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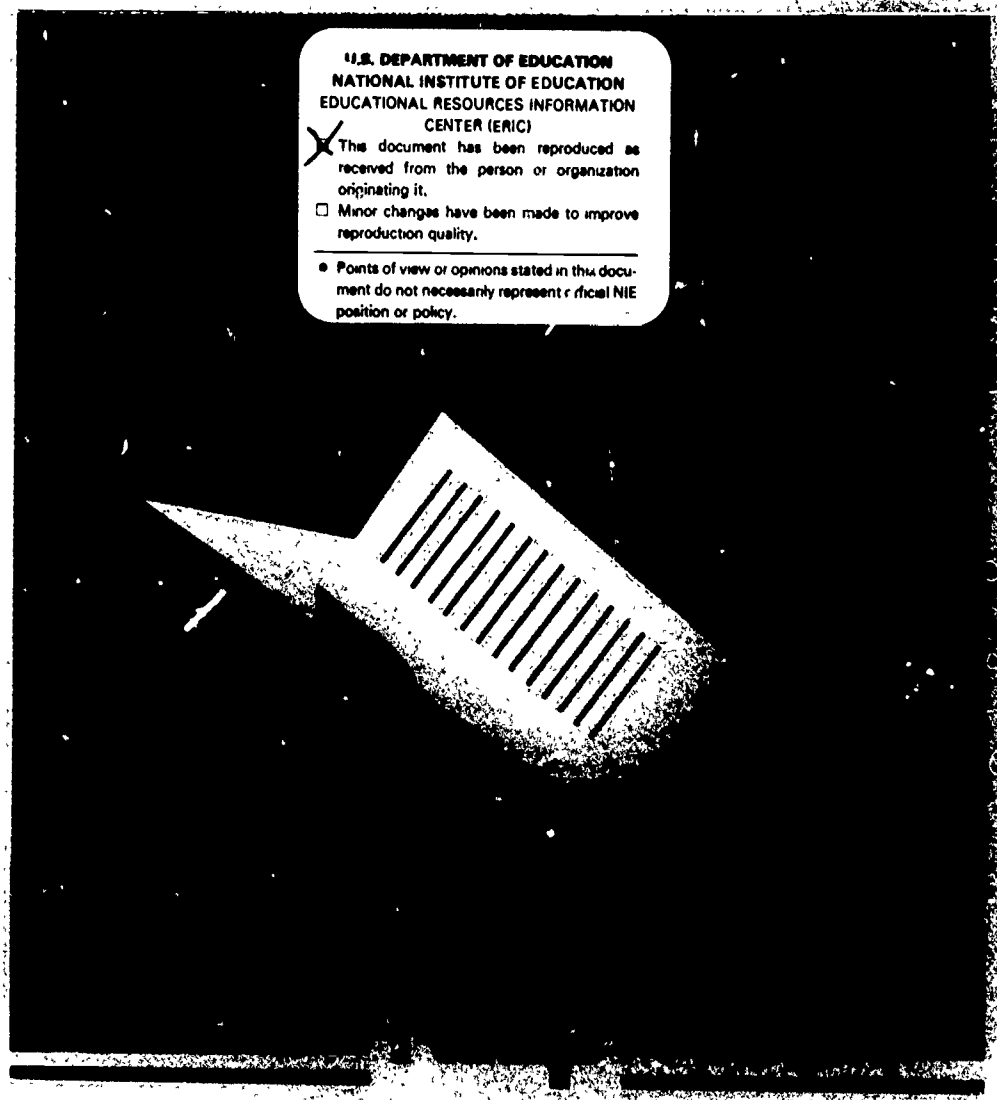
ABSTRACT

Focusing on trends in reading achievement during the period from 1970 to 1984, this report draws from national assessments that involved more than 250,000 9-, 13-, and 17-year-old students from a wide range of socioeconomic backgrounds. The first chapter (1) provides an overview of the report; (2) summarizes recent achievements documented by the surveys, including improvements in reading made by Black, Hispanic and disadvantaged students; (3) lists areas in which more improvement is needed; and (4) cites other trends revealed by the data. The findings include: (1) the reading proficiency of males has trailed that of females in all four reading assessments; (2) the gaps between the regions of the country have narrowed considerably due primarily to improvements in the Southeastern region (except for that region's 9-year-olds); (3) the influence of home environment is apparent in that students from homes with an abundance of reading materials are substantially better readers than those with few materials available and students whose parents have post-high school education read substantially better than those whose parents have not graduated from high school; (4) six or more hours of TV viewing per day is consistently and strongly related to lower reading proficiency; and (5) students who receive homework and do it tend to read better than students who do not have homework or do not do it. The major portion of the second chapter offers brief descriptions of the five levels of proficiency defined by the reading tasks used in the surveys and gives data showing the number of students in each age group who attained each level. The third chapter examines the data to discover exactly who has been improving, providing figures for Black, Hispanic, and White students, for males and females, and for students in different types of communities and in different regions. The fourth chapter looks at influences on reading proficiency, including parents' level of education, reading materials in the home, the effects of television, and homework. Appendixes contain descriptions of procedures used in the National Assessment of Educational Progress (NAEP) reading assessments and extensive tables of data. (FL)

The Reading Report Card

Progress Toward Excellence in Our Schools

Trends in Reading over Four National Assessments, 1971–1984



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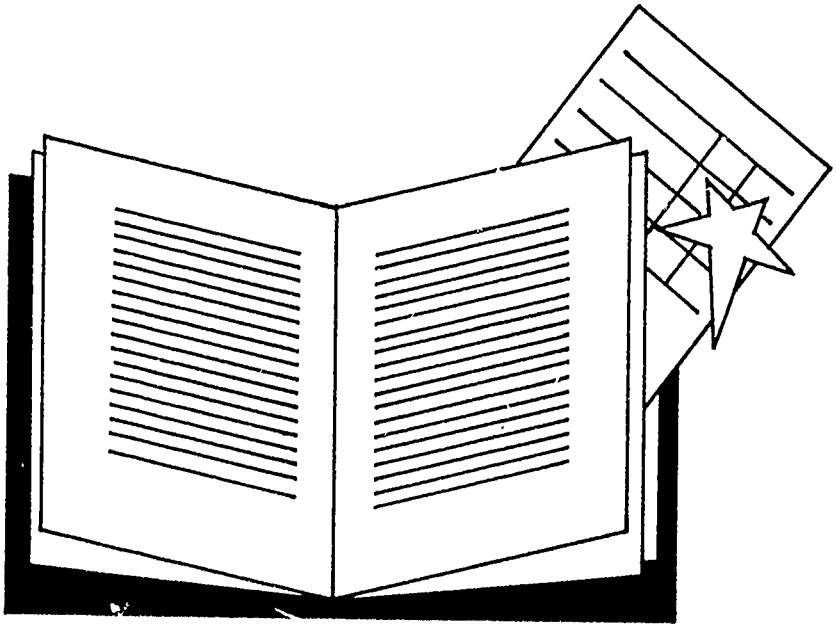

Report No: 15-R-01

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The National Assessment of Educational Progress is funded by the National Institute of Education under a grant to Educational Testing Service. National Assessment is an education research project mandated by Congress to collect data over time on the performance of young Americans in various learning areas. It makes available information on assessment procedures to state and local education agencies.

Why this report?

> "Promote then as the object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of government gives force to public opinion, it is essential that public opinion should be enlightened."
>
> George Washington

This report is addressed to people interested in the reading skills of America's youth. It will describe in the clearest terms possible how well 9-, 13-, and in-school 17-year-olds can read. The data supporting these descriptions were collected by the National Assessment during the period 1970-1984.

This healthy share of good news and simple statements should not confuse the realities that as a nation we are still a good distance from an "enlightened public opinion" or that the act of reading is a complex business.

All of learning involves so many variables that have to do with the learner's and teacher's backgrounds, the school's climate, and the magic called motivation that firm conclusions and causal relationships are well nigh impossible to establish. These data are offered nevertheless in the conviction that good information will always be useful when judgment must be applied.

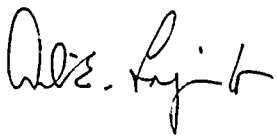
The next few pages will describe where we, as a nation, have been during the past 13 years. They will also attempt to define, in relevant terms, what all of America's students can do today. The trend lines offer clues to where we may be headed or what we could achieve, if we put our wills to it.

Two clear signals emerge from the data. We must:

- continue our past successful efforts to improve the basic skills of disadvantaged children
- increase emphasis on higher-level skills for all students.

Trading off between these two missions seems unacceptable. Our societal values will not permit sacrificing a segment of our students nor will the world's economic realities tolerate it.

Because of the brevity of the document, much remains unsaid and most detail undescribed. Other publications will follow. Some of our colleagues will challenge and debate the significance of the data. We welcome all such discussion. It is our hope that these kinds of debate will strengthen America's schools as "institutions for the general diffusion of knowledge."



Archie E. Lapointe
Executive Director

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Chapter 1

Trends in Four National Assessments of Reading Summary and Implications

Introduction

This report is based on four national assessments of the reading achievement of American school children—in the 1970-71, 1974-75, 1979-80, and 1983-84 school years. (For convenience, each assessment will be referred to by the last half of the year in which it occurred—1971, 1975, 1980, and 1984.) Each of these assessments has involved nationally representative samples of 9-, 13-, and in-school 17-year-olds. Data from some 251,000 students are available for the examination of trends.

The present report focuses on trends in reading achievement over this 13-year period, for the full student populations as well as for various demographic subgroups. Background information gathered as part of the assessments also allows us to consider the relationships between reading achievement and such factors as television viewing, amount of homework, and the amount of reading material in the home.

In order to understand how well students can read, NAEP based each assessment on a wide range of materials and asked questions requiring use of a variety of reading skills and strategies. Thus the passages and questions in the reading assessments have been diverse. The reading selections range from simple sentences expressing a single concept to complex articles about specialized topics in science or social studies. They include stories and poems as well as essays and reports, selections drawn from beginning reading books as well as from high school textbooks, and examples of train schedules and telephone bills. Understanding of these materials has also been

assessed in a variety of ways, ranging from multiple-choice questions requiring simple identification of information to open-ended questions asking students to restructure and interpret what they have read and to write out their responses. For the present report, NAEP has used new and more powerful measurement techniques to summarize performance on a common scale that, for the first time, allows direct comparisons across ages. The scale, which ranges from 0 to 500, also improves NAEP's ability to make comparisons over time and among subgroups of the population.

To aid in interpreting the results, the report describes what readers attaining different proficiency levels are able to do. The description of each level is based on the assessment results and reflects the interaction of the varieties of types of knowledge, skills, and strategies that together comprise successful reading at that level. Five levels of reading proficiency are identified: rudimentary, basic, intermediate, adept, and advanced. These are described in Chapter 2.

The next section of this report summarizes the major findings, which are elaborated in the chapters that follow. Further details on the development of the reading assessment, sampling procedures, and analysis of results are included in the Procedural Appendix.

The progress report that follows highlights some of the major findings discussed in this report.

Progress Report

Recent Achievements

- Students at ages 9, 13, and 17 were better readers in 1984 than students at the same ages were in 1971. Nine- and 13-year-olds improved through the 1970s and 17-year-olds improved between 1980 and 1984. The recent improvements by 17-year-olds may in part reflect earlier improvements at ages 9 and 13.

- Black and Hispanic students, as well as those living in disadvantaged communities, have made sizable improvements.

- Virtually all 13- and 17-year-old students can read basic material, and 84 percent of the 17-year-olds still in school have acquired the intermediate reading skills and strategies necessary to understand specific and general information in relatively lengthy reading passages.

Needs Further Improvement

- Nine- and 13-year-olds did not show improvements between 1980 and 1984, halting the upward trend in performance at these ages during the 1970s.

- The marked improvements in the achievement of minority and disadvantaged urban students between 1971 and 1984 have reduced the gap between their performance and that of other students. Still, the average reading proficiency of these

students is quite low and in need of further improvement. For example, the average reading proficiency of Black and Hispanic 17-year-olds is only slightly higher than that of White 13-year-olds.

- Six percent of 9-year-olds in 1984 could not do rudimentary reading exercises and are in danger of future school failure. Forty percent of 13-year-olds and 16 percent of 17-year-olds attending high school have not acquired intermediate reading skills and strategies, raising the question of how well these students can read the range of academic material they are likely to encounter in school. Few students, only about 5 percent, even at age 17, have advanced reading skills and strategies.

Other Trends

Although NAEP data do not establish cause and effect relationships, the report presents results and further discussion about the following findings.

- The reading proficiency of males has trailed that of females in all four reading assessments, with the gap narrowing slightly between 1971 and 1984.

- The gaps between the regions of the country have narrowed considerably, due primarily to improvements in the Southeastern region. Yet, this upward trend was not maintained by the Southeastern 9-year-olds between 1980 and 1984.

- The influence of home environment is apparent from the relationships between reading proficiency and both available reading material in the home and level of parental education. At all three ages, students from homes with an abundance of reading materials are substantially better readers than those who have few materials available. At all three ages, students whose parents have a post-high school education read substantially better than those whose parents have not graduated from high school.

- Six or more hours of TV viewing per day is consistently and strongly related to lower reading proficiency for all three age groups. In 1984, fully 27 percent of 9-year-olds reported watching more than six hours of television *per day*, up from 18 percent four years earlier.

- In general, students who receive homework assignments and do them tend to read better than students who do not have homework or who do not do it.

Agendas for the Future

The past decade and a half has been a period of considerable change and turmoil in American education. The social and educational reforms of the late 1960s and early 1970s were followed first by the back to basics movement, and later by the reaffirmation of traditional academic goals as the central focus of schooling. The trends in reading proficiency between 1971 and 1984 suggest that these broad movements have indeed had their effects on student achievement. In particular, American schools have had considerable success in reducing educational inequities—and have done so by improving the achievement of minority students and of those living in

disadvantaged communities without reducing levels of achievement for other students.

American schools can thus take considerable pride in the improving trends in students' reading proficiency over the past 13 years. At the same time, the results from the 1984 assessment suggest two agendas for the future. continued special attention to disadvantaged and minority children and increased emphasis on higher-level reading skills for all.

The first agenda, the need for further improvements in the reading proficiency of disadvantaged and minority populations, is a continuing one. The improvements during the past decade provide a good foundation for further reductions in, and the eventual elimination of, the gaps in performance that still remain between disadvantaged and advantaged groups.

The second agenda, emphasis on higher-level reading skills, is a relatively new one. Although declines in higher-level reading skills during the middle 1970s seem to have leveled off, there was no real improvement in such skills between 1971 and 1984. And improvement is needed. As the Commission on Reading notes in its report to the National Academy of Education:

> The world is moving into a technological-information age in which full participation in education, science, business, industry, and the professions requires increasing levels of literacy. What was a satisfactory level of literacy in 1950 probably will be marginal by the year 2000.
>
> (*Becoming a Nation of Readers*, 1985)

Attention to such higher-level reading skills has already begun in many schools across the country, the challenge will be to ensure that *all* students have the opportunity to develop such skills. There has been a conceptual shift in the way many researchers and teachers think about reading, which gives students a much more active role in the learning and reading comprehension process.* This shift is reflected in changes from packaged reading programs to experiences with books and from concentration on isolated skills to practical reading and writing activities.

Yet, improvements in higher-level reading skills cannot come about simply by an emphasis on reading instruction in isolation from the other work students do in school. To foster higher-level literacy skills is to place a new and special emphasis on thoughtful, critical elaboration of ideas and understandings drawn from the material students read and from what they already know. They must learn to value their own ideas and to defend as well as question their interpretations in the face of alternative or opposing points of view.

The development of such thoughtful, creative approaches to learning runs counter to much of what students are asked to do in school. Reading in schools is sometimes a relatively superficial activity, a prelude to a recitation of what others have said. Though not optimal, such approaches may be sufficient when teachers are most concerned with the "right" answer and lower-level skills. At other times, reading can be a thoughtful, creative activity, one that challenges students to extend and elaborate

**Landscapes: A State of the Art Assessment of Reading Comprehension Research, 1974-1984.* Indiana University, 1985.

upon what others have said and written. In developing higher-level reading skills and strategies, students will benefit from experience with a wide r. .ge of challenging materials. Though there has been considerable concern with providing students with "readable" texts—and a concomitant simplification of instructional materials—this may have inadvertently reduced students' opportunities to develop comprehension strategies for dealing with more complicated material that presents new ideas.

There are opportunities for such experiences in all of the subjects students study in school, as well as in what they read at home. They can learn to develop their own interpretations of what they read, to question, rethink, and elaborate upon the ideas and information drawn from their reading experiences—in conversations with their friends, in discussions with their teachers, and in the writing they do for themselves and others. And in that process, students will also be acquiring the higher-level reading comprehension skills that so many are presently lacking.

The chapters that follow present the detailed trends in readi ·roficiency from 1971 to 1984.

Chapter 2

National Trends in Reading 1971-1984

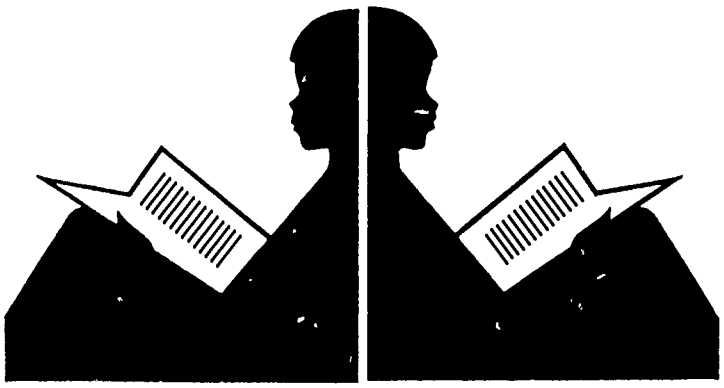
The average reading proficiency levels of 9-, 13-, and 17-year-olds in each of the four assessments provide the best index of national trends in reading achievement between 1971 and 1984. These are summarized in Figure 2.1.

Nine-Year-Olds—During the past 13 years, the reading proficiency of 9-year-old students has improved significantly. Although their reading proficiency increased steadily and dramatically over the 1970s, the most recent assessment shows no improvement since 1980.

Thirteen-Year-Olds—Thirteen year-olds too are reading significantly better than they were in 1971, but this improvement has not been as dramatic across assessments. Similar to the 9-year-olds, reading performance of 13-year-olds improved during the last half of the 1970s and leveled off after 1980.

Seventeen-Year-Olds—Trends in achievement for 17-year-olds differ markedly from those for the other two age groups. Throughout the 1970s, the reading proficiency level of the 17-year-olds was remarkably constant, but this was followed by a significant improvement between 1980 and 1984.

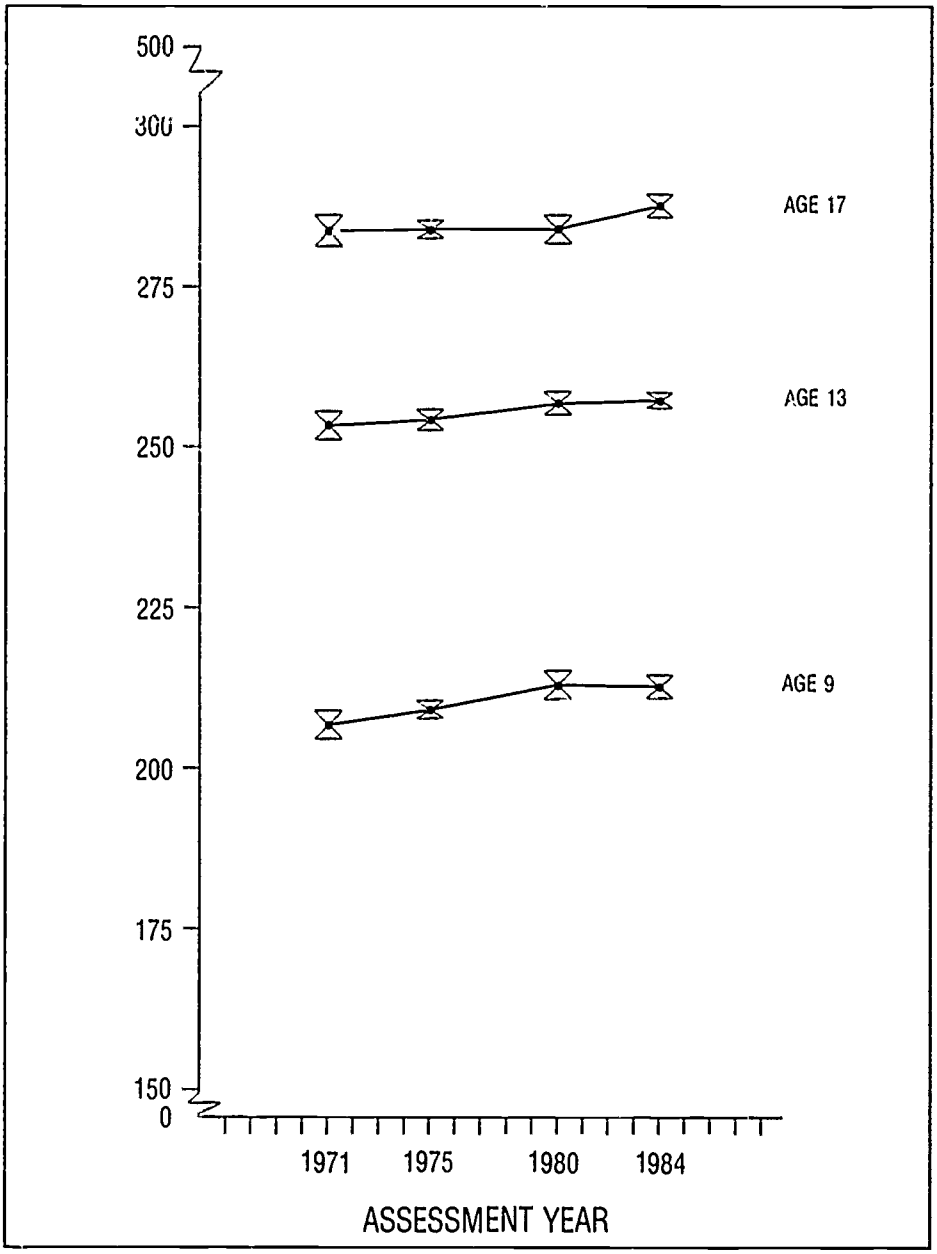
The improvement at age 17 is an interesting result that may be related to recent concerns about the effectiveness of American high schools and the subsequent calls for reform. These concerns were first voiced during the 1970s, in response to long-term declines in Scholastic Aptitude Test scores and in a variety of other measures of achievement. Such concerns became more acute during the early 1980s, leading to *A Nation at Risk* (Commission on Excellence in Education, 1983) and a variety of other studies that called for a reemphasis on traditional academic subjects. The improvements in the reading proficiency of 17-year-olds between 1980 and 1984 may result in part from this renewed attention to high school instruction. A parallel may be found in the modest upward trends in SAT scores from 1981 to 1984, which were accompanied by students reporting more academic course work.*



**College-Bound Seniors, 1984.* College Entrance Examination Board.

National Trends in Average Reading Proficiency for 9-, 13-, and 17-Year-Olds: 1971-1984

FIGURE 2.1



Birth Date Ranges:
Age 9 Born Jan.-Dec. 1961, 65, 70, 74
Age 13 Born Jan.-Dec. 1957, 61, 66, 70
Age 17 Born Oct.-Sept. 1953-54, 57-58, 62-63, 66-67

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estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

The Influence of a Good Start in School

In considering explanations for the recent upward trend at age 17, NAEP also found it interesting to look at changes in reading proficiency over time in relation to the students' year of birth. The national results are presented in this way in **Figure 2.2.**

Using Figure 2.2, we can ask whether 9-year-old students who do comparatively better than previously assessed 9-year-olds tend to maintain this advantage at ages 13 and 17. The results in Figure 2.2 suggest that they do. If all past reading assessments had been given at regular four-year intervals (as will be true of NAEP in the future), then students born in a particular year would have been sampled and assessed at age 9, sampled and assessed again four years later at age 13, and then again at age 17. Although precise birth-year cohort tracking is not possible, Figure 2.2 provides a close approximation. The shaded central portion in the figure highlights assessment results for 9- and 13-year-olds born in 1961 and 17-year-olds born in 1962-1963 compared to the results for those born later (1965 through 1967).

Nine-year-old students born in 1965 performed better in 1975 than those born in 1961 had performed four years earlier. This advantage may be a general one for students born in the mid-to-late 1960s, since 13-year-old students born in 1966 also performed better in 1980 than those born in 1961 had performed in 1975. Similarly, students born in 1966-67 show an advantage at age 17, when compared with 17-year-old students born in 1962-63.

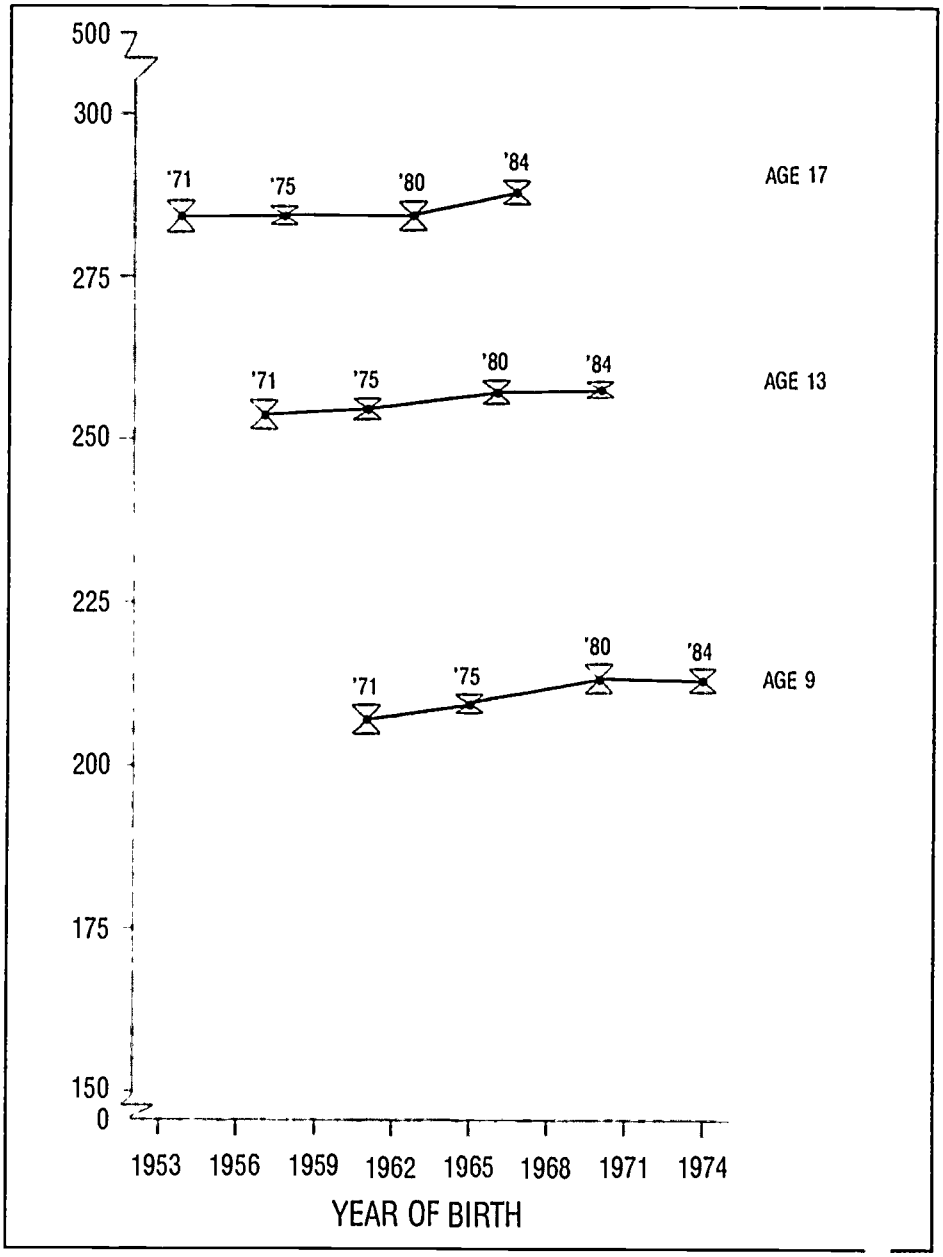
Children born in 1965 through 1967 entered school at the end of the 1960s or in the early 1970s, a time when Head Start was reaching disadvantaged preschoolers, when enrollments in preprimary programs generally were on the rise (from 40 percent in 1970 to 52 percent in 1976*) and when Title I programs of the Elementary and Secondary Education Act were reaching disadvantaged children in the early grades. The benefits of this attention seem to be reflected in the improved reading proficiency shown by these children at age 9 and the effects of their initial advantage at age 9 seem to have been preserved as the children moved through the school system. This interpretation suggests that the significant improvements registered at age 17 in the 1984 assessment are at least in part the legacy of changes introduced many years earlier, rather than simply the result of recent calls for reform in high school programs.

Although it is encouraging to think that gains made during the early years of schooling have lasting effects on achievement, the results for children born in the 1970s are less encouraging. Children born in 1970 showed significant improvement over the previous assessment at age 9, but this advantage over the previous assessment was not maintained by 13-year-olds born in 1970 and assessed in 1984. This suggests a diminishing effect of early education programs as this birth group grew older, making it difficult to predict whether they will recapture their early advantage when they are reassessed in 1988 at age 17. Children born in 1974 showed no gain over 9-year-olds born in 1970. These children would have been 3 to 5 years old in the

Early Childhood Development Programs in the Eighties. The National Picture. Lawrence J. Schweinhart, High/Scope Educational Research Foundation, 1985.

National Trends in Average Reading Proficiency for 9-, 13-, and 17-Year-Olds by Year of Birth

FIGURE 2.2



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estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

late 1970s when enrollments in preprimary programs began to level off. If the patterns of no further improvements for 9- and 13-year-olds are reflected in future assessments, we might expect to find that assessment results for 1988 and later will show that American schools have maintained the advances made over the 1970s, but have failed to progress further.

Levels of Proficiency and Reading Complexity

Though average levels of reading proficiency provide an interesting and informative way to make comparisons of global performance across years and ages, they say little about what children can and cannot do when they read. To understand what the trends mean, it is helpful to consider what children who have reached different levels of reading proficiency are able to do.

Basically, analyses of the NAEP data indicate that the interaction of three factors affects students' reading proficiency: the complexity of the material they were asked to read, their familiarity with the subject matter, and the kinds of questions asked. Short passages made up of a few simple sentences were easiest for students to comprehend. Denser, more complex passages were more difficult. When the passages dealt with general, "everyday" topics, the students had less difficulty than when the information was specialized.

Questions were designed to assess a range of comprehension skills—from identification of words in a passage, through items requiring substantial inferences, to questions that required the reader to reformulate and extend the ideas presented. The success students had in answering questions seemed to be a function of the passage complexity *and* the nature of the questions. Students could answer questions requiring generalizations about short, simple passages, conversely, they had difficulty answering questions about specific facts when these facts were embedded in complex texts. In addition, questions asking students to put their answers in writing tended to be more difficult than multiple-choice questions, particularly when students had to recast the information presented in the passage.

This suggests that it is the relationship between the complexity of the passage and the way in which the reader needs to go about finding the answer to a particular question that shapes the demands of a reading task. The many possible interactions among the passage, question, and prior knowledge components are reflected in the reading proficiency levels reported in the assessment results.

Figure 2.3 briefly describes five levels of proficiency defined by the kinds of reading tasks that most readers at each level would be able to do. Table 2.1 reports the percentages of children at each of the three ages who attained each level of proficiency in each of the four assessments. The highest reading levels attained over the four assessments by most 9-, 13-, and 17-year-olds are highlighted, as are the 1984 percentages of 17-year-olds reading at the two more accomplished levels.

Levels of Proficiency

FIGURE 2.3

Rudimentary (150)

Readers who have acquired rudimentary reading skills and strategies can follow brief written directions. They can also select words, phrases, or sentences to describe a simple picture and can interpret simple written clues to identify a common object. *Performance at this level suggests the ability to carry out simple, discrete reading tasks.*

Basic (200)

Readers who have learned basic comprehension skills and strategies can locate and identify facts from simple informational paragraphs, stories, and news articles. In addition, they can combine ideas and make inferences based on short, uncomplicated passages. *Performance at this level suggests the ability to understand specific or sequentially related information.*

Intermediate (250)

Readers with the ability to use intermediate skills and strategies can search for, locate, and organize the information they find in relatively lengthy passages and can recognize paraphrases of what they have read. They can also make inferences and reach generalizations about main ideas and author's purpose from passages dealing with literature, science, and social studies. *Performance at this level suggests the ability to search for specific information, interrelate ideas, and make generalizations.*

Adept (300)

Readers with adept reading comprehension skills and strategies can understand complicated literary and informational passages, including material about topics they study at school. They can also analyze and integrate less familiar material and provide reactions to and explanations of the text as a whole. *Performance at this level suggests the ability to find, understand, summarize, and explain relatively complicated information.*

Advanced (350)

Readers who use advanced reading skills and strategies can extend and restructure the ideas presented in specialized and complex texts. Examples include scientific materials, literary essays, historical documents, and materials similar to those found in professional and technical working environments. They are also able to understand the links between ideas even when those links are not explicitly stated and to make appropriate generalizations even when the texts lack clear introductions or explanations. *Performance at this level suggests the ability to synthesize and learn from specialized reading materials.*

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Percentage of Students at or Above the Five Reading Proficiency Levels

TABLE 2.1

Reading Skills and Strategies	Age	1971	1975	1980	1984
Rudimentary	9	**90.4***	**93.3**	**94.4**	**93.9**
(150)	13	99.7†	99.6†	99.8†	99.8
	17	99.7†	99.9†	99.9†	100.0
Basic	9	58.3*	61.7	65.1	64.2
(200)	13	**92.3***	**92.8***	**94.3**	**94.5**
	17	96.6†	97.5†	97.9†	98.6
Intermediate	9	15.6*	14.0*	17.0	18.1
(250)	13	57.0	57.5	59.3	60.3
	17	**80.0***	**82.0**	**82.8**	**83.6**
Adept	9	1.1†	.7†	.8†	1.0
(300)	13	9.3*	9.7*	10.9	11.3
	17	37.2	36.1*	34.8*	**39.2**
Advanced	9	0.0†	0.0†	0.0†	0.0
(350)	13	.2†	.2†	.3†	.3
	17	4.9†	3.5†	3.1†	**4.9**

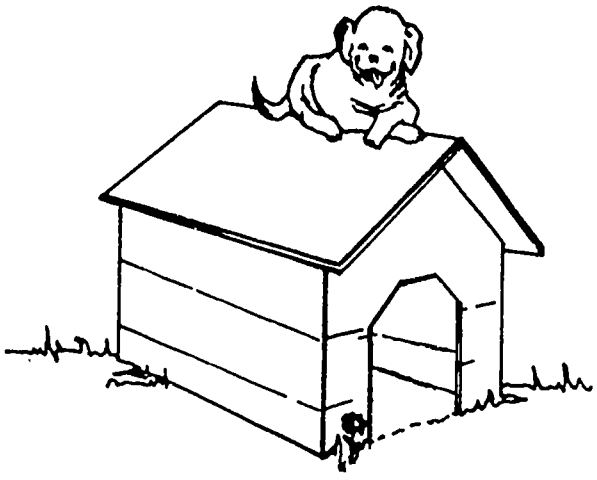
*Statistically significant differences from 1984. To control the Type I error rate for the set of comparisons within a group (table line) at .05, the alpha for each comparison was set at .05/3 = .017.
†No significance test is reported when the proportion of students is either > 95.0 or < 5.0.

Rudimentary Skills and Strategies

1984

Age 9	Age 13	Age 17
93.9%	99.8%	100.0%

Tasks requiring the least complex reading strategies included in the assessment ask children to follow simple directions or to read a few simple sentences and answer factual questions. These items also require that students understand what is expected in response to such exercises. Examples of two of these exercises given at age 9 follow.



Look at the picture and circle the letter beside the sentence that tells BEST what the drawing shows.

A The dog is lying by the doghouse
(B) The dog is lying on top of the doghouse.
C The dog is lying next to the doghouse.
D The dog is lying inside the doghouse.
E I don't know.

Here is a puzzle. See if you can solve it.

This is something that usually has four legs and that you can sit on. It can be made of wood or metal. Most people have several of these in their homes. Some are soft, and some are hard. You usually sit on one of these when you sit down to eat.

What is this?

(A) A chair
B A horse
C A pillow
D A mushroom
E I don't know.

Across the four assessments, virtually all of the 13- and 17-year-olds and most of the 9-year-olds were able to accomplish such reading tasks. The percentage of 9-year-olds reading at this level increased from 90 percent in 1971 to 94 percent in both 1980 and 1984. However, 9-year-olds are primarily in third and fourth grade and the 6 percent who have not demonstrated the ability to use even these rudimentary reading skills and strategies would seem to be at particular risk for future school failure. (Six percent of this age group represents some 184,000 9-year-olds who are at risk.)

Basic Skills and Strategies

1984

Age 9	Age 13	Age 17
64.2%	94.5%	98.6%

Tasks assessing basic comprehension strategies are based on simple stories and expository passages. Sample items follow.

Read the following article and answer the questions based on it.

What Is Quicksand?

Quicksand can swallow a pig, or a human, or even an elephant.

Quicksand often looks like plain wet sand. But it is really a soupy sand with so much water between the grains that you can't stand on it.

If you step into quicksand, you will slowly sink up to your knees. If you thrash and squirm, you will sink deeper and deeper. But if you lie flat on your back with your arms stretched out, you can float on the sand, as you can float in water.

Watch out for quicksand on sand bars, on the bottoms of streams, or along sandy seacoasts.

You can test for quicksand by poking it with a long stick or pole. If the sand shakes and quakes, don't try to walk on it! It may be quicksand.

According to the article, how can you test to see if sand is really quicksand?

A Stick your hand into it.
B Step lightly on it.
(C) Poke it with a stick.
D Look at it.
E I don't know.

What is quicksand?

A Wet sand you can walk on
(B) Soupy sand you can't stand on
C Sand that forms clouds in the wind
D Dry sand which flows quickly through your fingers
E I don't know.

Read the story below so that you can answer a question about it without looking back at the story.

Timothy wasn't big enough to play ball. In the summer he sat on the steps of his brownstone building and watched things. People washing cars. Children playing games. Teen-agers standing in circles talking about how hot it was. Workers tearing down the building across the street.

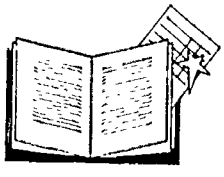
DO NOT LOOK BACK!

Without looking back at the story, answer the following question.

What were the teen-agers talking about?

A Timothy
B Music
(C) How hot it was
D The people washing cars
E The building across the street
F I don't know.

Most school-age children have acquired the basic comprehension skills and strategies necessary to read at this level. In the 1984 assessment, 94 percent or more of the 13- and 17-year-olds and 64 percent of the 9-year-olds were able to answer a variety of questions about passages at this level, including inferential and main idea as well as factual questions. However, the results of the 1984 assessment indicate a leveling off of improvement in the acquisition of basic skills and strategies, particularly at age 9. Although 58 percent of the 9-year-olds in the 1971 assessment demonstrated ability to use basic skills and strategies and 65 percent did so in the 1980 assessment, the most recent 1984 result reflected no further improvement.



Intermediate Skills and Strategies

1984

Age 9	Age 13	Age 17
18.1%	60.3%	83.6%

Questions requiring use of intermediate reading strategies are based on relatively lengthy stories and informational passages. An example follows.

Read the article below and answer the questions based on it.

Boxball

Have you ever heard of the National Boxball Association, the Los Angeles boxball team, or Kareem Abdul-Jabbar, the famous boxball player? Or have you ever heard of boxball at all? Well, it is the game that almost was.

Today we call the game basketball, of course, but it almost became known as boxball. When Dr. James A. Naismith, a teacher at the International YMCA Training School in Springfield, Massachusetts, first invented the game in 1891, he had no name for it. He had simply made up a sport that all his students could enjoy—one that could be played indoors by both boys and girls and was not as rough as football.

Dr. Naismith wanted his students to experiment with the new game, but he first had to find the right kind of ball and two boxes He decided to have the players use a leather soccer ball—about twenty-eight inches around—to toss into the goals. He then asked Mr Stebbins, the building superintendent, to find two boxes that had openings about nine inches across—wide enough for the soccer ball. But Mr. Stebbins could not find the right-sized wooden boxes anywhere, and as the time for the first game came near, there were still no goals hanging from the gymnasium balcony. Dr. Naismith finally decided to use two peach baskets that were handy. After all, he reasoned, it was only a trial game, boxes could always be found later to replace the temporary baskets.

When the first game finally began, the players enjoyed the challenge of shooting the soccer ball at the peach baskets and earning a point each time the ball went into the basket. The peach baskets did present a bit of a problem, however, since each time a goal was made, someone had to climb a ladder and retrieve the ball before the game could continue. After a few games, someone finally realized that the bottoms of the baskets could be cut out to allow the ball to fall through.

Naismith had simply called his invention "a new game," but, because of the peach-basket goals, it soon became known as

basketball. Fortunately, those peach baskets were never replaced with wooden boxes as the inventor had originally planned. What a difference it would have made had Mr. Stebbins been able to find wooden boxes for that very first game! Instead of basketball, boxball would be one of the most popular sports of all time.

Who invented the game of basketball?

(A) A Massachusetts teacher
B A YMCA student
C A building superintendent
D A Los Angeles player
E I don't know.

What is the purpose of the article?

A To explain the rules of basketball
B To describe how much fun boxball can be
(C) To tell how basketball was invented
D To give a history of outdoor sports
E I don't know.

We can tell from the article that which of the following statements is true?

A Basketball was invented before football
(B) Football was invented before basketball
C Soccer was invented before football.
D Soccer and football were invented at the same time.
E I don't know.

Why were the bottoms cut out of the peach baskets that were being used for goals?

A To make it easier for the players to score points
B Because the bottoms of baskets were wearing out
C Because the baskets were too small
(D) To make it easier to continue the game
E I don't know.

At this level, there are clear differences in reading proficiency across the age groups. In the 1984 assessment, 84 percent of the 17-year-olds, 60 percent of the 13-year-olds, but only 18 percent of the 9-year-olds had acquired the **intermediate** level comprehension skills necessary to complete the items at this level. Despite the overall rise in reading proficiency from 1971 to 1984, 16 percent of 17-year-olds attending school (representing about 482,000 students) and 40 percent of 13-year-olds (about 1,328,000 students) still lack such skills and strategies. Changes since the 1980 assessment in students' ability to use **intermediate** skills and strategies were negligible.

Adept Skills and Strategies

1984

Age 9	Age 13	Age 17
1.0%	11.3%	39.2%

The more difficult end of the reading proficiency scale assesses students' ability to use the comprehension skills and strategies necessary to understand, summarize, and explain a broad range of passages, including stories, poems, and informational and graphic forms. Comprehension at this level is expectedly too difficult for almost all of the 9-year-olds and for all but 11 percent of the 13-year-olds. However, the majority of the 17-year-olds attending school also are unable to perform at this level. Examples of items requiring adept reading skills and strategies follow.

Read the story below and answer the questions based on it.

Throwing the Javelin

The scent of honeysuckle seemed to linger in the air and joined itself with the sweet odor of freshly cut grass. I slipped out of my bright red sweats and flung them to the base of the tree. I picked up the javelin, stuck point down in the turf. The cross which hung about my neck swung back and forth as I stretched my arms with the javelin behind my neck. Out of habit, I stood and held the javelin in my left hand, and with the thumb of my right forced small clumps of dirt from the tip. I searched for a target. Picking a spot in a cloud moving towards me I cocked the javelin above my shoulder and regulated my breathing. My right foot was placed on the first mark and my left foot rested behind. My eyes were focused on one abstract point in the sky. Pierce it. I built up energy. Slowly, my legs flowed in motion, like pistons waiting for full power and speed. I could feel my legs churning faster, the muscles rippling momentarily, only to be solidified when foot and turf met like gears. Hitting the second mark, I escaped from the shadow of the tree and was bathed in sunlight. . . . Left foot forward . . . javelin back, straight back, . . . turn now, five steps . . . three, four . . . stretch, the clouds, the point . . . turn back, throw the hips . . . chest out . . . explode through the javelin . . . terminate forward motion, release.

The muscles of my right leg divided in thirds just above my knee, as the full weight of my body in motion was left to its support. Skipping, I followed through and watched the quivering javelin climb as it floated in the oncoming wind. My cross swung. For a moment, it reflected the sunlight and I lost sight of the javelin. The javelin landed quickly, piercing the ground. I heaved in exhaus-

tion, and perspiration flowed from my face and hands. Before me the field stretched and I attempted to evaluate my throw. I was pleased. The smell of honeysuckle again drifted into my senses and somehow, I had a feeling of accomplishment I could just as easily have experienced had I thrown poorly.

What is the main reason the writer wrote this story?

A To express an athlete's feeling of failure
B To provide information about javelin throwing
(C) To describe how it feels to throw the javelin
D To encourage people to take up javelin throwing
E I don't know.

Read the passage below and answer the questions based on it.

Voting Rights for Women

One of the greatest victories of the Progressive movement has not yet been mentioned. This victory came when women won the right to vote.

The battle for woman's suffrage was a long one. Ever since the 1840's, some women had demanded the right to vote. They had hoped to get the vote after the Civil War, but the Fifteenth Amendment gave voting rights only to Black men. A few women ran for President, but they got very few votes.

After these defeats, many women turned their attention to getting suffrage laws passed by the states. These women were then called suffragettes. Their first success came in 1869 when women won the right to vote in the territory of Wyoming. When the Wyoming legislature asked to become a state in 1889, it said that Wyoming women must be allowed to keep that right. The state legislature telegraphed Congress, "We may stay out of the Union a hundred years, but we will come in with our women." Congress finally agreed to admit Wyoming to statehood, women voters and all.

Women across the country were encouraged by the victory in Wyoming. In campaigning to get the vote, suffragists sang the following song:

In Wyoming, our sisters fair
Can use the ballot well.
Why can't we do so everywhere,
Can anybody tell?

By 1900 women in Colorado, Utah, and Idaho had joined Wyoming women in gaining the right to vote. Others followed. Within a few years every state west of the Rocky Mountains had passed woman-suffrage laws. In 1917 New York followed the example of the western states. In that same year Jeannette Rankin of the state of Montana took office as the first United States congresswoman.

Women leaders were getting involved in many fields. Women were active in the settlement-house movement. Settlement houses were centers that helped poor people, and thousands of women became involved with settlement houses. The poverty and crime they saw made them think men had not done a good job of running the nation.

Suffragists also paid attention to the problems of working women. Many women had become members of unions. One of the best-known organizations was the International Ladies' Garment Workers Union (ILGWU). Working conditions were harsh for people who made clothes for a living. Workers had to sit on boxes. They had to buy their own needles. They even had to pay for the electricity they used. Workers often had to buy the clothes on which they had made mistakes.

In 1909 the ILGWU called a strike to protest working conditions. Over 20,000 union members refused to work. When the strike ended, the union had won a 52-hour workweek and four paid holidays a year. Employers also promised to pay for electricity and needles.

The success of the garment workers encouraged working women in other unions. But serious problems remained. In 1911 a terrible fire broke out at the Triangle shirtwaist factory in New York City. There were no sprinklers in the factory and the doors were locked. Trapped workers crowded into the top floors of the building. Others jumped to the streets below. More than a hundred women were killed.

After the Triangle fire, many working women joined the fight for voting rights. They argued that once they had gained the vote, women could work to get laws passed that would prevent such disasters.

Union speakers joined suffragists in trying to convince state legislators to pass voting rights bills. One popular speaker was Rose Schneiderman. When a state senator said that women would lose their beauty and charm if they were allowed to vote, she reported the following exchange:

> I had to point out to him that women were working in factories, but he said nothing about their losing their charm. Nor had he mentioned the women in laundries who stood for thirteen hours in terrible heat and steam with their hands in hot starch. I asked him if he thought they would lose more of their beauty and charm by putting a ballot in the ballot box than by standing all day in factories or laundries.

The suffrage movement was given a boost when American troops went to Europe in 1917 to fight in the First World War. Thousands of women took over jobs that had been held by men. National leaders began to think that women should be repaid for their work during the war. President Wilson had once felt that the question of woman's suffrage should be decided by the states. After the war he changed his mind. In 1919 Congress passed the Nineteenth Amendment. By 1920 enough states ratified the amendment so that women could vote in the presidential election that year. American women had taken a big step toward participating fully in national life.

In what year did the first United States congresswomen take office?

A 1890
B 1900
(C) 1917
D 1920
E I don't know

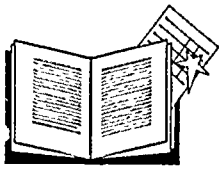
A state senator said that women would lose their beauty and charm if they were allowed to vote. What did Rose Schneiderman say?

(A) She argued that working conditions were more likely than voting rights to lead to the loss of a woman's beauty and charm.
B She agreed with him but insisted on voting rights for women anyway.
C She showed him that beautiful and charming women were voting in some western states.
D She responded that women with beauty and charm probably did not need to vote.
E I don't know.

According to the article, how did the First World War help the cause of the suffragists?

A It gave garment workers an opportunity to get better jobs.
B It helped union leaders to get better conditions for their members.
C It encouraged women to protest the war.
(D) It drew national attention to the contributions of women.
E I don't know.

In 1984, only about 1 percent of the 9-year-olds, 11 percent of the 13-year-olds, and 39 percent of the 17-year-olds were able to perform at this level. Significant gains were evident for the 17-year-olds from 1980 to 1984, primarily because 1980 represented a dip in performance for this age group. While a slightly larger percentage of 13- and 17-year-olds demonstrated use of **adept** skills and strategies in 1984 than in 1971, the 9-year-olds remained relatively stable in their performance at this level.



Advanced Skills and Strategies

1984

Age 9	Age 13	Age 17
0.0%	0.3%	4.9%

The most difficult reading skills and strategies assessed entailed restructuring and synthesis of ideas presented in passages using specialized content, difficult vocabulary, sophisticated syntax, and specialized genres. Although there were questions requiring students to provide written responses at lower proficiency levels, open-ended questions tended to be at this level of difficulty or even higher.

Read the passage below and answer the questions based on it.

In the years between 1940 and 1960, literature, the arts, and culture in general became increasingly oriented to the many. In an economy of high productivity, deluging millions of people daily with movies, magazines, books, and television programs, American culture achieved a degree of homogeneity never dreamed of before. However, if such cultural homogeneity spelled loss of individuality —which it undoubtedly did—and if mass culture was often produced primarily for profit and only secondarily for aesthetic reasons, nevertheless mass production of "art" made available to millions of people what in previous times had been the privilege only of the aristocratic few. Good radio and phonograph music was available where there had been no music before, there were more symphony orchestras and chamber music groups than ever, and toward the end of this period more Americans purchased tickets to classical concerts than to baseball games. Paintings and items of sculpture were being turned out en masse in moderately good reproductions. The world's literature was being distributed in inexpensive paperback editions in every bookshop, drugstore, and transportation terminal. On balance it seemed that mass production, while it might not raise mass culture, would not destroy the growth of genuine taste either.

What does the passage imply the arts were before 1940?

A Homogeneous
B Generally enjoyed
(C) Oriented to an elite
D Oriented to the average person
E I don't know.

Read the passage and answer the questions based on it.

There is a myth, very popular these days, that the Court is divided into "liberal" and "conservative" wings, or, as some would put it, into "activists" and those who practice "judicial restraint." Labels of this kind are convenient but not accurate. Members of the Court, applying general constitutional provisions, understandably
(6) differ on occasion as to their meaning and application. This is inevitable in the interpretation of a document that is both brief and general by a human institution composed of strong-minded and independent members charged with a grave and difficult responsibility But the inappropriateness of these labels becomes apparent upon even the most perfunctory analysis

In line 6, what does the word "their" refer to?

A Citizens
B Conservatives
C Liberals
D Members of the Court
(E) Provisions
F I don't know.

Answering such questions about specialized and complex material was too difficult a task for all but a few students. In each assessment including 1984, no more than 5 percent of the in-school 17-year-olds and less than 1 percent of the 13-year-olds were able to use the skills and strategies necessary to answer questions at this level of sophistication. In 1984, 5 percent of the 17-year-olds displayed the ability to use advanced reading comprehension strategies. This represents a return to their 1971 level of performance after somewhat lower performance at this level in 1975 and 1980.

To summarize what students can do at each age, almost all of the 9-year-olds have at least rudimentary reading strategies and 64 percent have already acquired basic comprehension strategies. Six percent, however, lack even rudimentary reading skills and strategies and seem at particular risk for later school failure. At age 13, 94 percent have acquired basic reading skills and strategies and 60 percent have intermediate skills and strategies. Still other 13-year-olds—11 percent in 1984—have acquired adept reading comprehension skills. At age 17, 99 percent have acquired the basic comprehension strategies likely to be needed to "get by" in daily life. These results do not tell us how well people can actually function on a day-to-day basis, and the performance of 17-year-olds is based only on those attending school and not the 14 percent* or so who dropped out by the junior year. These results do indicate, however,

*The Condition of Education, 1984 Edition. National Center for Education Statistics (NCES), 1985. (This estimate is based on data obtained in 1980. However, NCES published and unpublished school retention rates for 1980 through 1983 show generally stable overall dropout rates during this period. Therefore, we have little reason to expect the 14 percent to have varied much from 1980 to 1984.)

that most students even at age 9 have some proficiency at dealing with the printed word. It appears that by age 9 most American students can read a range of simple "everyday" materials (such as signs, simple reports in magazines, listings like those in the TV and entertainment sections of newspapers, advertisements, and simple order forms). At the very least, these data do not support the position that large percentages of Americans are illiterate.* In addition, by age 17, 84 percent of the students have **intermediate** reading skills, and 39 percent are **adept** readers. Taken together, these results represent a considerable national achievement.

From another perspective, however, the results indicate that 16 percent of the 17-year-olds attending high school and 40 percent of 13-year-olds (primarily seventh and eighth graders) have not acquired **intermediate** reading skills and strategies. And 36 percent of 9-year-olds (primarily third and fourth graders) lack **basic** reading skills and strategies. Although there is currently considerable debate about the actual reading difficulty of textbooks and how this might be changing, these results do raise questions about how well students can comprehend the range of academic material they are likely to encounter in school.

Further, even though 39 percent of the 17-year-olds demonstrate **adept** reading skills and strategies, only about 5 percent can manage at the **advanced** level. With respect to the percentage with **adept** skills, the failure of 61 percent of 17-year-olds to become **adept** readers suggests that most students leaving secondary school do not have the comprehension skills often needed in the worlds of higher education, business, or government. With respect to the percentage with **advanced** skills, it would seem that by and large 17-year-olds do not have consistent control of the reading skills and strategies needed to comprehend material such as primary-source historical documents, scientific reports, or financial and technical documents—those often needed to achieve excellence in academic, business, or government environments.

Categories of Reading Questions

Although most of the discussion in this report is based on results from NAEP's new reading proficiency scale, in past assessments NAEP reported changes over time in the average percentage of correct responses for three categories of reading questions: literal comprehension, inferential comprehension, and reference skills. Literal comprehension includes questions that require locating or remembering a single fact, incident, or idea presented in the reading material. Inferential comprehension requires using the explicit information in a passage as well as personal experience to understand information and ideas that are not explicitly stated. Reference skills enable students to find and use resource materials.

One of the major findings in 1980 was that "Seventeen-year-olds declined significantly in performance in inferential comprehension from the first to the third assessment."† The report indicated:

*A more complete discussion of literacy will be possible in the Spring of 1986 when the results are reported from NAEP's Young Adult Assessment: Profiles of Literacy.

†*Three National Assessments of Reading: Changes in Performance, 1970–80.* Education Commission of the States, 1981.

> . . . that the downward trends in reading of 13- and 17-year-olds, particularly in the area of inferential comprehension, are signaling deteriorating resources and instruction for those higher-order intellectual abilities that go beyond basic skills. If these trends continue into the 1980s then it seems plausible that we are failing to give these students anything but basic skills.

In order to monitor this trend in the 1980s, NAEP conducted additional analyses using the previous categorization of questions and computed changes in average percentages correct for these categories based on questions included in both the 1980 and 1984 assessments.* The results are shown in Table 2.2.

National Mean Percent Correct by Type of Question

TABLE 2.2

	1980	1984
Age 9		
Literal Comprehension	56.2	55.6
Inferential Comprehension	60.4	59.3
Reference Skills	64.3	66.9*
Combined (53 items)	61.0	61.2
Age 13		
Literal Comprehension	65.4	64.5
Inferential Comprehension	63.2	64.0
Reference Skills	59.8	61.4*
Combined (62 items)	62.9	63.3
Age 17		
Literal Comprehension	76.2	75.5
Inferential Comprehension	70.2	71.5
Reference Skills	71.2	74.1*
Combined (53 items)	73.4	74.5

*Statistically significant difference from 1980 at the .05 level.

Note: Unless the questions summarized in a mean are identical, as they are for each category of question for each age group from 1980 to 1984, the means should not be compared. This is because the mean percentage correct reflects the choice and number of questions as much as the performance of the students. However, it can be noted that the comparatively low mean for literal comprehension at age 9 seems to be a result of the difficulty of these items. As estimated by the mean IRT difficulty parameter, the literal questions administered at age 9 appear more difficult than the inferential questions.

The investigation into trends in literal and inferential reading achievement is somewhat encouraging, in that students essentially are maintaining previous levels of performance in both literal and inferential comprehension and showing improvements in the use of reference skills. Clearly there has been at least a leveling off in the previous downward trend at the older ages in inferential reading skills.

*It is primarily the literal and inferential comprehension questions that have contributed to the new reading proficiency scale. Average proficiency levels and average percent correct for 1971, 1975, and 1980 are compared in the Procedural Appendix.

Summary

The national trends in reading achievement are clear. students at every age are reading better than they were in 1971, and these improvements have been registered in all but the most advanced levels of reading skills. At age 9 there are fewer students at risk because they lack even rudimentary reading strategies, at age 17, there are more students who have acquired intermediate reading skills and strategies.

Nonetheless, this report brings both good and bad news to those who strive for excellence in education. Results of the 1984 assessment indicate that while upward trends in reading proficiency have leveled off for 9- and 13-year-olds, for the first time in the history of NAEP significant improvements are evident in the reading proficiency of 17-year-olds. Though encouraging, these gains at age 17 may in part be the legacy of changes in schools and society during the late 1960s and early 1970s, and thus may reflect the continuing advantage of children who had a good start at age 9 as well as the effects of calls for improvement in high school instruction.

The good news is that the improvement in reading proficiency registered by children born in the mid-1960s has been maintained by 9- and 13-year-olds born in later years, whatever the reasons, achievement continues to be higher than for children born in the 1950s and early 1960s. The bad news is that recent results suggest that little further improvement has been made since 1980. The achievement of 13 year-olds born in 1970 has been about the same as that of their age-mates born in 1966, 9-year-olds born in 1974 performed the same as those born in 1970. Although reading performance is not deteriorating, the upward trends for earlier cohorts of students have not continued in the 1980s.

In addition, more than half of the students leaving high school have not moved beyond the intermediate level in reading proficiency. Although the nation's youth are doing better, is *better* enough if we want the nation's youth to make the most of their school years and be prepared for our nation's social and economic environments? The long-term increases, particularly at the lower proficiency levels, are encouraging, but students of all ages would benefit from a renewed instructional focus on the more complex comprehension skills and strategies.

Chapter 3

Who Has Been Improving?

The national trends presented in the previous chapter make it clear that the reading proficiency of American school children has been improving since 1971. But the nation is diverse, and our schools have typically been more successful in educating some populations than others. NAEP is designed to report changes for a variety of subgroups, as well as for the nation as a whole.

Performance of Minority Groups

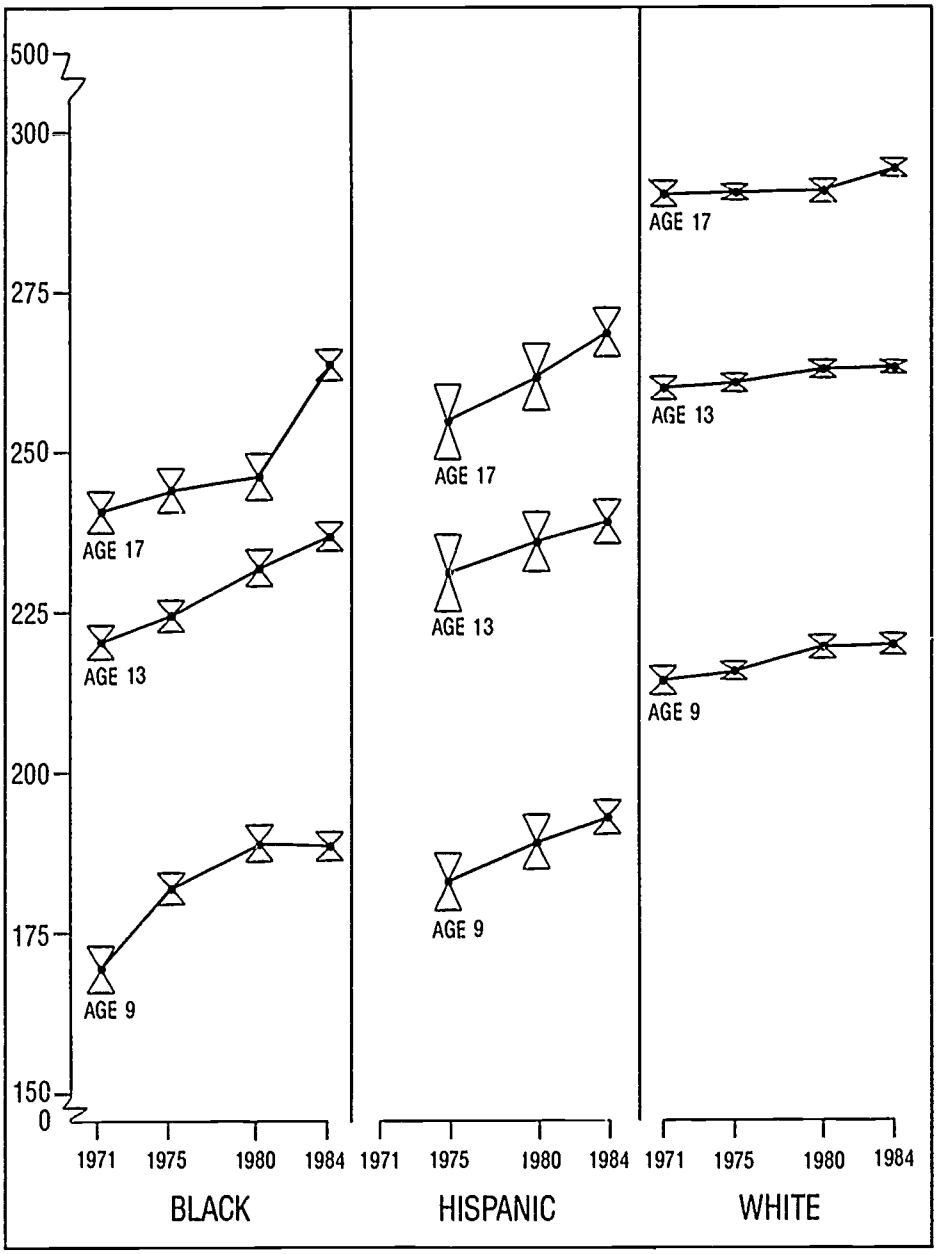
All four reading assessments have examined performance of Black school children, the last three assessments identify results for Hispanic populations as well. For each assessment, the performances of these two groups have been compared with that of White school children.

Overall Reading Proficiency

Figure 3.1 depicts trends in average reading proficiency by age for Black, Hispanic, and White students. These results suggest that over the time period 1971-1984 the three groups performed quite differently. There have been notable gains in performance for Black and Hispanic students since their first assessment, while White students made more modest improvements at all ages. In the 1984 assessment, Black students showed a particularly dramatic increase in performance at age 17, continued improvement at age 13, and a leveling off of performance at age 9. White students also improved significantly at age 17, but not at ages 9 or 13. Hispanic students, in contrast, showed continuing, relatively steady improvement at all three ages.

Trends in Average Reading Proficiency for White, Black, and Hispanic Students

FIGURE 3.1



Birth Date Ranges:
Age 9 Born Jan.-Dec. 1961, 65, 70, 74
Age 13 Born Jan.-Dec. 1957, 61, 66, 70
Age 17 Born Oct.-Sept. 1953-54, 57-58, 62-63, 66-67

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estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

The Influence of a Good Start in School

The national trends discussed in the previous chapter suggested that 9- and 13-year-old children who did comparatively better than their age-mates in the previous assessment were likely to maintain an advantage throughout their school career. Figure 3.1 makes it clear that over time, gains for Black and Hispanic students have been considerably greater than gains for White students. To what extent can these improvements for minority students be attributed in part to a good start during the early years of school? Figure 3.2 displays the relevant data, plotting reading proficiency over time in relation to the year of birth of the children in each sample. The shaded portions of each graph highlight the relative progress of children born in 1961 or 1962-63 compared with those born in 1965 through 1967.

The results in Figure 3.2 indicate that students born in 1965 to 1967 have performed better than their age-mates born in 1961 to 1963, at every age at which they have been assessed. At age 9, Black students born in 1965 made particularly large gains over Black students born four years earlier, and at age 17 Black students born in 1966-67 showed even greater gains compared with Black students born four years earlier. A comparison of Hispanic students born in 1961 and those born in 1965 through 1967 is not available, but 13- and 17-year-old Hispanic students show regular increases during this period.

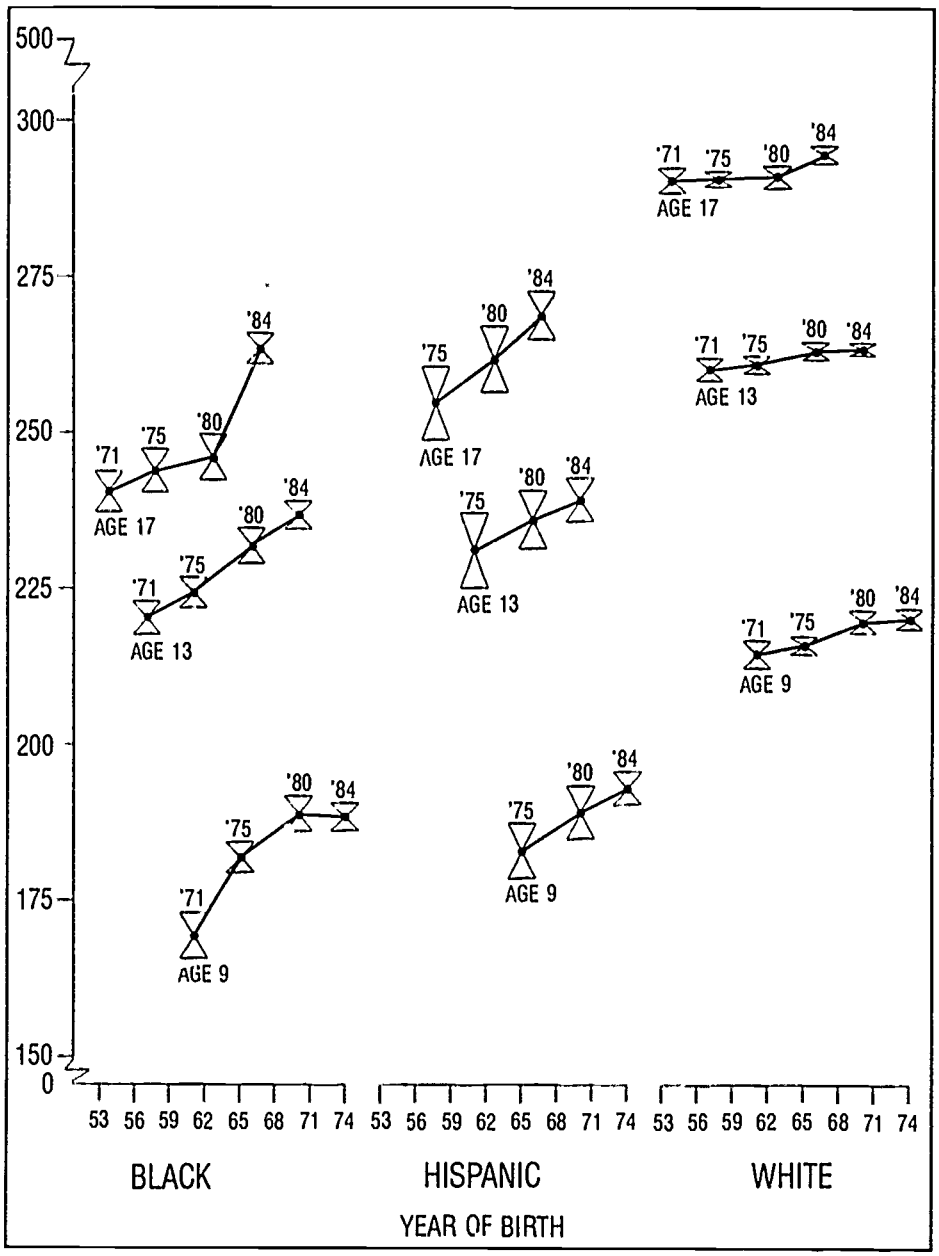
Although it is encouraging to see that gains made by minority group students early in their schooling seem to carry through to later years, some of the trends in Figure 3.2 are less encouraging. In particular, the substantial gains that Black 17-year-olds have made in the past seem likely to continue through one more assessment (reflecting the relative advantage of children born in 1970) and then, given no further interventions, to taper off as those born in 1975 make their way through the school system. Recent gains by White 17-year-olds also seem in some jeopardy, given the pattern of achievement, especially at age 13, for children born in 1970. Only Hispanic students, who may have benefited from recent educational programs targeted toward them, show a continuing pattern of improvement. In the late 1960s and during the 1970s, there was a substantial increase in the number and diversity of special services provided to language-minority and limited-English-proficient students, most of whom learned Spanish as their first language.*

The general trends for Black and Hispanic students, with 9- and 13-year-olds improving gradually during the 1970s, and 17-year-olds improving rapidly during the 1980s, have had the effect of diminishing the performance gap between minority and White students at all three ages. Also, it should be stressed that averages do not reflect the range of proficiency demonstrated by any population and that the distributions of proficiency overlap considerably for the various populations discussed in this report. Nonetheless, even after the improvements evidenced in the 1984 assessment, the average reading proficiency levels of Black and Hispanic *17-year-olds* were only slightly greater than those for White *13-year-olds*. Though great improvements have been made, there is clearly still a long way to go.

**The National Longitudinal Evaluation of the Effectiveness of Services for Language-Minority Limited-English-Proficient Students.* Development Associates, Inc. and Research Triangle Institute, 1984.

Trends in Average Reading Proficiency for White, Black, and Hispanic Students by Year of Birth

FIGURE 3.2



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naep

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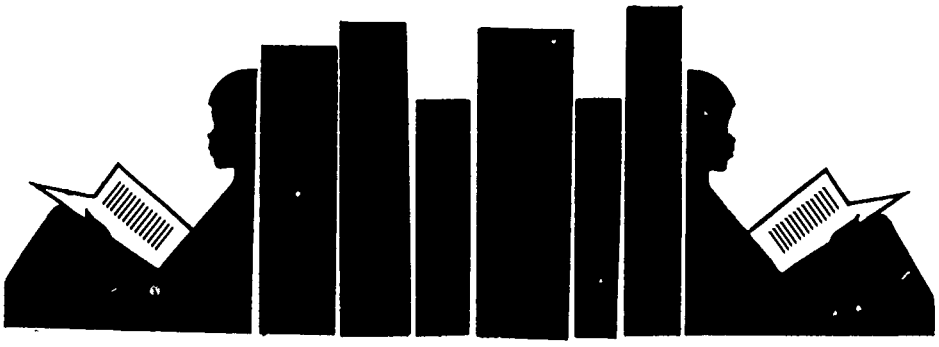


Trends in the Reading Comprehension of Black Students

What do changes in average reading proficiency mean? To understand this, it is helpful to examine the percentages of children who have reached different levels of reading skills and strategies. **Figure 3.3** depicts changes between 1971 and 1984 in the proportion of Black students at age 9 who demonstrated proficiency at each of the five major levels on the reading proficiency scale.

In 1971, 70 percent of Black 9-year-olds evidenced at least **rudimentary** reading skills and strategies. Conversely, this means that some 30 percent failed to demonstrate even the most **rudimentary** of reading skills and strategies. they were unable to complete one- or two-sentence reading exercises or to follow simple directions. Since most 9-year-olds have completed three or four years of formal schooling, those who have not acquired use of even **rudimentary** skills and strategies would seem to be at extremely high risk of failure in their later school careers.

As Figure 3.3 indicates, there has been a considerable reduction in the proportion of Black 9-year-olds in this high risk group, from nearly 30 percent in 1971 to about 16 percent (representing approximately 76,000 Black students in the nation as a whole) in 1984. At the same time, the proportion of Black 9-year-olds demonstrating successful use of **basic** reading strategies has also risen.

Figure 3.4 depicts changes in the reading proficiency of 13- and 17-year-old Black students between 1971 and 1984. By ages 13 and 17, virtually all Black students in the 1984 assessment had acquired **rudimentary** reading skills, and most had acquired **basic** reading skills and strategies as well. Between 1971 and 1984, at both the **basic** and **intermediate** levels, the proportion of 13-year-old Black students increased some 15 percentage points. Across the 13 years of the assessment, Black 17-year-olds have shown improvements in the proportion acquiring both **basic** (13 percentage points) and **intermediate** (25 percentage points) reading skills, while the percentage with **adept** reading skills has more than doubled. Even in 1984, however, only 16 percent of Black 17-year-olds demonstrated **adept** reading skills and strategies compared to 45 percent of the White students at this age level.

Percentage of Black Students at or Above the Five Reading Proficiency Levels

FIGURE 3.3

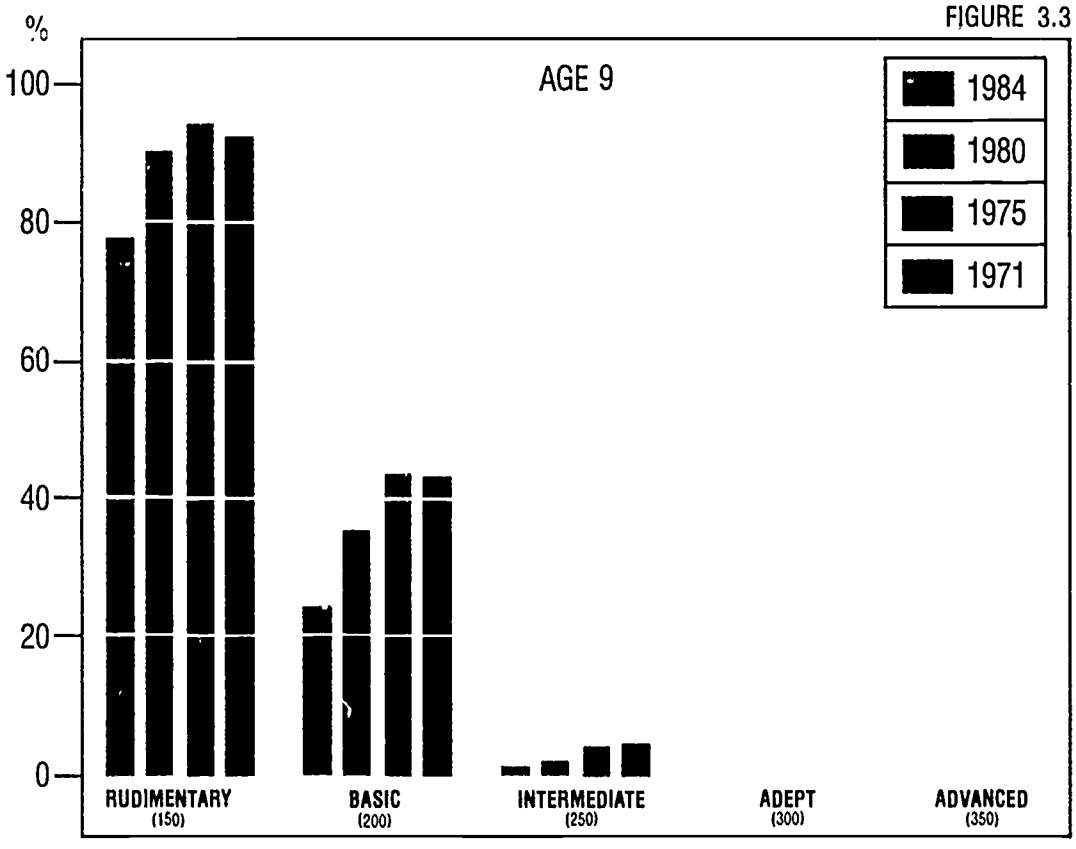
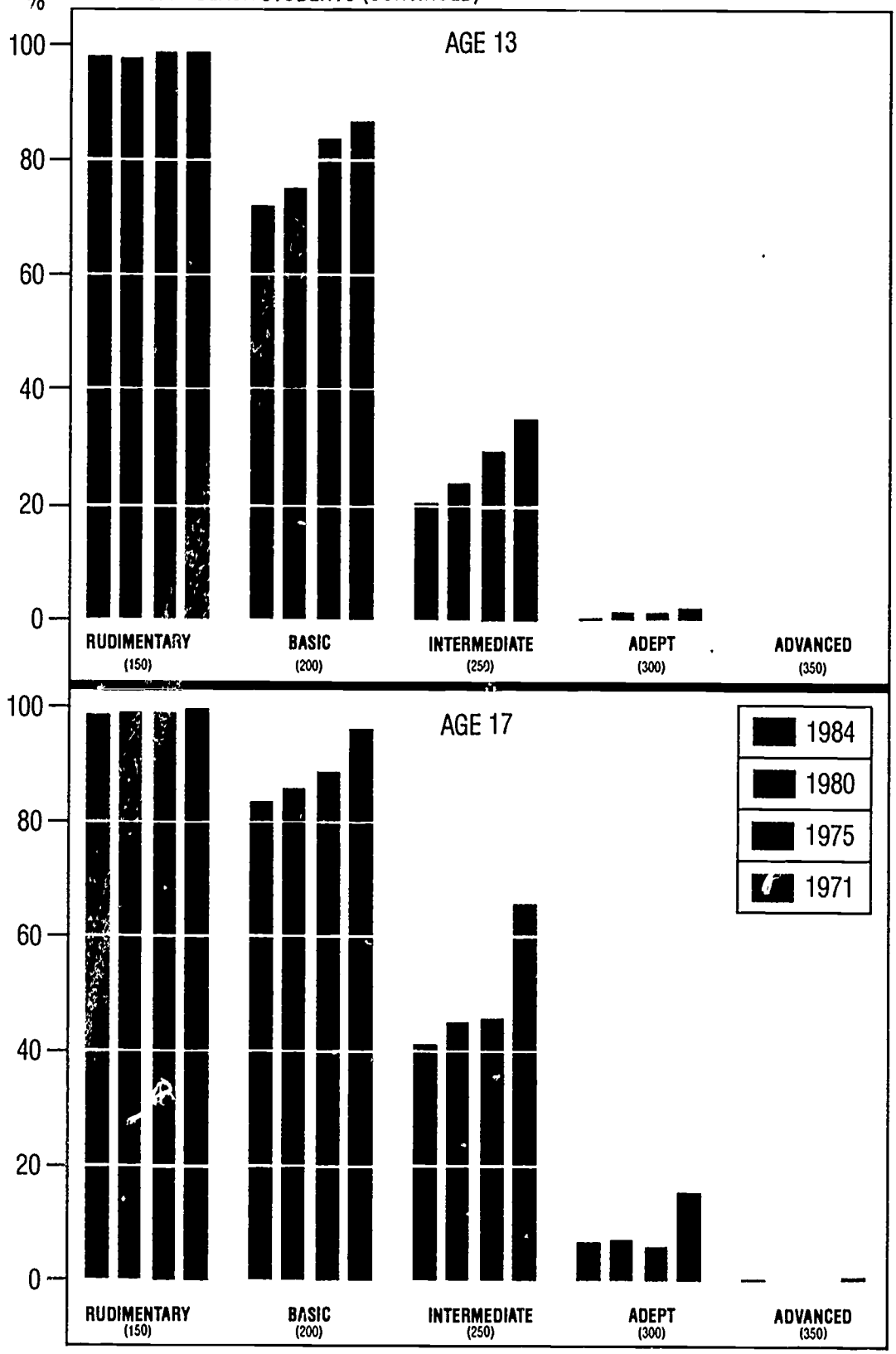


FIGURE 3.4 BLACK STUDENTS (CONTINUED)



Trends in the Reading Comprehension of Hispanic Students

Reading achievement of Hispanic students has been examined separately since the 1975 assessment, trends in reading proficiency levels since that point are displayed for 9-year-olds in Figure 3.5.

The proportion of Hispanic students who lack even rudimentary reading skills at age 9 has been reduced from 18 percent in 1975 to 12 percent (approximately 28,000 students) in 1984, during the same period, the proportion having basic reading skills and strategies has risen 10 percentage points.

As can be seen from Figure 3.6, Hispanic 13-year-olds have shown modest improvement in the use of basic skills and strategies (7 percentage points), as well as in the use of intermediate reading skills and strategies (10 percentage points).

Seventeen-year-old Hispanic students showed improvement in the use of intermediate skills and strategies (13 percentage points), together with significant gains at the higher levels of comprehension.

Percentage of Hispanic Students at or Above the Five Reading Proficiency Levels

FIGURE 3.5

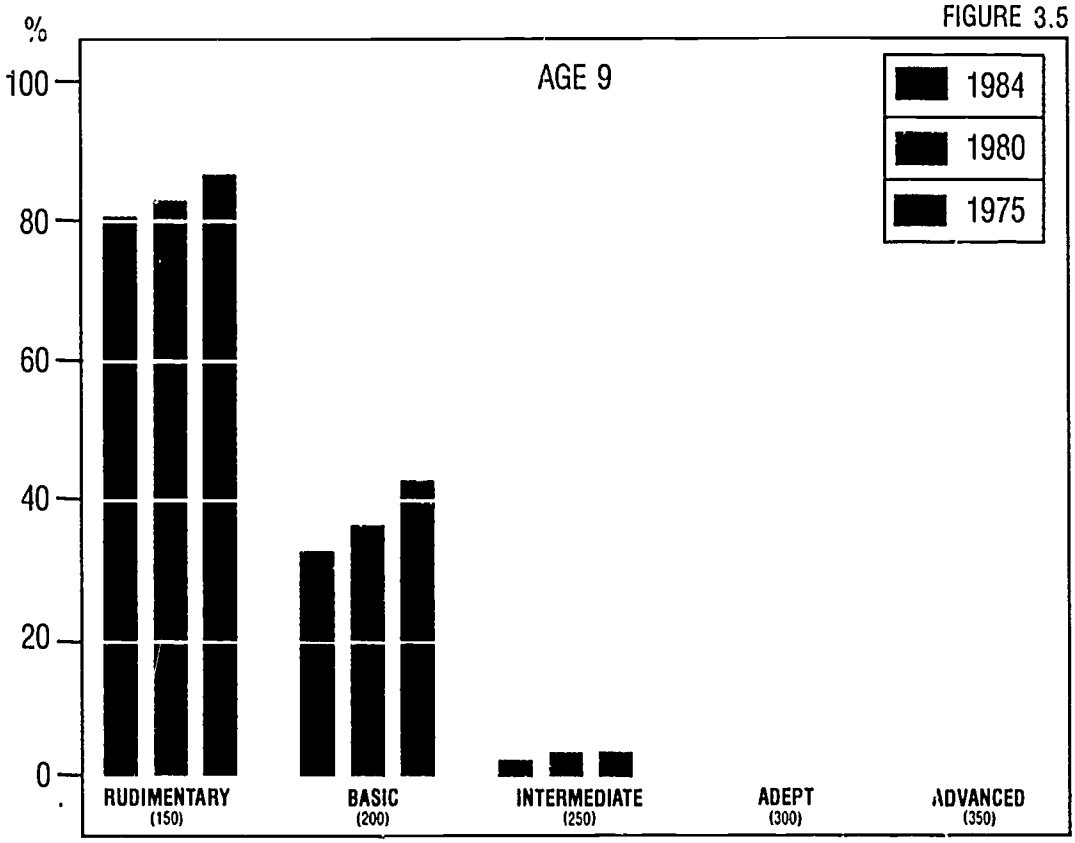
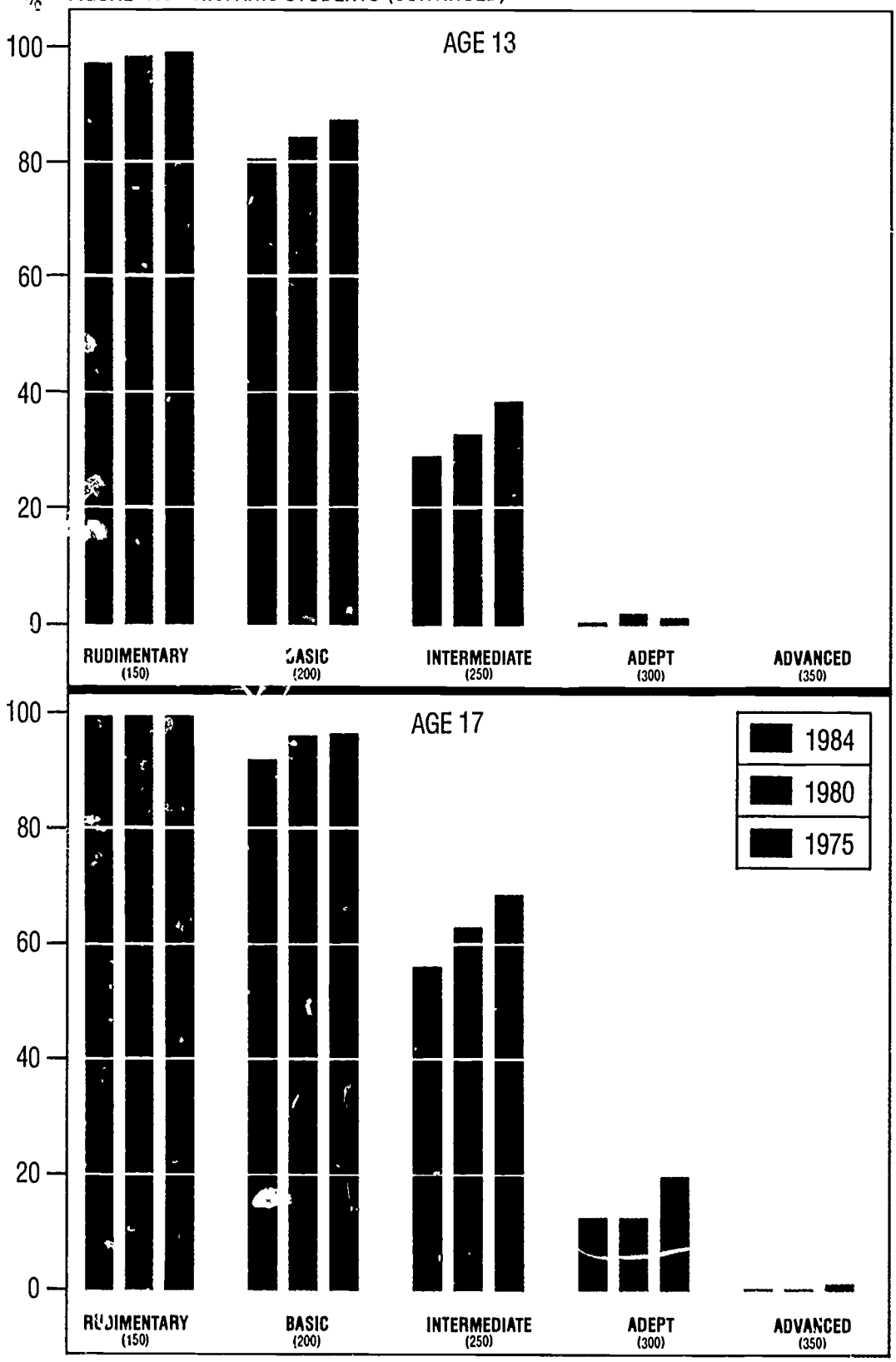


FIGURE 3.6 HISPANIC STUDENTS (CONTINUED)



Trends in the Reading Comprehension of White Students

In all four assessments, White students have performed considerably better than their Black and Hispanic peers. Unlike the trends in the other groups, however, there were only modest improvements in the reading skills and strategies of White students between 1971 and 1984 (see **Figures 3.7** and **3.8**). As Figure 3.7 indicates, the proportion of 9-year-old White students "at risk" because they lack even **rudimentary** reading skills was reduced from 6 percent in 1971 to 4 percent (approximately 92,000 students) in 1984, while there were small but significant increases in the proportion having **basic** and **intermediate** skills and strategies (6 and 4 percentage points, respectively).

The improvements at ages 13 and 17 occurred at the **intermediate** and **adept** levels and are displayed in Figure 3.8. For 13-year-olds, increases of 3 percentage points occurred at both the **intermediate** and **adept** levels. At age 17, the proportion of students with **intermediate** reading skills increased significantly, as did the proportion with **adept** reading skills—4 percentage points in each case. In 1984, fully 89 percent had acquired **intermediate** skills and strategies, and 45 percent were successfully using **adept** skills and strategies.

Percentage of White Students at or Above the Five Reading Proficiency Levels

FIGURE 3.7

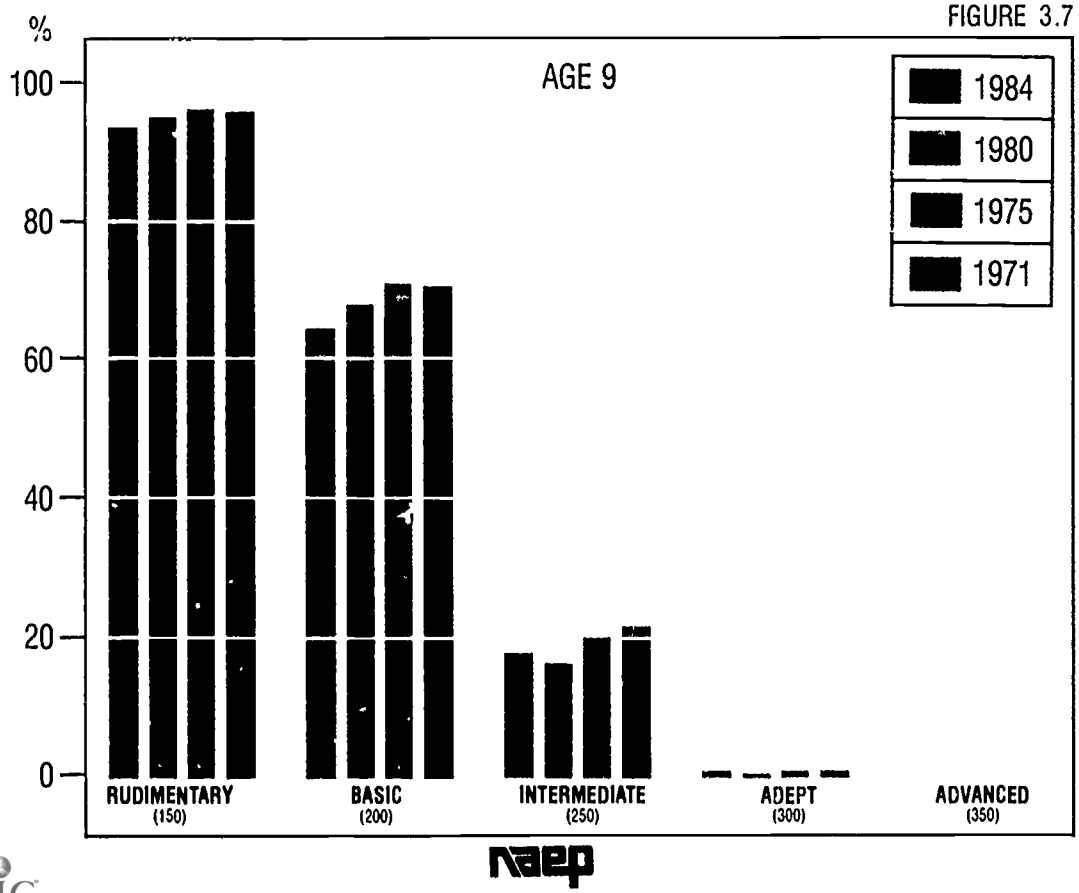
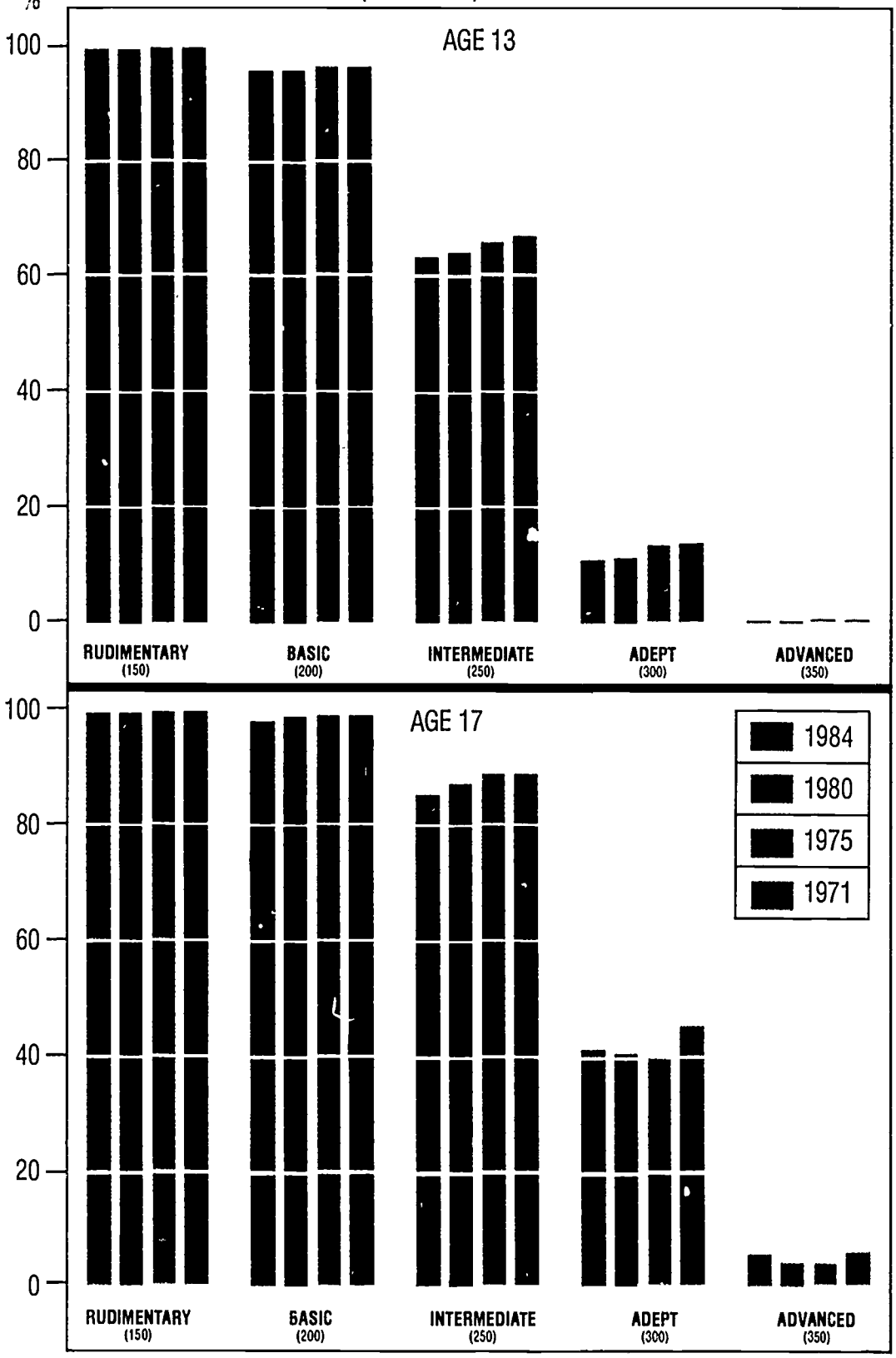


FIGURE 3.8 WHITE STUDENTS (CONTINUED)



Type of Community

The problems of education in urban and in rural settings differ in nature but not in magnitude. Both face special problems and both have received special attention during the past decade. Trends in reading achievement for students living in these areas are displayed in **Figure 3.9**, with results for advantaged urban communities (with a high proportion of residents in professional or managerial occupations) presented separately from those for disadvantaged urban communities (with a high proportion of residents on welfare or unemployed).

Disadvantaged Urban Communities

Average levels of reading achievement have generally risen for disadvantaged urban populations, with a leveling off among the 13-year-olds in 1984.

For 9-year-olds in disadvantaged urban communities, the proportion lacking rudimentary reading skills and strategies was reduced from 25 percent in 1971 to 12 percent (approximately 46,000 students) in 1984. Similar gains were registered in basic reading strategies, the proportion of 9-year-old children using these strategies increased from 30 percent in 1971 to 45 percent in 1984.

At age 13, improvements were noted in the use of both basic and intermediate skills and strategies (by 5 percentage points in each case). Older students continued to show improvement at these levels, so that by 1984, 66 percent of disadvantaged urban 17-year-olds had acquired at least intermediate skills. In 1984, 19 percent had adept reading skills.

Rural Communities

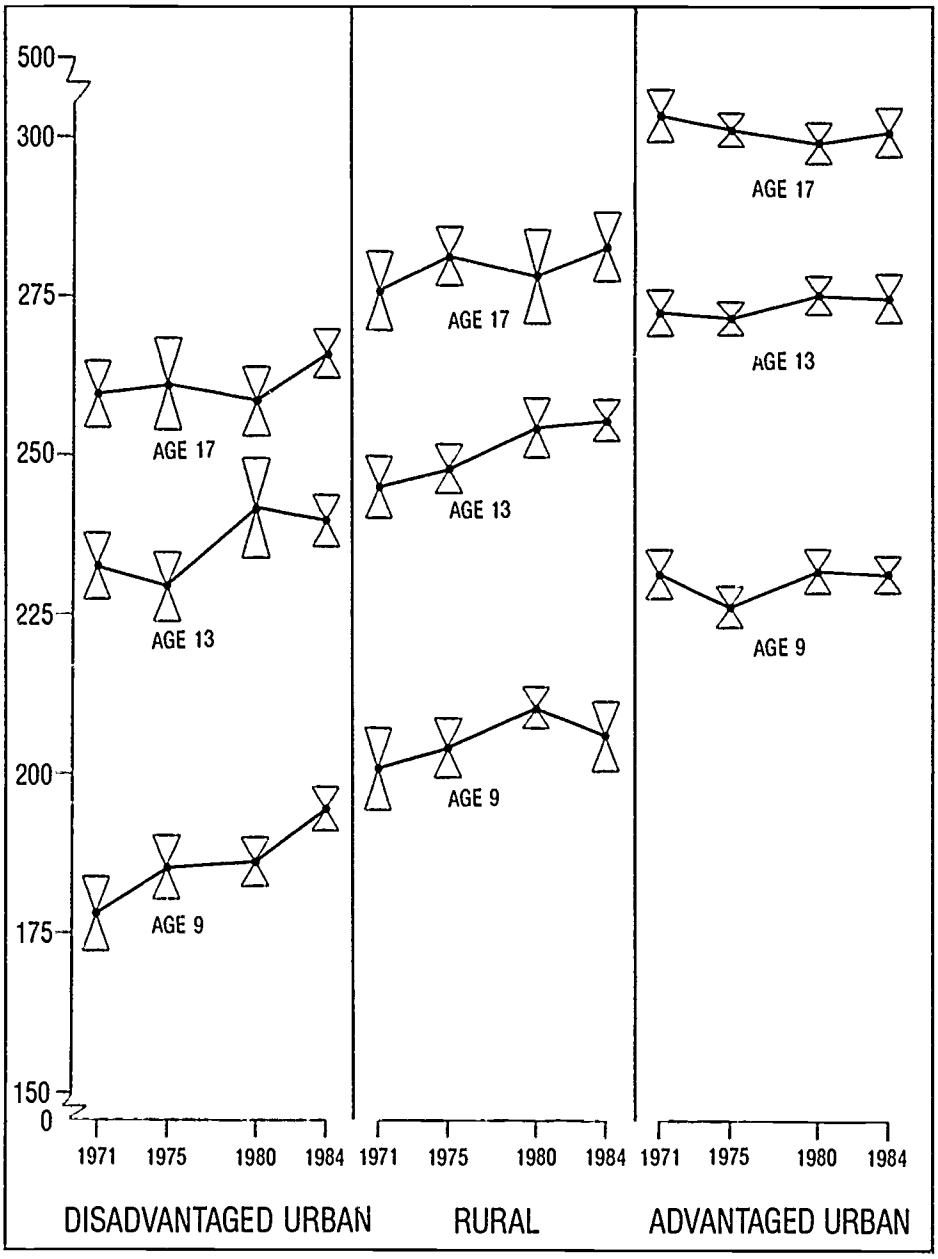
Reading proficiency of students in rural communities has also generally improved across the four assessments, though the year to year trends are not consistent.

Advantaged Urban Communities

Trends in the reading proficiency of students from advantaged urban communities provide an interesting contrast. Across the four assessments, performance has changed little for 9-, 13-, or 17-year-old students in advantaged urban communities. after a dip for 9-year-olds in the early 1970s, performance recovered to initial levels. For students from these communities, changes in reading proficiency from 1971 to 1984 were not significant. Over the 13-year period, for example, the percentage of 9-year-olds "at risk" has remained constant at about 2 percent, while the percentage of 17-year-olds with adept reading skills has ranged between 50 and 55 percent.

Trends in Average Reading Proficiency for Type of Community

FIGURE 3.9

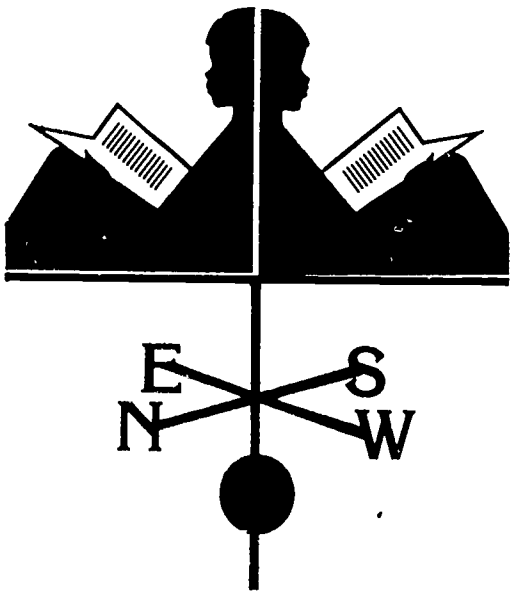


Birth Date Ranges:

Age 9	Born Jan.-Dec. 1961, 65, 70, 74
Age 13	Born Jan.-Dec. 1957, 61, 66, 70
Age 17	Born Oct.-Sept. 1953-54, 57-58, 62-63, 66-67

naep

estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.



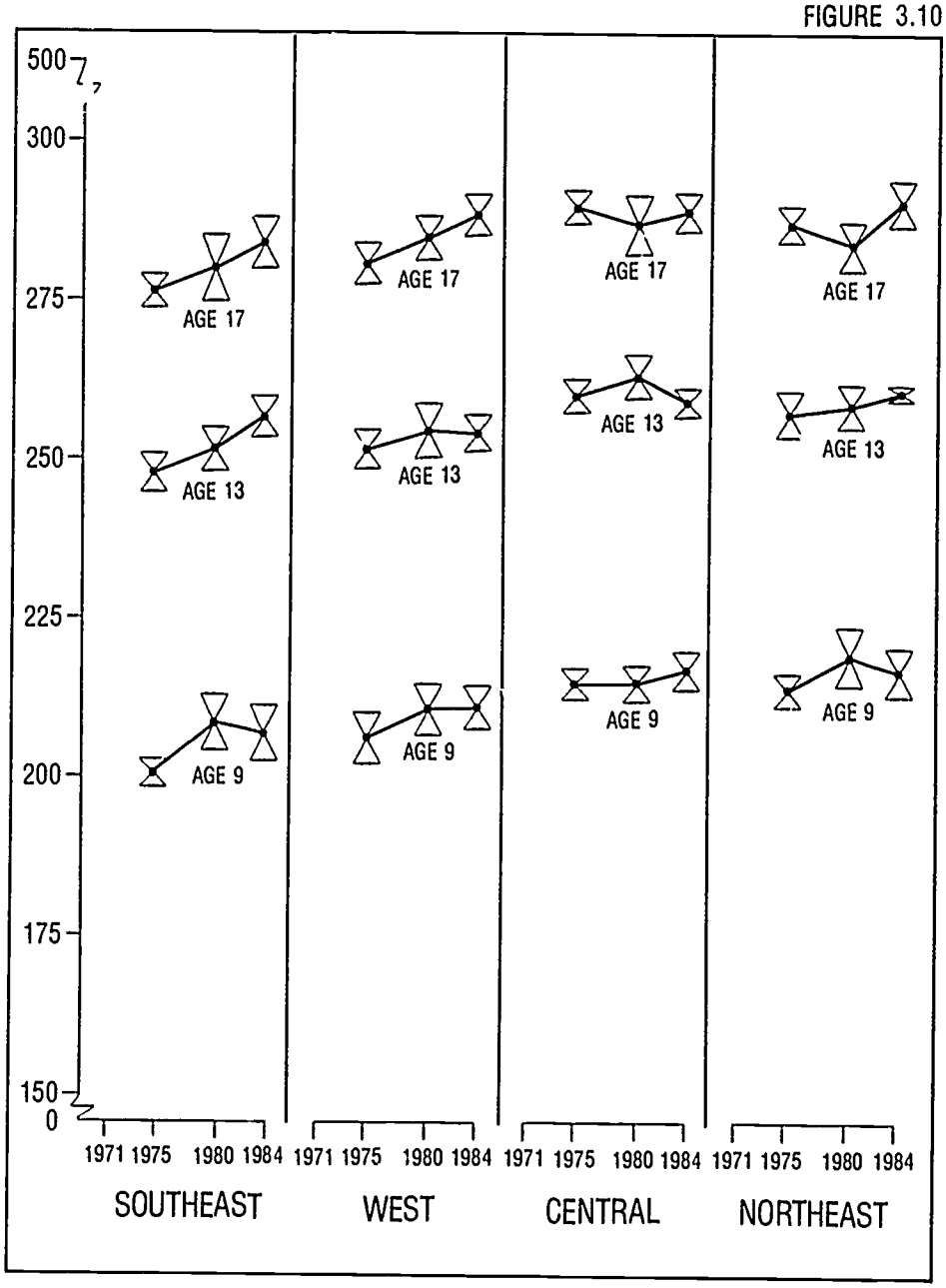
Regional Trends

Figure 3.10 displays trends in reading proficiency levels between 1975 and 1984 for Northeastern, Southeastern, Central, and Western states. Although regional results are not available in this report for the 1971 assessment, the following discussion will take into consideration the 1971 regional results included in prior NAEP reports.* These results showed significant improvement at age 9 and modest improvements at ages 13 and 17 in the Southeast between 1971 and 1975. Results for the other three regions were relatively stable between 1971 and 1975. Across the NAEP assessments, achievement has been somewhat higher in the Northeast and Central regions and somewhat lower in the West and Southeast. The gaps between the regions have narrowed considerably, due primarily to improvements at all ages in the performance in the Western region and particularly in the Southeastern region over the 13 years. Yet the significant improvement for the 9-year-olds in the Southeastern region from 1971 to 1980 was not maintained in 1984. Considering the birth cohort comparison discussed earlier, it is interesting to note that improvements in all four regions for 13-year-olds between 1975 and 1980 were mirrored in similar general improvements in all regions for 17-year-olds between 1980 and 1984.

*Three National Assessments of Reading: Changes in Performance, 1970-80, Education Commission of the States, 1981.

Trends in Average Reading Proficiency for Regions of the Country

FIGURE 3.10



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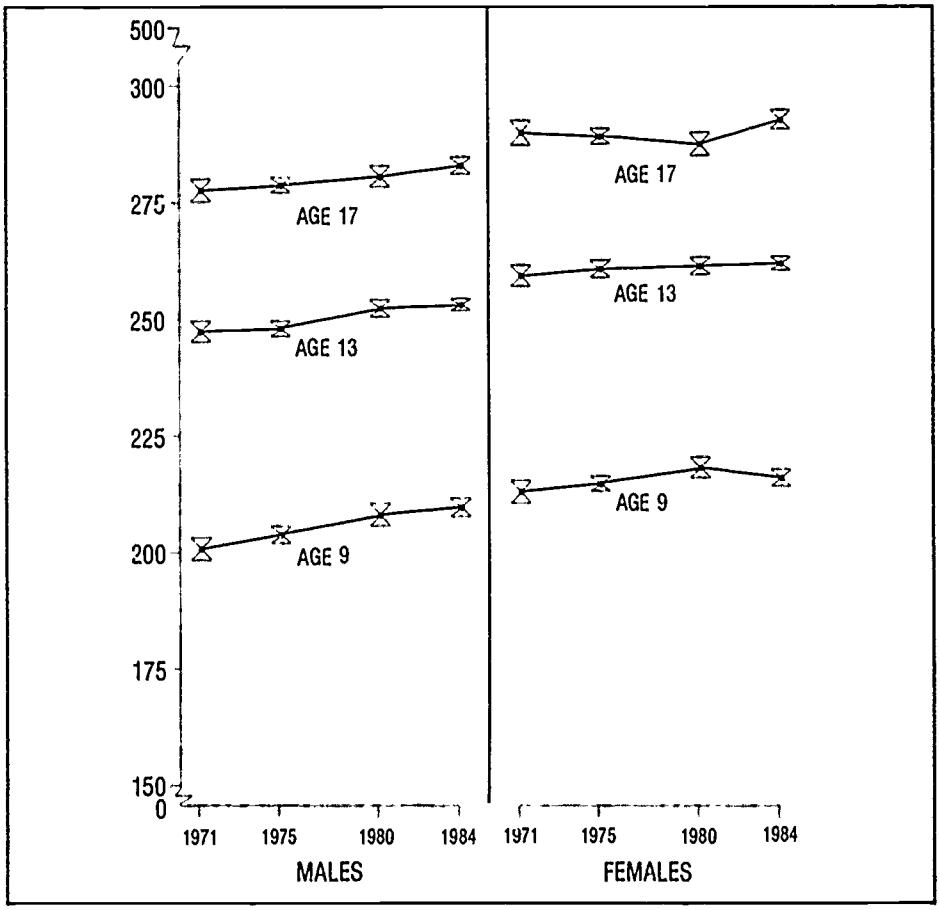
⧖ - estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

Sex Differences in Reading Proficiency

The reading proficiency of males has trailed that of females in all four reading assessments (**Figure 3.11**), with the gap between the two groups narrowing slightly between 1971 and 1984. The percentage of 17-year-old males with **adept** reading skills and strategies remained constant at 32 percent from 1971 to 1980 and then increased slightly to 35 percent in 1984. The proportion of females at this level declined from 43 percent in 1971 to 38 percent in 1980, returning to 44 percent in 1984.

Trends in Average Reading Proficiency for Males and Females

FIGURE 3.11



Birth Date Ranges:
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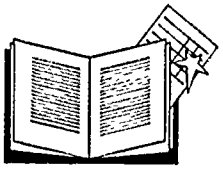
Summary

Who has been improving in reading proficiency? Over the 13-year period, American schools have made considerable progress with those students who have traditionally had the least success. Although reading performance is up for almost all groups of students, the improvements have been greatest in the groups that were furthest behind in 1971. Moreover, increases in average proficiency levels seem to reflect meaningful improvements throughout the reading proficiency scale, with fewer falling at low proficiency levels and more students attaining high proficiency levels over time. For example, between 1971 and 1984, the percentage of Black 9-year-olds "at risk" because they had failed to acquire use of even **rudimentary** reading skills and strategies was reduced by nearly half (from 30 to 16 percent), while the proportion of Black 17 year-olds with **adept** reading skills and strategies more than doubled, from 7 to 16 percent.

If one goal of the social and educational reforms of the past two decades has been to eliminate inequalities in educational opportunities, then Americans can claim at least some modest success. As a result of these improvements in the performance of traditionally underachieving populations, the gap between their performance and that of their cohorts in traditionally more successful groups has decreased substantially since 1971.

In spite of the clear advances that have been made, however, the results leave little cause for complacency. The average reading proficiency of Black and Hispanic 17-year-old students remains near the level of that of White 13-year-olds. If we look just at the proportion of 17-year-olds who have **adept** reading skills and strategies, the discrepancy is particularly dramatic. Some 45 percent of White 17-year-olds have acquired **adept** reading strategies, compared with only 16 to 20 percent of Black and Hispanic students at this age. And these are the students who are likely to do best in their overall school performance, to have the greatest potential for further academic work, and to have the greatest likelihood of success in the workplace. In addition, for 9-year-olds, four times as large a proportion of Black children as White children (16 percent compared to 4 percent) are reading below **rudimentary** levels and may be at risk for future school failure.

The trends for various subgroups also indicate that, although the performance of historically underachieving populations has improved, the performance of those who historically have done relatively well has not improved at the same pace. For example, the reading proficiency of White students has increased only slightly since 1971, and that of students from advantaged urban communities has not improved at all.



Chapter 4

Influences on Reading Proficiency

Many factors have been cited as likely to affect reading achievement, ranging from the support for literacy provided by the home to the amount of television that children watch. In addition to assessing students' reading proficiency, NAEP asks students a range of questions, some of which relate to the more widely discussed background factors. Although the relationships between these self report questions and reading proficiency do not establish cause and effect, they do provide insights into the importance of home environment. This chapter will explore the relationship between reading proficiency and several of these factors.

Parents' Level of Education

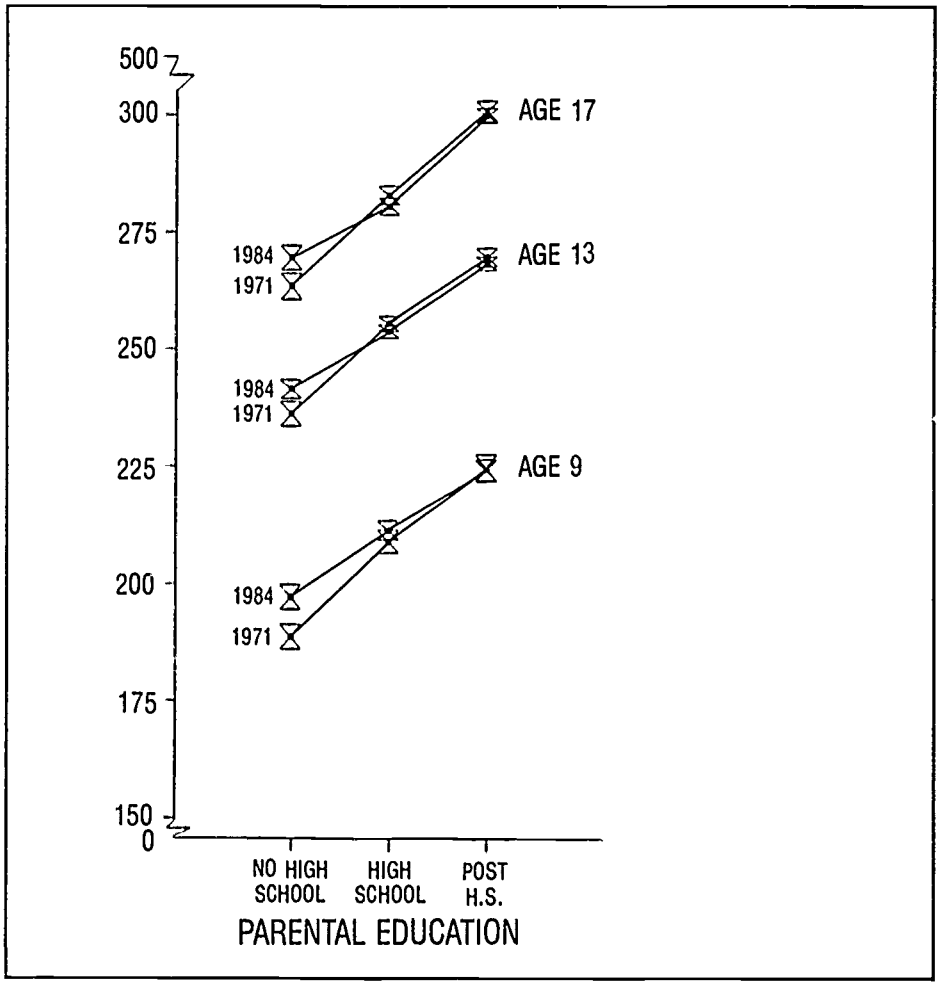
Figure 4.1 summarizes the relationships between parents' level of education and reading proficiency on the 1971 and 1984 assessments. The relationships are consistent, at all three ages, students whose parents have a post-high school education have a substantially higher average reading proficiency than those whose parents have graduated from high school and the latter are better readers than those whose parents have not graduated from high school.

Between 1971 and 1984, the size of the advantage enjoyed by children from more highly educated families decreased somewhat. This occurred primarily because students whose parents had not graduated from high school tended to improve with each successive assessment, while those whose parents had a high school or post-high school education remained roughly at the same reading proficiency levels. In fact, students with parents who had at least a high school education (about 80 percent of the population) are among the few groups in the assessment who do not show

significant improvement over the 13 years. In gauging the impact of this relationship, it should be noted that 13-year-olds whose parents had a post-high school education average almost as well in their reading proficiency as 17-year-olds whose parents did not graduate from high school.

National Reading Proficiency for 9-, 13-, and 17-Year-Olds by Parental Education

FIGURE 4.1



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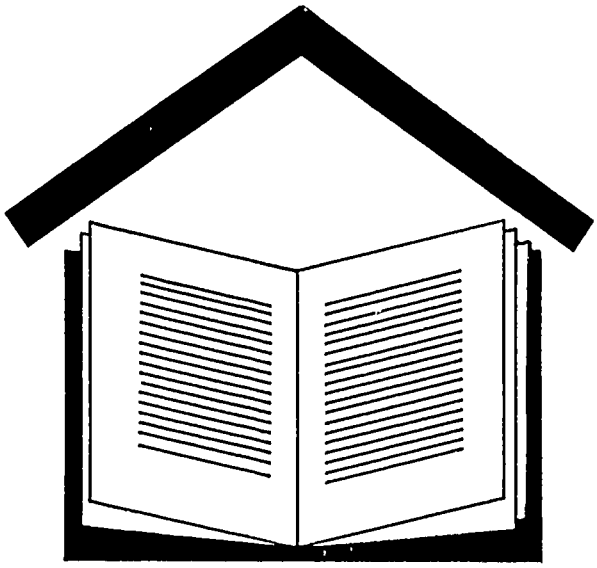


Reading Material in the Home

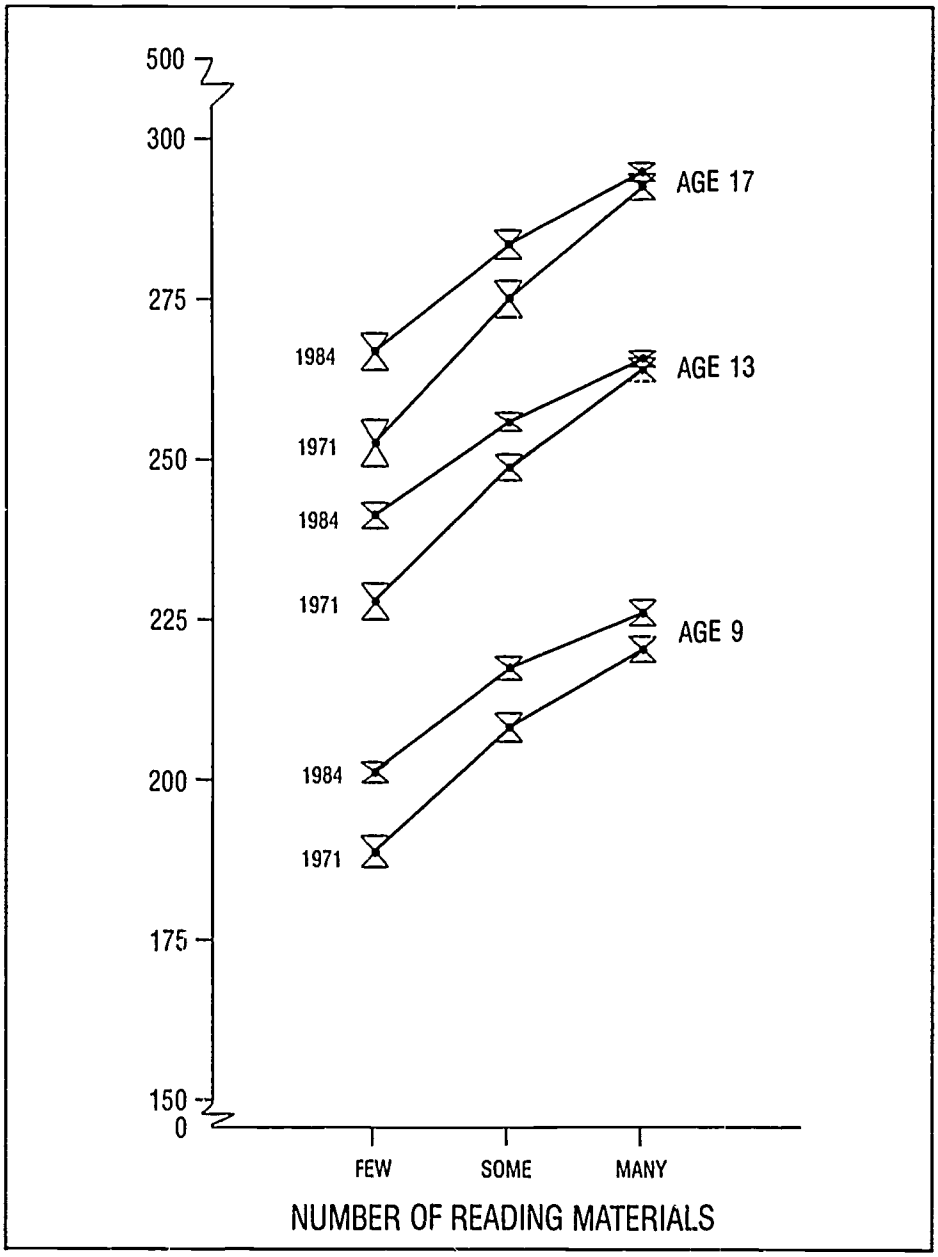
One feature of the home environment relevant to student reading performance is the amount of reading material available in the home. Students were asked a series of questions about the availability of books, newspapers, magazines, and encyclopedias. Figure 4.2 summarizes the relationship between the availability of such materials in the home and reading proficiency.

The relationships between available reading material and reading proficiency are as notable as those for level of parental education. At all three ages, children from homes with an abundance of reading material have substantially higher average reading proficiency levels than do children who have few such materials available. This relationship has held since 1971.

In 1984, the proportion of children reporting only a *few* reading materials at home was about 35 percent at age 9, 19 percent at age 13, and 13 percent at age 17. At all three ages, these percentages were higher in 1984 than they were in 1971, indicating a decrease in the availability of reading material in homes. (In 1971, the figures were 28 percent at age 9, 17 percent at age 13, and 11 percent at age 17.) This may reflect a national trend toward less use of printed material and more reliance on other media, such as television, to obtain information or occupy leisure time.

National Reading Proficiency for 9-, 13-, and 17-Year-Olds by Number of Reading Materials in the Home

FIGURE 4.2



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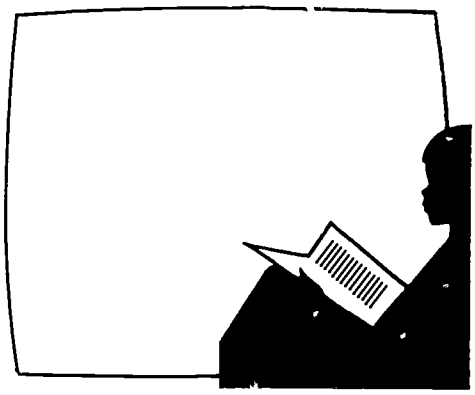


The Effects of Television

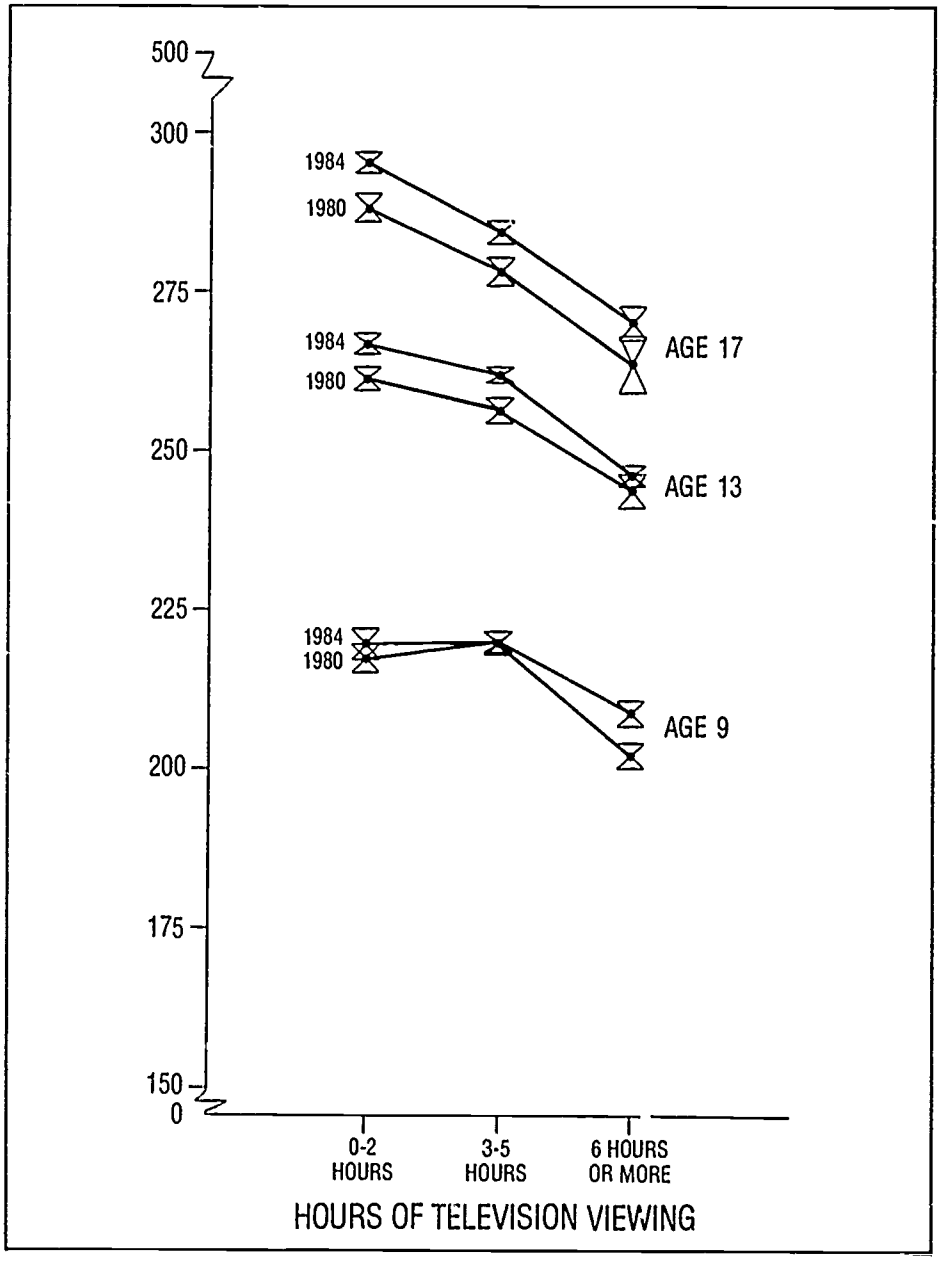
Television is frequently cited as an influence that diverts children's attention from reading and school work. The NAEP reading proficiency data suggest this may be so, but only for excessive television viewing. **Figure 4.3** summarizes the reading achievement of 9-, 13- and 17-year-olds during the 1980 and 1984 assessments, in relation to the amount of television viewing reported.

In general, students who watch up to two hours of television pe. day have reading proficiency levels above average for their age group—and for 9-year-olds the relationship is positive up to five hours of viewing per day. Six or more hours of TV viewing per day is consistently and strongly related to lower reading proficiency for all three age groups.

NAEP data cannot show whether moderate television viewing leads to higher achievement or whether better readers have other things to occupy their time and therefore watch less television. Similarly, it is unlikely that television viewing, in and of itself, lowers reading proficiency—poor readers may simply choose to watch more television. There does seem to be, however, a disturbing number of children who watch television excessively, particularly at age 9. In 1984, fully 27 percent of the 9-year-olds (or about 828,000 children nationally) reported watching more than six hours of television *per day*, up from 18 percent four years earlier. Excessive television viewing was less common among the two older samples, though even there, 11 percent of the 13-year-olds (365,000 children) and 6 percent of the 17-year-olds (181,000 children) reported daily viewing of more than six hours.

National Reading Proficiency for 9-, 13-, and 17-Year-Olds by Hours of Television Viewing

FIGURE 4.3



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estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

Homework

Schools can do little except complain about the amount of time children may spend watching television. But teachers have direct control over the amount of homework they assign. The 1980 and 1984 assessments included a question asking students how much time they spent on homework. The relationships between reading proficiency and student answers to this question are summarized in Table 4.1. (Note that the question asks about homework in general and not about reading assignments in particular.)

Homework

TABLE 4.1

		1980		1984	
		Percent of Students	Reading Proficiency	Percent of Students	Reading Proficiency
Age 13:	None assigned	30%	253	20%	255
	Did not do it	6	251	3	248
	Less than 1 hour	32	258	32	261
	1-2 hours	24	262	26	265
	More than 2 hours	7	259	8	263
	Missing	< 1	—	12	—
Age 17:	None assigned	31%	277	22%	278
	Did not do it	12	286	11	288
	Less than 1 hour	24	287	26	289
	1-2 hours	22	288	26	293
	More than 2 hours	10	292	13	299
	Missing	1	—	1	—

In general, students who receive homework assignments and do them tend to read at higher proficiency levels than students who do not have assigned homework or who do not do their assigned homework. At age 13, reading proficiency was highest for students who spent from one to two hours per night on homework, at age 17, for those who spent more than two hours. Nine-year-olds were not asked about homework until the most recent assessment.

The amount of homework that students do seems to be related to their reading proficiency, though the NAEP data cannot show whether this is because good students are given more homework or do more homework, or because more homework leads to higher reading achievement. As a further complication, at age 13 students who do more than two hours of homework have slightly lower reading proficiency than those who do one to two hours. This may indicate that students who read less well take longer to do their homework or that these students are assigned additional homework, rather than that more homework is deleterious to the development of reading proficiency. In contrast, at age 17 increasing time spent on homework is systematically related to increasing levels of reading proficiency.

Schools clearly believe that homework is valuable and teachers are assigning it more frequently. Between 1980 and 1984, the proportion of students reporting that they had *no* assigned homework the previous day dropped for both 13- and 17-year-olds. In 1980, fully 31 percent of the 17-year-olds had not been given any homework the previous day, in 1984, this had been reduced to 22 percent. Of the 13-year-olds, 30 percent reported no homework assignment in 1980, but this dropped to 20 percent in 1984. Furthermore, the percentage of 13-year-olds who did not do assigned homework dropped from 6 to 3 percent over the four-year period, while the percentage of 17-year-olds dropped from 12 to 11 percent.

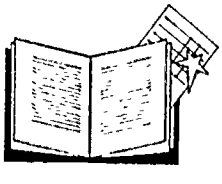
Summary

The factors investigated in this chapter are ones that schools and parents can attempt to influence. reading materials in the home, the amount of homework, and the extent of television watching can be controlled in ways that other factors such as race, sex, and region of the country cannot. From this perspective, the results may be useful in suggesting further action.

In a recent "Harvard Education Letter," Jeanne Chall writes that children "need to read a great deal in order to develop fluency. Children must have lots of books around." NAEP results indicate that many children have a variety of reading materials available in the home, but those who do not have access to such material are appreciably poorer readers. Schools may want to seek ways to provide all students with supplementary reading materials.

The amount of homework assigned has been increasing over the past few years, and students with higher reading proficiencies seem to do more homework. This is revealed most clearly by age 17, where increasing time spent on homework is systematically related to levels of reading proficiency.

The majority of 17-year-olds and roughly a third of 9- and 13-year-olds watch reasonable amounts of television (two hours or less per day), with no apparent negative and perhaps even some positive effects on their reading proficiency. However, a large group of children watch television excessively (six hours or more per day), and the reading proficiency of these children is dramatically lower than that of their peers. Considering the number of available hours in the day, the amount of time spent in school, and the amount of sleep the average 9-year-old needs, six hours of television viewing per day cannot leave these children much time for reading, homework, or time with friends or family members. In regard to developing reading proficiency, the reduction of television watching in and of itself without substituting reading activities, homework, or other related experiences seems unlikely to be effective.



Procedural Appendix

A Description of the NAEP Reading Assessments

General Background About NAEP

The National Assessment of Educational Progress (NAEP) is an ongoing, congressionally-mandated project established to conduct national surveys of the educational attainments of young Americans. Its primary goal is to determine and report the status and trends over time in educational achievement. NAEP was initiated in 1969 to obtain comprehensive and dependable national educational achievement data in a uniform, scientific manner. Today, NAEP remains the only regularly conducted national survey of educational achievement at the elementary, middle, and high school levels.

Since 1969, NAEP has assessed 9-year-olds, 13-year-olds and 17-year-olds. In 1983, NAEP began sampling students by grade as well as by age. In addition, NAEP periodically samples young adults. The subject areas assessed have included reading, writing, mathematics, science, and social studies, as well as citizenship, literature, art, music, and career development. Assessments were conducted annually through 1980 and have been conducted biennially since then. All subjects except career development have been reassessed to determine trends in achievement over time. To date, NAEP has assessed approximately 1,200,000 young Americans.

NAEP has recently completed a young adult literacy assessment and is currently preparing in-school assessments of mathematics, reading, science, and computer competence, which will be administered in the spring of 1986 along with special probes of U.S. history and literature.

From its inception, NAEP has developed assessments through a consensus process. Educators, scholars, and citizens representative of many diverse constituencies and points of view design objectives for each subject area assessment, proposing general goals they feel students should achieve in the course of their education. After careful reviews, the objectives are given to item writers, who develop assessment questions appropriate to the objectives.

All exercises undergo extensive reviews by subject-matter and measurement specialists, as well as careful scrutiny to eliminate any potential bias or lack of sensitivity to particular groups. They are then administered to a stratified, multi-stage probability sample. The young people sampled are selected so that their assessment results may be generalized to the entire national population. Once the data have been collected, scored, and analyzed, NAEP publishes and disseminates the results. Its purpose is to provide information that will aid educators, legislators, and others to improve education in the United States. Some of the questions used in each assessment are made available to anyone interested in studying or using them. The rest are kept secure for use in future assessments for the examination of trends over time.

To improve the utility of NAEP achievement results and provide the opportunity to

examine policy issues, in recent assessments NAEP has collected information about numerous background questions. Students, teachers, and school officials answer a variety of questions about instruction, activities, experiences, curriculum, resources, attitudes, and demographics.

NAEP is supported by the National Institute of Education. In 1983, Educational Testing Service assumed the responsibility for the administration of the project, which had previously been administered by the Education Commission of the States. NAEP is governed by an independent, legislatively defined board, the Assessment Policy Committee.

General Background About the Four NAEP Reading Assessments

NAEP has assessed the reading achievement of in-school 9-, 13- and 17-year-olds four times: in the 1970-71 school year, in 1974-75, in 1979-80, and in 1983-84. In each assessment, 13-year-olds were assessed in the fall (October—December), 9-year-olds in the winter (January—February), and 17-year-olds in the spring (March—May).

Birth date ranges for each age group in each of the four assessments follow:

Assessment	Age 9	Age 13	Age 17
1970-71	1961	1957	10/53— 9/54
1974-75	1965	1961	10/57—10/58
1979-80	1970	1966	10/62—10/63
1983-84	1974	1970	10/66— 9/67

Content of the Reading Assessments

Each assessment contained a range of reading tasks measuring performance on sets of objectives developed by nationally representative panels of reading specialists, educators, and concerned citizens.* Although changes were made from assessment to assessment, a small set of exercises has been kept constant in order to anchor the results across time.

In each assessment NAEP has asked students to read prose passages or poems and answer questions about them. The passages are drawn from a variety of genres, including fiction as well as nonfiction.

The questions about the passages include a range of multiple-choice questions that represent reading comprehension as traditionally assessed through objective tests. These questions essentially ask students to locate specific information, to make inferences based on information in two or more parts of a passage, and to recognize the main idea. Many of the questions measure reading for specific information or general understanding. However, since relatively complex interpretative and analytic reading skills are equally important, the assessments have also included open-ended questions asking students to provide written substantiations of their interpretations or evaluations of passages. Responses to these are scored by trained staff using scoring guides that focus on the readers' ability to substantiate their conclusions about what they had read.

*_NAEP Reading Objectives, 1983-84 Assessment_. National Assessment of Educational Progress, 1982.

Sampling

Sample sizes for the results in this report and cooperation rates for the four NAEP reading assessments are shown below (Tables A.1., A.2., and A.3.).

TABLE A.1. Student Sample Sizes

	1971	1975	1980	1984
Age 9	18,096	21,697	21,159	22,291
Age 13	19,948	21,393	22,330	22,693
Age 17 (in-school)	18,417	19,624	18,103	25,193
TOTAL	56,461	62,714	61,592	70,177

TABLE A.2. School Sample Sizes

	1971	1975	1980	1984
Age 9	1,007	1,003	560	683
Age 13	1,020	972	534	549
Age 17	631	830	412	345
TOTAL	2,658	2,805	1,506	1,577

TABLE A.3. School Cooperation and Student Response Rates

	Age	Percent Schools Participating	Percent Student Completion
1971*	9	92.5	90.7
	13	92.0	88.2
	17	90.5	75.2
1975*	9	93.9	87.5
	13	92.8	83.7
	17	91.0	69.7
1980*	9	94.5	90.1
	13	93.2	85.9
	17	90.5	78.0
1984**	9	88.6	92.5
	13	90.3	90.3
	17	83.9	82.2

*1971, 1975 and 1980 figures obtained from corresponding *Public Use Data Tape User Guides.*
**1984 figures obtained from WESTAT, Inc. (Draft Report on Year 15).

All four NAEP reading assessments were based on a deeply stratified three-stage sampling design. The first stage of sampling entails defining primary sampling units (PSUs)—typically counties, but sometimes aggregates of small counties, classifying the PSUs into strata defined by region and community type; and randomly selecting PSUs. For each age level, the second stage entails enumerating, stratifying, and randomly selecting schools, both public and private, within each PSU selected at the first stage. The third stage involves randomly selecting students within a school for participation in NAEP. Some students sampled (less than 5 percent) were excluded because of limited-English proficiency or a severe handicap. In 1984, NAEP began collecting descriptive information about excluded students.

Groups of about 12 to 25 students are assembled for assessment sessions, with each testing session lasting about one hour. In the standard matrix sampling procedure formerly employed by NAEP, the total assessment battery, typically about six to seven hours of assessment material per subject, was divided into mutually exclusive booklets, each of which was allocated about 45 minutes of exercises. Since no student was administered more than one booklet, this simple matrix design allowed calculation of correlations and cross-tabulations among exercises within the same booklet but not among exercises in different booklets.

The new NAEP design instituted for the 1984 assessment remedies this deficiency by using a powerful variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling. With this procedure, the total assessment battery is divided into blocks of approximately 15 minutes each, and each student is administered a booklet containing three blocks as well as a six-minute block of background questions common to all students. Thus, the total assessment time for each student is still about the same.

The balanced incomplete block part of the method assigns blocks of exercises to booklets in such a way that each block appears in the same number of booklets and each pair of blocks appears in at least one booklet. This generates a much larger number of different booklets. Fifty-seven different booklets for each age level were required to administer the main part of the reading assessment in 1984. In addition, at each age level, six partial BIB booklets were included to accommodate additional testing time requirements. The spiralling part of the method then cycles the booklets for administration so that typically no two students in any assessment session in a school—and at most only a few students in schools with multiple sessions—receive the same booklet. At each age level, each block of exercises is administered to approximately 2,000 students and each pair of blocks to a smaller number depending upon the particular BIB design.

Incorporating BIB spiralling is a significant change in NAEP that serves to improve both sampling efficiency and analysis potential. However, the matrix-sampled booklets of the first three assessments were accompanied by paced audio recordings. With BIB spiralling, many different booklets—and thus different sets of exercises—were administered in a particular session and the booklets could no longer be accompanied by audiotapes. To estimate differences in achievement that might result from this procedural change, in 1984 NAEP administered a subset of booklets at each age using the previous paced-tape procedures. Although the previous procedures

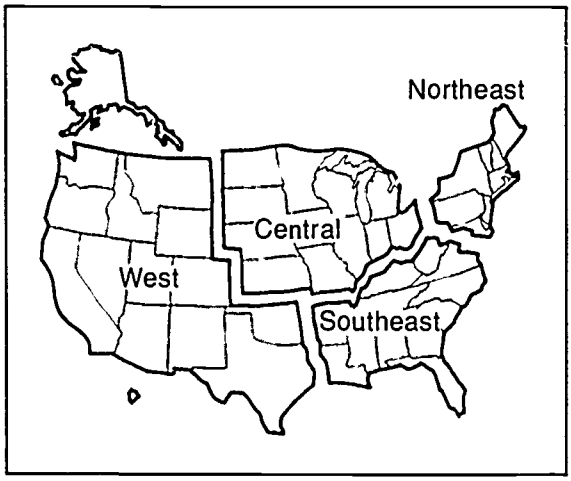
were slightly less difficult for students, comparisons between the two procedures indicated that the differences in performance due to having the items paced via tape recordings could be accounted for in a linear adjustment on the reading proficiency scale common to all three ages. After this linear adjustment was performed, results from both data sets were merged to provide the data in this report (see NAEP *Technical Report* for further details).

NAEP Reporting Groups

NAEP does not report results for individual students. It only reports performance for groups of students. In addition to national results, this report contains information about subgroups defined by sex, race/ethnicity, region of the country, level of parents' education, size/type of community, TV viewing habits, homework, and reading materials in the home. Definitions of these groups follow.

Region

The country has been divided into four regions. Northeast, Southeast, Central and West. States included in each region are shown on the following map.



Sex

Results are reported for males and females.

Race/Ethnicity

Results are presented for Black, White, and since 1975, Hispanic students. For all four assessments, results are based on observed racial/ethnic identifications made by assessment administrators.

Level of Parental Education

National Assessment defines three categories of parental education levels, based on students' reports. These categories are. (1) those whose parents did not graduate from high school, (2) those who have at least one parent who graduated from high school, and (3) those who have at least one parent who has had some post-high school education.

Type of Community

Three extreme community types of special interest are defined by an occupational profile of the area served by a school as well as by the size of the community in which the school is located. This is the only reporting category that excludes a large number of respondents. About two thirds do not fall into the classifications listed below. Results for the remaining two thirds are not reported in this breakdown, since their performance was similar to that of the nation.

Advantaged-urban (high-metro) communities. Students in this group attend schools in or around cities having a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

Disadvantaged [illegible] (high-metro) communities. Students in this group attend schools in or around cities having a population greater than 200,000 where a high proportion of the residents are on welfare or are not regularly employed.

Rural communities. Students in this group attend schools in areas with a population under 10,000 where many of the residents are farmers or farm workers.

Reading Materials in the Home

In all four assessments, students at all three ages were asked: (1) Does your family get a newspaper regularly? (2) Is there an encyclopedia in your home? (3) Are there more than 25 books in your home? (4) Does your family get any magazines regularly? Four "yes" responses are combined as *many* on the reading materials index, three "yes" responses as *some* and fewer than three "yes" responses as *few*.

Television Viewing

In 1984 students were asked. How much television do you usually watch each day? This is somewhat different from the way the question was phrased in 1980, which asked about how much television the student had watched the day before. Thus, comparisons should be made with care. Nevertheless, 1980 and 1984 results are reported for those responding two hours or less, three to five hours, and six hours or more.

Homework

In both 1980 and 1984, 13- and 17-year-old students were asked:

How much time did you spend on homework yesterday?

A. No homework was assigned.
B. I had homework but didn't do it.
C. Less than 1 hour
D. 1-2 hours
E. More than 2 hours

Results are reported for each response.

Data Collection and Scoring

NAEP assessments are always administered using a well-trained, professional data collection staff. NAEP's subcontractor for data collection for the first three assessments was Research Triangle Institute. The subcontractor responsible for the 1984 assessment as well as the upcoming 1986 assessment is WESTAT, Inc. Quality control is provided through site visits by NAEP and WESTAT staffs.

The data were scored using a computerized "intelligent" data entry system based on screens designed for specific blocks of questions.

IRT Scaling

After NAEP data were scored, they were weighted in accordance with the population structure and adjusted for nonresponse. Analysis includes computing the percentages of students giving various responses and NAEP will continue to provide the percentage of respondents answering a given item acceptably as one measure of achievement. However, rather than the past procedure of averaging the percentages of correct responses across exercises to provide a general picture of student achievement, NAEP now uses item response theory (IRT) technology to estimate proficiency levels for the nation and various subpopulations. IRT defines the probability of answering an item correctly as a mathematical function of proficiency level or skill.

The main purpose of the IRT analysis is to provide a common scale on which performance can be compared across groups and subgroups whether tested at the same time or a number of years apart. (NAEP elected to use a scale that ranges from 0 to 500.) IRT allows us to estimate group performance for any group or subgroup, even though all respondents did not take all the exercises in the NAEP pool.* This means that NAEP is no longer constrained to reporting trends over time based only on identical sets of exercises. Item pools can be modified and the analyses can still capitalize on the full data sets collected in previous assessments. NAEP's estimates of statistics describing national and group proficiency are computed as expected values of the figures that would have been obtained had individual proficiencies been observed, given the data that were in fact observed—that is, responses to reading exercises and background items. (For theoretical justification of the procedures employed, see the ETS Research Bulletin "Inferences about latent variables from complex samples." For computational details in the application to NAEP, see the NAEP *Technical Report.*)

The scale also allows NAEP to make comparisons across age levels. In the past, the average performance of one age group could not be compared to the average performance of another, since the results were based on different sets of items. With IRT analysis, all three age groups are placed on the same proficiency scale and average proficiency levels can be compared across age groups.

*In most applications of IRT in educational and psychological testing, precise information is desired about each individual tested for the purposes of diagnosis, selection, or placement; sufficient items are administered each individual to permit accurate estimates of their proficiencies. Testing times of several hours per person are typical. More efficient estimates of the distributions of proficiencies in a group of persons, however, can be obtained from sampling designs like NAEP's BIB spiralling that solicit far fewer responses per sampled subject (thereby reducing the burden on individual respondents and facilitating higher cooperation and response rates).

The data in Table A.4. comparing the mean percent correct for items included in the first three reading assessments with the IRT analysis capitalizing on all the exercises included in each assessment show that the trend results from 1971 to 1984 are quite similar. The only difference is that the more powerful scaling techniques were able to detect the slight improvement at age 13.

TABLE A.4. Methodological Comparison of Mean Reading Percentage Correct† and IRT Mean Reading Proficiency

	Assessment Years		
	1971	1975	1980
Age 9			
Mean Percentage Correct	64.0*	65.2*	67.9
Mean Proficiency	207.2*	209.6*	213.5
Age 13			
Mean Percentage Correct	60.0	59.9	60.8
Mean Proficiency	253.9*	254.8*	257.4
Age 17			
Mean Percentage Correct	68.9	69.0	68.2
Mean Proficiency	284.3	284.5	284.5

†From *Three National Assessments of Reading. Changes in Performance, 1970-80.* Education Commission of the States, 1981. Data are based on exercises included in three assessments.

*Statistically significant difference from 1980 at the .05 level.

Scale Anchoring

One of NAEP's major goals has always been to describe what students know and can do and stimulate debate about whether those levels of performance are satisfactory. An additional benefit of IRT methodology is that it provides for a criterion-referenced interpretation of levels on a continuum of proficiency. Although the proficiency scale ranges from 0 to 500, few items fell at the ends of the continuum. The levels chosen for describing results in this report are. 150—**rudimentary**, 200—**basic**, 250—**intermediate**, 300—**adept**, and 350—**advanced**. Each level is defined by describing the types of reading material and tasks that most students attaining that proficiency level would be able to perform successfully, each is exemplified by typical benchmark exercises (see Chapter 2). Data are provided giving the estimated proportion of each age level and subgroup at or above each of the five chosen proficiency levels.

In the scale anchoring process, NAEP selected sets of items that were good discriminators between proficiency levels. The criterion used to identify such items was that students at any given level would have at least an 80 percent probability of suc-

cess with these reading tasks, while the students at the next lower level would have less than a 50 percent probability of success. Reading specialists examined these empirically selected item sets and used their expert judgment as well as descriptive statistics of the passage and item types to characterize each proficiency level. The descriptions, examples of items, and pertinent data were subsequently reviewed by 25 leading reading researchers, and the descriptions were revised in accordance with their recommendations.

Estimating Variability in Proficiency Measures

The standard error, computed using a jackknife replication procedure, provides an estimate of sampling reliability for NAEP proficiency measures. It is composed of sampling error and other random error associated with the assessment of a specific item or set of items. Random error includes all possible nonsystematic error associated with administering specific exercise items to specific students in specific situations.

NAEP's estimated reading proficiency measures and their standard errors are shown in the Data Appendix. The standard errors have also been used to construct the 95 percent confidence intervals, the estimated population mean reading proficiency ± 2 standard errors, indicated in the figures in the report. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is in this interval.

In the Data Appendix, results for 1971, 1975, and 1980 are asterisked (*) if they are significantly different from the 1984 result. To control the Type I error for the set of three comparisons (each prior assessment compared to 1984) for each reporting group (table line), the alpha level for each comparison was set at .05/3 = .017. Thus, in the report differences in reading proficiency are identified as significant only if $p > .017$.

A Note About Interpretations

Interpreting the results—attempting to put them into a "real world" context, advancing plausible explanations of effects, and suggesting possible courses of action—will always be an art, not a science. No one can control all the possible variables affecting a survey. Also, any particular change in achievement may be explained in many ways or perhaps not at all. The interpretative remarks in this report represent the professional judgments of NAEP staff and consultants and must stand the tests of reason and the reader's knowledge and experience. The conjectures may not always be correct, but they are a way of stimulating the debate that is necessary to achieve a full understanding of the results and implement appropriate action.

Data Appendix

Mean Reading Proficiency

Age 9

WEIGHTED GENERAL READING PROFICIENCY MEANS AND JACKKNIFED STANDARD ERRORS

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	207.2 (1.1)*	209 6 (0 7)*	213 5 (1.1)	213 2 (0.9)
SEX				
MALE	201 2 (1 2)*	204 2 (0 9)*	208.5 (1 2)	210 0 (1.0)
FEMALE	213 3 (1.2)	215.1 (0 8)	218 5 (1.1)	216 3 (0.9)
OBSERVED ETHNICITY/RACE				
WHITE (1)	214 4 (1 1)*	215 9 (0 7)*	219.7 (0 9)	220.1 (0.8)
BLACK	169 3 (1 8)*	181 9 (1.2)*	188.9 (1 4)	188 4 (1 1)
HISPANIC	***** (0 0)	182.9 (2.2)*!	189.1 (2.1)!	193 0 (1.3)!
REGION (2)				
NORTHEAST	***** (0 0)	214.2 (1.3)	219.6 (2.3)	217.1 (1.9)
SOUTHEAST	***** (0.0)	200 8 (1.1)*	208 9 (2 2)	207.2 (2.2)
CENTRAL	***** (0 0)	215.1 (1.2)	215.1 (1.4)	217.2 (1.5)
WEST	***** (0 0)	206 5 (2.0)	211.0 (2.0)	211.4 (1.7)
PARENTAL EDUCATION				
NOT GRADUATED H S.	188 6 (1.3)*	189.9 (1.1)*	193.0 (1.4)	197.1 (1.3)
GRADUATED H S.	209 0 (1.2)	211.2 (0.8)	211.7 (1.2)	211.4 (1.0)
POST H S.	224 7 (1.4)	221.1 (0.9)	224.9 (1.1)	224 3 (1.1)
SIZE/TYPE OF COMMUNITY				
RURAL	200.7 (3 2)!	204 0 (2.3)!	210 3 (1.6)!	205.8 (2.7)!
DISADVANTAGED URBAN	177.8 (2 9)*	185.1 (2 5)*	186.0 (1.9)*	194 4 (1.7)
ADVANTAGED URBAN	231 3 (1.9)	226 2 (1.6)*	231.9 (1.7)!	231.4 (1.4)
READING MATERIAL IN THE HOME				
0-2 ITEMS	188 6 (1 2)*	195 8 (0 9)*	199 3 (1 2)	201 0 (0 8)
3 ITEMS	208 0 (1 1)*	211 5 (0.7)*	214.7 (1.0)	217.3 (0.9)
4 ITEMS	220 2 (1 0)*	222 2 (0.7)*	224.6 (1.0)	225 9 (1.0)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	217.4 (1.1)	219 6 (1.2)
3-5 HOURS	***** (0 0)	***** (0.0)	220.0 (0 8)	219 8 (0 9)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	208 8 (1.0)*	202.2 (1.0)

Age 13

WEIGHTED GENERAL READING PROFICIENCY MEANS AND JACKKNIFED STANDARD ERRORS

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	253 9 (1 1)*	254 8 (0 8)*	257 4 (0 9)	257 8 (0.6)
SEX				
MALE	247 9 (1 1)*	248 4 (0 8)*	252.8 (1.1)	253 5 (0 7)
FEMALE	259 9 (1 1)	261 2 (0 9)	261 8 (0.9)	262 3 (0 7)
OBSERVED ETHNICITY/RACE				
WHITE (1)	260 1 (0 9)*	260 9 (0 7)*	263 1 (0.7)	263.4 (0.5)
BLACK	220 3 (1.3)*	224 4 (1.2)*	231 9 (1.4)*	236 8 (1.1)
HISPANIC	***** (0 0)	231.1 (3 0)!	236 0 (2 3)!	239 2 (1.7)!
REGION (2)				
NORTHEAST	***** (0 0)	257.6 (1.8)	258 9 (1.7)	261.0 (0 6)
SOUTHEAST	***** (0 0)	248 2 (1.5)*	251.9 (1.7)	257.0 (1.6)
CENTRAL	***** (0 0)	260 3 (1.3)	263.4 (1.7)	259 3 (1 1)
WEST	***** (0 0)	252.0 (1.5)	254 9 (2.1)	254 5 (1 4)
PARENTAL EDUCATION				
NOT GRADUATED H S	236 2 (1.3)*	237.5 (1.2)*	237.4 (1 3)*	241 5 (1 0)
GRADUATED H S	255 4 (0 8)	253 4 (0 7)	252.8 (0 8)	253 8 (0 7)
POST H S.	269 7 (1.0)	268 9 (0.7)	269.7 (0 8)	268.4 (0.7)
SIZE/TYPE OF COMMUNITY				
RURAL	245 0 (2 4)*!	247.9 (1 9)*!	254.3 (2 3)!	255.5 (1.6)!
DISADVANTAGED URBAN	232 4 (2 6)*	229.1 (2.7)*!	241.6 (3 9)!	239 6 (2.0)!
ADVANTAGED URBAN	272 4 (1 8)!	271 5 (1.3)!	275 2 (1 5)!	274 7 (1.9)!
READING MATERIAL IN THE HOME				
0 2 ITEMS	227 7 (1 4)*	232 9 (1 2)*	239 2 (1 5)	241 2 (1 0)
3 ITEMS	248 7 (1.0)*	248 7 (0 8)*	253 0 (1.0)	255 8 (0.7)
4 ITEMS	263 9 (0 9)	265 3 (0 7)	265.4 (0.7)	265 5 (0.6)

WEIGHTED GENERAL READING PROFICIENCY MEANS AND JACKKNIFED STANDARD ERRORS
13-YEAR-OLD STUDENTS

TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	261.3 (0 9)*	266.8 (0 8)
3-5 HOURS	***** (0.0)	***** (0.0)	256.4 (1.0)*	261.9 (0.6)
6 HOURS OR MORE	***** (0.0)	***** (0 0)	243 8 (1.3)	246 2 (0 8)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	253 3 (1.2)	255.4 (0 9)
DID NOT DO IT	***** (0 0)	***** (0.0)	250.7 (1.6)	247.9 (2.0)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	258.4 (1.0)	260 9 (0.7)
1 TO 2 HOURS	***** (0 0)	***** (0.0)	262.5 (1.1)	265.3 (0 8)
MORE THAN 2 HOURS	***** (0.0)	***** (0 0)	259.4 (1.7)	262 8 (1.1)

Age 17

WEIGHTED GENERAL READING PROFICIENCY MEANS AND JACKKNIFED STANDARD ERRORS

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	284 3 (1.2)*	284.5 (0 7)*	284.5 (1.1)*	288.2 (0 9)
SEX				
MALE	278.1 (1.2)*	279.2 (0 8)*	281.1 (1.2)	283.4 (0 9)
FEMALE	290 3 (1.3)	289.6 (0 8)*	287.9 (1.2)*	293.1 (1.0)
OBSERVED ETHNICITY/RACE				
WHITE (1)	290.4 (1.0)*	290.7 (0 6)*	291.0 (0.9)*	294.6 (0.7)
BLACK	240 6 (1.6)*	244.0 (1.7)*	246.1 (1.8)*	253.5 (1.2)
HISPANIC	***** (0.0)	254.7 (2.9)*!	261.7 (2.6)!	268.7 (1.9)!
REGION (2)				
NORTHEAST	***** (0.0)	287.4 (1 5)	284.0 (1.8)*	290 8 (1.9)
SOUTHEAST	***** (0.0)	276.7 (1.3)*	280.3 (2.6)	284.3 (2.0)
CENTRAL	***** (0 0)	290.0 (1.3)	287.2 (2 3)	289 2 (1.5)
WEST	***** (0.0)	281.1 (1.6)*	285.1 (1.7)	288.7 (1.6)
PARENTAL EDUCATION				
NOT GRADUATED H.S.	263 4 (1.4)*	264.1 (1.0)*	263 2 (1.5)*	269 5 (1.3)
GRADUATED H.S.	282.9 (1.0)	280 6 (0 9)	276.9 (0.9)*	280 6 (0 9)
POST H S.	300 9 (1.1)	297.7 (0 6)*	296.5 (1.0)*	300.0 (0 8)
SIZE/TYPE OF COMMUNITY				
RURAL	275 8 (3 1)!	281.3 (2 3)!	278.1 (3 7)!	282.8 (2.7)!
DISADVANTAGED URBAN	259 4 (2.6)!	261 0 (3 6)!	258 3 (2 7)!	265.9 (2.1)!
ADVANTAGED URBAN	303.5 (2.0)!	301.2 (1.3)	299.1 (1.6)!	300 8 (1.9)
READING MATERIAL IN THE HOME				
0-2 ITEMS	252 5 (1.8)*	257.2 (1.7)*	264.5 (1.9)	266.7 (1.4)
3 ITEMS	274 9 (1.4)*	276 2 (0 9)*	279.4 (1.5)	283.4 (1.1)
4 ITEMS	292.4 (1.0)	292 6 (0 6)	291.3 (1.0)*	294.7 (0.7)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	288.2 (1.1)*	295.3 (0 8)
3-5 HOURS	***** (0.0)	***** (0.0)	278 2 (1.1)*	284.4 (0.9)
6 HOURS OR MORE	***** (0.0)	***** (0 0)	263.7 (2 2)*	270.1 (1.3)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	**** (0.0)	***** (0 0)	277.1 (1.2)	278 0 (1.0)
DID NOT DO IT	***** (0 0)	***** (0 0)	266 5 (1.4)	267.8 (1.2)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	287.2 (1.6)	289.1 (1.0)
1 TO 2 HOURS	***** (0.0)	***** (0.0)	288.3 (1.3)*	293 3 (1.0)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	292.2 (2.2)*	299.0 (1.2)

(1) INCLUDES HISPANIC IN 1970-71
(2) UNAVAILABLE IN 1970-71
(3) UNAVAILABLE IN 1970-71 AND 1974-75

* SIGNIFICANTLY DIFFERENT FROM 1983-84.
TO CONTROL THE TYPE I ERROR RATE FOR THE SET OF COMPARISONS WITHIN A GROUP (TABLE LINE) AT .05, THE ALPHA FOR EACH COMPARISON WAS SET AT .05/3 = .017.
! INTERPRET WITH CAUTION. STANDARD ERRORS ARE POORLY ESTIMATED.

Percentage of Students at or Above the Five Reading Proficiency Levels

Age 9

Rudimentary (150)

WEIGHTED PERCENTAGE OF 9 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 150

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	90.4 (0.5)*	93.3 (0.3)	94.4 (0.4)	93.9 (0.4)
SEX				
MALE	87.9 (0.6)*	91.3 (0.5)	92.5 (0.5)	92.4 (0.5)
FEMALE	93.0 (0.5)*	95.4 (0.3)	96.3 (0.3)	95.4 (0.4)
OBSERVED ETHNICITY/RACE				
WHITE (1)	94.2 (0.4)*	95.9 (0.3)	96.8 (0.2)	96.4 (0.2)
BLACK	70.3 (1.4)*	81.5 (1.1)	85.3 (1.2)	83.6 (0.8)
HISPANIC	***** (0.0)	82.3 (2.1)*!	84.3 (1.3)	86.2 (0.6)!
REGION (2)				
NORTHEAST	***** (0.0)	94.2 (0.5)	96.3 (0.6)	95.1 (0.7)
SOUTHEAST	***** (0.0)	90.1 (0.8)	93.1 (0.8)	91.2 (0.9)
CENTRAL	***** (0.0)	95.7 (0.4)	95.1 (0.6)	96.0 (0.5)
WEST	***** (0.0)	92.5 (0.9)	93.4 (0.8)	93.5 (0.7)
PARENTAL EDUCATION				
NOT GRADUATED H S	81.9 (1.1)*	85.0 (0.9)*	84.4 (1.1)*	89.7 (0.9)
GRADUATED H S	93.2 (0.6)	94.4 (0.4)	94.9 (0.7)	94.0 (0.6)
POST H S	95.9 (0.4)	96.7 (0.3)	97.4 (0.2)*	96.3 (0.3)
SIZE/TYPE OF COMMUNITY				
RURAL	87.4 (2.2)!	90.5 (1.1)!	94.8 (0.8)*!	90.7 (1.4)!
DISADVANTAGED URBAN	74.9 (2.1)!	82.6 (1.6)*	83.4 (1.7)	87.6 (1.1)
ADVANTAGED URBAN	97.8 (0.4)	98.2 (0.5)	98.4 (0.4)*	98.5 (0.3)
READING MATERIAL IN THE HOME				
0-2 ITEMS	81.7 (0.7)*	87.8 (0.6)*	89.8 (0.7)	90.6 (0.5)
3 ITEMS	91.8 (0.5)*	95.0 (0.3)	95.5 (0.4)	95.8 (0.4)
4 ITEMS	95.8 (0.3)*	97.2 (0.2)	97.4 (0.3)	97.0 (0.3)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0.0)	***** (0.0)	96.0 (0.3)	95.0 (0.4)
3-5 HOURS	***** (0.0)	***** (0.0)	97.0 (0.2)	96.2 (0.3)
6 HOURS OR MORE	***** (0.0)	***** (0.0)	95.5 (0.5)*	91.1 (0.6)

Basic (200)

WEIGHTED PERCENTAGE OF 9 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 200

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	58.3 (1.1)*	61.7 (0.8)	65.1 (1.0)	64.2 (0.9)
SEX				
MALE	52.4 (1.2)*	55.9 (1.0)*	59.4 (1.2)	61.0 (1.0)
FEMALE	64.1 (1.1)	67.5 (0.8)	70.7 (1.0)	67.3 (1.0)
OBSERVED ETHNICITY/RACE				
WHITE (1)	65.1 (1.0)*	68.4 (0.8)*	71.7 (0.8)	71.1 (0.7)
BLACK	22.3 (1.5)*	32.0 (1.3)*	39.4 (1.9)	39.3 (1.3)
HISPANIC	***** (0.0)	33.5 (2.5)*!	37.6 (2.6)!	43.8 (1.5)!
REGION (2)				
NORTHEAST	***** (0.0)	66.5 (1.6)	71.2 (2.2)	68.1 (1.7)
SOUTHEAST	***** (0.0)	53.2 (1.3)	60.0 (2.3)	58.0 (2.0)
CENTRAL	***** (0.0)	67.0 (1.2)	67.6 (1.5)	68.5 (1.6)
WEST	***** (0.0)	58.2 (2.2)	62.1 (1.8)	62.5 (1.8)
PARENTAL EDUCATION				
NOT GRADUATED H S	41.3 (1.3)*	41.6 (1.2)*	44.7 (1.5)	49.1 (1.8)
GRADUATED H S	60.2 (1.4)	63.5 (0.9)	63.8 (1.2)	63.7 (1.0)
POST H S	73.5 (1.2)	72.9 (1.0)	75.8 (1.1)	74.2 (0.9)
SIZE/TYPE OF COMMUNITY				
RURAL	51.8 (2.6)!	55.8 (2.2)!	63.7 (1.8)!	56.6 (3.0)!
DISADVANTAGED URBAN	30.1 (2.6)	36.2 (2.7)*	34.8 (1.4)*	44.7 (1.6)
ADVANTAGED URBAN	80.1 (1.4)	78.6 (1.5)	83.1 (1.4)!	80.6 (1.1)
READING MATERIAL IN THE HOME				
0-2 ITEMS	40.3 (1.2)*	46.7 (0.9)*	48.9 (1.3)	51.5 (1.1)
3 ITEMS	59.3 (1.2)*	64.1 (0.9)*	66.9 (0.9)	68.5 (0.8)
4 ITEMS	70.5 (1.1)*	74.8 (0.8)*	77.0 (1.1)	77.6 (0.8)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0.0)	***** (0.0)	68.9 (1.0)	69.5 (1.2)
3-5 HOURS	***** (0.0)	***** (0.0)	72.2 (0.8)	71.7 (0.8)
6 HOURS OR MORE	***** (0.0)	***** (0.0)	60.5 (1.2)*	53.4 (1.0)

Age 9

Intermediate (250)

WEIGHTED PERCENTAGE OF 9 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 250

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	15 6 (0 6)*	14 0 (0 4)*	17.0 (0 8)	18.1 (0 6)
SEX				
MALE	12 8 (0 7)*	11 5 (0 5)*	14 3 (0 8)*	16 9 (0 7)
FEMALE	18 4 (0 8)	16 5 (0 5)*	19 8 (0 9)	19 2 (0 7)
OBSERVED ETHNICITY/RACE				
WHITE (1)	18 3 (0 7)*	16 6 (0 5)*	20 3 (0 7)	22 0 (0 7)
BLACK	1 3 (0 3)*	1 9 (0 3)*	3 9 (0 6)	4 5 (0 4)
HISPANIC	***** (0 0)	3 2 (0.7)!	4 4 (0 6)!	4.7 (0 6)!
REGION (2)				
NORTHEAST	***** (0 0)	16 7 (0 8)*	20 8 (2 0)	20 9 (1 4)
SOUTHEAS	***** (0 0)	9 2 (0 6)*	15 3 (1 3)	14 5 (1 3)
CENTRAL	***** (0 0)	16 9 (0 9)	17.1 (1 4)	19 7 (1 1)
WEST	***** (0 0)	12 0 (1 0)*	15 4 (1 0)	17 2 (1 2)
PARENTAL EDUCATION				
NOT GRADUATED H S	6 0 (0 9)	5 0 (0 5)*	6 5 (0 9)	7.3 (0 7)
GRADUATED H S	14 5 (0 8)	13 6 (0 6)	14 6 (0 7)	15 4 (0 7)
POST H S	26 7 (1 2)	21 4 (0 8)*	24 9 (1 1)	26 9 (1.0)
SIZE/TYPE OF COMMUNITY				
RURAL	11 5 (1 4)!	11 3 (1 3)!	13 2 (0 8)!	12 5 (1 3)!
DISADVANTAGED URBAN	3 6 (0 8)*	3 0 (0 7)*	4 3 (1 0)*	8 6 (1 1)
ADVANTAGED URBAN	31 6 (1 8)	23 9 (1 3)*	31.1 (1 9)!	30 9 (1.4)
READING MATERIAL IN THE HOME				
0-2 ITEMS	7 0 (0 5)*	7 5 (0 4)*	9 3 (0 7)	9 9 (0 4)
3 ITEMS	14 7 (0 5)*	13.7 (0 6)*	16 7 (0 9)*	19 9 (0 7)
4 ITEMS	22 5 (0 9)*	21 1 (0 6)*	24.1 (1.0)	26 6 (1 0)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	19 6 (1 0)*	23 2 (0 9)
3-5 HOURS	***** (0 0)	***** (0 0)	19 4 (0 8)	22 0 (0 8)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	11 9 (0 9)	10.1 (0 5)

Adept (300)

WEIGHTED PERCENTAGE OF 9-YEAR-OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 300

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	1.1 (0.1)	0 7 (0.1)*	0 8 (0.1)	1.0 (0.1)
SEX				
MALE	0 8 (0.1)	0 4 (0 1)*	0 6 (0.1)*	1.0 (0.1)
FEMALE	1 4 (0.1)	0 9 (0.1)	1.0 (0.1)	1.1 (0.1)
OBSERVED ETHNICITY/RACE				
WHITE (1)	1 3 (0.1)	0 8 (0 1)*	1.0 (0.1)	1.2 (0.1)
BLACK	0 0 (0 0)	0 0 (0 0)	0.0 (0 0)	0.1 (0 0)
HISPANIC	***** (0 0)	0 0 (0 0)!	0 0 (0 0)!	0 0 (0.1)!
REGION (2)				
NORTHEAST	***** (0.0)	0 9 (0 2)	1.2 (0 3)	1.0 (0.1)
SOUTHEAST	***** (0 0)	0 3 (0.1)*	0 6 (0.1)	1.0 (0 2)
CENTRAL	***** (0 0)	0 8 (0.1)	0.8 (0 2)	1.2 (0 2)
WEST	***** (0 0)	0 6 (0.1)	0 5 (0.1)	0 9 (0.1)
PARENTAL EDUCATION				
NOT GRADUATED H S	0 3 (0 2)	0.1 (0.1)	0.2 (0.1)	0 0 (0.2)
GRADUATED H S	0 6 (0 2)	0.5 (0 2)	0 4 (0.1)	0.6 (0.1)
POST H S	2 4 (0 2)	1 3 (0.1)*	1 5 (0 2)	2.0 (0 2)
SIZE/TYPE OF COMMUNITY				
RURAL	0 6 (0 3)!	0 8 (0 4)!	0 5 (0.2)!	0 5 (0 2)!
DISADVANTAGED URBAN	0 2 (0.1)	0 1 (0.1)	0.1 (0.1)	0 3 (0.1)
ADVANTAGED URBAN	3.1 (0.4)	1 3 (0 3)*	1 8 (0.4)!	2.5 (0.3)
READING MATERIAL IN THE HOME				
0-2 ITEMS	0 4 (0 2)	0 3 (0 1)	0.4 (0.1)	0.4 (0.1)
3 ITEMS	1 0 (0 2)	0 5 (0 1)*	0.7 (0 2)	1 0 (0 2)
4 ITEMS	1.7 (0 2)	1 2 (0 2)	1.1 (0.1)*	1.8 (0 2)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0.0)	***** (0 0)	1.1 (0 2)	1.6 (0.2)
3-5 HOURS	***** (0 0)	***** (0 0)	0 7 (0.1)*	1.2 (0 2)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	0.4 (0.1)	0 3 (0.1)

(Virtually no 9-year-old students had reading proficiency at the 350 level.)

(1) INCLUDES HISPANIC IN 1970-71
(2) UNAVAILABLE IN 1970-71
(3) UNAVAILABLE IN 1970-71 AND 1974-75

* SIGNIFICANTLY DIFFERENT FROM 1983-84
TO CONTROL THE TYPE I ERROR RATE FOR THE SET OF COMPARISONS WITHIN A GROUP (TABLE LINE) AT .05, THE ALPHA FOR EACH COMPARISON WAS SET AT .05/3 = .017.
! INTERPRET WITH CAUTION. STANDARD ERRORS ARE POORLY ESTIMATED.

Age 13

Rudimentary (150)

WEIGHTED PERCENTAGE OF 13-YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 150

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	99 7 (0.1)	99 6 (0.1)	99 8 (0 0)	99 8 (0 0)
SEX				
MALE	99 4 (0 1)	99 4 (0 1)	99 7 (0 1)	99.7 (0.1)
FEMALE	99 9 (0 0)	99 8 (0 0)	99 9 (0 0)	99 9 (0 0)
OBSERVED ETHNICITY/RACE				
WHITE (1)	99 9 (0 0)	100 0 (0 0)	99 9 (0 0)	99 9 (0 0)
BLACK	98 3 (0 3)*	98 0 (0 3)*	99 4 (0 2)	99 4 (0 2)
HISPANIC	***** (0.0)	98 2 (0 9)!	99 4 (0 2)!	100 0 (0 3)!
REGION (2)				
NORTHEAST	***** (0 0)	99 5 (0 2)	99.9 (0 0)	99.8 (0 0)
SOUTHEAST	***** (0 0)	99 4 (0.1)	99.6 (0 2)	99.7 (0.1)
CENTRAL	***** (0 0)	99 9 (0 0)	100 0 (0 0)	99 9 (0 0)
WEST	***** (0 0)	99 6 (0 2)	99.8 (0.1)	99.7 (0.1)
PARENTAL EDUCATION				
NOT GRADUATED H S	99 4 (0 1)	99 0 (0 2)	99 7 (0.1)	99.6 (0 2)
GRADUATED H S	99 8 (0 1)	99 8 (0.1)	99 9 (0 1)	99 9 (0.0)
POST H S.	99 9 (0 0)	100 0 (0 0)	99 9 (0 0)	99 9 (0 0)
SIZE/TYPE OF COMMUNITY				
RURAL	98 9 (0 5)!	99 3 (0 2)!	99 9 (0 1)!	99 8 (0.1)!
DISADVANTAGED URBAN	99 2 (0 1)!	98 1 (0 6)!	99 2 (0 3)!	99.5 (0 2)!
ADVANTAGED URBAN	99 9 (0 1)!	99 9 (0.1)!	100 0 (0.0)!	100 0 (0 2)!
READING MATERIAL IN THE HOME				
0-2 ITEMS	98 6 (0 2)*	98 8 (0 2)*	99 5 (0 1)	99 5 (0.1)
3 ITEMS	99 8 (0.1)	99 5 (0.1)*	99 7 (0 1)	99 8 (0.1)
4 ITEMS	99 9 (0 0)	100 0 (0 0)	100 0 (0 0)	99 9 (0 0)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	99 9 (0 0)	99 9 (0 0)
3-5 HOURS	***** (0 0)	***** (0 0)	99 9 (0 0)	100 0 (0 0)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	99 6 (0 1)	99 6 (0 1)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	99 8 (0 1)	99 8 (0.1)
DID NOT DO IT	***** (0 0)	***** (0 0)	99 4 (0 3)	99.7 (0 2)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	99 8 (0 1)	99 9 (0 0)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	99 9 (0 0)	99 9 (0 0)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	99 8 (0 1)	100 0 (0.1)

Basic (200)

WEIGHTED PERCENTAGE OF 13-YEAR-OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 200

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	92.3 (0 5)*	92 8 (0.4)*	94 3 (0 5)	94.5 (0 3)
SEX				
MALE	89 6 (0.7)*	90.4 (0.5)*	93 0 (0 6)	92.8 (0.4)
FEMALE	95 0 (0 4)*	95 3 (0.4)*	95.7 (0 4)	96 5 (0 3)
OBSERVED ETHNICITY/RACE				
WHITE (1)	96.0 (0 3)	96 2 (0 2)	96.7 (0 2)	96.5 (0.2)
BLACK	72 2 (1.5)*	75 3 (1.3)*	84 1 (1.2)	87.1 (0 9)
HISPANIC	***** (0 0)	81.4 (2 3)*!	85 2 (1.7)!	88 3 (1.5)!
REGION (2)				
NORTHEAST	***** (0 0)	93 7 (0 7)	95 2 (0 7)	95 2 (0.4)
SOUTHEAST	***** (0 0)	89 8 (0 8)*	91.8 (0 8)	94.1 (0.7)
CENTRAL	***** (0 0)	95 4 (0.4)	96.3 (0 8)	95 6 (0.4)
WEST	***** (0 0)	91.9 (1.1)	94.0 (1.1)	93 5 (0.7)
PARENTAL EDUCATION				
NOT GRADUATED H S	85 2 (1 2)*	85 2 (0 9)*	87 4 (1 0)	89.9 (0.8)
GRADUATED H S.	94 4 (0 5)	94 3 (0.5)	94 5 (0 4)	94 8 (0 4)
POST H S	97.7 (0 3)	97.4 (0 2)	98.1 (0 2)*	97.2 (0 2)
SIZE/TYPE OF COMMUNITY				
RURAL	86 2 (2.1)*!	90.7 (1 2)*!	93 0 (1 3)!	95 9 (0.9)!
DISADVANTAGED URBAN	82 4 (1.6)!	77 4 (2 3)*!	87 8 (2 0)!	87 0 (1 5)!
ADVANTAGED URBAN	98 4 (0 4)!	98 5 (0 3)!	98 7 (0 3)!	98 2 (0 3)!
READING MATERIAL IN THE HOME				
0-2 ITEMS	78 8 (1 2)*	82.1 (1 1)*	86 6 (0 9)	88 6 (0 8)
3 ITEMS	91 6 (0.7)*	91 0 (0 5)*	93 6 (0 5)	94 1 (0 3)
4 ITEMS	96 6 (0 3)	97.4 (0 2)	97.2 (0 2)	97.3 (0.2)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	95 7 (0 4)	96.7 (0 3)
3 5 HOURS	***** (0 0)	***** (0 0)	94 4 (0 5)*	96.5 (0.2)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	89 5 (1 0)	91.0 (0 6)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	93 8 (0 6)	94 7 (0 4)
DID NOT DO IT	***** (0 0)	***** (0 0)	91.7 (1 1)	90 7 (1.3)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	94 3 (0 5)*	95 8 (0 3)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	96 0 (0 4)	96 3 (0 2)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	94.1 (0 7)*	96 3 (0.4)

Age 13

Intermediate (250)

WEIGHTED PERCENTAGE OF 13 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 250

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	57.0 (1 3)	57.5 (1.0)	59.3 (1.1)	60 3 (0 8)
SEX				
MALE	50 3 (1 4)*	51 0 (1 0)*	54 3 (1 3)	55 5 (0 8)
FEMALE	63 7 (1 3)	64 0 (1 1)	64.2 (1.0)	65 2 (0 9)
OBSERVED ETHNICITY/RACE				
WHITE (1)	63 8 (1 1)	64 3 (0 8)	66 0 (0 8)	66 9 (0.7)
BLACK	20 4 (1 2)*	23 9 (1 3)*	29 6 (1 5)*	35.3 (1.4)
HISPANIC	***** (0 0)	29 8 (3 4)*!	33.7 (2 5)!	39.4 (2.1)!
REGION (2)				
NORTHEAST	***** (0 0)	60 9 (2 3)	61 0 (1.9)	63.9 (1.0)
SOUTHEAST	***** (0 0)	50 3 (1.8)*	53 5 (2.1)	57 8 (1 5)
CENTRAL	***** (0 0)	63 3 (1.6)	65.4 (2 2)	62.1 (1 6)
WEST	***** (0 0)	54.1 (1.8)	57.1 (2 2)	57.7 (1.5)
PARENTAL EDUCATION				
NOT GRADUATED H S	37 6 (1 3)	38 0 (1 3)	34 3 (1 3)*	40 5 (1.3)
GRADUATED H S	58 6 (1.3)	55 4 (1.0)	53 7 (0.9)	55 6 (1.0)
POST H S.	75 1 (0 9)	73.5 (0 9)	74.1 (0 9)	72 3 (0 7)
SIZE/TYPE OF COMMUNITY				
RURAL	49 3 (2 4)*!	48 6 (1.8)*!	54 6 (2 2)!	57.7 (2 4)!
DISADVANTAGED URBAN	32 6 (3 6)!	29 5 (2 6)*!	40 8 (4 5)!	37.6 (2 0)!
ADVANTAGED URBAN	77 5 (1.8)!	76 5 (1.4)!	80 2 (1 6)!	79.5 (1.5)!
READING MATERIAL IN THE HOME				
0-2 ITEMS	27 7 (1.5)*	32 4 (1 5)*	36 3 (1.6)	40.5 (1.1)
3 ITEMS	50 5 (1 4)*	50 0 (1 2)*	53.5 (1 2)*	58 0 (0.9)
4 ITEMS	68 6 (1 0)	69 7 (0 8)	69 6 (0.8)	68 9 (0 8)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	63 8 (1.1)*	70.7 (0 9)
3 5 HOURS	***** (0 0)	***** (0 0)	58 5 (1 2)*	65 1 (0 8)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	42 8 (1 4)	46 0 (1 0)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	54 7 (1 5)	58 2 (1.0)
DID NOT DO IT	***** (0 0)	***** (0 0)	51 8 (1.7)	47.8 (2.1)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	60.7 (1 2)	63 5 (0 9)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	65 2 (1 5)	68 8 (0 9)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	60.1 (1.7)*	66 0 (1.6)

Adept (300)

WEIGHTED PERCENTAGE OF 13-YEAR-OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 300

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	9 3 (0 5)*	9.7 (0.4)*	10.9 (0.5)	11.3 (0.4)
SEX				
MALE	6 5 (0 4)*	7.2 (0.4)*	8 7 (0.5)	9 3 (0 4)
FEMALE	12.1 (0.7)	12 2 (0 6)	13.2 (0 6)	13.5 (0.4)
OBSERVED ETHNICITY/RACE				
WHITE (1)	10.9 (0 5)*	11 5 (0 4)*	13.1 (0.4)	13 6 (0.4)
BLACK	0 4 (0 2)*	1.5 (0 3)	1.4 (0 3)	2.3 (0.3)
HISPANIC	***** (0 0)	1.3 (0.4)!	2.7 (0 6)!	1.7 (0.4)!
REGION (2)				
NORTHEAST	***** (0 0)	10 8 (1 0)	11.3 (0.7)	12.9 (0 5)
SOUTHEAST	***** (0 0)	7 9 (0.7)*	9 0 (0 6)*	12 2 (1.0)
CENTRAL	***** (0 0)	11.5 (0 8)	13.7 (1.2)*	10.3 (0.5)
WEST	***** (0 0)	8.4 (0 5)	9.7 (0.7)	10.1 (0.7)
PARENTAL EDUCATION				
NOT GRADUATED H S	2 4 (0 3)	2 6 (0 3)	2.4 (0.3)	3 0 (0.5)
GRADUATED H S	8 4 (0 4)	7.3 (0 5)	6 5 (0 4)	7.4 (0 3)
POST H S.	16 3 (0.7)	16 5 (0 6)	17.3 (0.6)	17.6 (0 6)
SIZE/TYPE OF COMMUNITY				
RURAL	5 6 (0 7)*!	7 4 (1 1)!	9 3 (1.0)!	8.9 (0 9)!
DISADVANTAGED URBAN	3 1 (0 7)!	1.8 (0 4)!	4 9 (1.2)!	3 4 (0 6)!
ADVANTAGED URBAN	19 0 (1 7)!	18 8 (1.5)!	22.1 (1.2)!	21.6 (1.8)!
READING MATERIAL IN THE HOME				
0-2 ITEMS	1.9 (0 3)*	2 9 (0 4)*	3.7 (0 4)	4 4 (0.3)
3 ITEMS	5.7 (0 5)*	6.3 (0 4)*	8 7 (0 6)	9.5 (0 4)
4 ITEMS	13.1 (0 6)*	13 8 (0 6)	14.4 (0 5)	14.9 (0 5)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	12 9 (0 5)*	16.5 (0.7)
3-5 HOURS	***** (0 0)	***** (0 0)	9 9 (0.5)*	12.3 (0.4)
6 HOURS OR MORE	***** (0.0)	***** (0 0)	5 6 (0 6)	5 0 (0.5)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	8 6 (0 5)	8 6 (0.5)
DID NOT DO IT	***** (0 0)	***** (0 0)	8 7 (0.9)	5.8 (1.0)
LESS THAN 1 HOUR	***** (0.0)	***** (0 0)	11.8 (0 6)	12 4 (0.4)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	12.9 (0.7)	15 3 (0.8)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	12 6 (1.4)	13 8 (1.0)

(Virtually no 13-year-old students had reading proficiency at the 350 level.)

(1) INCLUDES HISPANIC IN 1970-71
(2) UNAVAILABLE IN 1970-71
(3) UNAVAILABLE IN 1970-71 AND 1974-75

* SIGNIFICANTLY DIFFERENT FROM 1983-84.
TO CONTROL THE TYPE I ERROR RATE FOR THE SET OF COMPARISONS WITHIN A GROUP (TABLE LINE) AT .05, THE ALPHA FOR EACH COMPARISON WAS SET AT .05/3 = .017.
! INTERPRET WITH CAUTION. STANDARD ERRORS ARE POORLY ESTIMATED.

Age 17

(Virtually all 17-year-old students had reading proficiency at the 150 level.)

Basic (200)

WEIGHTED PERCENTAGE OF 17 YEAR-OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 200

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	96 6 (0 3)*	97 5 (0 2)*	97.9 (0 3)	98 6 (0 1)
SEX				
MALE	95 5 (0 4)*	96 5 (0 3)*	97 2 (0 4)	98 1 (0 2)
FEMALE	97 7 (0 3)*	98 4 (0 2)*	98 7 (0 2)	99 1 (0 1)
OBSERVED ETHNICITY/RACE				
WHITE (1)	98 4 (0.1)*	99 1 (0 1)	99 3 (0 1)	99 2 (0 1)
BLACK	83 6 (1 4)*	86 0 (1 3)*	88 8 (1 4)*	96 5 (0 3)
HISPANIC	***** (0 0)	92 4 (1 5)*†	96 5 (0 7)†	96 8 (0 4)†
REGION (2)				
NORTHEAST	***** (0 0)	97 9 (0 3)*	98 2 (0 4)*	99 2 (0 2)
SOUTHEAST	***** (0 0)	95 8 (0 5)*	96 9 (0 8)	98 3 (0 3)
CENTRAL	***** (0 0)	98 5 (0 2)	98 0 (0 5)	98 7 (0 2)
WEST	***** (0 0)	97 0 (0 6)	98 5 (0 4)	98 4 (0 2)
PARENTAL EDUCATION				
NOT GRADUATED H S	92 7 (0 8)*	93 6 (0 6)*	95 7 (0 6)*	97 4 (0 3)
GRADUATED H S	97 3 (0 3)*	98 1 (0 2)	97 8 (0 3)	98 3 (0 2)
POST H S	99 3 (0.1)	99 4 (0 1)	99 4 (0 2)	99 5 (0 1)
SIZE/TYPE OF COMMUNITY				
RURAL	94 6 (1 3)*†	96 7 (0 8)*†	97 0 ( )†	98 9 (0 4)†
DISADVANTAGED URBAN	90 6 (1 0)*†	91 6 (1 6)*†	92 5 (1.2)*†	96 3 (0 4)†
ADVANTAGED URBAN	99 6 (0 2)†	99 6 (0 2)	99 2 (0 4)†	99 3 (0 2)
READING MATERIAL IN THE HOME				
0-2 ITEMS	86 8 (1 2)*	90 6 (0 9)*	94 7 (0 8)	96.1 (0 4)
3 ITEMS	95 1 (0 4)*	96 9 (0 5)	97 6 (0 4)	98 1 (0 2)
4 ITEMS	98 7 (0 1)*	99 0 (0 1)*	99 0 (0 2)	99 4 (0.1)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	98 4 (0 2)	99 0 (0.1)
3-5 HOURS	***** (0 0)	***** (0 0)	97 4 (0 4)*	98 8 (0.1)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	93 9 (0 9)*	96 5 (0 5)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0 0)	97.4 (0 4)	97.7 (0 2)
DID NOT DO IT	***** (0 0)	***** (0 0)	98 9 (0 3)	98 4 (0 3)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	98 5 (0 3)	99 1 (0 2)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	97.9 (0 6)	99 1 (0 1)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	97 7 (0 6)*	99 3 (0 2)

Intermediate (250)

WEIGHTED PERCENTAGE OF 17-YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 250

	1970-71	1974-75	1979 80	1983-84
—TOTAL—	80 0 (0 9)*	82 0 (0 6)	82 8 (0 9)	83 6 (0 7)
SEX				
MALE	75 8 (1.0)*	77 4 (0 8)*	80 0 (1 0)	80.3 (0 8)
FEMALE	84 0 (0 9)*	86 3 (0.7)	85 6 (0 9)	87.2 (0 8)
OBSERVED ETHNICITY/RACE				
WHITE (1)	85 4 (0 6)*	87.5 (0 5)	88 9 (0 6)	88 9 (0 5)
BLACK	41 1 (1 9)*	45 0 (1 7)*	45 8 (2 2)*	65 8 (1 2)
HISPANIC	***** (0 0)	56 5 (3 5)*†	63 2 (3 0)†	69.1 (1.7)†
REGION (2)				
NORTHEAST	***** (0 0)	83 6 (1 3)	82 3 (1 5)	85.7 (1.4)
SOUTHEAST	***** (0 0)	75 9 (1 3)	79 2 (2 0)	80 2 (1.7)
CENTRAL	***** (0 0)	86 4 (1 2)	85 0 (1 7)	85.1 (1 3)
WEST	***** (0 0)	79 6 (1 5)	83 4 (1 3)	84 0 (1 2)
PARENTAL EDUCATION				
NOT GRADUATED H S	63 5 (1 5)*	66 1 (1.3)	65 6 (1 6)	70 6 (1 4)
GRADUATED H S	81 1 (0 8)	80 9 (0 8)	78 5 (1 0)	80 0 (0 9)
POST H S	91 1 (0 6)	91 1 (0 4)	91 7 (0 5)	90 9 (0 5)
SIZE/TYPE OF COMMUNITY				
RURAL	73 6 (2 7)†	79 7 (2 0)†	78 2 (3 7)†	79 8 (2 5)†
DISADVANTAGED URBAN	60 8 (2 6)†	62 0 (4 0)†	59 4 (3 0)†	66.1 (2 0)†
ADVANTAGED URBAN	92 2 (0 9)†	92 7 (0 8)	92 6 (0 9)†	91 6 (0 9)
READING MATERIAL IN THE HOME				
0-2 ITEMS	52 6 (1 7)*	57 8 (1 9)*	65 8 (1 9)	66 2 (1.5)
3 ITEMS	73 3 (1 3)*	76 0 (0 9)*	79 6 (1 3)	80 7 (1 0)
4 ITEMS	86 5 (0 6)*	88 6 (0 4)	88 2 (0 5)	88 5 (0 5)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0 0)	***** (0 0)	85 8 (0 8)*	88 5 (0 6)
3 5 HOURS	***** (0 0)	***** (0 0)	78 3 (1.0)*	82.1 (0 8)
6 HOURS OR MORE	***** (0 0)	***** (0 0)	62 4 (2 5)*	71.0 (1 3)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0 0)	***** (0.0)	77 9 (1.1)	77.6 (0 8)
DID NOT DO IT	***** (0 0)	***** (0 0)	85 1 (1 4)	83 0 (1 0)
LESS THAN 1 HOUR	***** (0 0)	***** (0 0)	85 0 (1 1)	84 6 (0 9)
1 TO 2 HOURS	***** (0 0)	***** (0 0)	85 0 (1 0)	87.3 (0 8)
MORE THAN 2 HOURS	***** (0 0)	***** (0 0)	86 7 (1 5)	89 5 (0 7)

Age 17

Adept (300)

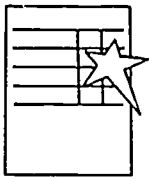
WEIGHTED PERCENTAGE OF 17 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 300

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	37.2 (1.1)	36.1 (0.7)*	34.8 (1.2)*	39.2 (0.8)
SEX				
MALE	31.5 (1.0)*	31.8 (0.7)*	32.0 (1.3)	34.8 (0.8)
FEMALE	42.7 (1.3)	40.2 (0.9)*	37.6 (1.4)*	43.9 (1.1)
OBSERVED ETHNICITY/RACE				
WHITE (1)	41.4 (1.0)*	40.6 (0.7)*	39.9 (1.1)*	45.1 (0.8)
BLACK	6.9 (0.7)*	7.1 (0.9)*	6.1 (0.7)*	15.5 (1.0)
HISPANIC	***** (0.0)	12.9 (1.9)*!	12.7 (1.6)*!	19.9 (1.8)!
REGION (2)				
NORTHEAST	***** (0.0)	38.5 (1.5)	34.0 (1.6)*	42.0 (2.0)
SOUTHEAST	***** (0.0)	29.8 (1.3)*	31.4 (2.6)	35.8 (1.8)
CENTRAL	***** (0.0)	40.7 (1.4)	37.8 (2.5)	40.0 (1.4)
WEST	***** (0.0)	33.0 (1.2)*	34.7 (1.3)	39.1 (1.6)
PARENTAL EDUCATION				
NOT GRADUATED H.S.	19.0 (0.8)	16.6 (0.8)*	14.2 (1.1)*	20.4 (1.1)
GRADUATED H.S.	34.6 (0.9)*	30.2 (0.9)	26.1 (0.7)*	30.6 (0.9)
POST H.S.	52.0 (1.1)	49.1 (0.7)	46.7 (1.3)*	51.5 (0.8)
SIZE/TYPE OF COMMUNITY				
RURAL	30.3 (2.3)!	33.0 (2.0)!	28.7 (2.3)!	34.1 (2.7)!
DISADVANTAGED URBAN	18.5 (1.6)!	18.5 (2.0)!	13.4 (1.5)*!	18.8 (1.5)!
ADVANTAGED URBAN	54.8 (1.7)!	53.1 (1.8)	49.7 (2.1)!	52.3 (2.1)
READING MATERIAL IN THE HOME				
0-2 ITEMS	14.9 (1.2)*	15.4 (1.1)*	17.8 (1.3)	20.3 (1.2)
3 ITEMS	28.3 (1.4)*	26.5 (0.9)*	29.9 (1.5)	33.7 (1.0)
4 ITEMS	43.6 (1.0)	43.4 (0.7)	40.7 (1.1)*	45.4 (0.8)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0.0)	***** (0.0)	38.2 (1.2)*	46.6 (0.9)
3-5 HOURS	***** (0.0)	***** (0.0)	28.7 (1.3)*	34.1 (0.8)
6 HOURS OR MORE	***** (0.0)	***** (0.0)	17.8 (1.6)	22.2 (1.4)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0.0)	***** (0.0)	26.3 (0.9)	27.9 (0.9)
DID NOT DO IT	***** (0.0)	***** (0.0)	37.6 (2.0)	37.4 (1.1)
LESS THAN 1 HOUR	***** (0.0)	***** (0.0)	37.3 (1.8)	39.7 (1.0)
1 TO 2 HOURS	***** (0.0)	***** (0.0)	38.5 (1.5)*	44.6 (1.0)
MORE THAN 2 HOURS	***** (0.0)	***** (0.0)	45.3 (2.3)*	51.7 (1.2)

Advanced (350)

WEIGHTED PERCENTAGE OF 17 YEAR OLD STUDENTS WITH READING PROFICIENCY AT OR ABOVE 350

	1970-71	1974-75	1979-80	1983-84
—TOTAL—	4.9 (0.3)	3.5 (0.2)*	3.1 (0.3)*	4.9 (0.2)
SEX				
MALE	3.6 (0.3)	2.7 (0.2)*	2.5 (0.3)*	3.7 (0.2)
FEMALE	6.1 (0.5)	4.2 (0.2)*	3.6 (0.5)*	6.1 (0.3)
OBSERVED ETHNICITY/RACE				
WHITE (1)	5.5 (0.4)	4.0 (0.2)*	3.6 (0.3)*	5.8 (0.2)
BLACK	0.2 (0.1)*	0.0 (0.0)*	0.0 (0.0)*	0.8 (0.2)
HISPANIC	***** (0.0)	0.5 (0.4)!	0.4 (0.2)*!	1.5 (0.3)!
REGION (2)				
NORTHEAST	***** (0.0)	4.3 (0.4)	3.2 (0.4)*	5.3 (0.5)
SOUTHEAST	***** (0.0)	2.4 (0.3)*	2.9 (1.0)	4.8 (0.3)
CENTRAL	***** (0.0)	4.0 (0.3)	2.9 (0.5)*	4.7 (0.3)
WEST	***** (0.0)	2.9 (0.3)*	3.2 (0.3)*	4.7 (0.4)
PARENTAL EDUCATION				
NOT GRADUATED H.S.	1.0 (0.2)	0.7 (0.1)	0.5 (0.1)*	1.2 (0.3)
GRADUATED H.S.	3.2 (0.2)	1.5 (0.1)*	1.2 (0.2)*	2.5 (0.2)
POST H.S.	8.9 (0.6)	6.1 (0.3)*	4.9 (0.4)*	7.7 (0.3)
SIZE/TYPE OF COMMUNITY				
RURAL	2.8 (0.6)!	2.7 (0.5)!	2.0 (0.2)*!	3.3 (0.4)!
DISADVANTAGED URBAN	1.4 (0.3)!	0.9 (0.4)!	0.5 (0.2)*!	1.5 (0.3)!
ADVANTAGED URBAN	10.7 (1.1)!	7.3 (0.7)	5.4 (0.2)*!	8.6 (0.6)
READING MATERIAL IN THE HOME				
0-2 ITEMS	1.0 (0.2)	0.7 (0.2)	1.0 (0.2)	1.2 (0.3)
3 ITEMS	2.9 (0.4)	1.6 (0.2)*	2.8 (0.7)	3.6 (0.2)
4 ITEMS	6.1 (0.4)	4.7 (0.3)*	3.7 (0.3)*	6.1 (0.2)
TELEVISION WATCHED PER DAY (3)				
0-2 HOURS	***** (0.0)	***** (0.0)	3.4 (0.4)*	6.2 (0.2)
3-5 HOURS	***** (0.0)	***** (0.0)	2.5 (0.3)*	3.8 (0.2)
6 HOURS OR MORE	***** (0.0)	***** (0.0)	0.8 (0.3)	1.5 (0.3)
TIME SPENT ON HOMEWORK (3)				
NONE WAS ASSIGNED	***** (0.0)	***** (0.0)	1.8 (0.2)*	2.5 (0.2)
DID NOT DO IT	***** (0.0)	***** (0.0)	2.9 (0.4)*	5.1 (0.4)
LESS THAN 1 HOUR	***** (0.0)	***** (0.0)	3.6 (0.7)	4.6 (0.3)
1 TO 2 HOURS	***** (0.0)	***** (0.0)	3.9 (0.6)*	6.0 (0.3)
MORE THAN 2 HOURS	***** (0.0)	***** (0.0)	4.5 (0.7)*	7.2 (0.6)



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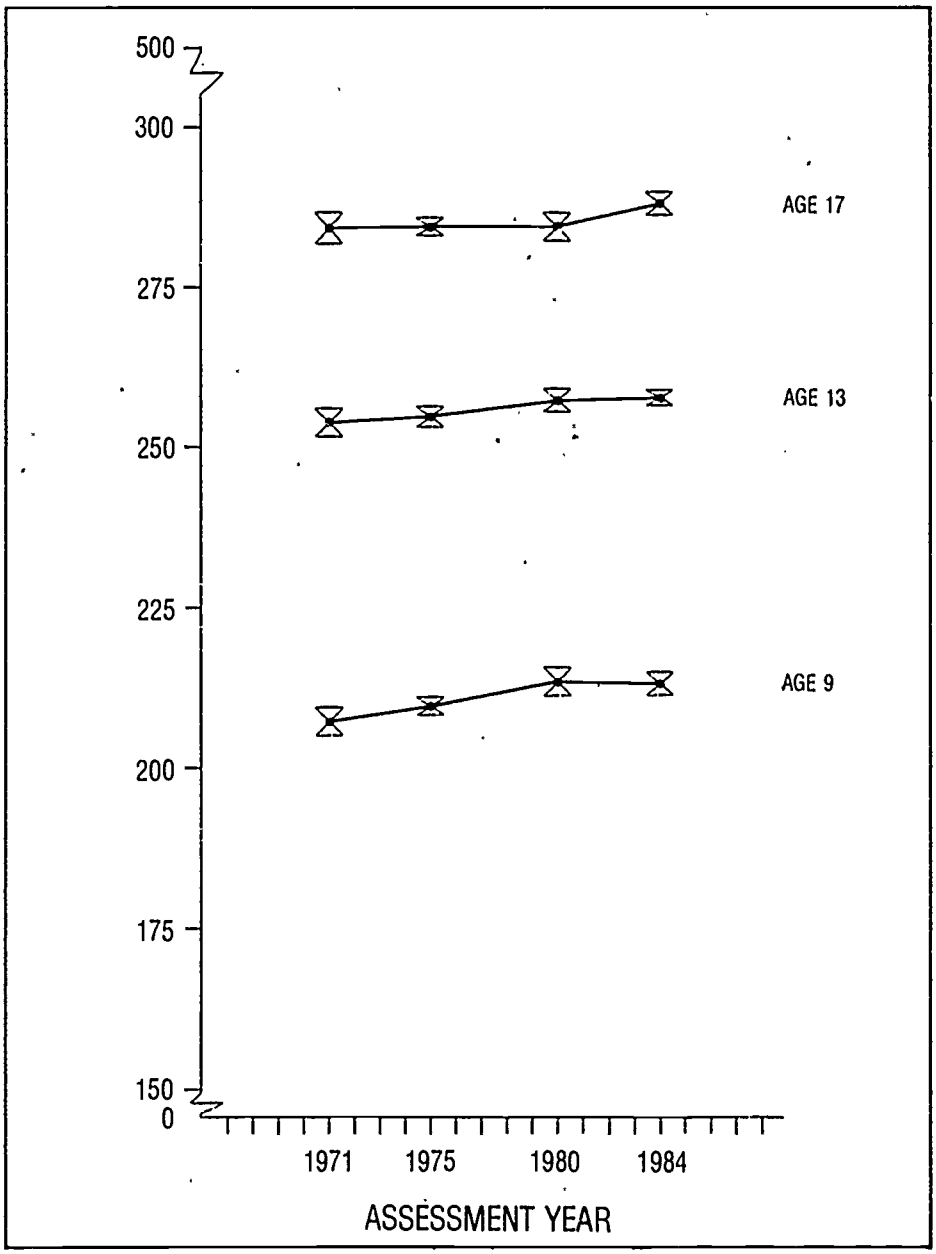
National Trends in Average Reading Proficiency for 9-, 13-, and 17-Year-Olds: 1971-1984



Birth Date Ranges:

Age 9	Born Jan.-Dec. 1961, 65, 70, 74
Age 13	Born Jan.-Dec. 1957, 61, 66, 70
Age 17	Born Oct.-Sept. 1953-54, 57-58, 62-63, 66-67

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⧖ = estimated population mean reading proficiency and 95% confidence interval. It can be said with 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.