Describe all treatments and control conditions; be sure to describe nature and components of reading instruction provided to control group
- For each treatment, indicate whether instruction was explicitly or implicitly delivered and, if explicit instruction, specify the unit of analysis (sound-symbol; onset/rime; whole word) or specific responses taught. [NOTE: If this category is omitted in the coding of data, justification must be provided.]
- If text is involved in treatments, indicated difficulty level and nature of texts used
- Duration of treatments (given to students)
    - Minutes per session
    - Sessions per week
    - Number of weeks

- Was trainers' fidelity in delivering treatment checked? (yes/no)

- Properties of Teachers/Trainers

    - Number of trainers who administered treatments

    - Teacher/student ratio: Number of participants to number of trainers

    - Type of trainer (classroom teacher, student teacher, researcher, clinician, special education teacher, parent, peer, other)

    - List any special qualifications of trainers

    - Length of training given to trainers

    - Source of training

    - Assignment of trainers to groups:

        - Random
        - Choice/preference of trainer
        - All trainers taught all conditions
        - Cost factors: List any features of the training such as special materials or staff development or outside consultants that represent potential costs

***b. Moderator Variables**: List and describe other non-treatment independent variables included in the analyses of effects (e.g., attributes of participants, properties or types of text)*

7. **Dependent (Outcome) Variables**

    - List processes that were taught during training and measured during and at the end of training

    - List names of reading outcomes measured

- Code each as standardized or investigator-constructed measure
- Code each as quantitative or qualitative measure
- For each, is there any reason to suspect low reliability? (yes / no)

- List time points when dependent measures were assessed

8. **Non-equivalence of groups**

   - Any reason to believe that treatment/control group might not have been equivalent prior to treatments? yes/no
   - Were steps taken in statistical analyses to adjust for any lack of equivalence? yes/no

9. **Result (for each measure)**

   - Record the name of the measure
   - Record whether the difference—treatment mean minus control mean—is positive or negative
   - Record the value of the effect size including its sign (+ or -)
   - Record the type summary statistics from which the effect size was derived
   - Record number of people providing the effect size information

10. **Coding Information**

    - Record length of time to code study
    - Record name of coder

If text is a variable, the coding will indicate what is known about the difficulty level and nature of the texts being used. Any use of special personnel to deliver an intervention, use of special materials, staff development, or other features of the intervention that represent potential cost will be noted. Finally, various threats to reliability and internal or external validity (group assignment,

teacher assignment, fidelity of treatment, and confounding variables including equivalency of subjects prior to treatment and differential attrition) will be coded. Each subgroup may code additional items that they deem to be appropriate or valuable to the specific question being studied.

A study may be excluded at the coding stage only if it is found to have so serious a flaw that its use would be misleading. The reason(s) for exclusion of any such study will be detailed and documented for the record. When quasi-experimental studies are selected, it is essential that each include both pre-treatment and post-treatment evaluations of performance, and that there be a comparison group or condition.

Each subgroup will conduct an independent re-analysis of a randomly designated 10 percent sample of studies. Absolute rating agreement should be calculated for each category (not for forms). If absolute agreement falls below 0.90 for any category for occurrence or non-occurrence agreement, the subgroup must take some action to improve agreement (e.g., multiple readings with resolution, improvements in coding sheet).

Upon completion of the coding for each study published between 1993–95, a letter will be sent to the first author of the study requesting any missing information. Any information that is provided by authors will be added to the database.

After its search, screening, and coding, a subgroup shall determine whether for a particular question or issue a meaningful meta-analysis can be completed, or whether it is more appropriate to conduct a literature analysis of that issue or question without meta-analysis, incorporating all of the information gained. The full panel will review and approve or modify each such decision.

Data Analysis

When appropriate and feasible, effect sizes will be calculated for each intervention or condition in experimental and quasi-experimental studies. The subgroups will use the standardized mean difference formula as the measure of treatment effect. The formula will be:

$$(M_t - M_c) / 0.5(sd_t + sd_c)$$

where

M_t is the mean of the treated group,
M_c is the mean of the control group,
sd_t is the standard deviation of the treated group, and
sd_c is the standard deviation of the control group.

When means and standard deviations are not available, the subgroups will

follow the guidelines for the calculation of effect sizes as specified in Cooper and Hedges (1994).

The subgroups will weight effect sizes by numbers of subjects in the study or comparison to prevent small studies from overwhelming the effects evident in large studies.

Each subgroup will use median and/or average effect size when a study has multiple comparisons, and will only employ the comparisons that are specifically relevant to the questions under review by the subgroup.

Expected Outcomes

Analyses of effect sizes will be undertaken with several goals in mind. First, overall effect sizes of related studies will be calculated across subgroups to determine the best estimate of a treatment's impact on reading. These overall effects will be examined with regard to their difference from zero (*Does the treatment have an effect on reading?*), strength (*If the treatment has an effect, how large is that effect?*), and consistency (*Did the effect of the treatment vary significantly from study to study?*). Second, the Panel will compare the magnitude of a treatment's effect under different methodological conditions, program contexts, program features, outcome measures, and for students with different characteristics. The appropriate moderators of a treatment's impact will be drawn from the distinctions in studies recorded on the coding sheets. In each case, a statistical comparison will be made to examine the impact of each moderator variable on average effect sizes for each relevant outcome variable. These analyses will enable the Panel to determine the conditions that alter a program's effects and the types of individuals for whom the program is most and least effective. Within-group average effect sizes will be examined as were overall effect sizes, for differences from zero and strength. The analytic procedures will be carried out using the techniques described in Cooper and Hedges (1994).

Section 6: The Job Ahead

The regional meetings helped the Panel focus on the job that remains to be done. A number of important issues arose during the hearings, including issues of cost, practicality, methodology and the challenges schools face. The comments and questions raised at the regional meetings made one thing clear for the Panel – if it was to fully complete its charge and determine the best research-based practices for implementation in the classroom, its efforts had to be extended beyond the original November 1998 target date for completion.

The vast database of reading research, coupled by the thoroughness of the methodology criteria developed by the Panel, made it necessary to extend the Panel's life until early 2000. The additional year will provide the Panel with the time necessary to thoroughly analyze the research available and to respond to issues raised by the U.S. Congress and the Charge to the Panel issued by the

director of the National Institute of Child Health and Human Development.

Following are some of the issues the Panel will address in the remaining months of its tenure.

- **Defining literacy.** **Most Americans define literacy very narrowly as the ability to read and write. But national proponents of literacy strategies generally take a broader view. Organizations such as the National Institute for Literacy, for example, believe literacy means having the reading skills adequate to become self sufficient, stay current with developing innovations and knowledge, and progress in jobs and lifestyle.**

  Taking a broader view raises the stakes. It suggests that literacy is a problem that affects more students, more adults, the businesses that employ them and — in general — the national economy. The Panel needs to address how it defines literacy and how it might develop the strategies for getting the public to understand and accept the concept of what literacy means within the context of the Panel's findings.

- **What and how to teach.** **One of the most pressing needs regarding reading instruction is that of gathering information on what to teach and how to teach it. Currently, many teachers do not have the answers to these questions, due in part to an absence of empirical evidence that would enable administrators, teachers, and parents to determine specifically what should be taught.**

- **Classroom readiness.** **In addition to answering the what and how involved in reading instruction, the Panel will also need to address the issues of what is ready for immediate implementation in the classroom and whether classrooms are ready for such implementation.**

- **Addressing the issues facing schools.** **Schools face a daunting number of challenges. A significant number of teachers are not exposed to the research findings that emphasize the importance of phonological awareness. And many argue that in-service training will not be enough. They say pre-service coursework is necessary so that teachers will enter the job market skilled in the techniques that will help those at risk, especially those who will fail unless they receive explicit instruction.**

  Professional development will be especially important for those who teach reading to students in the first, second, and third grade. Reading research makes it clear that these are the most critical years in reading instruction and preparation. If these teachers do not receive adequate preparation, the students who need special attention will undoubtedly fail.

  Schools also will have to find a way to engage the interest of the business community. In most cases, school districts will not have the resources to succeed on their own. They will need to tap the

resources of those outside the education community, including companies and corporate foundations. It will be up to educators to help the business community recognize that it is in their interest to support the development of a literate workforce.

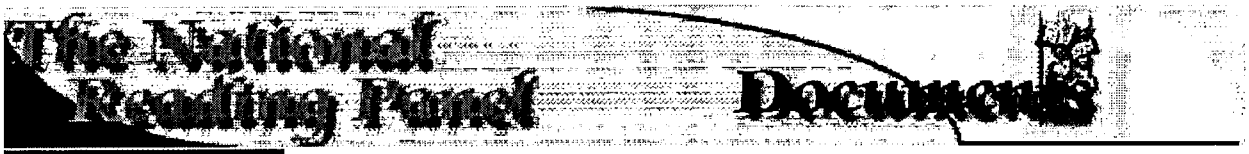
- **Conquering the dissemination challenge. Part of the National Reading Panel's charge is to determine how best to disseminate its findings to facilitate effective reading instruction. The Panel can learn from programs such as Reading Is Fundamental and Reading Recovery, which are excellent examples of how best practices can be disseminated through grassroots organizations and community-based programs. The Panel can build upon these models to develop a dissemination strategy that will incorporate its work into the very fiber of daily lives of parents, teachers, and students—while appropriately engaging policymakers, civic leaders, and elected officials as champions and supporters of improved reading instruction.**

  Successful dissemination and use of the Panel's findings will require a thoughtful approach to the environment in which these findings are presented.

  Further, parents, educators, and members of the general public already are somewhat skeptical about adopting a new paradigm for reading instruction. They naturally will interpret the Panel's programs and suggestions in light of their own opinions and beliefs. Therefore, the Panel must demonstrate how its findings address the questions and concerns of the American public and present compelling evidence that its work is based on research that is valid, able to be translated into teaching strategies, and will produce results – a nation of readers.

The Panel's work to date has moved it beyond the opinions and research findings offered by academic experts. At all full Panel and regional meetings, the sessions were announced in advance and were open to all members of the public. Panelists have heard the concerns of the target audiences—those who will be using and disseminating the Panel's findings. The regional meetings, for example, have helped establish the Panel's work as a national effort to find the best ways to teach reading. And the meetings have widened the field of inquiry by treating parents, educators, and concerned members as valuable colleagues with information and experiences to contribute.

In the end, if the Panel achieves its objective, its work will provide practitioners with science-based knowledge concerning the direction and skills necessary to lift student performance to new heights. Since students usually are taught by parents and teachers, rather than by experimenters and scholars, the Panel expects that its work will help construct the needed bridge between research and practice.



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CHARGE TO THE NATIONAL READING PANEL

The Congress of the United States, when it asked that the National Reading Panel be established, directed the Panel to "assess the status of research-based knowledge (of reading development and disability), including the effectiveness of various approaches to teaching children to read." Based on this assessment, the Panel is to "present a report to the Secretary of Health and Human Services, the Secretary of Education, and the appropriate congressional committees. The report should present the Panel's conclusions, an indication of the readiness for application in the classroom of the results of this research, and, if appropriate, a strategy for rapidly disseminating this information to facilitate effective reading needed regarding early reading development and instruction.

A recent report by the National Research Council Committee on Preventing Reading Difficulties in Young Children summarized converging evidence on what must be in place for children to learn to read and on various approaches to reading instruction. This report provides a valuable foundation on which the National Reading Panel can build.

Accordingly, the Panel is charged to conduct an extensive and critical review, analysis, and synthesis of the research literature on how children learn to read, and on how the components of skilled reading behavior are developed by various approaches to reading instruction for children of differing backgrounds, learning characteristics, and literacy experiences. Taking into account the relevance, methodologic rigor and applicability, validity, reliability, and replicability of the reported research the Panel should address the following questions:

1. What is known about the basic process by which children learn to read?

2. What are the most common instructional approaches in use in the U.S. to teach children to learn to read? What are the scientific underpinnings for each of these methodologic approaches, and what assessments have been done to validate their underlying scientific rationale? What conclusions about the scientific basis for these approaches does the Panel draw from these assessments?

3. What assessments have been made of the effectiveness of each of these methodologies in actual use in helping children develop critical reading skills, and what conclusions does the Panel draw from these assessments?

4. Based on answers to the preceding questions, what does the Panel conclude about the readiness for implementation in the classroom of these research results?

5. How are teachers trained to reach children to read, and what do studies show about the effectiveness of this training? How can this knowledge be applied to improve this training?

6. What practical findings from the Panel can be used immediately by parents, teachers, and other educational audiences to help children learn how to read, and how can conclusions of the Panel be disseminated most effectively?

7. What important gaps remain in our knowledge of how children learn to read, the effectiveness of different instructional methods for teaching reading, and improving the preparation of teachers in reading instruction that could be addressed by additional research?

In carrying out this charge, the Panel shall use the means necessary to retrieve, review, and analyze the relevant research literature; seek information and viewpoints of researchers and other professionals in reading instruction as well as of teachers and parents; and exert its best efforts to complete its work of developing responses to the questions above and submit a final report by November 1998.

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