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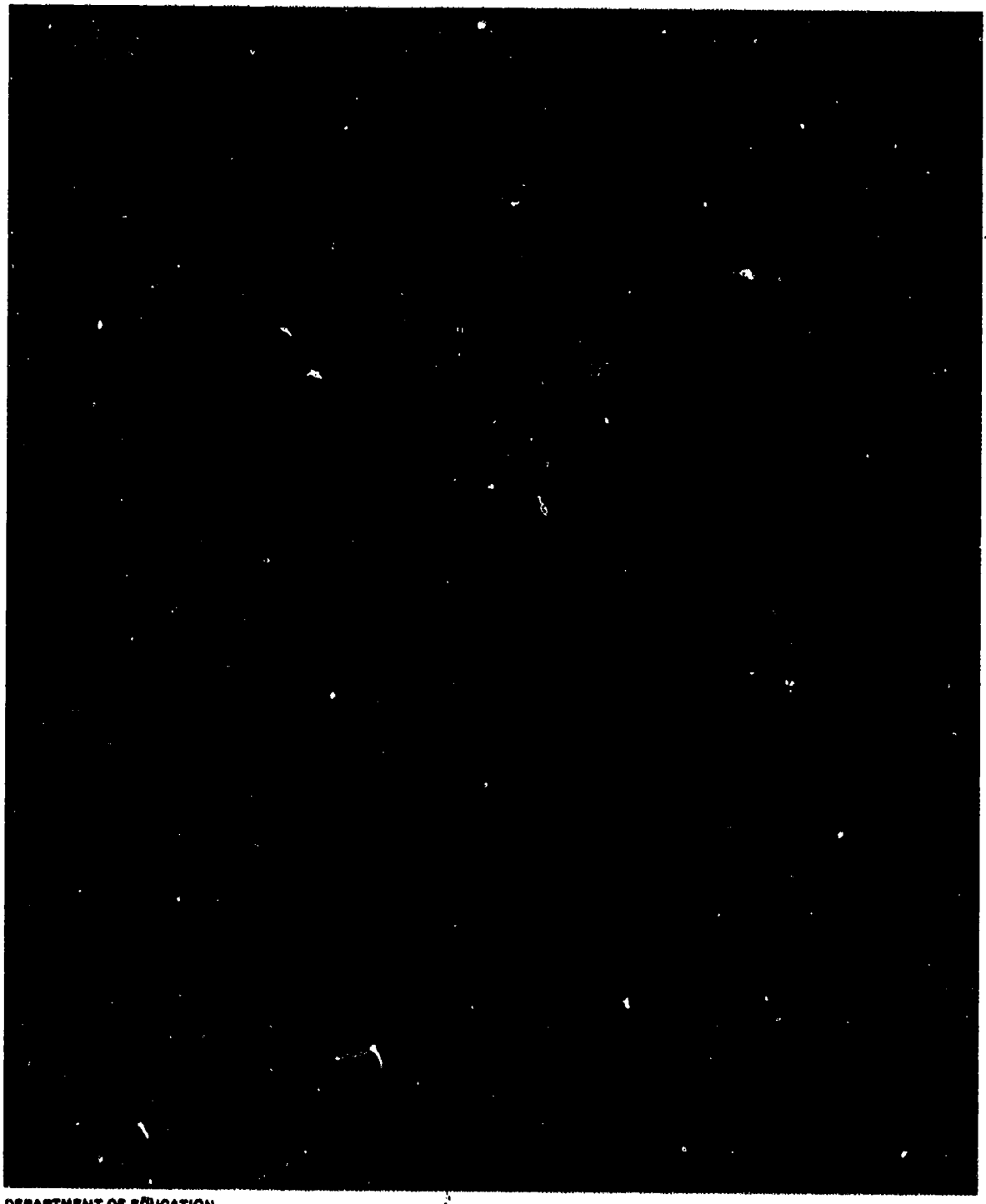
ABSTRACT

Intended to serve as a resource for the many and varied groups concerned with improving students' reading proficiencies, this report from the Nation's Report Card provides a long-term perspective on students' reading skills and strategies based on a series of five national assessments conducted from 1971 to 1988. Each chapter of the report provides a different perspective on trends in students' reading abilities. The first chapter describes changes in the average reading performance of 9-, 13-, and 17-year-olds across the five reading trend assessments conducted by the National Assessment of Educational Progress (NAEP) between 1971 and 1988. The second chapter defines levels of reading proficiency and presents the percentages of students attaining these successive levels in each assessment. The third chapter summarizes trends in students' responses to questions on their reading instruction and experiences and investigates the relationships between these background factors and reading proficiency. Overall, the findings described in the report reveal generally positive but subtle changes in reading performance at the national level since 1971: (1) nine-year-olds assessed in 1988 read significantly better than their counterparts assessed in 1971, but this progress was made in the 1970s; (2) thirteen-year-olds' reading achievement has fluctuated slightly over the years; and (3) seventeen-year-old students assessed in 1988 read significantly better than their counterparts assessed in either 1971 or 1975. A procedural appendix and an appendix of data are attached. (RS)

THE NATION'S REPORT CARD

The Reading Report Card, 1971-88

TRENDS FROM THE NATION'S REPORT CARD



Prepared by EDUCATIONAL TESTING SERVICE under a grant from THE NATIONAL CENTER FOR EDUCATION STATISTICS

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What is The Nation's Report Card?

THE NATION'S REPORT CARD, the National Assessment of Educational Progress (NAEP), is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history/geography, and other fields. By making objective information on student performance available to policymakers at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

NAEP is a congressionally mandated project of the National Center for Education Statistics, the U.S. Department of Education. The Commissioner of Education Statistics is responsible, by law, for carrying out the NAEP project through competitive awards to qualified organizations. NAEP reports directly to the Commissioner, who is also responsible for providing continuing reviews, including validation studies and solicitation of public comment, on NAEP's conduct and usefulness.

In 1988, Congress created the National Assessment Governing Board (NAGB) to formulate policy guidelines for NAEP. The board is responsible for selecting the subject areas to be assessed, which may include adding to those specified by Congress; identifying appropriate achievement goals for each age and grade; developing assessment objectives; developing test specifications; designing the assessment methodology; developing guidelines and standards for data analysis and for reporting and disseminating results; developing standards and procedures for interstate, regional, and national comparisons; improving the form and use of the National Assessment; and ensuring that all items selected for use in the National Assessment are free from racial, cultural, gender, or regional bias.

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The Reading Report Card, 1971-88

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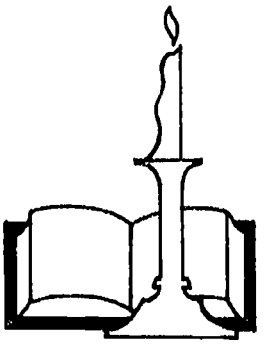

Ina V.S. Mullis
Lynn B. Jenkins

JANUARY 1990

THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

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ERRATA

The Reading Report Card, 1971-88

Page 21: The last sentence should read as follows:

Seventeen-year-olds from the Northeast and students of all ages from the Southeast made significant performance gains across time, as did 9- and 17-year-old male students.

Page 28: The LEVEL 250 heading should read: Intermediate Skills and Strategies

Page 38: In Table 3.2, the percentage of 17-year-old students in 1971 who reported having four types of reading materials in the home was 66.7.

Page 43: The first sentence in the last paragraph should read as follows:

Although there were few apparent changes across time in the percentage of 9- and 13-year-olds who were reading books, newspapers and magazines, 17-year-olds assessed in 1988 were significantly less likely to be frequent readers of these materials than were their peers assessed in 1984.

Page 44: The first two sentences in the last paragraph should read as follows:

It is encouraging to find that reading across the curriculum has increased with time, but discouraging that the percentages of students who reported frequently reading newspapers, books, and magazines remained constant at ages 9 and 13 and decreased at age 17. The larger indications suggest that reading is not a frequent or highly valued activity for many students.

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CONTENTS

INTRODUCTION

THIS REPORT FROM The Nation's Report Card provides a long-term perspective on students' reading skills and strategies, based on a series of five national assessments conducted from 1971 to 1988. Overall, the findings described herein reveal generally positive but subtle changes in reading performance at the national level since the National Assessment of Educational Progress (NAEP) conducted its first reading assessment in 1971.

☐ Nine-year-olds assessed in 1988 read significantly better than their counterparts assessed in 1971. However, this progress was made during the 1970s. The performance of these elementary-school students declined slightly over the last two assessments, and it remains to be seen whether this change represents a brief leveling off or the beginning of a more persistent decline.

☐ Thirteen-year-olds' reading achievement has fluctuated slightly over the years, but their performance did not change significantly across the five assessments.

☐ Reflecting gains made during the 1980s, 17-year-old students assessed in 1988 read significantly better than their counterparts assessed in either 1971 or 1975.

Much of the national improvement can be attributed to the gains made by subpopulations that have historically read less well than their peers — most notably, male students and those belonging to racial/ethnic minority groups. White students continued to read better than Black or Hispanic students in 1988, but their limited improvement between 1971 and 1988 — combined with the greater progress made by minority students — tended to decrease the performance gaps at all three age levels. It is also interesting to compare the timing of increases and decreases in reading achievement at each age level. Since the younger students made gains during the 1970s and the older students displayed progress during the 1980s, it may be that the recent improvements in reading achievement at age 17 are due, at least in part, to an early advantage.

To provide a common metric for reporting on students' reading proficiencies, NAEP

developed a reading scale that can be used to trace growth in reading achievement across the school years and across time. Based on the percentages of students in each age group who reached each of the five levels of performance defined on the reading scale, it appears that the only significant gains in reading proficiency from 1971 to 1988 occurred at the lowest levels. Thus, 9- and 13-year-olds were significantly more likely in 1988 than in 1971 to demonstrate a grasp of rudimentary or basic reading skills and strategies, and 17-year-olds were more likely to exhibit intermediate skills and strategies. On the other hand, the small percentage of 17-year-old students who demonstrated advanced reading skills and strategies — representing the highest level of proficiency defined by NAEP — was significantly lower in 1988 than it had been 17 years earlier.

Trends in students' responses to questions on their exposure to reading, the characteristics of their reading instruction, and their attitudes toward reading suggest that 9-, 13-, and 17-year-olds were doing more reading in school in 1988 than were their counterparts in earlier assessment years. Although students did not report doing more reading for fun on their own time, there was a positive relationship at all three ages between the amount of reading done and reading proficiency, and this relationship remained constant across the years.

Each chapter in this report provides a somewhat different perspective on trends in students' reading abilities. The first chapter describes changes in the average reading performance of 9-, 13-, and 17-year-olds across the five reading trend assessments conducted by NAEP since 1971. In the second chapter, levels of reading proficiency are defined and the percentages of students attaining the successive levels in each assessment are presented. The third and last chapter summarizes trends in students' responses to questions on their reading instruction and experiences and investigates the relationships between these background factors and reading proficiency.

As a whole, the report is intended to serve as a resource for the many and varied groups concerned with improving students' reading proficiencies — not only reading experts, but also educators in other subjects, as well as policymakers, school administrators, and parents. It is hoped that the findings presented will be used, together with information from other sources, as a basis for discussing the adequacy of students' current reading proficiencies, considering the relative influence of various factors that appear to be related to reading skills and deficits, and developing the means for improving students' reading performance in the years ahead.

CHAPTER ONE

Trends Across Five National Reading Assessments

Introduction

TO MONITOR PROGRESS across time in the reading achievement of American students, The Nation's Report Card has conducted five national assessments of reading performance involving nationally representative samples of 9-, 13-, and 17-year-olds. These five assessments were conducted in the 1970-71, 1974-75, 1979-80, 1983-84, and 1987-88 school years, and are subsequently referred to by the last half of the school year in which they occurred — 1971, 1975, 1980, 1984, and 1988.

National assessments are conducted biennially, and each measures students' knowledge, skills, and understandings in several subject areas. For example, in 1988, NAEP assessed writing, U.S. history, civics, and geography in addition to reading. Each assessment involves more than 100,000 students sampled according to a complex multistage stratified design. Across the five reading trend assessments conducted since 1971, data from nearly 300,000 students are available for examining trends in performance.

To provide useful information about students' reading proficiencies, NAEP has based its reading assessments on a wide range of text materials, from simple narrative passages to complex articles on specialized topics. The selections have included stories, poems, essays, reports, and passages from textbooks of varying levels of difficulty, as well as sample train schedules, telephone bills, and advertisements. Students' comprehension has been assessed in a variety of ways; some multiple-choice questions require students to identify particular information, while open-ended questions ask them to restructure and interpret what they have read and to present their responses in writing. To measure performance trends, subsets of the same passages and items have been included in several successive assessments. Some passages and items have appeared in all five assessments.

NAEP has used analysis techniques based on Item Response Theory (IRT) to estimate students' reading proficiencies on a common scale ranging from 0 to 500. The NAEP reading scale is useful in making comparisons across assessments for the three age groups and among subpopulations of

students. (The Procedural Appendix contains more detailed information about analysis procedures and definitions of subgroups of students.)

A Note on Interpretations

NAEP reports the performance of groups of students, not individuals. The measures of achievement included in this report are the average reading performance of groups of students on the NAEP proficiency scale and the percentages of students attaining successive levels of performance on the scale. Because the average proficiencies and the percentages presented in this report are based on samples, they are necessarily estimates. Like all estimates based on surveys, they are subject to sampling error as well as measurement error.

NAEP uses a complex procedure — the jackknife methodology — to compute standard errors that estimate the sampling error and other random error associated with observed assessment results. This report adheres to a standard convention whereby trend differences are identified as significant (noted with an asterisk) only if they are at least twice as large as their standard errors. Such differences are described in this report as "significant" in the statistical sense.

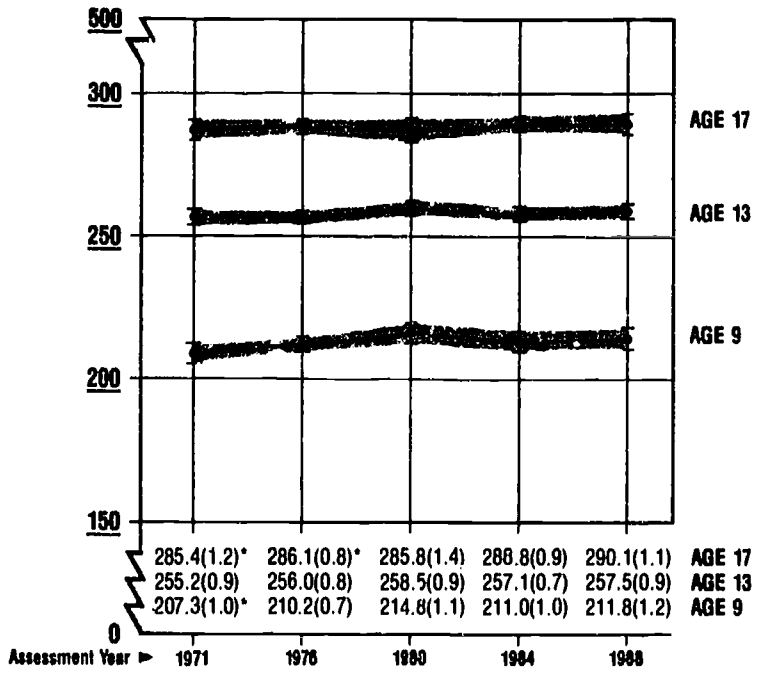
It is important, however, to distinguish **statistical** significance from **educational** significance. Some statistically significant differences may not merit educational concern and some patterns of results that are not statistically significant may have great educational significance. Readers must use their own knowledge and experience to decide for themselves how important particular changes or differences are in the real world, since statistical conventions can aid, but not replace, good judgment.

Interpreting the assessment results — attempting to put them into a real world context, advancing plausible explanations, 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. And 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 represent a way of stimulating the debate necessary to achieve a full understanding of the results and to implement appropriate action.

National Trends in Reading Achievement: 1971 to 1988

Trends in the average reading abilities of 9-, 13-, and 17-year-olds provide a useful summary of overall changes in reading performance across the past 17 years. The results for the five NAEP reading assessments conducted from 1971 to 1988 are presented in FIGURE 1.1.[1]

[1] The proficiency results reported here for 1984 and earlier assessment years may vary slightly from those presented in *The Reading Report Card* (1985) due to refinements in the conditioning and weighting procedures. Further information is provided in *Disentangling the NAEP 1985-86 Reading Anomaly: A Technical Report* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1989).



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

* Shows statistically significant difference from 1988, where $\alpha = .05$ per set of four comparisons (each year compared with 1988). Jackknifed standard errors are presented in parentheses. (See Procedural Appendix for more information on NAEP methods for computing standard errors.)

It is expected that students will become better readers as they progress through school, and it is clear from the NAEP data that this expectation is fulfilled. In each assessment, older students demonstrated much higher reading proficiency than younger students.

Although the changes from assessment to assessment appear to be gradual and uneven — more often representing fluctuations in the data than significant improvements or declines — students at ages 9 and 17 were reading significantly better in 1988 than their counterparts assessed in 1971, and 13-year-olds were reading as well as, if not better than, their 1971 counterparts. The pattern of change varies across the three age groups, however.

☐ **Nine-year-olds.** Nine-year-olds showed steady gains in reading performance from 1971 to 1980. Although their reading performance declined in 1984 and remained at this lower level in 1988, 9-year-olds' performance in 1988 was significantly higher than in 1971.

☐ **Thirteen-year-olds.** Students at this age level have shown little change in their reading proficiency across the five assessments. Some initial improvement was evident from

1971 to 1980, but their performance has leveled off in the two most recent assessments.

☐ **Seventeen-year-olds.** Trends for in-school 17-year-olds show a different pattern.[2] Their average reading proficiency remained fairly constant from 1971 to 1980, then rose from 1980 to 1984 and again from 1984 to 1988. As a result of these gains, the average reading proficiency of these high-school students was significantly higher in 1988 than it had been in 1971 or 1975.

Because the factors that influence educational achievement are many and intertwined, explaining the reading performance trends is far from straightforward. A variety of home, curricular, instructional, time, societal, economic, and experiential variables shape the development of reading abilities, and it is nearly impossible to trace their separate effects. At best, one can study what is known about patterns and trends in social, economic, school, and home life in this country and examine the potential linkages between these patterns and the performance trends observed.

As an example, high-school students assessed in 1988 read better, on average, than their counterparts in either 1971 or 1975. One might hypothesize that this is partly due to changes in the population of in-school 17-year-olds toward a greater percentage of higher-performing students. The student population has indeed shifted, but not in the direction that might be expected. The percentage of Black and Hispanic students — who have historically performed less well than White students in the NAEP assessments — has been increasing in recent years in our nation's schools.[3] And while high-school dropout rates have reportedly held constant over the past decade and a half for American students overall (with about one-quarter of 18- and 19-year-olds reporting they did not complete grade 12), there is evidence that high-school completion rates for Black students have improved.[4]

One might expect these trends to produce a slight decrease in the average reading achievement of 17-year-old students, since the percentage of students in school who belong to historically lower-performing groups has increased. However, the performance data refute this hypothesis. Minority students in general, and Black students in particular, made great strides in reading achievement across the 1970s and 1980s; in fact, their progress is largely responsible for the gains in reading achievement seen for the 17-year-old population overall. Although the factors contributing to this steady progress by minority students are unknown, it may be that recent efforts to provide all graduating seniors with a solid foundation in reading, writing, and other essential skills has been particularly advantageous to Black and Hispanic students. The gains in high-school students' reading achievement thus may stem in part from reforms in high-school education.

The halt in progress at age 9 and the unchanged performance at age 13 are especially perplexing, given that the past several years also have seen a variety of instructional and curricular reform efforts proliferate at the elementary- and middle-school levels.

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[2] Results for 17-year-olds do not include students who have dropped out of school. Nationally, almost three-quarters of all 18- and 19-year-olds have completed high school and this figure has been relatively stable since 1974. (NAEP has little reason to expect that the dropout rate for 17-year-olds has varied much during the same time period.) National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement, *1988 Education Indicators* (Washington, DC: U.S. Department of Education, 1988), pp. 28 and 131.

[3] The percentage of public school students who were minorities rose from 24 percent in 1976 to 29 percent in 1984. Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement, *The Condition of Education* (Washington, DC: U.S. Department of Education, 1987), p. 65.

[4] National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement, *1988 Education Indicators* (Washington, DC: U.S. Department of Education, 1988).

However, these reforms are necessarily quite different from those initiated at the high-school level, and their impact may also be felt in different ways and at different times. At the elementary level, for example, there is an expanding body of knowledge on the ways in which children learn to read and an accompanying interest in approaches to reading instruction that emphasize metacognitive strategies. It may simply be too early to discern the performance effects of these recent developments in research and instruction.

It is interesting to note that the most dramatic gains in 9-year-olds' reading achievement occurred at a time when Head Start offered early support for disadvantaged preschoolers, enrollment in preprimary programs was on the rise (from 40 percent in 1970 to 52 percent in 1976), and Title I programs of the Elementary and Secondary Education Act were assisting disadvantaged children in the early grades.[5] Thus the considerable gains made by 9-year-olds from 1971 to 1980 may reflect, at least in part, the impetus of special programs that provided academic support to disadvantaged schoolchildren.

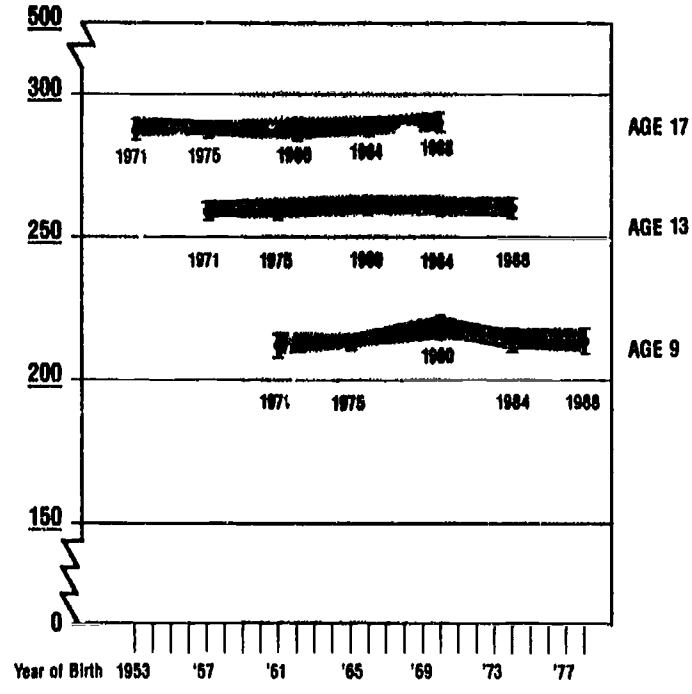
Given that students assessed in 1988 tended to perform as well as or better than their counterparts assessed 17 years earlier, one might conclude that we have made all the progress that can be made efficiently. But this would be an unfortunate conclusion, given evidence presented later in this report that reveals the considerable performance disparities that remain at each age level between the strongest and weakest readers. Thus, there is a continuing need to investigate factors that appear to be related to reading achievement.

The Effects of an Early Advantage

NAEP is designed to provide periodic snapshots of students' educational performance and the broad contexts in which it occurs, not to provide definitive answers about why this performance changes across time. However, comparing the steady gains made by 9-year-olds across the 1970s to those made by 17-year-olds across the 1980s in relation to students' year of birth yields an interesting picture.

Because the NAEP reading assessments have been conducted approximately every four years, the 13- and 17-year-olds of more recent assessments represent the 9-year-olds of earlier assessments. For example, national samples of students born in 1971 were first assessed at age 9 in 1980, again at age 13 in 1984, and again at age 17 in 1988. The matches are not completely precise, because the 1975 and 1980 assessments were five rather than the usual four years apart, but the NAEP data provide a close approximation of cohort performance and the results are quite informative. Using the data shown in FIGURE 1.2, it is possible to examine whether 9-year-old students who did comparatively better than those assessed in previous years continued to show improvement as 13- and 17-year-olds.

[5] Lawrence J. Schweinhart, *Early Childhood Development Programs in the Eighties: The National Picture* (Ypsilanti, MI: High/Scope Educational Research Foundation, 1985)



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

The shaded area of Figure 1.2 — which represents the 1971, 1975, and 1980 assessment results for 9-year-olds born in 1961, 1965, and 1970 — is of particular interest. Each successive population of 9-year-olds showed steady improvement compared to the previous group. The 1980, 1984, and 1988 results for 17-year-olds showed similar gains for approximately the same populations of students — those born in 1962, 1966, and 1970. For reasons that remain unclear, the results for 13-year-olds seem to follow a somewhat different pattern, particularly from 1980 to 1984, where no gains were evident.

Because 17-year-olds' reading achievement improved between 1980 and 1988, it appears that the gains made by populations of 9-year-old students across the 1970s were carried forward as these students moved through high school in the 1980s. In contrast, the 1986 NAEP results in mathematics and science suggested that recent declines and improvements could be traced back to junior high school; that is, the gains seen among 17-year-olds between 1982 and 1986 appeared

to reflect improvements made by 13-year-old students between 1978 and 1982 for mathematics and between 1977 and 1982 for science.[6] In these two subjects, the cohort patterns were less consistent for 9-year-olds; in science, however, this finding was not particularly surprising, given the limited curricular attention to this subject in most elementary schools.[7]

While it is encouraging to hypothesize that the effects of improvements are lasting throughout students' educational careers, such an interpretation may be somewhat disquieting from the perspective of predicting future trends in reading achievement. From one point of view, the stability in reading achievement at ages 9 and 13 may indicate that younger students are holding their own compared to previously assessed students of the same age and, therefore, these students will continue to read as well as their predecessors when they are assessed at age 17. However, from an alternative perspective, the lack of recent improvements at ages 9 and 13 may forecast a similar leveling off or even a decline at age 17 in future assessments.

Trends in Reading Achievement for White, Black, and Hispanic Students

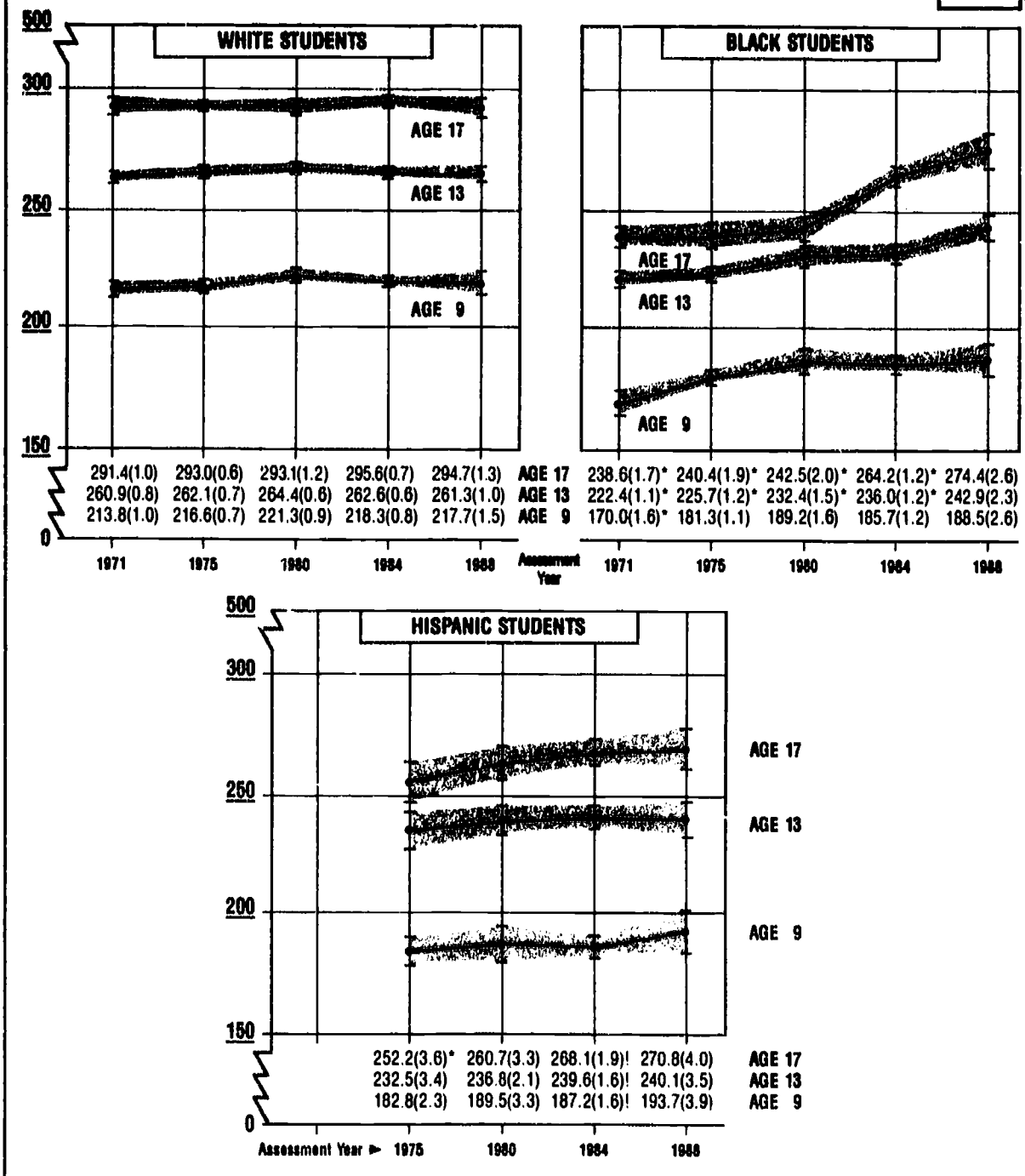
As shown in FIGURE 1.3, the trends in reading achievement for White, Black, and Hispanic students differ substantially from one another. When one compares the 1988 and 1971 results, it is evident that little has changed for White students. Although White 9-year-olds showed improvement from 1971 to 1980, their declines in the 1980s have begun to erode their previous gains. Similarly, White 13-year-olds showed some signs of improvement during the 1970s only to gradually backslide in the 1980s and return to their original level of performance. At age 17, despite some very gradual improvement, the reading performance of White students did not change significantly across the 17-year-period.

The advances in reading performance made by minority students — particularly Black students — between 1971 and 1988 are an exception to the otherwise gradual patterns and represent very real progress for our nation.

[6] John A. Dossey, Ina V.S. Mullis, Mary M. Lindquist, Donald L. Chambers, *The Mathematics Report Card: Are We Measuring Up?* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1988).

Ina V.S. Mullis and Lynn B. Jenkins, *The Science Report Card: Elements of Risk and Recovery* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1988).

[7] Iris Weiss, *Report of the 1985-86 National Survey of Science and Mathematics Education* (Research Triangle Park, NC: Research Triangle Institute, 1987).



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

* Shows statistically significant difference from 1988, where $\alpha = .05$ per set of four comparisons (each year compared with 1988). Jackknifed standard errors are presented in parentheses.

! Interpret with caution. The standard error cannot be accurately estimated.

In contrast to the comparatively stable performance trends for White students, Black students at all three age levels made striking gains from 1971 to 1988. Because Black 9-year-olds demonstrated such progress in the 1970s, it is disappointing that their reading achievement remained fairly constant in the 1980s. During the nine-year period from 1971 to 1980, the difference in average performance between Black and White 9-year-olds decreased from 44 to 32 scale points, but eight years later, in 1988, the difference remained almost 30 points.

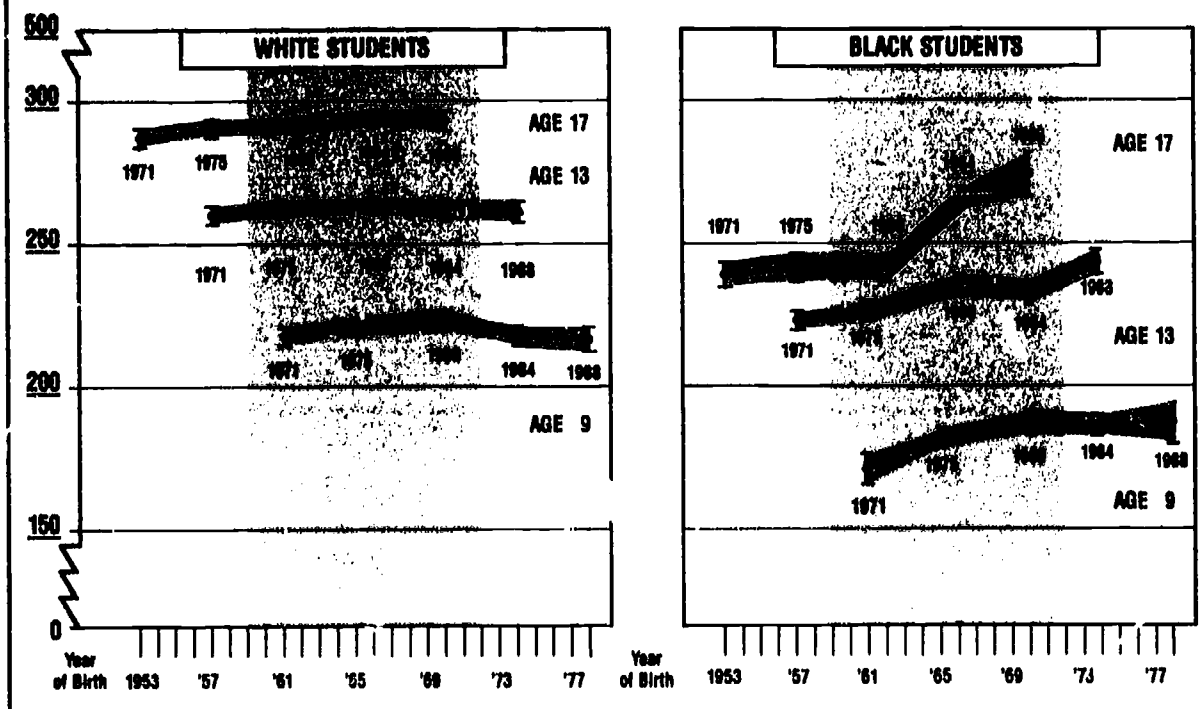
Black 13-year-olds showed steady improvements with each assessment and, thus, have made large and significant gains since 1971. Black 17-year-olds also have made substantial gains, particularly during the 1980s. The increase in average reading proficiency observed among Black students at the highest age level is particularly remarkable, given that the dropout rate among Black high-school students has been decreasing steadily since 1974.[8] As Black students who might have dropped out of high school in previous years are now more likely to remain in school, one might expect the average reading proficiency of Black high-school students overall to decline — while just the opposite has occurred. The difference in average reading performance between Black 17-year-old students and their White counterparts shows a systematic narrowing of the gap from 53 scale points in 1971 to 41 points in 1980, and subsequently to 20 points in 1988. Despite this impressive progress, however, the average reading achievement of Black 17-year-olds in 1988 remained well below that of White students in this age group.

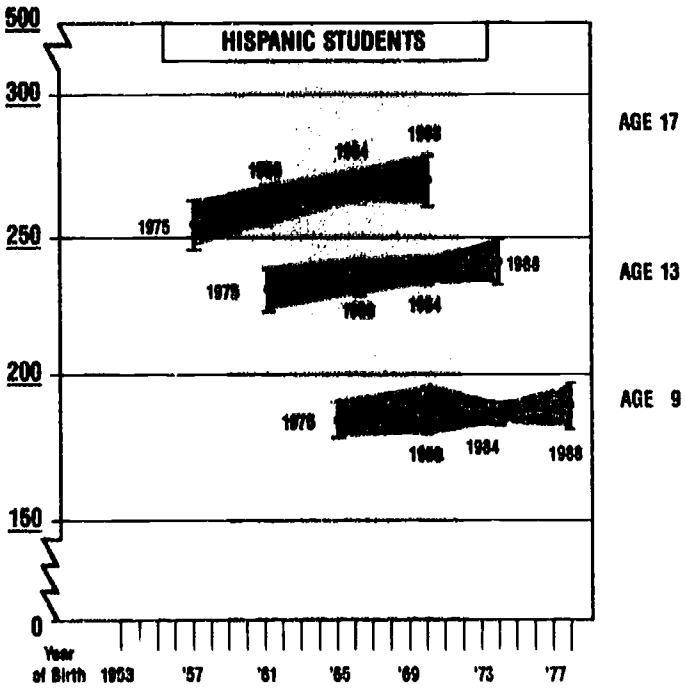
Results for Hispanic students have been examined since NAEP's 1975 reading assessment, and they reveal very encouraging trends. Although the changes were not significent, the reading abilities of Hispanic students at age 9 tended to improve across the 13-year period from 1975 to 1988. Thirteen-year-olds also tended to show performance gains, although the gradual increases observed from 1975 to 1984 were not evident in the most recent assessment. Hispanic 17-year-olds were reading significantly better in 1988 than were their peers in 1975, showing particular improvement from 1975 to 1984.

Although the substantially larger gains made by Black and Hispanic students served to narrow their performance gaps in relation to White students, the remaining disparities are a serious concern. In addition, the comparatively smaller gains made by Hispanic students compared to Black students served to change the relative standing of the two groups. In 1975, Hispanic students at all three ages tended to outperform Black students. In 1988, this was no longer so, with Black students at all three ages performing as well as, if not better than, their Hispanic classmates.

As provided earlier for the nation, FIGURE 1.4 presents the NAEP reading trend results for White, Black, and Hispanic students in relation to students' birth year. The results for Black students are particularly striking. The gains made by Black 9-year-olds in the 1970s seem to have been maintained at age 13 and even further enhanced for these students as 17-year-olds in the 1980s. Perhaps these students, who are disproportionately likely to be disadvantaged, have benefited from compensatory programs in the initial school years and from recent reforms at the high-school level, resulting in substantially improved achievement. In addition, for the birth-year cohort assessed in 1984 at age 9 and again in 1988 at age 13, initial signs of leveling off seem to have been overcome at age 13. Black 13-year-olds were reading significantly better in 1988 than they were in 1984.

[8] National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement, *1988 Education Indicators* (Washington, DC: U.S. Department of Education, 1988), p. 28.





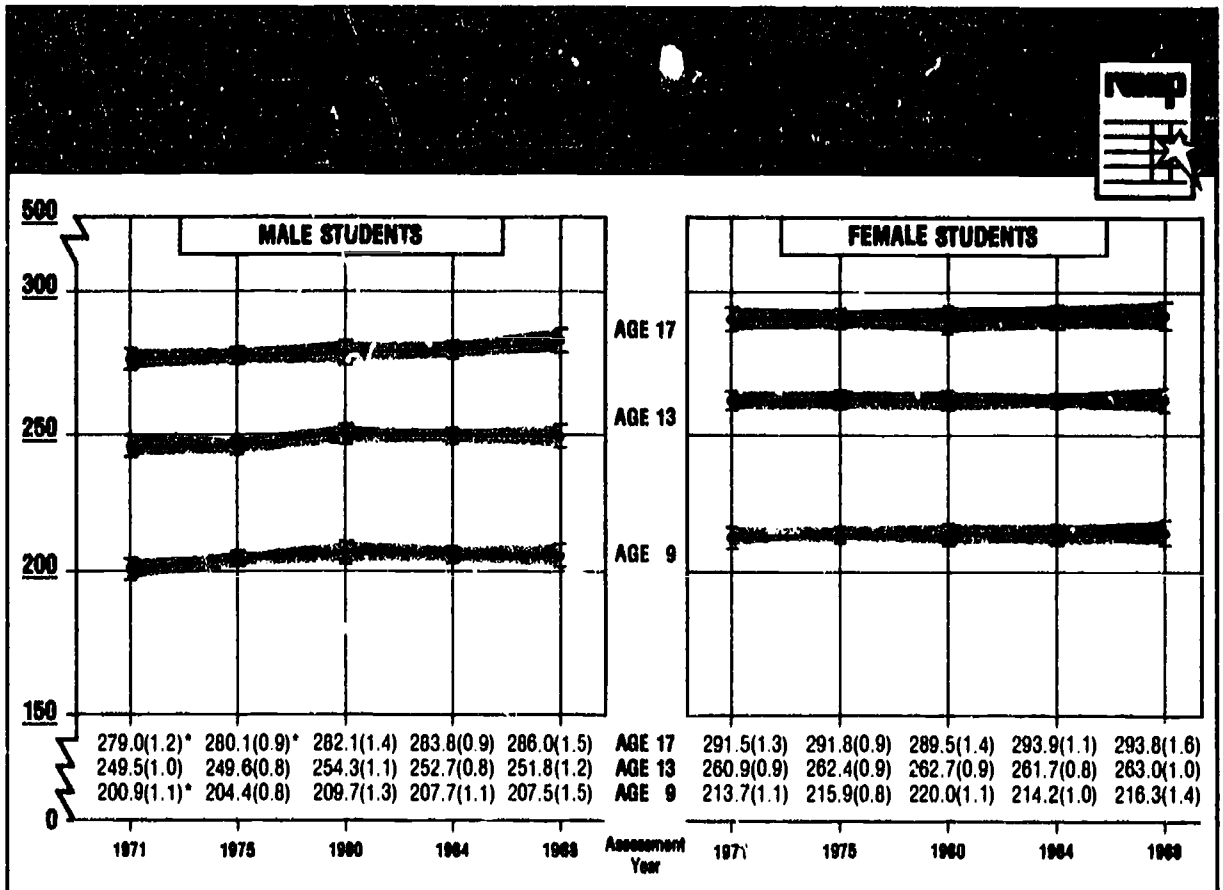
Estimated population mean reading proficiency and approximate 95 percent confidence interval. It can be said with about 95 percent certainty that the mean reading proficiency of the population of interest is within this interval.

At age 17, Hispanic students in each birth-year cohort appeared to perform slightly better than those in the preceding cohort. In contrast to the Black students, however, Hispanic students assessed at age 9 in 1984 and at age 13 in 1988 did not appear to continue their upward momentum. Similar to the pattern for White students, Hispanic students born in 1975 seem to be reading as well as their counterparts born in 1971. Although the trends between 1980 and 1984 for Black and Hispanic 9-year-olds suggest some progress compared to their White classmates, it remains to be seen whether the current plateau for the nation at age 9 will be pervasive across racial/ethnic groups, or whether minority youngsters will once again show a period of improvement.

Gender Differences in Reading Achievement

Across the variety of subject areas assessed by NAEP, the results for males and females support numerous studies that have revealed gender differences favoring females in reading and writing, and males in mathematics and science.[9] As shown in FIGURE 1.5, females at all three ages outperformed their male counterparts in each of the five NAEP reading assessments conducted from 1971 to 1988.

[9] Gita Z. Wilder and Kristin Powell, *Sex Differences in Test Performance: A Survey of the Literature* (New York: College Entrance Examination Board, 1989).



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

* Shows statistically significant difference from 1988, where $\alpha = .05$ per set of four comparisons (each year compared with 1988). Jackknifed standard errors are presented in parentheses.

There has been some indication from a number of studies, though, that the traditional female advantage in reading and verbal skills has been eroding. For example, results across time for the Scholastic Aptitude Test (SAT) show a closing of the gender gap in verbal skills.[10] However, these and other similar results for voluntary testing programs are not based on nationally representative samples, and there also have been shifts in the population of students who take the SAT, toward fewer females compared to males who attend private schools, take academic high school programs, and have college-educated parents. It is possible that at least some of the relative decline in women's verbal test scores can be explained by changes in the test-taking population.

The NAEP data, which are based on scientific samples of students, show that the relatively larger gains made by males at ages 9 and 17 between 1971 and 1988 have slightly reduced the gender differences in reading achievement at those two ages. The reading proficiency of females has remained fairly constant across the five assessments, with the net effect that females did not show significant improvement from 1971 to 1988 at any of the three ages assessed. In comparison, 17-year-old males tended to improve gradually across the assessments, showing significant improvements from 1971 to 1988. At ages 9 and 13, improvements made by male students in the 1970s were followed by declines in the 1980s. The gains were so slight at age 13 as to be offset by the declines, but the improvements at age 9 were more substantial; thus, despite slippage in recent assessments, these young male students still showed a significant net gain across the 17-year period.

While large-scale tests and assessments cannot explain the reasons for the observed trends, a growing body of research, including the NAEP reading results, suggests that real changes may be taking place in the relative verbal achievement of females and males.

Regional Trends in Reading Achievement

FIGURE 1.6 presents trends in reading achievement for students from the northeastern, southeastern, central, and western regions of the country (see Procedural Appendix for information about the states represented in each region).

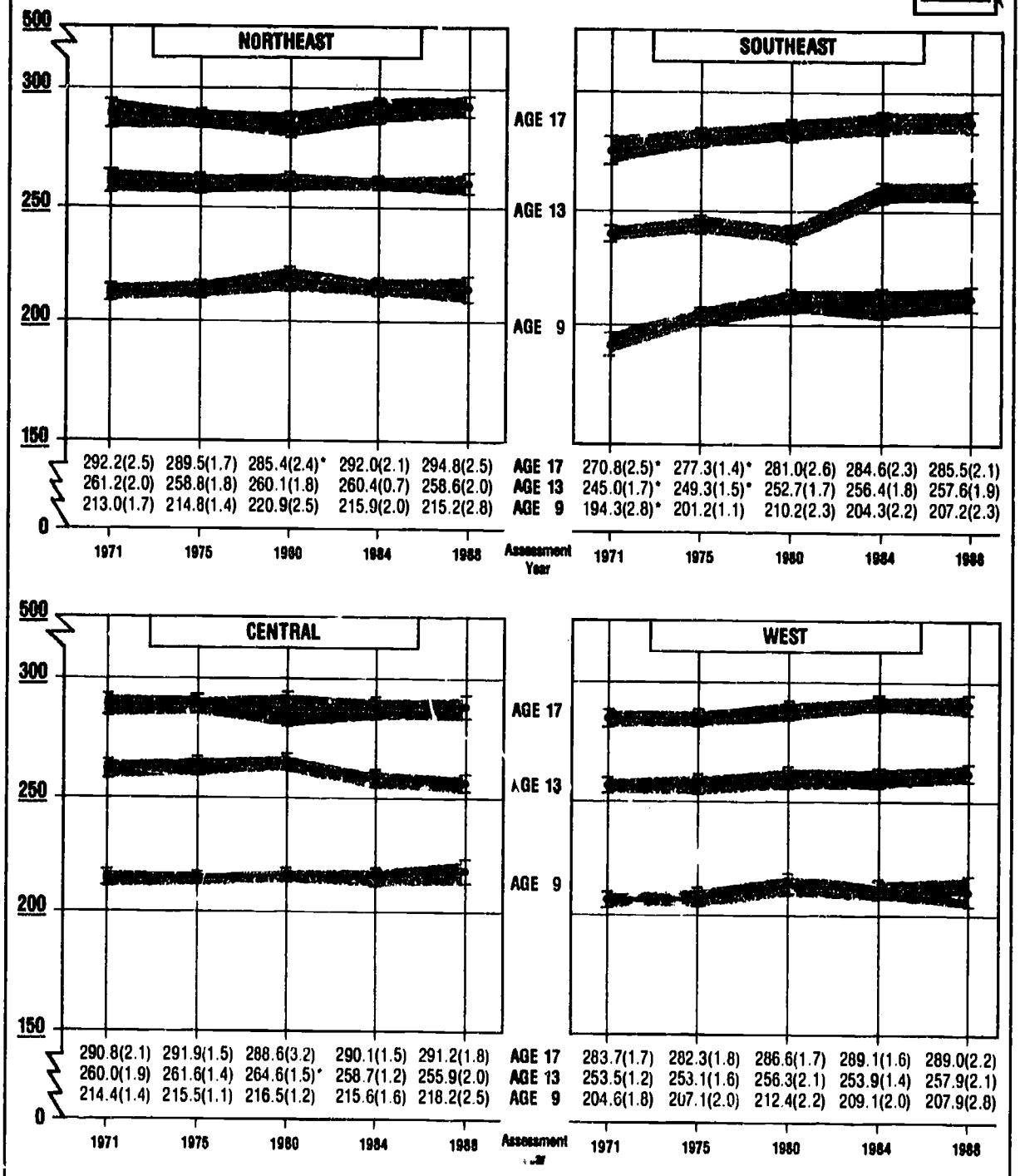
The reading achievement of 9- and 13-year-old students from the Northeast changed little between 1971 and 1988, while the achievement of 17-year-olds fell initially and then improved significantly.

In contrast, students from the Southeast were reading significantly better at all three ages in 1988 than they were in 1971. Thirteen- and 17-year-old students showed relatively steady progress from 1971 to 1988, although both groups tended to level off in the most recent assessment. Nine-year-olds showed dramatic gains in reading performance from 1971 to 1980, but then appeared to plateau in the 1980s. However, because of their substantial progress in the 1970s, 9-year-olds from this region still were reading better in 1988 than in 1971.

For students in the Central region, the reading performance of both 9- and 17-year-olds remained relatively constant with each assessment. In contrast, the reading proficiency of 13-year-olds rose slightly from 1971 to 1980, then dropped significantly from 1980 to 1988.

Despite some fluctuations, trends in the reading proficiency of students in the West suggest few changes. However, the results

[10] Nancy W. Burton, "Trends in the Verbal Scores of Women Taking the SAT in Comparison to Trends in Other Voluntary Testing Programs," paper presented at the annual meeting of the American Educational Research Association in Washington, D.C. (1987).



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

* Shows statistical y significant difference from 1988, where $\alpha = .05$ per set of four comparisons (each year compared with 1988). Jackknifed standard errors are presented in parentheses.

do reflect slight improvements between 1971 and 1988 at all three ages assessed by The Nation's Report Card.

The regional trends discussed above have narrowed the performance gap at all three age levels between the students in the Southeast and those attending school in the other three regions of the country. In 1971, at all three ages assessed, students in the Northeast and Central regions outperformed students in the West, who in turn had higher average reading performance than students in the Southeast. In 1988, these relative standings had shifted considerably. Although 9-year-olds in the Northeast and Central regions still performed the best in 1988, there was no difference between the average achievement of students in the Southeast and those in the West.

At age 13, the 1988 assessment results indicated no differences in reading performance across the four regions. During the 17-year period from 1971 to 1988, the declines for 13-year-olds in the Northeast and Central regions were matched by gains in the Southeast and West, serving to close the performance gaps.

At age 17, a stair-step pattern appeared in 1988, with students in the Northeast at the top followed by those in the Central, West, and Southeast regions, in descending order. These differences were not large, however. Students in the West and particularly those in the Southeast appeared to have made substantial progress in narrowing regional performance differences.

The overall picture suggests a nation of students who were reading better than their counterparts did in 1971, but it must be emphasized that the progress is slight and could be short-lived.

Summary

Although NAEP found few dramatic changes in average reading proficiency for the nation or for most subpopulations of students, the trends were generally positive across the five reading assessments conducted between 1971 and 1988. Both 9- and 17-year-olds were reading significantly better in 1988 than they were in 1971, and 13-year-olds were reading as well as in 1971.

The overall picture suggests a nation of students who were reading better than their counterparts did in 1971, but it must be emphasized that the progress is slight and could be short-lived. The recent trend data suggest improvements at age 17, but these gains appear to be partially a legacy of progress made by these students when they were age 9. Unfortunately, 9-year-olds born more recently have shown a pattern of small but steady declines during the 1980s, perhaps foreshadowing similar declines at ages 13 and 17 in the years ahead as these students move through our educational system.

The advances in reading performance made by minority students — particularly Black students — between 1971 and 1988 are an exception to the otherwise gradual patterns and represent very real progress for our nation. Hispanic 17-year-olds improved their reading performance from 1975 to 1988, but the advances made by Black 9-year-olds during the 1970s and by Black 17-year-olds during the 1980s were particularly noteworthy. Black 13-year-olds also raised their average reading proficiency significantly across time, showing steady gains with each assessment. A closer look at performance trends for groups of students born in the same year suggests that, as with the national results, the recent improvements shown by Black high-school students reflect increases made by the same population of students when they were first assessed at age 9.

Seventeen-year-olds from the Northeast, students of all ages from the Southeast, and 13-year-olds from the Central region also made significant performance gains across time, as did 9- and 17-year-old male students.

CHAPTER TWO

Trends in Levels of Reading Achievement

Introduction

THIS CHAPTER PROVIDES detailed information on the levels of reading proficiency demonstrated by students across the five reading assessments conducted by The Nation's Report Card, elaborating on the average reading proficiency results discussed in Chapter One. To describe students' reading skills and strategies, five levels of proficiency have been defined on the NAEP reading scale:

Level 150 — Rudimentary Skills and Strategies

Level 200 — Basic Skills and Strategies

Level 250 — Intermediate Skills and Strategies

Level 300 — Adept Skills and Strategies

Level 350 — Advanced Skills and Strategies

FIGURE 2.1 briefly defines these levels of proficiency according to the kinds of reading that most students at each level were able to do.

To provide a basis for describing or "anchoring" performance at the five levels on the scale, NAEP used empirical procedures to delineate sets of items and passages that discriminated between adjacent performance levels — that is, items likely to be answered correctly by students performing at one of these five levels on the scale and much less likely to be answered correctly by students performing at the next lower level. In theory, proficiency levels above 350 or below 150 could have been defined; however, so few students in the assessment performed at the extreme ends of the scale that it was not practical to do so.

The sets of items represented at each of the five levels were analyzed by a panel of reading experts, who carefully considered passage and item characteristics, as well as passage-item interactions, to discern the types of reading behaviors demonstrated by correct responses to the items in each set. These analyses indicated 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.

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.*

Short passages made up of a few simple sentences were easiest for students to comprehend. More dense and 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 identifying words in a passage, through making substantial inferences, to reformulating and extending the ideas presented. Success in answering questions seemed to be a function of both 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 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 shapes the demands of a reading task. The many possible interactions among the passage, question, and reader's prior knowledge are reflected in the NAEP results.

National Results

TABLE 2.1 presents the percentages of students who performed at or above each read-

TABLE 2.1

Percentage of Students at or Above the Five Levels of Reading Proficiency, 1971 to 1988*

THE NATION'S REPORT CARD

Reading Skills and Strategies	Age	1971	1975	1980	1984	1988
Rudimentary	9	90.5*	93.2	94.6	92.5	93.0
(Level 150)	13	99.8	99.7	99.9	99.8	99.8
	17	99.6	99.7	99.8	100.0	100.0
Basic	9	58.2*	62.2	67.6*	61.9	62.5
(Level 200)	13	92.8*	93.3*	94.9	94.1	95.1
	17	95.9	96.4	97.2	98.3	98.9
Intermediate	9	15.3	14.6	17.2	17.0	17.0
(Level 250)	13	57.9	58.6	60.9	59.1	58.0
	17	78.5*	80.4*	81.0*	83.1*	86.2
Adept	9	1.0	0.5	0.6	1.0	1.2
(Level 300)	13	9.8	10.3	11.3	10.9	10.6
	17	39.2	39.1	38.5	40.0	41.8
Advanced	9	0.0	0.0	0.0	0.0	0.0
(Level 350)	13	0.1	0.2	0.2	0.2	0.2
	17	6.6*	6.1*	5.3	5.5	4.8

*Shows statistically significant difference from 1988, where $\alpha = .05$ per set of four comparisons (each year compared with 1988). No significance test is reported when the percentage of students is >95 or <5. Jackknifed standard errors are provided in the Data Appendix.

ing proficiency level in the five reading assessments conducted by NAEP since 1971. Across the years, virtually all students have displayed rudimentary reading skills and strategies, characterized by the ability to perform relatively uncomplicated, discrete reading tasks successfully. At the other extreme, very few students in any assessment have reached the highest level of reading proficiency defined, reflecting their difficulty in comprehending passages that are more lengthy and complex or that deal with specialized subject matter.

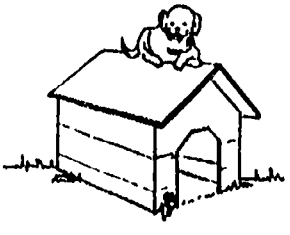
The results for the three age levels have been placed on a common scale to track growth across schooling, as well as trends for the three age groups assessed. Expectations are that students at each successively older age will perform better — and they do. In 1988, students showed tremendous growth from age 9 to age 17 in the types of reading tasks they were able to perform.

Comparisons of performance levels in 1988 with those in 1971 reflect the observed gains in average performance for 9- and 17-year-olds, but suggest that more improvement has occurred at the lower levels of the scale than at the higher levels. The discussion in this chapter is confined to results for the nation, while comparable results for various subpopulations (e.g., defined by race/ethnicity, gender, and region) are contained in the Data Appendix. Trends in these distributions elaborate on the average performance results for subpopulations of students presented in Chapter One. The following sections briefly describe student performance at each reading proficiency level, drawing on data from the five NAEP reading assessments conducted from 1971 to 1988.

LEVEL 150: Rudimentary Skills and Strategies

1988		
Age 9	Age 13	Age 17
93.0%	99.8%	100.0%

Students performing at this level of proficiency were able to read and understand brief, uncomplicated passages and respond correctly to straightforward questions based on information presented — for example, questions asking them to recall particular details. The following passages and items are illustrative of LEVEL 150 performance.



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.

Virtually all 13- and 17-year-olds and most 9-year-olds assessed in 1988 reached or surpassed this level of reading proficiency. Further, the percentage of 9-year-olds at or above LEVEL 150 rose significantly from 1971 to 1988. While these data are encouraging, concern may be warranted for the 7 percent of the students at age 9 — most of whom are in the third or fourth grade — who have not yet mastered rudimentary reading skills and strategies. Lacking a strong foundation in reading, these students are likely to be vulnerable to academic difficulties as they proceed through school.

LEVEL 200: Basic Skills and Strategies

1988		
Age 9	Age 13	Age 17
62.5%	95.1%	98.9%

Students performing at LEVEL 200 showed a grasp of basic reading skills and strategies, evidenced by their understanding of stories and expository passages, their ability to summarize main ideas, and their capacity to distill information from the material presented. Sample items representative of LEVEL 200 performance are provided below.

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.

(continued)

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. Teenagers 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 teenagers talking about?

A Timothy
B Music
(C) How hot it was
D The people washing cars
E The building across the street

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.

Almost all students at ages 13 and 17 performed at or above LEVEL 200 in the 1988 assessment. At age 9, however, the proportion of students demonstrating basic reading skills and strategies has declined significantly since 1980, when 68 percent of the students performed at or above this level. Only 62 percent did so in 1988. Although performance in 1988 represented a significant overall gain since 1971, these declines in the 1980s at age 9 are worrisome.

LEVEL 250: Rudimentary Skills and Strategies

1988		
Age 9	Age 13	Age 17
17.0%	58.0%	86.2%

The text passages that characterize LEVEL 250 performance tend to be longer and more complex than those at the lower levels, and the questions are more demanding, asking students to interpret, make inferences from, and elaborate on the information and ideas presented. The passage and items below illustrate LEVEL 250 performance.

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 to 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.

(continued)

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.

In the 1988 assessment, as with previous NAEP reading assessments, there were large differences across the age groups in the percentage of students who demonstrated reading skills and strategies at this level: 17 percent of the students at age 9 attained LEVEL 250 performance in 1988, compared with 58 percent of the students at age 13 and 86 percent at age 17. There were also considerable differences across the age groups in the ways in which these percentages changed across time. Since 1971, the percentage of 9- and 13-year-olds reaching LEVEL 250 has stayed relatively constant. Over the same time period, however, the percentage of 17-year-olds who reached LEVEL 250 increased steadily, from 79 percent in 1971 to 86 percent in 1988.

Whether they are in or out of school, 17-year-olds who have not developed adept reading skills and strategies would appear to be at risk as they become adults in a society that depends so heavily on the ability to extract meaning from varied forms of written language.

LEVEL 300: Adept Skills and Strategies

1988		
Age 9	Age 13	Age 17
1.2%	10.6%	41.8%

Performance at LEVEL 300 indicates an ability to read and comprehend a wide variety of text materials, including various types of informational and literary passages as well as documents. It also reflects the ability to summarize and elaborate on the information and ideas presented. To a greater extent than at the lower levels of proficiency, the reader performing at this level is attentive to genre, form, and rhetorical features. Sample passages and items representing LEVEL 300 performance are provided below.

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 on 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 watch 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 exhaustion, 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
© 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 1840s, 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 settlementhouse 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.

(continued)

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.

There have been only minor changes across time in the percentage of students performing at this level of reading proficiency. In 1988, about 1 percent of the students at age 9, 11 percent at age 13, and 42 percent at age 17 performed at or above LEVEL 300. While most 9-year-old students would not be expected to have mastered the adept skills and strategies associated with this level of performance, it seems reasonable to expect higher percentages of 13- and 17-year-olds to do so. Particularly for students in the highest age group — most of whom represent high-school juniors — the failure to demonstrate this level of reading proficiency suggests a need to strengthen their literacy skills prior to high-school graduation.

LEVEL 350: Advanced Reading Skills and Strategies

1988		
Age 9	Age 13	Age 17
0.0%	0.2%	4.8%

Performance at the highest level defined on the NAEP reading proficiency scale reflects the ability to integrate ideas and information presented in a variety of genres, to understand specialized content, and to make meaning from passages that contain challenging syntactic and rhetorical elements. Many of the questions following the passages at this level are open-ended, asking students to articulate their views and ideas based on the selection presented. The following sample items are representative of LEVEL 350 performance.

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 for 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 tastes 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
[4] provisions, understandably 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 4, 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.

Virtually no 9- or 13-year-olds and very few (only 5 percent) of the 17-year-olds reached LEVEL 350 in the 1988 assessment. Further, the percentage of students at age 17 who reached this level of performance has declined significantly since 1971. It therefore appears that most in-school 17-year-olds lack the advanced reading skills and strategies needed to comprehend the kinds of specialized written materials that are prevalent in business and higher education.

Viewed in their entirety, these results offer a picture of mixed successes and shortcomings. While most students seem to have mastered intermediate reading skills and strategies by the time they approach the end of high school, far fewer reach the highest levels of reading proficiency defined by NAEP. TABLE 2.2 summarizes the change from 1971 to 1988 in the percentage of students in each age group who reached each level of reading proficiency.

TABLE 2.2

Change in the Percentage of Students Reaching Levels of Reading Proficiency, 1971 to 1988*

THE NATION'S REPORT CARD

Level		Age 9	Age 13	Age 17
Rudimentary	(150)	+ 2.5*	0.0	+ 0.4
Basic	(200)	+ 4.3*	+ 2.3*	+ 3.0
Intermediate	(250)	+ 1.7	+ 0.1	+ 7.7*
Adept	(300)	+ 0.2	+ 0.8	+ 2.6
Advanced	(350)	0.0	+ 0.1	- 1.8*

*Shows statistically significant difference between years, where $\alpha = 0.5$. The "+" symbol denotes a gain in the percentage of students reaching a certain level of proficiency in 1988, while the "-" symbol denotes a loss.

The percentage of students attaining each level of proficiency tended to remain constant or improve slightly between 1971 and 1988. The largest increase for any age group occurred at age 17, where approximately 8 percent more of these high-school students reached LEVEL 250 in 1988 than in 1971. However, the only decline charted across the age groups also occurred at this age, as the percentage of 17-year-olds who reached the highest level of reading performance declined by approximately 2 points.

It appears that recent efforts to strengthen the literacy skills of American students have succeeded in raising the proportion of students developing rudimentary, basic, and intermediate reading abilities. However, we have not succeeded in raising the proportions of older students who develop adept or advanced reading abilities.

We have not succeeded in raising the proportions of older students who develop adept or advanced reading abilities.

Summary

By 1988, almost all 9-year-olds had acquired rudimentary reading skills and strategies (LEVEL 150 on the NAEP scale) and a majority had gone on to develop basic reading skills and strategies (LEVEL 200), representing significant increases at both levels since 1971. However, the percentage of 9-year-olds who reached or surpassed LEVEL 200 also has declined significantly since 1980 and the percentage performing at or above LEVEL 250 remained essentially unchanged from 1971 to 1988. Overall, few 9-year-olds — just 17 percent — demonstrated a grasp of the intermediate reading abilities associated with this level of performance.

At age 13, the percentage of students who performed at or above LEVEL 200 rose significantly across time, but the percentage reaching LEVEL 250 was much smaller and did not change from 1971 to 1988. Only 58 percent of the 13-year-old students demonstrated intermediate reading skills and strategies, and 11 percent displayed adept reading skills and strategies. Although most students at this age would not be expected to reach LEVEL 350, it is somewhat surprising that virtually none displayed the level of abilities that NAEP defined as advanced.

Among the in-school 17-year-olds assessed by NAEP in 1988, the percentage of students exhibiting intermediate skills and strategies associated with LEVEL 250 performance rose steadily (and significantly) across time. Thus, 86 percent reached this level in 1988, while only 42 percent of these high-school students reached the next highest level (300), and a mere 5 percent reached the highest level of reading proficiency — marking a significant drop since 1971. These statistics are particularly discouraging because they do not include data on the reading performance of students who have already dropped out of school. Whether they are in or out of school, 17-year-olds who have not developed adept reading skills and strategies would appear to be at risk as they become adults in a society that depends so heavily on the ability to extract meaning from varied forms of written language.

In summary, the results across the three ages show tremendous growth in reading comprehension as students move through school. The results also indicate improvement from 1971 to 1988 at all three ages, particularly at the lower levels on the scale.

However, while it appears that progress has been made in raising the share of students who acquire rudimentary, basic, and intermediate reading skills and strategies, no gains are evident at the higher levels of reading ability defined by NAEP, characterized by adept and advanced skills and strategies. The instructional and curricular interventions of recent years may have succeeded in strengthening students' rudimentary, basic, and intermediate reading proficiencies, but these efforts must continue to be pursued, reevaluated, and redirected in the years ahead to provide for more substantive gains.

CHAPTER THREE

Trends in Reading Instruction and Experiences

Introduction

THE CENTRAL GOAL of the NAEP reading assessments is to measure trends in the reading proficiency of American students by evaluating their ability to comprehend a variety of informational and literary passages and documents. A secondary goal is to monitor information on educational, demographic, and experiential factors that appear to be related to reading proficiency. To fulfill the latter goal, The Nation's Report Card asks students participating in each assessment to provide information on their demographic characteristics, instructional experiences, and reading attitudes and behaviors. Cause and effect relationships cannot be determined from these survey data, because the results only confirm the relation between two variables. For example, it is impossible to say whether better readers tend to have certain kinds of experiences or whether the experiences themselves actually improve students' reading abilities. Also, data reported by students — particularly by the youngest students — may be of questionable accuracy. However, the relationships observed between reading performance and self-reported background information can provide a stimulus for educators, reading researchers, and policymakers to discuss central issues and concerns and to initiate further inquiries.[11]

This chapter studies changes across time in some of the factors thought to be related to students' reading proficiency, including exposure to reading at school and in the home, the amount of time spent doing homework, and the nature of students' reading experiences and habits. Throughout the chapter, the primary aim will be to examine trends in students' instructional, individual, and home experiences as they relate to reading performance and, in turn, to identify changes that may have occurred in these relationships across time.

[11] A report based on the 1988 main NAEP reading assessment, to be published in 1990, will provide more detailed information on relationships between background factors and students' reading proficiency.

Reading Across the Curriculum

Because in-school reading activities exert considerable influence in the development of students' reading abilities, attitudes, and habits, NAEP asked students participating in the 1984 and 1988 reading assessments to report on the kinds of school-related materials they read. TABLE 3.1 displays the percentages of students who reported ever reading poems, plays, biographies, science books, and books about other times and places, such as those that would be read in social studies or history class.

TABLE 3.1

Reading Across the Curriculum, 1984 to 1988*

THE NATION'S REPORT CARD

		Percentage of Students Reporting Ever Reading Types of Materials		
	Year	Age 9	Age 13	Age 17
Poems	1988	69.2 (2.3)	74.9 (1.8)	81.7 (1.2)
	1984	70.4 (1.5)	68.4 (1.3)*	76.0 (1.1)*
Plays	1988	52.8 (2.2)	66.6 (2.0)	70.3 (2.5)
	1984	55.6 (1.4)	59.2 (1.4)*	63.4 (1.0)
Biographies	1988	44.0 (2.5)	65.8 (1.7)	64.1 (2.1)
	1984	45.1 (1.5)	62.2 (1.3)	58.9 (1.2)*
Science Books	1988	89.8 (1.2)	92.8 (1.3)	74.6 (1.8)
	1984	84.0 (1.3)*	89.8 (1.1)	69.6 (1.1)
Books About Other Times and Places	1988	80.4 (2.0)	81.1 (1.6)	78.7 (1.9)
	1984	79.0 (1.2)	83.4 (1.1)	81.4 (0.9)

* Shows statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

At all three ages, students assessed in 1988 were as likely as or more likely than those assessed in 1984 to report that they ever read the types of materials listed. In particular, 9-year-old students appeared to be doing more reading in science in 1988 than in 1984. Both 13- and 17-year-olds appeared to be reading more in every area except history — particularly in the language arts, as indicated by the higher percentages of students in 1988 who reported reading poems and plays.

Until our students are exposed — through schools, individuals at home, and their own initiative — to more varied and intensive reading experiences, the reading proficiency of American students is unlikely to change dramatically for the better.

Exposure to Reading in the Home

A second factor thought to shape students' reading proficiency is the extent to which their home environment provides opportunities for diverse reading. Students participating in each NAEP assessment since 1971 have been asked whether they have access to newspapers, magazines, books, and encyclopedias at home. Thirteen- and 17-year-olds have also been asked how often the people they live with actually read some of these materials.

In 1988, as in previous assessments, students who reported having books, newspapers, magazines, and encyclopedias at home tended to be better readers than students with fewer of these materials available. Long-term trends in the number of reading materials in the home reveal some interesting changes, as shown in TABLE 3.2.

TABLE 3.2 **Types of Reading Materials in the Home, 1971 to 1988***

THE NATION'S REPORT CARD

		Number of Types of Materials					
		None to Two		Three		Four	
	Year	Percent	Average Proficiency	Percent	Average Proficiency	Percent	Average Proficiency
Age 9	1988	33.8 (1.4)	198.5 (2.1)	32.0 (0.7)	214.8 (1.5)	33.8 (1.3)	223.0 (1.7)
	1971	28.2 (0.9)*	186.2 (1.0)*	32.5 (0.4)	207.9 (1.0)*	38.8 (1.0)*	222.8 (0.9)
Age 13	1988	18.0 (1.1)	242.9 (1.8)	31.0 (0.9)	255.6 (1.0)	50.5 (0.9)	264.2 (1.3)
	1971	16.7 (0.6)	226.6 (1.2)*	25.1 (0.5)*	248.9 (0.9)*	57.7 (1.0)*	266.5 (0.7)
Age 17	1988	12.1 (0.7)	268.8 (2.4)	24.9 (0.9)	287.1 (1.7)	62.7 (1.3)	295.8 (1.2)
	1971	10.9 (0.6)	246.2 (1.8)*	21.7 (0.5)*	273.9 (1.4)*	6.7 (1.0)	295.6 (1.0)

*Shows statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

At all three ages, students assessed in 1988 were less likely than their peers assessed in 1971 to report that they had the full assortment of these reading materials at home. It is interesting to note the changing relationships between students' reading proficiency and the availability of reading materials in the home. While the average reading proficiency of students with access to four kinds of reading materials remained stable from 1971 to 1988 at all three ages, the average proficiency of students with zero to two kinds of reading materials at home and those with access to three kinds of materials at home rose significantly across the 17-year period.

To further investigate the extent to which students' home environment supports reading, NAEP asked 13- and 17-year-old students to report how often the people they lived

with actually read newspapers, magazines, and books. To describe the overall frequency of reading in the home, students' responses to these questions were used to create a composite variable consisting of three levels: Never/Yearly, Monthly, and Weekly/Daily. The "Never/Yearly" group consists of students who reported that the persons they lived with never read newspapers, magazines, and books, or that they read these materials very infrequently (i.e., once a year). The "Monthly" group consists of students who reported that the individuals they lived with read these materials once a month, on average, and the "Weekly/Daily" group represents students who reported that the individuals they lived with read these materials on a weekly or daily basis. TABLE 3.3 displays the percentage of students in each category and their average proficiency.

There appear to have been no significant changes across time at any age in the extent of reading in the home, or in the relationship between this variable and students' reading achievement. At all three ages, students who reported that the individuals they lived with were frequent readers of books, newspapers, and magazines tended to register the highest average reading proficiency.

TABLE 3.3

Extent of Reading in the Home, 1984 to 1988

THE NATION'S REPORT CARD

		Never/Yearly		Monthly		Weekly/Daily	
	Year	Percent	Average Proficiency	Percent	Average Proficiency	Percent	Average Proficiency
Age 13	1988	16.3 (1.9)	244.3 (5.2)	43.7 (2.1)	253.6 (2.7)	40.1 (2.4)	256.5 (2.8)
	1984	15.7 (1.0)	245.2 (2.0)	43.0 (1.1)	259.1 (2.0)	41.3 (0.9)	263.1 (1.8)
Age 17	1988	14.1 (1.4)	279.0 (5.8)	45.7 (2.1)	294.8 (3.2)	40.2 (2.8)	294.0 (3.3)
	1984	14.3 (0.8)	267.6 (2.3)	43.9 (1.1)	287.5 (1.5)	41.8 (1.4)	292.1 (1.6)

Note: No statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

Time Spent on Homework

In past assessments in reading and other subject areas, NAEP found that the amount of time students spend on homework tends to be positively related to their performance. TABLE 3.4 presents students' responses to questions asked in the 1980, 1984, and 1988 NAEP assessments on the average amount of time spent on homework each day. (It should be noted that these questions referred to students' homework in general, rather than to their reading homework in particular.)

In 1988, students at all three ages reported being assigned more homework. Nine-year-old students assessed in 1988 were significantly less likely than their counterparts assessed in 1984 to report that they had no homework and more likely to report that they did up to an hour of the assigned work on a daily basis. Students in this age group

TABLE 3.4

Amount of Time Spent on Homework, 1980 to 1988*

THE NATION'S REPORT CARD

		Age 9		Age 13		Age 17	
	Year	Percent	Average Proficiency	Percent	Average Proficiency	Percent	Average Proficiency
None	1988	28.8 (1.9)	212.4 (2.1)	17.1 (1.4)	251.0 (2.1)	20.8 (1.4)	277.2 (1.6)
	1984	35.6 (1.3)	211.0 (1.2)	22.6 (0.8)	253.0 (1.0)	22.4 (0.9)	273.8 (0.9)
	1980	—	—	31.6 (1.2)	253.5 (1.2)	31.0 (1.4)	276.2 (1.5)
Didn't Do Assigned Homework	1988	4.5 (0.4)	195.0 (3.1)	4.4 (0.4)	248.1 (4.2)	13.4 (0.7)	287.5 (3.1)
	1984	4.1 (0.3)	197.9 (2.4)	3.7 (0.2)	246.3 (2.1)	11.4 (0.3)	285.2 (1.4)
	1980	—	—	6.0 (0.3)	251.3 (1.7)	12.6 (0.6)	285.8 (1.2)
Less than 1 hour	1988	47.0 (1.4)	215.3 (1.4)	37.4 (1.0)	258.9 (1.2)	27.8 (0.9)	289.4 (1.3)
	1984	41.5 (1.0)*	215.6 (0.9)	35.9 (0.7)	260.0 (0.8)	26.2 (0.4)	288.6 (1.0)
	1980	—	—	2.3 (1.0)*	259.8 (1.0)	23.9 (0.5)*	288.4 (1.7)
1-2 hours	1988	12.7 (0.5)	213.4 (2.7)	30.4 (1.2)	262.3 (1.3)	26.0 (1.4)	296.8 (2.0)
	1984	12.7 (0.5)	215.2 (1.6)	29.2 (0.5)	265.6 (0.9)	26.8 (0.5)	295.4 (0.9)
	1980	—	—	23.9 (0.7)	264.4 (1.1)	22.8 (0.5)	292.5 (1.6)
More than 2 hours	1988	7.0 (0.5)	199.8 (2.8)	10.7 (0.7)	263.9 (3.0)	12.0 (0.9)	304.0 (2.6)
	1984	6.1 (0.2)	199.9 (2.3)	8.6 (0.3)	264.1 (1.6)	13.2 (0.6)	303.4 (1.3)
	1980	—	—	7.2 (0.2)*	261.9 (2.0)	9.7 (0.4)	298.2 (2.4)

*Shows statistically significant difference from 1988, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

who stated that they spent up to an hour or from one to two hours on homework each day displayed higher reading proficiency, on average, than students who reported that they did not do the work assigned.

At both ages 13 and 17, the percentage of students who reported having no assigned homework declined significantly from 1980 to 1988. In each assessment year, the percentage of 17-year-olds who reported not doing their homework was substantially higher than that of students at ages 9 and 13, and the amount of time spent on homework reported by 17-year-old students tended to be lower than the amount of time reported by 13-year-olds. Even so, high-school students assessed in 1988 reported more homework each day than their counterparts assessed in 1980. A positive relationship between homework and proficiency was also evident at ages 13 and 17, and these relationships remained stable across the 8-year period.

Engagement in Reading

To gather information on the kinds of materials students read either in or out of school, NAEP asked 9-, 13-, and 17-year-olds in 1984 and 1988 how often they read parts of stories or novels, newspapers, and magazines. Their responses were used to create a composite variable summarizing the extent to which students read all of these materials on average. Students were grouped in three categories: those who, on average, never read stories or novels, newspapers, and magazines, or who reported doing so only infrequently (i.e, yearly or monthly); students who read these materials on a weekly basis, on average; and students who read these materials daily (on average). As shown in TABLE 3.5, the percentage of students in each category varies across the ages.

TABLE 3.5 Reading of Books, Newspapers, and Magazines, 1984 to 1988*

THE NATION'S REPORT CARD

		Yearly/Monthly		Weekly		Daily	
	Year	Percent	Average Proficiency	Percent	Average Proficiency	Percent	Average Proficiency
Age 9	1988	63.8 (2.2)	209.7 (2.9)	26.8 (2.2)	219.8 (4.9)	9.4 (1.6)	212.9 (7.7)
	1984	58.7 (1.5)	206.7 (1.6)	30.5 (1.5)	219.5 (2.5)	10.7 (0.9)	211.2 (3.8)
Age 13	1988	32.9 (2.0)	249.7 (2.9)	47.7 (1.7)	264.0 (2.7)	19.4 (1.4)	267.5 (3.3)
	1984	30.1 (1.5)	244.2 (1.7)	48.9 (1.1)	260.7 (1.6)	21.0 (1.1)	268.8 (2.2)
Age 17	1988	24.4 (1.9)	273.2 (3.4)	54.3 (2.2)	291.8 (1.9)	21.3 (1.5)	301.8 (4.8)
	1984	20.2 (1.0)	269.6 (2.0)	53.3 (1.2)	287.6 (1.5)	26.5 (1.3)*	298.6 (1.9)

*Shows statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

Story reading is common among young students, but older students do considerably more reading of newspapers and magazines than the younger students and thus read more frequently on average. There were no significant shifts across time in students' responses to questions about their reading of books, newspapers, and magazines, aside from a decrease in the percentage of 17-year-olds who reported daily reading. The relationship between the amount of reading students reported and their reading proficiency also stayed virtually the same across time at each age level. Among the 9-year-olds, those reading stories, newspapers, and magazines weekly exhibited the highest proficiency in both assessment years, while among 13- and 17-year-olds, the most frequent readers were the most proficient.

As indicated in TABLE 3.6, there has been little change across time at any age level in the percentage of students who read for fun on their own time. The proportion of stu-

TABLE 3.6

Independent Reading for Fun, 1984 to 1988

THE NATION'S REPORT CARD

		Percentage Reporting Reading for Fun				
	Year	Daily	Weekly	Monthly	Yearly	Never
Age 9	1988	54.1 (1.8)	26.1 (1.3)	6.9 (0.8)	3.8 (0.6)	9.1 (0.9)
	1984	53.3 (1.0)	27.7 (0.8)	7.1 (0.6)	3.0 (0.3)	8.9 (0.5)
Age 13	1988	36.0 (2.4)	31.3 (2.2)	15.3 (1.6)	7.7 (1.3)	9.7 (0.9)
	1984	35.1 (1.0)	35.1 (1.2)	14.2 (0.8)	7.2 (0.5)	8.5 (0.6)
Age 17	1988	28.1 (1.9)	32.1 (2.6)	20.8 (2.2)	10.1 (1.1)	8.9 (1.6)
	1984	30.8 (0.8)	33.5 (1.1)	16.7 (0.5)	10.3 (0.5)	8.7 (0.6)

Note: No statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

dents who read for pleasure on a daily basis declined with age; thus, 9-year-olds were far more likely than 13- or 17-year-olds to report that they read for fun every day. Across the age groups, students who frequently read for fun were likely to have the highest proficiency, and those who never read for fun had the lowest. It is therefore particularly disappointing to note that approximately one-tenth of the students at each age stated that they never read for pleasure.

To evaluate their engagement in other reading-related pursuits, students were also asked how often they engaged in such activities as telling a friend about a good book, taking books out of the library, spending their own money on books, or reading more than one book by an author they particularly liked. The following table presents the percentage of students at each age level who reported ever engaging in any or all of these four activities.

Students' involvement in the kinds of reading activities mentioned appears to decline across the age groups. Thus, 13- and 17-year-olds were less likely than 9-year-olds to engage in all four activities — telling a friend about a good book, taking books out of the library, spending their own money on books, and reading more than one book by an author they liked. All in all, there was little change across time in the response patterns at any age.

The larger indications suggest that reading is not a frequent or highly valued activity for many students.

TABLE 3.7 Engagement in Reading-Related Activities, 1984 to 1988

THE NATION'S REPORT CARD

		Percentage Who Reported Engaging in Each Number of Activities			
	Year	0-1	2	3	4
Age 9	1988	10.2 (1.2)	15.8 (1.1)	28.0 (1.5)	45.9 (1.7)
	1984	9.7 (0.5)	15.7 (0.8)	30.7 (1.0)	43.9 (1.0)
Age 13	1988	13.9 (1.1)	17.9 (1.3)	23.6 (1.8)	44.6 (2.1)
	1984	11.8 (0.8)	14.0 (0.8)	24.9 (0.9)	49.3 (1.1)
Age 17	1988	18.1 (2.0)	15.4 (1.7)	24.2 (2.2)	42.3 (2.7)
	1984	16.5 (0.8)	13.6 (0.6)	23.1 (0.7)	46.7 (1.3)

Note: No statistically significant difference between years, where $\alpha = .05$. Jackknifed standard errors are presented in parentheses.

Summary

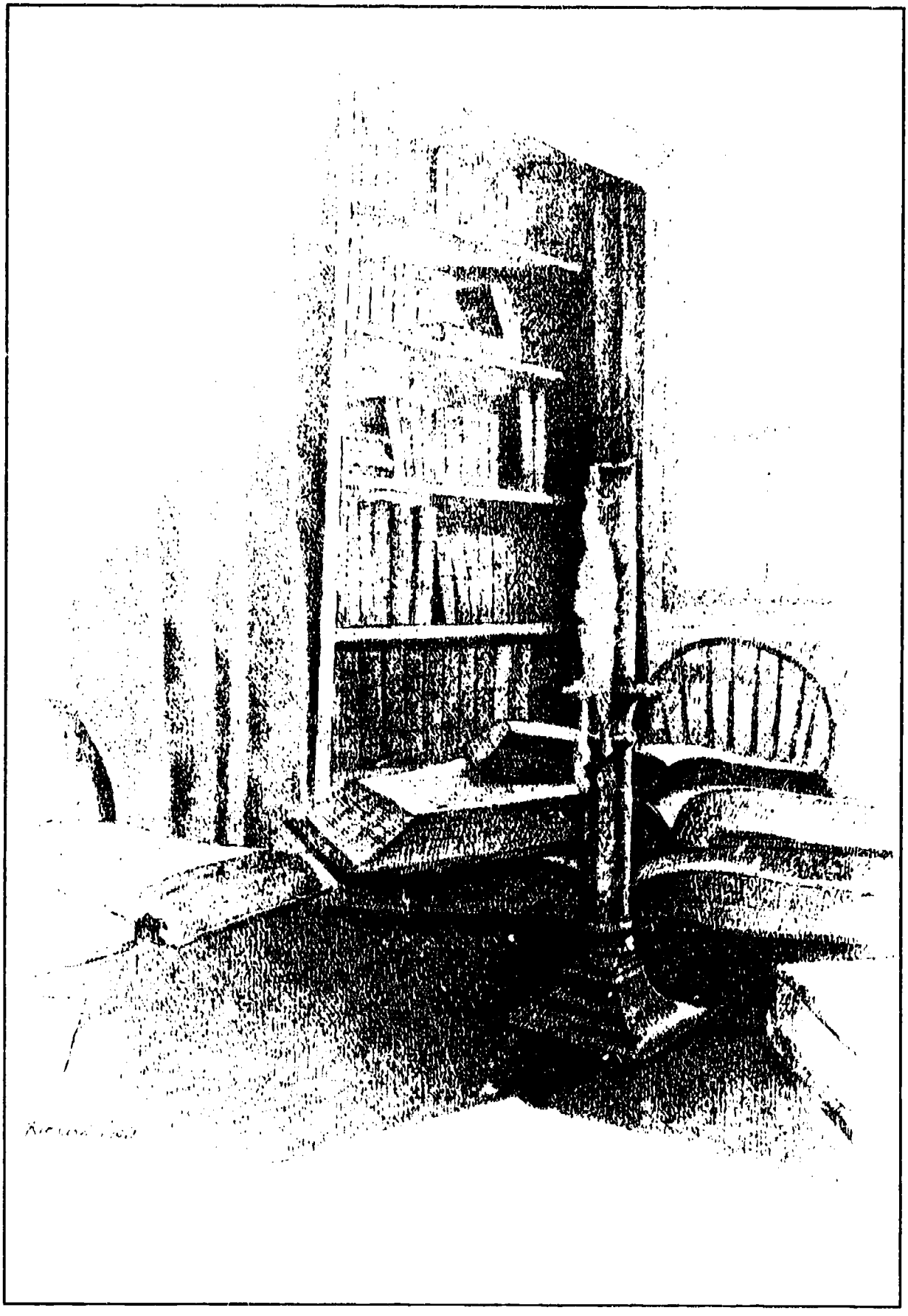
The data on students' reading activities and experiences, both at school and at home, present a complex picture. Across the age groups, students were more likely in 1988 than their same-age peers had been in 1984 to report reading in a variety of subject areas across the curriculum, including the language arts and science. This may reflect increased reading homework, or more emphasis on reading in various subjects, or both. It also appeared that students were slightly less likely to have access to a variety of reading materials in the home, although the amount of reading done by the individuals with whom students lived did not change across time.

In 1988, students at all ages seemed to be spending more time on homework than had students participating in the two previous NAEP assessments. The most notable increases in homework were evident at ages 13 and 17, where the percent of students reporting that they had no homework dropped off sharply between 1980 and 1988. As in previous NAEP assessments in reading and other subject areas, positive relationships were evident between students' proficiency and the amount of time spent on homework.

Although there were few apparent changes across time in the percentage of 9- and 13-year-olds who were reading books, newspapers, and magazines, 17-year-olds assessed in 1988 were significantly more likely to be frequent readers of these materials than were their peers assessed in 1971. Although cause-and-effect relationships cannot be determined from the NAEP data, students of all ages who read books, newspapers, and magazines most often also displayed the highest reading proficiency.

There were no changes across time in the percentage of students who read for fun, and in both 1984 and 1988, approximately one-tenth of the students in each age group reported that they never read for pleasure on their own. Similarly, from 10 to 18 percent of the students at ages 9, 13, and 17 stated that they never or rarely engaged in such reading-related activities as telling a friend about a good book, taking books out of the library, spending their own money on books, or reading more than one book by an author they like.

It is encouraging to find that reading across the curriculum has increased with time and that 17-year-olds are reading more materials such as newspapers, books, and magazines. But the larger indications suggest that reading is not a frequent or highly valued activity for many students. Some advances appear to have been made across the years in improving students' enjoyment of reading and their engagement in diverse reading activities. But until our students are exposed — through schools, individuals at home, and their own initiative — to more varied and intensive reading experiences, from the earliest grades, the reading proficiency of American students is unlikely to change dramatically for the better.



A Description of the NAEP Reading Trend Assessments

An Introduction to The Nation's Report Card

THE NATION'S REPORT CARD, the National Assessment of Educational Progress (NAEP), is an ongoing, congressionally-mandated project established in 1969 to obtain comprehensive and dependable data on the educational achievement of American students. From its inception until 1980, NAEP conducted annual assessments of 9-, 13-, and 17-year-olds attending public and private schools, and it has carried out biennial assessments since then. It remains the only regularly conducted educational survey at the elementary-, middle-, and high-school levels. To date, more than 1.3 million young Americans have participated in the NAEP assessments.

Across the years, The Nation's Report Card has evaluated students' proficiencies in reading, writing, mathematics, science, and social studies, as well as literature, art, music, citizenship, computer competence, and career and occupational development. Several of these subjects have been assessed multiple times, permitting an analysis of trends in student achievement. In the 1987-88 school year, writing, civics, U.S. history, and geography were assessed, in addition to reading.

NAEP assessments are developed through a broad-based consensus process involving educators, scholars, and citizens representative of many diverse constituencies and points of view. Panels of experts developed the 1988 assessment objectives, proposing goals they felt students should achieve in the course of their education.[12] After extensive reviews, the objectives were given to item writers who developed assessment questions to fit the specifications set forth in the objectives. A limited set of subject area background questions was also prepared, in addition to the general background and cognitive questions, to provide a basis for examining policy-relevant issues. The subject-specific questions

[12] Educational Testing Service, *Reading: Objectives: 1986 and 1988 Assessments* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1987).

asked students for information on the kinds of reading instruction they had received, as well as on their education-related activities, attitudes, and resources.

All items for the 1988 assessment — cognitive and background alike — underwent intensive reviews by subject-matter and measurement specialists and by sensitivity reviewers whose purpose is to eliminate any potential bias or lack of sensitivity to particular groups. The passages and items were then field-tested, revised, and administered to a stratified, multi-stage probability sample selected so that the assessment results could be generalized to the entire national population.

Following each assessment, the results are published in reports that describe patterns and trends in achievement in given subject areas. The NAEP reports are widely disseminated to legislators, educators, and others concerned with improving education in this country.

The Nation's Report Card is supported by the U.S. Department of Education, Office for Educational Research and Improvement, and directed by the National Center for Education Statistics (NCES). Educational Testing Service has been the grantee for the project since 1983. Earlier assessments were conducted by the Education Commission of the States. NAEP is governed by the National Assessment Governing Board, an independent, legislatively-defined board.

The 1988 Reading Trend Assessment

This report summarizes trends in the reading performance of American students at ages 9, 13, and 17 based on five national reading assessments conducted during the school years ending in 1971, 1975, 1980, 1984, and 1988.

NAEP also conducted a reading assessment in 1986. However, when they were first produced, the NAEP 1986 estimates of the reading proficiency of students in American schools appeared anomalous. Thus, the 1986 reading trend results were not disseminated to the general public. Concern about these apparently anomalous results prompted a thorough investigation of the NAEP technology by the ETS/NAEP staff, which was reported in *NAEP 1985-86 Reading Anomaly: A Technical Report,* and by an independent technical review panel convened by NCES, whose findings were summarized in *Report of the NAEP Technical Review Panel on the 1986 Reading Anomaly, the Accuracy of NAEP Trends, and Issues Raised by State-Level NAEP Comparisons.*

As part of the 1988 assessment, NAEP conducted a study to provide further information about the 1986 reading anomaly. The analyses of the data collected in the study revealed some, but not all, of the reasons for the unusual assessment results in 1986 and permitted adjustments to those results. The adjusted results are much more believable than the initial proficiency estimates, but a slight decline remains for all three age groups in 1986. Thus, it still seems prudent to regard the results as not fully comparable with the 1984 and 1988 reading results. For these reasons, the 1986 reading proficiency data are not reported herein. However, discussions of the study, the results, and methodological advancements discovered in the process are contained in *Disentangling the NAEP 1985-86 Reading Anomaly: A Technical Report.*[13]

In each of the five reading trend assessments discussed herein, 9-year-olds were assessed in the winter (January to February), 13-year-olds were assessed in the fall (October to December), and 17-year-olds were assessed in the spring (March to May). The birth date ranges for students participating

[13] Educational Testing Service, *Disentangling the NAEP 1985-86 Reading Anomaly: A Technical Report* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1989).

TABLE A.1 | Student Birth Date Ranges

THE NATION'S REPORT CARD

Assessment	Age 9	Age 13	Age 17
1971	1961	1957	10/53 – 9/54
1975	1965	1961	10/57 – 10/58
1980	1970	1966	10/62 – 10/63
1984	1974	1970	10/66 – 9/67
1988	1978	1974	10/70 – 9/71

in each assessment are presented in TABLE A.1.

In 1983, NAEP began sampling students by grade as well as by age. A second reading report, to be released in 1990, will present results from a 1988 assessment of students in grades 4, 8, and 12.

Content of the Reading Trend Assessments

Six booklets were administered in the 1988 reading trend assessment, each containing a different combination of reading and writing tasks. These six booklets were identical to a subset of the booklets administered in the 1984 reading assessment and used as the basis for reporting the results from that assessment.[14] A set of reading passages and items was kept constant from assessment to assessment to permit an analysis of changes in reading proficiency across time. Thus, the 1988 trend assessment consisted of 99 items at age 9; 99 items at age 13; and 87 items at age 17.

The reading tasks included in the trend assessment asked students to read and answer questions based on a variety of materials, including informational passages, literary text, and documents. Most questions were multiple-choice and were designed to assess students' ability to locate specific information, make inferences based on information in two or more parts of a passage, or identify the main idea in a passage. For the most part, these questions measured students' ability to read either for specific information or for general understanding.

Sampling, Data Collection, and Scoring

Sampling and data collection activities for the 1988 NAEP assessment were conducted by Westat, Inc. As with all NAEP assessments, the reading trend assessments were based on a deeply stratified, three-stage sampling design. The first stage entails defining primary sampling units (PSUs), which are typically groups of contiguous counties, but sometimes a single county; 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. Some students sampled (fewer than 5 per-

[14] Educational Testing Service, *The Reading Report Card: Progress Toward Excellence in Our Schools* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1986).

cent) are excluded because of limited English proficiency or severe handicap. In 1984, NAEP began collecting descriptive information on excluded students.

At each age level, two samples of students, subsequently referred to as the "bridge" and "main" samples, were assessed in reading in 1988. The 1988 bridge sample assessment was administered in a way that permitted linking the results to the 1984 main reading assessment results. Thus, students in the 1988 bridge samples were the same age as students assessed in 1984 and were administered a subset of the same reading assessment materials at the same time of year and using the same methods as in 1984. Their results are the basis for this report. In contrast, students in the 1988 main reading samples were selected by new age definitions and were administered new reading items at a different time of year than in 1984. As previously noted, the results from this assessment will be published in 1990 in a second reading report.

TABLES A.2, A.3, and A.4 present the student and school sample sizes and the school cooperation and response rates for each of the reading trend assessments conducted from 1971 to 1988, which provided the basis for this report.

TABLE A.2 | Student Sample Sizes

THE NATION'S REPORT CARD

	1971	1975	1980	1984	1988
Age 9	23,201	21,697	21,159	22,291	3,782
Age 13	25,545	21,393	22,330	22,693	4,005
Age 17	23,661	19,624	18,103	25,193	3,652
Total	72,407	62,714	61,592	70,177	11,439

TABLE A.3 | School Sample Sizes

THE NATION'S REPORT CARD

	1971	1975	1980	1984	1988
Age 9	1,007	1,003	560	683	154
Age 13	1,020	972	534	549	173
Age 17	631	830	412	345	114
Total	2,658	2,805	1,506	1,577	441

Note: The 1971, 1975, and 1980 figures were obtained from the corresponding **Public Use Data Tape User Guides.** The 1984 and 1988 figures were obtained from the corresponding **Reports on NAEP Field Operation and Data Collection Activities,** prepared by Westat, Inc. The decreased sample sizes in 1988 reflect NAEP's new procedure of using special bridge samples to measure trends, in which previous assessment methods are replicated with meticulous care. Although many more schools and students participated in the full 1988 assessment of reading, writing, U.S. history, civics, and geography, the figures above are for the reading bridge samples upon which this report is based.

TABLE A.4 School and Student Cooperation

THE NATION'S REPORT CARD

	Age	Percentage of Schools Participating	Percentage of 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
1988	9	87.2	92.3
	13	92.7	88.2
	17	78.1	77.4

Note: The 1971, 1975 and 1980 figures were obtained from the corresponding **Public Use Data Tape User Guides.** The 1984 and 1988 figures were obtained from the corresponding **Reports on NAEP Field Operation and Data Collection Activities**, prepared by Westat, Inc. The 1988 figures are for the bridge samples. Although sampled schools that refused to participate were replaced, school cooperation rates are computed based on the schools originally selected for participation in the assessments. The student completion rates represent the percentage of students assessed of those invited to be assessed, including in follow-up sessions when necessary.

The students sampled to participate from each school were assembled for an assessment session that lasted approximately one hour. Each student received a booklet containing a set of general background questions and three blocks of cognitive items.

Since 1984, NAEP has used a powerful variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling to govern the method by which most of the assessment materials are assembled and distributed. The "balanced incomplete block" part of the design assigns blocks of items to booklets in such a way that each block appears in the same number of bookiets and each pair of blocks appears together in at least one booklet. The "spiralling" part of the method cycles the booklets for administration so that typically only a few students in any assessment session receive the same booklet. The 1988 reading trend assessment followed a partial BIB design, meaning that certain booklets containing reading items were selected from the 1984 BIB spiral assessment. Thus, some blocks of reading items appeared in more than one booklet, while others appeared in only one booklet.

Following the session, the assessment administrators sent completed materials back to ETS for processing. Open-ended reading items were professionally scored by trained staff using guidelines that focused on readers' understanding of the information presented and their ability to use that information in conjunction with their own knowledge to elaborate on what they had read. The booklets were then scanned and this information was transcribed to the NAEP data base. All data collection and processing activities were conducted with rigorous quality control procedures.

Analysis and IRT Scaling

After the NAEP reading data were scored, they were weighted in accordance with the population structure. The weighting reflects the probability of selection of each student, adjusts for nonresponse, and, through poststratification, assures that the representation of certain subpopulations corresponds to figures from the Census and the Current Population Survey. (*The NAEP 1987-88 Technical Report* will provide further details on weighting and its effects on proficiency estimates.)

The percentages of students giving various responses were computed and, based on Item Response Theory (IRT) technology, used to estimate average reading proficiency for the nation and various subpopulations and to calculate the percentages of students across the nation who were performing at successive levels of reading proficiency. The average proficiency data presented in this report differ slightly from the results presented in the 1984 reading report for two reasons. First, the conditioning involved in scale construction was redone and new reading scale values were created. Second, the 1984 weights for the age 9 and 13 student samples were adjusted.

The main purpose of IRT analysis is to provide a common scale on which performance can be compared across groups and subgroups, whether they are tested at the same time or a number of years apart. It allows NAEP to estimate performance for any group or subgroup even when all respondents do not respond to all items in the NAEP pool. Students at ages 9, 13, and 17 were placed on the same proficiency scale to provide for comparisons across ages as well as across subpopulations.

IRT defines the probability of answering an item correctly as a mathematical function of proficiency or skill. NAEP's statistics describing national and subgroup proficiency are estimates of the 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 cognitive and background items.[15]

Scale Anchoring

One of NAEP's major goals has always been to describe what students know and can do and encourage debate about whether those levels of performance are satisfactory. An additional benefit of IRT methodology is that it provides for a performance-anchored 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 materials and tasks that most stu-

[15] For theoretical justification of the procedures employed, see Robert J. Mislevy, ETS Research Report #88-54-ONR, *Randomization-based Inferences about Latent Variables from Complex Samples* (Princeton, NJ: Educational Testing Service, 1988). For computational details, see *Expanding the New Design: NAEP 1985-86 Technical Report* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1988).

dents attaining that proficiency level would be able to read and perform successfully, and each is exemplified by typical benchmark passages and items (see Chapter 2). The estimated percentages of students in each age group and each subgroup who performed at or above the five chosen proficiency levels are analyzed and reported.

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 success 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 passages and item types to characterize each proficiency level. The descriptions, item sets, and pertinent data were subsequently reviewed by reading researchers, and the descriptions were revised in accordance with their recommendations.

Estimating Variability in Proficiency Measures

Since the statistics presented in this report are estimates of population and subpopulation characteristics, rather than the actual (unknown) values of those characteristics, it is important to have measures of the degree of uncertainty of the estimates. Two components of uncertainty are accounted for in statistics based on the NAEP data: (1) uncertainty due to sampling variability, and (2) uncertainty arising because scale scores for each respondent are based on a relatively small number of cognitive items.

The sampling variance provides a measure of the dependence of the results on the particular sample achieved. Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. To account for the characteristics of its complex sample design, NAEP uses a jackknife replication procedure to estimate sampling variability. Briefly, the jackknife procedure estimates the sampling variance of a statistic by repeatedly altering the sample in a controlled manner and recomputing the statistic based on the altered sample.[16] The jackknife variance estimate is based on the variability of the statistics from the altered samples. The square root of the jackknife variance estimate of a statistic is the sampling standard error of that statistic. This standard error includes all possible nonsystematic error associated with administering specific items to designated students in controlled situations.

The jackknifed standard error provides a reasonable measure of uncertainty for any statistic based on values observed without error. Population scores for cognitive items meet this requirement, but scale-score proficiency values do not. Because each student typically responds to relatively few items, there exists a nontrivial amount of imprecision in the measurement of the proficiency values for any given student. This imprecision adds an additional component of variability to statistics based on scale-score proficiency values. This component is estimated by assessing the dependence of the value of the statistic on the particular set of student level estimated proficiencies used in its computation. The measure of the overall variability of a statistic based on scale scores is the sum of the component due to imprecision of

[16] For further details, see Eugene G. Johnson, "Considerations and Techniques for the Analysis of NAEP Data," *Journal of Educational Statistics* (December 1989).

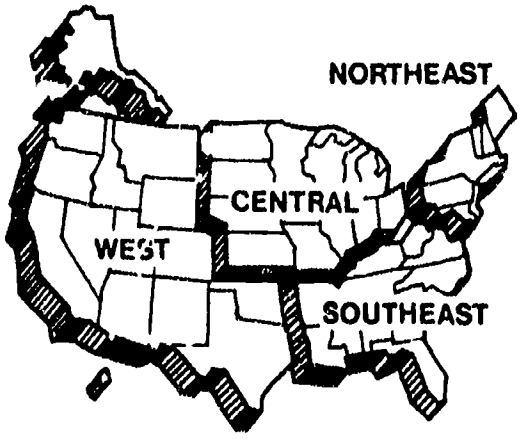
measurement and the jackknife sampling variance, and the standard error of the statistic is the square root of this sum. The estimated population mean ± 2 standard errors represents an approximate 95 percent confidence interval. It can be said with about 95 percent certainty that the average performance of the population of interest is within this interval.[17]

NAEP Reporting Groups

NAEP reports performance for the nation and for groups of students defined by shared characteristics. In addition to national results, this report contains information about subgroups defined by region of the country, gender, and race/ethnicity. The following section defines these and other subpopulations referred to in this report.

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.



Gender

Results are reported for males and females.

Race/Ethnicity

Trend results are presented for Black, White, and Hispanic students, based on observed racial/ethnic identity according to the following categories: White, Black, Hispanic, Asian or Pacific Islander, American Indian or Alaskan Native, and Other. Sample sizes for the additional racial/ethnic subgroups were insufficient to permit separate reliable estimates, but all students were included in computing the national estimates of average reading performance.

Additional Background Factors

In addition to gathering information on students' gender, race/ethnicity, and the region in which they live, NAEP collects data from all students on a number of background questions, including the number and types of reading materials in the home, the highest level of parents' education, and the amount of time spent on homework. Students participating in the reading assessments were also asked a series of background questions specific to their reading instruction, attitudes, and experiences. To report students' responses to these questions in a useful way, NAEP has developed composite variables by analyzing students' responses to certain sets of the background questions. Chapter Three of this report presents the results for four composite variables summarizing the extent of reading in the home; the availability of reading materials in the home; the extent to which students' read newspapers, books, and magazines; and their engagement in reading-related activities.

[17] For a complete description of NAEP variance estimation, see *Expanding the New Design: The NAEP 1985-86 Technical Report* (Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress, 1988).

DATA APPENDIX

THE FOLLOWING DATA TABLES supplement the information presented in this report. The appendix is organized by age level; thus, the first section provides data on average reading proficiency, standard deviations, percentile distributions, and levels of reading proficiency for students at age 9, and the second and third sections present these data for students at ages 13 and 17.

AGE 9

General reading proficiency means and standard errors

	1971	1975	1980	1984	1988 (1)
TOTAL	207.3 (1.0)*	210.2 (0.7)	214.8 (1.1)	211.0 (1.0)	211.8 (1.2)
SEX					
MALE	200.9 (1.1)*	204.4 (0.8)	209.7 (1.3)	207.7 (1.1)	207.5 (1.5)
FEMALE	213.7 (1.1)	215.9 (0.8)	220.0 (1.1)	214.2 (1.0)	216.3 (1.4)
OBSERVED ETHNICITY/RACE					
WHITE (2)	213.8 (1.0)	216.6 (0.7)	221.3 (0.9)	218.3 (0.8)	217.7 (1.5)
BLACK	170.0 (1.6)*	181.3 (1.1)	189.2 (1.6)	185.7 (1.2)	188.5 (2.6)
HISPANIC	—	182.8 (2.3)	189.5 (3.3)	187.2 (1.6)!	193.7 (3.9)
REGION					
NORTHEAST	213.0 (1.7)	214.8 (1.4)	220.9 (2.5)	215.9 (2.0)	215.2 (2.8)
SOUTHEAST	194.3 (2.8)*	201.2 (1.1)	210.2 (2.3)	204.3 (2.2)	207.2 (2.3)
CENTRAL	214.4 (1.4)	215.5 (1.1)	216.5 (1.2)	215.6 (1.6)	218.2 (2.5)
WEST	204.6 (1.8)	207.1 (2.0)	212.4 (2.2)	209.1 (2.0)	207.9 (2.8)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	188.4 (1.3)	190.0 (1.2)	193.9 (1.6)	195.1 (1.5)	192.5 (5.3)
GRADUATED H.S.	207.7 (1.1)	211.3 (0.9)	212.7 (1.3)	208.9 (1.2)	210.8 (2.0)
POST H.S.	223.7 (1.3)	221.6 (0.9)	225.9 (1.2)*	222.9 (1.1)	220.0 (1.6)
READING MATERIALS IN THE HOME					
0 - 2 ITEMS	185.2 (1.0)*	193.9 (0.9)	197.7 (1.4)	196.4 (0.9)	198.5 (2.1)
3 ITEMS	207.9 (1.0)*	212.2 (0.7)	216.6 (1.0)	216.6 (0.9)	214.8 (1.5)
4 ITEMS	222.8 (0.9)	225.0 (0.8)	227.9 (1.0)	227.1 (1.0)	223.0 (1.7)
TELEVISION WATCHED PER DAY					
0 - 2 HOURS	—	—	219.9 (1.1)	219.3 (1.3)	217.0 (1.7)
3 - 5 HOURS	—	—	222.3 (0.7)	218.3 (0.9)	218.2 (1.6)
6 HOURS OR MORE	—	—	211.0 (0.8)*	198.9 (1.0)	198.1 (1.6)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 9

Percentage of 9-year-old students with reading proficiency at or above Rudimentary (150)

	1971	1975	1980	1984	1988 (1)
TOTAL	90.5 (0.5)*	93.2 (0.3)	94.6 (0.4)	92.5 (0.4)	93.0 (0.6)
SEX					
MALE	87.5 (0.6)*	91.1 (0.5)	92.9 (0.5)	90.5 (0.5)	91.0 (0.8)
FEMALE	93.4 (0.4)	95.4 (0.3)	96.4 (0.3)	94.5 (0.4)	95.0 (0.5)
OBSERVED ETHNICITY/RACE					
WHITE (2)	94.0 (0.4)	96.0 (0.3)	97.2 (0.2)*	95.4 (0.3)	94.9 (0.6)
BLACK	69.6 (1.6)*	81.1 (1.1)	84.7 (1.2)	82.0 (0.8)	85.6 (1.5)
HISPANIC	—	80.5 (2.2)	83.5 (1.6)	82.4 (1.4)!	86.1 (2.4)
REGION					
NORTHEAST	93.2 (0.9)	93.8 (0.5)	96.4 (0.6)*	94.3 (0.6)	92.1 (1.1)
SOUTHEAST	83.3 (1.7)*	90.0 (0.7)	93.2 (0.8)	90.3 (0.8)	92.7 (1.0)
CENTRAL	93.2 (0.5)*	95.6 (0.5)	95.6 (0.6)	94.3 (0.6)	95.1 (0.4)
WEST	90.8 (1.0)	92.9 (0.9)	93.5 (0.9)	91.2 (1.1)	92.2 (1.3)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	81.6 (1.0)	85.0 (1.0)	85.0 (1.2)	86.6 (1.1)	85.7 (4.0)
GRADUATED H.S.	92.0 (0.7)	94.4 (0.4)	94.8 (0.7)	93.1 (0.6)	93.0 (1.1)
POST H.S.	96.0 (0.4)	96.3 (0.3)	97.4 (0.3)	95.7 (0.4)	95.5 (0.7)

Percentage of 9-year-old students with reading proficiency at or above Basic (200)

	1971	1975	1980	1984	1988 (1)
TOTAL	58.2 (0.9)*	62.2 (0.8)	67.6 (0.9)*	61.9 (1.0)	62.5 (1.2)
SEX					
MALE	52.0 (1.0)*	56.3 (0.9)	62.2 (1.1)	58.6 (1.0)	58.1 (1.6)
FEMALE	64.3 (1.1)	68.2 (0.8)	72.9 (0.9)*	65.2 (1.1)	66.9 (1.3)
OBSERVED ETHNICITY/RACE					
WHITE (2)	64.4 (0.9)	68.8 (0.8)	74.3 (0.7)*	69.1 (0.8)	68.3 (1.6)
BLACK	21.9 (1.4)*	33.2 (1.1)	40.8 (1.6)	35.7 (1.2)	39.2 (2.4)
HISPANIC	—	35.9 (2.7)	40.9 (2.6)	39.9 (1.6)!	46.9 (3.2)
REGION					
NORTHEAST	63.7 (1.6)	66.7 (1.4)	73.5 (2.2)	66.7 (1.7)	65.9 (2.3)
SOUTHEAST	46.1 (2.8)*	53.8 (1.2)	62.4 (2.2)	55.2 (2.1)	57.5 (2.5)
CENTRAL	64.7 (1.3)	67.6 (1.2)	69.5 (1.1)	66.1 (1.6)	69.0 (1.5)
WEST	55.1 (1.8)	59.0 (2.1)	65.5 (1.6)	60.3 (2.1)	58.9 (3.4)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	37.8 (1.4)	41.5 (1.4)	47.1 (1.5)	47.8 (1.9)	47.7 (6.2)
GRADUATED H.S.	59.8 (1.3)	64.6 (0.8)	66.5 (1.3)	59.8 (1.1)	59.9 (2.8)
POST H.S.	73.7 (0.9)	73.1 (1.0)	77.7 (1.0)*	72.6 (1.1)	70.3 (1.3)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 9

Percentage of 9-year-old students with reading proficiency at or above Intermediate (250)

	1971	1975	1980	1984	1988 (1)
TOTAL	15.3 (0.5)	14.6 (0.5)	17.2 (0.8)	17.0 (0.6)	17.0 (0.9)
SEX					
MALE	11.8 (0.5)*	11.3 (0.5)*	14.1 (0.8)	15.8 (0.7)	15.7 (1.2)
FEMALE	18.7 (0.7)	17.9 (0.6)	20.2 (0.9)	18.1 (0.7)	18.4 (1.0)
OBSERVED ETHNICITY/RACE					
WHITE (2)	17.7 (0.6)	17.6 (0.5)	20.5 (0.8)	20.8 (0.7)	19.7 (1.2)
BLACK	2.1 (0.3)*	1.9 (0.2)*	3.6 (0.5)	4.2 (0.5)	5.9 (0.8)
HISPANIC	—	2.2 (0.5)*	4.4 (1.0)	3.8 (0.4)!	8.2 (1.9)
REGION					
NORTHEAST	17.9 (0.8)	17.4 (1.0)	20.9 (2.3)	19.3 (1.4)	19.7 (1.5)
SOUTHEAST	9.8 (1.1)*	10.2 (0.7)*	15.1 (1.2)	13.7 (1.2)	14.1 (1.1)
CENTRAL	19.5 (0.7)	17.0 (0.8)	18.1 (0.8)	19.0 (1.4)	20.8 (3.1)
WEST	12.2 (1.3)	12.6 (1.2)	15.1 (1.4)	16.2 (1.1)	14.3 (0.9)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	6.5 (0.6)	5.5 (0.6)	6.6 (0.7)	7.1 (0.6)	6.4 (1.7)
GRADUATED H.S.	13.1 (0.8)	13.8 (0.6)	14.2 (0.9)	14.1 (0.7)	16.7 (1.6)
POST H.S.	25.9 (0.9)	22.2 (0.7)	25.0 (1.0)	26.0 (0.9)	22.6 (1.4)

Percentage of 9-year-old students with reading proficiency at or above Adept (300)

	1971	1975	1980	1984	1988 (1)
TOTAL	1.0 (0.1)	0.5 (0.1)*	0.6 (0.1)*	1.0 (0.1)	1.2 (0.2)
SEX					
MALE	0.8 (0.1)	0.3 (0.1)	0.4 (0.1)	0.8 (0.1)	0.6 (0.2)
FEMALE	1.3 (0.2)	0.8 (0.1)	0.7 (0.1)*	1.1 (0.1)	1.7 (0.3)
OBSERVED ETHNICITY/RACE					
WHITE (2)	1.2 (0.1)	0.6 (0.1)*	0.7 (0.1)*	1.2 (0.1)	1.4 (0.2)
BLACK	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.1 (0.1)
HISPANIC	—	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)!	0.0 (0.0)
REGION					
NORTHEAST	1.3 (0.3)	0.7 (0.1)	0.5 (0.1)	1.6 (0.3)	1.5 (0.4)
SOUTHEAST	0.6 (0.1)	0.1 (0.0)	0.8 (0.2)	0.4 (0.1)	0.8 (0.3)
CENTRAL	1.3 (0.2)	0.7 (0.1)	0.4 (0.1)	1.1 (0.2)	1.1 (0.4)
WEST	0.7 (0.2)	0.5 (0.2)	0.5 (0.1)	0.8 (0.2)	1.2 (0.4)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	0.3 (0.1)	0.1 (0.1)	0.0 (0.0)	0.0 (0.5)	0.0 (0.0)
GRADUATED H.S.	0.7 (0.1)	0.5 (0.1)	0.3 (0.1)	0.5 (0.1)	0.5 (0.4)
POST H.S.	2.1 (0.2)	1.0 (0.1)	1.1 (0.1)	2.0 (0.2)	2.0 (0.4)

NOTE: VIRTUALLY NO 9-YEAR-OLDS DEMONSTRATED READING PROFICIENCY AT LEVEL 350

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 9

Reading Proficiency Means, Standard Deviations, and Percentile Distributions with Standard Errors

		1971	1975	1980	1984	1988
TOTAL						
Mean		207.3 (1.0)	210.2 (0.7)	214.8 (1.1)	211.0 (1.0)	211.8 (1.2)
Standard Deviation		42.0 (0.4)	38.5 (0.3)	38.0 (0.4)	41.1 (0.4)	41.2 (1.0)
Percentiles	5	135.7 (1.5)	144.3 (0.8)	149.2 (1.4)	141.3 (1.1)	142.0 (3.6)
	10	152.1 (1.6)	159.8 (0.9)	165.4 (1.4)	157.2 (1.1)	156.8 (2.0)
	25	180.0 (1.4)	185.4 (1.1)	191.1 (1.3)	183.9 (1.1)	184.3 (1.7)
	50	209.2 (1.0)	212.1 (0.8)	217.2 (1.0)	212.7 (1.0)	213.7 (1.4)
	75	236.6 (1.1)	236.6 (0.9)	241.3 (1.1)	239.7 (0.9)	240.1 (1.3)
	90	260.3 (0.9)	258.1 (0.7)	261.6 (1.3)	262.9 (0.9)	263.0 (1.7)
	95	273.9 (0.9)	270.7 (1.1)	273.1 (1.6)	276.5 (1.4)	277.5 (1.9)
MALE						
Mean		200.9 (1.1)	204.4 (0.8)	209.7 (1.3)	207.7 (1.1)	207.5 (1.5)
Standard Deviation		42.1 (0.5)	38.9 (0.4)	38.7 (0.5)	42.3 (0.5)	42.7 (1.1)
Percentiles	5	129.1 (1.9)	137.0 (1.2)	141.8 (1.9)	136.5 (1.2)	136.6 (2.9)
	10	145.0 (1.6)	152.8 (1.3)	158.4 (1.6)	151.4 (1.4)	151.1 (2.3)
	25	173.4 (1.3)	179.1 (1.0)	185.1 (1.5)	178.7 (1.2)	178.4 (1.7)
	50	202.5 (1.2)	206.1 (1.0)	212.3 (1.1)	209.2 (1.3)	209.8 (1.8)
	75	230.1 (1.1)	231.5 (1.0)	236.9 (1.1)	237.8 (1.1)	237.1 (1.7)
	90	254.3 (1.2)	253.0 (1.1)	257.3 (1.0)	261.1 (1.1)	260.4 (2.0)
	95	268.2 (1.4)	265.4 (1.3)	268.4 (1.1)	275.1 (1.1)	275.1 (2.3)
FEMALE						
Mean		213.7 (1.1)	215.9 (0.8)	220.0 (1.1)	214.2 (1.0)	216.3 (1.4)
Standard Deviation		41.0 (0.5)	37.3 (0.4)	36.5 (0.5)	39.6 (0.5)	39.2 (1.1)
Percentiles	5	143.2 (1.8)	151.7 (1.5)	157.4 (1.4)	147.0 (2.1)	149.4 (5.2)
	10	159.7 (1.2)	167.3 (1.0)	172.6 (1.6)	163.2 (1.5)	164.4 (4.8)
	25	186.7 (1.2)	192.1 (0.9)	197.2 (1.2)	188.8 (1.1)	190.6 (2.4)
	50	215.5 (1.3)	217.3 (0.9)	221.7 (1.1)	215.8 (1.0)	217.5 (1.9)
	75	242.3 (1.2)	241.1 (0.9)	245.1 (1.0)	241.6 (1.0)	242.6 (1.0)
	90	264.8 (0.8)	262.4 (1.0)	265.4 (1.6)	264.4 (1.3)	265.3 (2.1)
	95	278.4 (1.3)	274.8 (1.2)	276.8 (1.5)	277.8 (2.0)	279.2 (3.3)
WHITE						
Mean		213.8 (1.0)	216.6 (0.7)	221.3 (0.9)	218.3 (0.8)	217.7 (1.5)
Standard Deviation		39.4 (0.4)	36.0 (0.3)	35.2 (0.3)	38.8 (0.3)	39.3 (1.0)
Percentiles	5	146.9 (1.5)	155.3 (1.2)	161.3 (1.4)	152.6 (1.4)	150.4 (3.4)
	10	162.7 (1.2)	170.3 (1.0)	175.7 (1.1)	167.5 (0.9)	165.1 (3.9)
	25	188.1 (1.2)	193.5 (0.7)	199.1 (0.9)	192.6 (1.0)	191.8 (2.4)
	50	215.1 (0.9)	218.0 (0.7)	222.9 (0.8)	219.6 (1.0)	219.1 (1.2)
	75	240.9 (0.9)	241.1 (0.9)	245.7 (0.9)	245.0 (0.9)	244.3 (1.8)
	90	263.4 (0.9)	261.7 (0.9)	265.0 (1.1)	267.2 (1.3)	266.8 (2.2)
	95	276.5 (1.0)	273.8 (1.3)	276.3 (1.2)	280.2 (1.3)	280.6 (2.5)
BLACK						
Mean		170.0 (1.6)	181.3 (1.1)	189.2 (1.6)	185.7 (1.2)	188.5 (2.6)
Standard Deviation		38.2 (0.7)	35.8 (0.6)	37.5 (0.9)	38.9 (0.9)	39.4 (1.5)
Percentiles	5	107.0 (2.2)	118.9 (2.2)	123.3 (4.2)	120.9 (2.2)	124.7 (6.3)
	10	120.1 (1.7)	133.9 (3.2)	139.6 (3.3)	135.2 (2.7)	138.3 (3.3)
	25	143.4 (2.4)	157.6 (2.1)	165.3 (1.8)	159.3 (1.8)	161.8 (2.8)
	50	170.8 (1.9)	182.8 (1.3)	191.4 (2.0)	186.6 (1.5)	188.3 (3.9)
	75	196.3 (1.9)	206.6 (1.1)	215.3 (1.7)	212.5 (1.6)	216.5 (2.8)
	90	218.8 (1.7)	226.3 (1.7)	235.1 (1.8)	235.3 (2.4)	238.2 (3.7)
	95	232.1 (1.8)	237.3 (2.2)	246.9 (1.5)	248.4 (1.9)	252.2 (4.3)
HISPANIC[1]						
Mean		—	182.8 (2.3)	189.5 (3.3)	187.2 (1.6)	193.7 (3.9)
Standard Deviation		—	36.8 (1.3)	38.4 (1.2)	39.2 (1.5)	41.5 (2.6)
Percentiles	5	—	120.6 (5.5)	122.7 (3.9)	120.3 (5.1)	121.9(10.8)
	10	—	133.7 (4.8)	137.3 (5.0)	134.8 (7.2)	140.3 (7.3)
	25	—	157.5 (2.7)	163.6 (4.4)	160.8 (2.4)	164.9 (5.0)
	50	—	184.2 (3.7)	191.5 (3.1)	189.2 (2.3)	196.0 (3.3)
	75	—	209.5 (2.8)	217.2 (2.6)	215.4 (2.2)	222.0 (6.0)
	90	—	228.5 (3.7)	237.2 (3.8)	236.2 (2.1)	246.7 (7.9)
	95	—	240.4 (3.1)	249.5 (4.4)	247.1 (2.0)	258.6(11.3)

[1] No data were available for Hispanic students in 1971. Jackknifed standard errors are presented in parentheses.

AGE 13

General reading proficiency means and standard errors

	1971	1975	1980	1984	1988 (1)
TOTAL	255.2 (0.9)	256.0 (0.8)	258.5 (0.9)	257.1 (0.7)	257.5 (0.9)
SEX					
MALE	249.5 (1.0)	249.6 (0.8)	254.3 (1.1)	252.7 (0.8)	251.8 (1.2)
FEMALE	260.9 (0.9)	262.4 (0.9)	262.7 (0.9)	261.7 (0.8)	263.0 (1.0)
OBSERVED ETHNICITY/RACE					
WHITE (2)	260.9 (0.8)	262.1 (0.7)	264.4 (0.6)	262.6 (0.6)	261.3 (1.0)
BLACK	222.7 (1.1)*	225.7 (1.2)*	232.4 (1.5)*	236.0 (1.2)*	242.9 (2.3)
HISPANIC	—	232.5 (3.4)	236.8 (2.1)	239.6 (1.6)!	240.1 (3.5)
REGION					
NORTHEAST	261.2 (2.0)	258.8 (1.8)	260.1 (1.8)	260.4 (0.7)	258.6 (2.0)
SOUTHEAST	245.0 (1.7)*	249.3 (1.5)*	252.7 (1.7)	256.4 (1.8)	257.6 (1.9)
CENTRAL	260.0 (1.9)	261.6 (1.4)	264.6 (1.5)*	258.7 (1.2)	255.9 (2.0)
WEST	253.5 (1.2)	253.1 (1.6)	256.3 (2.1)	253.9 (1.4)	257.9 (2.1)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	238.5 (1.1)*	238.6 (1.2)*	238.5 (1.3)*	240.1 (1.2)	246.5 (2.2)
GRADUATED H.S.	255.5 (0.8)	254.6 (0.7)	253.6 (0.8)	253.2 (0.8)	252.7 (1.2)
POST H.S.	270.2 (0.8)*	269.9 (0.8)*	270.9 (0.8)*	267.7 (0.7)	265.3 (1.4)
READING MATERIALS IN THE HOME					
0 - 2 ITEMS	226.6 (1.2)*	231.5 (1.2)*	235.8 (1.4)*	238.4 (1.0)	242.9 (1.8)
3 ITEMS	248.9 (0.9)*	249.7 (0.8)*	253.1 (1.1)	254.3 (0.7)	255.6 (1.0)
4 ITEMS	266.5 (0.7)	267.4 (0.7)	268.5 (0.7)*	66.1 (0.7)	264.2 (1.3)
TELEVISION WATCHED PER DAY					
0 - 2 HOURS	—	—	263.3 (0.9)	268.1 (0.8)	264.3 (1.4)
3 - 5 HOURS	—	—	257.1 (0.9)	261.6 (0.6)	258.7 (1.0)
6 HOURS OR MORE	—	—	243.2 (1.3)	244.2 (0.9)	245.5 (2.0)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 13

Percentage of 13-year-old students with reading proficiency at or above Rudimentary (150)

	1971	1975	1980	1984	1988 (1)
TOTAL	99.8 (0.0)	99.7 (0.0)	99.9 (0.0)	99.8 (0.0)	99.8 (0.1)
SEX					
MALE	99.7 (0.1)	99.6 (0.1)	99.8 (0.1)	99.7 (0.1)	99.6 (0.2)
FEMALE	99.9 (0.0)*	99.9 (0.0)*	99.9 (0.0)*	99.9 (0.0)	100.0 (0.0)
OBSERVED ETHNICITY/RACE					
WHITE (2)	99.9 (0.0)	99.9 (0.0)	100.0 (0.0)	99.9 (0.0)	99.9 (0.1)
BLACK	98.8 (0.2)*	98.4 (0.3)*	99.1 (0.2)	99.4 (0.1)	99.7 (0.2)
HISPANIC	—	99.6 (0.2)	99.8 (0.1)	99.5 (0.2)!	99.1 (0.6)
REGION					
NORTHEAST	99.9 (0.0)	99.9 (0.1)	99.9 (0.1)	99.9 (0.0)	99.8 (0.2)
SOUTHEAST	99.5 (0.1)*	99.6 (0.1)*	99.7 (0.1)*	99.8 (0.1)	100.0 (0.0)
CENTRAL	99.8 (0.1)	99.8 (0.1)*	99.9 (0.1)	99.9 (0.0)	100.0 (0.0)
WEST	99.9 (0.0)	99.7 (0.1)	99.9 (0.0)	99.5 (0.1)	99.5 (0.2)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	99.4 (0.2)*	99.4 (0.2)*	99.8 (0.1)	99.6 (0.2)	100.0 (0.0)
GRADUATED H.S.	99.9 (0.0)	99.7 (0.1)	99.9 (0.0)	99.8 (0.1)	99.9 (0.1)
POST H.S.	100.0 (0.0)	100.0 (0.0)	99.9 (0.0)	99.9 (0.0)	99.8 (0.1)

Percentage of 13-year-old students with reading proficiency at or above Basic (200)

	1971	1975	1980	1984	1988 (1)
TOTAL	92.8 (0.4)*	93.3 (0.4)*	94.9 (0.4)	94.1 (0.3)	95.1 (0.5)
SEX					
MALE	90.3 (0.6)*	91.0 (0.5)	93.4 (0.6)	92.5 (0.4)	93.5 (0.8)
FEMALE	95.3 (0.3)*	95.7 (0.4)	96.3 (0.3)	95.8 (0.3)	96.7 (0.4)
OBSERVED ETHNICITY/RACE					
WHITE (2)	96.0 (0.3)	96.4 (0.2)	97.2 (0.2)	96.3 (0.2)	96.6 (0.5)
BLACK	74.4 (1.4)*	77.4 (1.2)*	84.0 (1.5)*	85.5 (0.9)	90.7 (1.8)
HISPANIC	—	82.3 (2.2)	87.3 (1.8)	86.4 (1.1)!	86.3 (2.2)
REGION					
NORTHEAST	95.5 (0.7)	94.3 (0.6)	95.4 (0.8)	95.5 (0.3)	95.1 (1.1)
SOUTHEAST	86.6 (1.2)*	90.0 (1.0)*	92.3 (0.7)	93.0 (0.7)	95.6 (1.1)
CENTRAL	95.3 (0.7)	95.9 (0.3)	97.3 (0.5)	95.7 (0.4)	95.1 (1.0)
WEST	93.2 (0.7)	92.4 (1.0)	94.4 (1.0)	92.6 (0.9)	94.7 (0.8)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	86.6 (0.9)*	85.5 (1.0)*	88.1 (0.9)	88.2 (0.8)	92.1 (1.8)
GRADUATED H.S.	94.6 (0.4)	94.6 (0.4)	95.0 (0.5)	94.0 (0.4)	95.2 (0.8)
POST H.S.	98.1 (0.2)	98.0 (0.2)	98.3 (0.2)*	97.0 (0.2)	96.8 (0.5)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 13

Percentage of 13-year-old students with reading proficiency at or above Intermediate (250)

	1971	1975	1980	1984	1988 (1)
TOTAL	57.9 (1.1)	58.6 (1.0)	60.9 (1.0)	59.1 (0.7)	58.0 (1.1)
SEX					
MALE	51.8 (1.2)	51.5 (1.0)	56.1 (1.1)	53.9 (0.8)	51.3 (1.5)
FEMALE	64.0 (1.1)	65.7 (1.1)	65.6 (1.0)	64.1 (0.8)	64.6 (1.3)
OBSERVED ETHNICITY/RACE					
WHITE (2)	64.3 (0.9)	65.4 (0.8)	67.7 (0.7)*	65.5 (0.6)	63.3 (1.4)
BLACK	21.8 (1.0)*	25.6 (1.4)*	30.8 (1.4)*	34.4 (1.2)	39.2 (2.1)
HISPANIC	—	29.6 (3.8)	36.4 (2.1)	38.6 (1.8)!	34.9 (3.4)
REGION					
NORTHEAST	65.2 (2.2)	62.8 (2.0)	63.2 (2.0)	62.7 (0.6)	59.2 (2.4)
SOUTHEAST	46.2 (1.9)*	51.0 (1.7)	54.7 (1.9)	58.2 (2.0)	57.5 (3.2)
CENTRAL	63.2 (2.3)	64.6 (1.8)*	67.5 (1.7)*	60.6 (1.3)	57.0 (1.9)
WEST	56.0 (1.5)	54.6 (2.1)	58.0 (2.2)	55.6 (1.3)	58.4 (2.3)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	37.9 (1.4)	38.4 (1.6)	36.8 (1.5)	39.3 (1.4)	43.8 (3.0)
GRADUATED H.S.	59.1 (1.0)	57.1 (1.0)	55.3 (1.1)	55.2 (0.9)	54.3 (1.8)
POST H.S.	75.0 (0.8)*	74.5 (0.8)*	75.1 (0.8)*	70.8 (0.8)	66.4 (1.9)

Percentage of 13-year-old students with reading proficiency at or above Adept (300)

	1971	1975	1980	1984	1988 (1)
TOTAL	9.8 (0.5)	10.3 (0.4)	11.3 (0.4)	10.9 (0.4)	10.6 (0.7)
SEX					
MALE	7.3 (0.4)	7.0 (0.4)	9.1 (0.4)	8.9 (0.4)	8.2 (0.8)
FEMALE	12.2 (0.6)	13.6 (0.6)	13.5 (0.5)	13.1 (0.5)	13.0 (0.8)
OBSERVED ETHNICITY/RACE					
WHITE (2)	11.3 (0.5)	12.0 (0.5)	13.6 (0.5)	13.3 (0.5)	12.3 (0.8)
BLACK	0.9 (0.2)*	1.7 (0.3)	1.5 (0.2)*	2.1 (0.3)	4.0 (0.9)
HISPANIC	—	2.3 (0.8)	1.9 (0.4)	3.9 (0.4)!	3.1 (0.9)
REGION					
NORTHEAST	12.7 (1.1)	11.6 (1.2)	12.1 (0.9)	12.0 (0.5)	12.2 (1.6)
SOUTHEAST	6.4 (0.5)	7.9 (0.7)	9.0 (0.9)	11.6 (1.2)	9.9 (1.5)
CENTRAL	11.6 (1.0)	12.4 (0.9)*	14.2 (0.5)*	10.5 (0.5)	8.5 (1.1)
WEST	7.8 (0.7)	8.6 (0.6)	9.7 (0.8)	9.5 (0.9)	11.8 (1.3)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	3.0 (0.3)	3.1 (0.4)	2.4 (0.3)	3.2 (0.4)	5.9 (1.3)
GRADUATED H.S.	8.0 (0.5)	7.7 (0.4)	6.5 (0.3)	7.5 (0.4)	6.0 (0.7)
POST H.S.	16.8 (0.7)	17.3 (0.6)	18.1 (0.7)	16.8 (0.6)	15.4 (1.2)

NOTE: VIRTUALLY NO 13-YEAR-OLDS DEMONSTRATED READING PROFICIENCY AT LEVEL 350.

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 13

Reading Proficiency Means, Standard Deviations, and Percentile Distributions with Standard Errors

	1971	1975	1980	1984	1988
TOTAL					
Mean	255.2 (0.9)	256.0 (0.8)	258.5 (0.9)	257.1 (0.7)	257.5 (0.9)
Standard Deviation	35.7 (0.4)	35.9 (0.3)	34.8 (0.4)	35.5 (0.3)	34.7 (0.4)
Percentiles 5	193.9 (1.2)	194.4 (1.1)	200.2 (1.3)	197.3 (0.8)	199.7 (1.6)
10	208.5 (1.5)	209.1 (1.2)	213.3 (1.4)	210.6 (0.9)	213.0 (1.2)
25	232.6 (1.2)	233.1 (1.0)	235.6 (1.0)	234.0 (0.8)	234.3 (1.2)
50	257.1 (1.0)	257.8 (0.9)	259.7 (0.8)	258.3 (0.8)	257.9 (1.0)
75	280.0 (0.8)	280.7 (0.8)	282.9 (0.8)	281.6 (0.6)	281.4 (1.4)
90	299.6 (0.9)	300.5 (1.0)	302.4 (0.7)	301.7 (0.8)	301.6 (1.0)
95	310.9 (0.9)	311.8 (1.0)	314.0 (0.8)	313.7 (1.0)	313.7 (1.3)
MALE					
Mean	249.5 (1.0)	249.6 (0.8)	254.3 (1.1)	252.7 (0.8)	251.8 (1.2)
Standard Deviation	35.9 (0.5)	35.7 (0.4)	35.0 (0.5)	35.8 (0.4)	35.3 (0.6)
Percentiles 5	187.0 (1.7)	187.5 (1.0)	195.0 (1.8)	192.4 (0.9)	192.7 (2.7)
10	201.7 (1.7)	202.4 (1.4)	208.6 (1.4)	205.7 (1.2)	206.8 (1.6)
25	226.4 (1.2)	226.8 (1.1)	230.9 (1.2)	229.0 (1.0)	227.8 (2.0)
50	251.5 (0.8)	251.4 (0.9)	255.4 (1.0)	254.0 (0.9)	252.2 (2.1)
75	274.5 (0.8)	274.1 (0.8)	278.6 (1.3)	277.6 (0.9)	276.5 (2.0)
90	294.2 (1.1)	293.5 (0.9)	298.5 (1.1)	297.8 (0.9)	297.2 (1.5)
95	305.9 (1.3)	305.6 (1.7)	309.8 (0.8)	309.4 (1.2)	309.4 (2.8)
FEMALE					
Mean	260.9 (0.9)	262.4 (0.9)	262.7 (0.9)	261.7 (0.8)	263.0 (1.0)
Standard Deviation	34.5 (0.4)	34.9 (0.4)	34.2 (0.4)	34.5 (0.3)	33.1 (0.5)
Percentiles 5	201.2 (1.3)	202.5 (1.8)	204.4 (2.0)	203.5 (1.0)	207.4 (3.8)
10	215.4 (1.4)	216.1 (1.5)	218.1 (1.9)	217.2 (0.9)	221.1 (1.4)
25	238.7 (0.9)	239.8 (1.1)	240.1 (1.1)	239.2 (0.8)	240.1 (1.6)
50	262.5 (1.1)	264.2 (1.0)	263.6 (0.9)	262.8 (0.7)	263.0 (1.3)
75	285.1 (1.0)	286.6 (1.1)	286.4 (1.0)	285.4 (0.7)	285.8 (1.0)
90	303.8 (1.3)	305.5 (1.1)	305.7 (1.0)	305.5 (0.8)	305.2 (1.1)
95	314.6 (1.0)	316.1 (1.1)	317.4 (1.5)	317.5 (1.6)	317.7 (3.2)
WHITE					
Mean	260.9 (0.8)	262.1 (0.7)	264.4 (0.6)	262.6 (0.6)	261.3 (1.0)
Standard Deviation	32.9 (0.3)	33.0 (0.3)	32.7 (0.3)	33.8 (0.4)	33.9 (0.5)
Percentiles 5	205.5 (1.1)	206.8 (0.9)	209.8 (1.0)	205.4 (1.2)	204.2 (1.4)
10	218.4 (1.1)	219.5 (0.6)	222.2 (1.1)	218.6 (0.7)	217.2 (1.9)
25	239.7 (0.9)	240.8 (0.8)	243.0 (0.8)	240.7 (0.8)	238.4 (1.0)
50	262.1 (0.8)	263.2 (1.0)	265.2 (0.6)	263.5 (0.7)	262.2 (1.1)
75	283.6 (0.9)	284.6 (0.7)	287.0 (0.7)	285.7 (0.7)	285.1 (0.9)
90	302.3 (0.9)	303.5 (0.9)	305.7 (0.7)	305.1 (0.8)	304.2 (1.4)
95	313.1 (0.9)	314.4 (0.9)	316.9 (0.8)	316.9 (1.2)	315.8 (1.1)
BLACK					
Mean	222.4 (1.1)	225.7 (1.2)	232.4 (1.5)	236.0 (1.2)	242.9 (2.3)
Standard Deviation	33.6 (0.5)	34.9 (0.7)	32.8 (0.7)	34.1 (0.8)	32.1 (1.3)
Percentiles 5	166.4 (1.3)	167.3 (2.2)	178.2 (2.8)	180.1 (1.9)	190.6 (3.1)
10	178.0 (1.7)	180.1 (2.3)	190.3 (2.6)	192.4 (1.8)	202.2 (3.1)
25	199.0 (1.4)	202.3 (1.2)	210.4 (1.8)	213.3 (2.6)	222.0 (2.4)
50	223.3 (1.4)	226.0 (1.6)	232.3 (1.3)	236.4 (1.2)	242.4 (2.7)
75	245.6 (1.3)	249.9 (1.4)	254.6 (1.6)	259.3 (1.1)	263.6 (4.4)
90	265.0 (1.3)	270.5 (1.2)	274.8 (1.6)	280.3 (1.9)	283.6 (4.7)
95	277.0 (2.4)	282.7 (2.0)	286.2 (1.2)	292.7 (1.6)	298.9 (2.1)
HISPANIC[1]					
Mean	—	232.5 (3.4)	236.8 (2.1)	239.6 (1.6)	240.1 (3.5)
Standard Deviation	—	34.4 (0.9)	32.6 (0.8)	34.9 (1.2)	34.6 (2.2)
Percentiles 5	—	174.0 (7.7)	182.7 (3.6)	180.9 (2.8)	181.7 (8.7)
10	—	187.0 (3.3)	194.7 (3.8)	193.3 (3.3)	194.6 (3.7)
25	—	207.9 (4.3)	214.3 (3.2)	216.2 (2.4)	218.9 (6.0)
50	—	223.5 (4.4)	237.2 (2.6)	240.4 (2.5)	240.3 (3.9)
75	—	256.5 (4.0)	259.1 (1.5)	263.5 (2.3)	262.0 (5.2)
90	—	277.2 (2.2)	278.9 (1.7)	284.2 (2.1)	284.0 (8.4)
95	—	289.0 (3.1)	290.1 (1.4)	295.9 (3.0)	297.3 (9.9)

[1] No data were available for Hispanic students in 1971. Jackknifed standard errors are presented in parentheses.

AGE 17

General reading proficiency means and standard errors

	1971	1975	1980	1984	1988 (1)
TOTAL	285.4 (1.2)*	286.1 (0.8)*	285.8 (1.4)	288.8 (0.9)	290.1 (1.1)
SEX					
MALE	279.0 (1.2)*	280.1 (0.9)*	282.1 (1.4)	283.8 (0.9)	286.0 (1.5)
FEMALE	291.5 (1.3)	291.8 (0.9)	289.5 (1.4)	293.9 (1.1)	293.8 (1.6)
OBSERVED ETHNICITY/RACE					
WHITE (2)	291.4 (1.0)	293.0 (0.6)	293.1 (1.2)	295.6 (0.7)	294.7 (1.3)
BLACK	238.6 (1.7)*	240.4 (1.9)*	242.5 (2.0)*	264.2 (1.2)*	274.4 (2.6)
HISPANIC	—	252.2 (3.6)*	260.7 (3.3)	268.1 (1.9)!	270.8 (4.0)
REGION					
NORTHEAST	292.2 (2.5)	289.5 (1.7)	285.4 (2.4)*	292.0 (2.1)	294.8 (2.5)
SOUTHEAST	270.8 (2.5)*	277.3 (1.4)*	281.0 (2.6)	284.6 (2.3)	285.5 (2.1)
CENTRAL	290.8 (2.1)	291.9 (1.5)	288.6 (3.2)	290.1 (1.5)	291.2 (1.8)
WEST	283.7 (1.7)	282.3 (1.8)	286.6 (1.7)	289.1 (1.6)	289.0 (2.2)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	261.6 (1.5)	263.3 (1.4)	261.9 (1.7)	269.3 (1.4)	267.4 (2.4)
GRADUATED H.S.	283.3 (1.2)	281.7 (1.0)	277.4 (1.1)	281.1 (1.0)	282.0 (1.5)
POST H.S.	302.5 (1.0)	300.9 (0.7)	299.3 (1.2)	301.2 (0.8)	299.5 (1.3)
READING MATERIALS IN THE HOME					
0 - 2 ITEMS	246.2 (1.8)*	251.7 (2.1)*	257.6 (2.2)*	264.1 (1.4)	268.8 (2.4)
3 ITEMS	273.9 (1.4)*	275.8 (1.1)*	278.5 (1.8)*	283.0 (1.1)	287.1 (1.7)
4 ITEMS	295.6 (1.0)	296.1 (0.6)	295.6 (1.1)	296.3 (0.8)	295.8 (1.2)
TELEVISION WATCHED PER DAY					
0 - 2 HOURS	—	—	291.0 (1.3)	297.4 (0.9)	295.6 (1.2)
3 - 5 HOURS	—	—	277.1 (1.3)*	284.5 (0.9)	285.4 (1.8)
6 HOURS OR MORE	—	—	257.7 (2.9)	267.8 (1.4)	268.6 (4.1)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 17

NOTE: VIRTUALLY ALL 17-YEAR-OLDS DEMONSTRATED READING PROFICIENCY AT OR ABOVE LEVEL 150.

Percentage of 17-year-old students with reading proficiency at or above Basic (200)

	1971	1975	1980	1984	1988 (1)
TOTAL	95.9 (0.3)*	96.4 (0.3)*	97.2 (0.4)*	98.3 (0.1)	98.9 (0.2)
SEX					
MALE	94.5 (0.4)*	95.4 (0.3)*	96.2 (0.5)*	97.7 (0.2)	98.4 (0.4)
FEMALE	97.3 (0.2)*	97.4 (0.3)*	98.1 (0.3)*	98.9 (0.1)	99.3 (0.2)
OBSERVED ETHNICITY/RACE					
WHITE (2)	97.7 (0.2)*	98.6 (0.1)*	99.1 (0.1)	99.1 (0.1)	99.5 (0.1)
BLACK	82.0 (1.2)*	81.1 (1.6)*	84.9 (2.1)*	95.8 (0.4)	97.1 (0.8)
HISPANIC	—	88.3 (2.3)*	93.2 (1.5)	95.6 (0.5)!	96.4 (1.5)
REGION					
NORTHEAST	97.4 (0.4)*	97.0 (0.4)*	97.1 (0.4)*	98.6 (0.2)*	99.7 (0.3)
SOUTHEAST	92.4 (0.9)*	94.2 (0.6)*	95.6 (1.3)	97.8 (0.3)	98.4 (0.5)
CENTRAL	97.0 (0.3)*	97.7 (0.4)	98.0 (0.6)	98.8 (0.2)	99.1 (0.4)
WEST	96.0 (0.6)*	95.9 (0.8)*	97.4 (0.5)	98.0 (0.3)	98.5 (0.4)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	90.9 (0.8)*	92.2 (0.7)*	93.5 (0.8)*	96.7 (0.4)	98.3 (0.7)
GRADUATED H.S.	96.7 (0.2)*	96.6 (0.4)*	96.8 (0.4)*	98.0 (0.2)	98.9 (0.3)
POST H.S.	99.0 (0.1)*	99.0 (0.1)*	99.4 (0.2)	99.4 (0.1)	99.5 (0.1)

Percentage of 17-year-old students with reading proficiency at or above Intermediate (250)

	1971	1975	1980	1984	1988 (1)
TOTAL	78.5 (0.9)*	80.4 (0.7)*	81.0 (1.0)*	83.1 (0.7)*	86.2 (0.7)
SEX					
MALE	74.6 (0.9)*	76.2 (0.7)*	78.3 (1.1)*	79.2 (0.7)*	83.2 (1.1)
FEMALE	82.2 (0.9)*	84.3 (0.8)*	83.9 (1.0)*	87.0 (0.7)	89.0 (0.8)
OBSERVED ETHNICITY/RACE					
WHITE (2)	83.5 (0.7)*	86.1 (0.5)*	87.3 (0.7)	87.9 (0.4)	89.3 (0.8)
BLACK	39.7 (1.4)*	42.4 (1.6)*	43.9 (2.2)*	66.0 (1.1)*	76.0 (1.9)
HISPANIC	—	51.9 (4.0)*	61.2 (2.5)	68.4 (1.5)!	72.9 (4.0)
REGION					
NORTHEAST	82.8 (1.8)	83.0 (1.4)	79.5 (1.7)*	85.2 (1.2)	88.9 (1.8)
SOUTHEAST	67.4 (2.0)*	73.6 (1.2)*	77.1 (2.2)	80.2 (1.6)	81.6 (2.0)
CENTRAL	83.2 (1.3)*	84.4 (1.2)*	84.2 (2.2)	84.1 (1.1)*	89.2 (0.9)
WEST	77.4 (1.2)*	77.9 (1.4)*	81.7 (1.0)	83.6 (1.2)	84.9 (1.4)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	61.3 (1.3)*	64.5 (1.4)	63.4 (1.6)	69.4 (1.3)	70.2 (2.9)
GRADUATED H.S.	77.8 (0.9)*	79.3 (0.9)	76.9 (0.9)*	79.5 (0.9)	82.3 (1.2)
POST H.S.	90.0 (0.6)	89.5 (0.5)*	90.1 (0.7)	90.8 (0.4)	92.4 (0.7)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 17

Percentage of 17-year-old students with reading proficiency at or above Adept (300)

	1971	1975	1980	1984	1988 (1)
TOTAL	39.2 (1.0)	39.1 (0.6)	38.5 (1.5)	40.0 (0.9)	41.8 (1.3)
SEX					
MALE	34.0 (1.0)	33.9 (0.7)	35.7 (1.5)	35.4 (0.9)	37.3 (2.1)
FEMALE	44.1 (1.1)	44.1 (0.8)	41.3 (1.6)	44.8 (1.1)	45.9 (1.6)
OBSERVED ETHNICITY/RACE					
WHITE (2)	43.3 (0.9)	44.0 (0.6)	44.1 (1.5)	46.3 (0.8)	46.3 (1.4)
BLACK	7.5 (0.7)*	7.9 (0.7)*	6.7 (0.6)*	16.3 (0.9)*	25.8 (2.8)
HISPANIC	—	12.9 (2.3)*	14.9 (1.9)*	20.6 (1.7)!	24.3 (2.6)
REGION					
NORTHEAST	44.9 (2.2)	42.0 (1.3)	37.9 (2.5)	42.3 (2.3)	47.1 (3.0)
SOUTHEAST	28.3 (1.6)*	32.9 (1.2)	34.6 (1.8)	36.7 (2.0)	36.7 (2.3)
CENTRAL	43.4 (1.8)	43.8 (1.3)	41.5 (4.0)	41.1 (1.5)	42.6 (3.4)
WEST	36.8 (1.4)	35.4 (1.2)	38.5 (1.8)	40.4 (1.5)	40.8 (1.7)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	20.4 (0.8)*	19.2 (1.0)	17.7 (1.1)	20.2 (0.9)	14.5 (2.0)
GRADUATED H.S.	35.8 (0.9)	33.0 (0.8)	28.9 (0.8)	30.5 (0.8)	31.9 (1.3)
POST H.S.	53.4 (1.0)	52.7 (0.7)	51.2 (1.7)	53.0 (0.9)	52.1 (1.5)

Percentage of 17-year-old students with reading proficiency at or above Advanced (350)

	1971	1975	1980	1984	1988 (1)
TOTAL	6.6 (0.4)*	6.1 (0.2)*	5.3 (0.4)	5.5 (0.2)	4.8 (0.4)
SEX					
MALE	5.0 (0.3)	5.2 (0.3)	4.6 (0.3)	4.7 (0.2)	3.9 (0.7)
FEMALE	8.3 (0.5)*	7.0 (0.3)	6.1 (0.5)	6.5 (0.3)	5.7 (0.7)
OBSERVED ETHNICITY/RACE					
WHITE (2)	7.5 (0.4)*	7.0 (0.3)	6.3 (0.4)	6.5 (0.2)	5.7 (0.5)
BLACK	0.3 (0.1)*	0.3 (0.1)*	0.2 (0.1)*	0.9 (0.2)	1.9 (0.5)
HISPANIC	—	1.1 (0.5)	1.3 (0.3)	1.9 (0.3)!	1.3 (0.8)
REGION					
NORTHEAST	8.5 (1.0)	7.7 (0.7)	5.6 (0.6)	5.6 (0.4)	6.0 (1.3)
SOUTHEAST	3.9 (0.5)	4.6 (0.4)	4.2 (0.6)	5.7 (0.4)	5.1 (0.8)
CENTRAL	7.4 (0.6)*	6.9 (0.4)*	5.6 (0.9)	5.3 (0.4)	4.4 (0.6)
WEST	6.1 (0.6)	4.8 (0.3)	5.6 (0.5)	5.5 (0.6)	4.0 (0.6)
PARENTAL EDUCATION					
NOT GRADUATED H.S.	2.0 (0.3)	1.3 (0.2)	1.1 (0.3)	1.2 (0.2)	0.7 (0.4)
GRADUATED H.S.	5.0 (0.3)*	3.5 (0.3)	2.4 (0.2)	3.1 (0.2)	2.3 (0.5)
POST H.S.	10.8 (0.5)*	10.1 (0.4)*	8.4 (0.5)	8.3 (0.3)	7.0 (0.7)

(1) Based on the 1988 reading bridge to 1984
(2) Includes Hispanics in 1971

* $\alpha = .05$ per set of 4 comparisons within a reporting category (1988 versus each prior assessment); thus $\alpha = .0125$ per comparison. Jackknifed standard errors are presented in parentheses.

! Interpret with caution; the sampling error cannot be accurately estimated.

AGE 17

Reading Proficiency Means, Standard Deviations, and Percentile Distributions with Standard Errors

		1971	1975	1980	1984	1988
TOTAL						
Mean		285.4 (1.2)	286.1 (0.8)	285.8 (1.4)	288.8 (0.9)	290.1 (1.1)
Standard Deviation		45.7 (0.5)	43.9 (0.5)	41.9 (0.6)	40.3 (0.3)	37.1 (0.7)
Percentiles	5	207.7 (2.3)	211.1 (2.0)	213.7 (2.1)	220.8 (1.3)	226.2 (1.3)
	10	226.4 (1.7)	229.5 (1.5)	231.1 (2.2)	236.6 (0.9)	241.5 (2.4)
	25	256.5 (1.6)	258.6 (1.0)	259.2 (1.3)	262.7 (1.1)	265.8 (1.8)
	50	288.1 (1.3)	288.3 (0.7)	288.0 (1.4)	290.4 (0.9)	291.1 (1.8)
	75	316.9 (1.0)	316.1 (0.7)	315.1 (1.2)	316.8 (0.9)	316.0 (1.4)
	90	341.9 (1.1)	340.2 (0.8)	337.8 (1.4)	339.6 (0.7)	336.9 (2.1)
	95	356.6 (1.5)	354.4 (0.8)	351.1 (1.5)	352.6 (1.0)	348.7 (1.7)
MALE						
Mean		279.0 (1.2)	280.1 (0.9)	282.1 (1.4)	283.8 (0.9)	286.0 (1.5)
Standard Deviation		46.2 (0.6)	44.9 (0.6)	42.8 (0.6)	40.9 (0.4)	37.5 (1.1)
Percentiles	5	198.7 (1.8)	202.2 (1.3)	207.3 (2.5)	215.0 (1.4)	222.0 (2.6)
	10	218.6 (1.9)	221.3 (1.7)	225.6 (2.2)	230.5 (1.2)	236.3 (3.6)
	25	249.5 (1.3)	251.3 (1.0)	254.7 (1.5)	257.2 (1.2)	261.6 (1.7)
	50	281.8 (1.4)	282.1 (1.2)	284.7 (1.4)	285.5 (0.8)	287.0 (2.2)
	75	310.9 (1.2)	310.9 (1.0)	312.3 (1.3)	312.3 (1.0)	312.0 (3.4)
	90	336.0 (2.0)	336.0 (1.4)	335.3 (1.3)	335.3 (1.1)	333.4 (2.0)
	95	350.8 (1.8)	350.4 (1.1)	348.5 (1.4)	348.8 (1.5)	345.6 (4.1)
FEMALE						
Mean		291.5 (1.3)	291.8 (0.9)	289.5 (1.4)	293.9 (1.1)	293.8 (1.6)
Standard Deviation		44.4 (0.6)	42.1 (0.7)	40.8 (0.8)	39.0 (0.4)	36.3 (0.9)
Percentiles	5	215.6 (1.9)	219.7 (2.0)	219.2 (2.4)	228.0 (1.5)	231.8 (3.3)
	10	233.9 (1.4)	237.4 (2.1)	236.8 (1.6)	243.2 (1.1)	246.6 (4.9)
	25	263.1 (1.6)	265.4 (1.5)	263.2 (1.9)	268.7 (1.4)	270.2 (2.0)
	50	293.9 (1.2)	293.8 (0.9)	291.2 (1.7)	295.3 (1.0)	294.6 (2.2)
	75	321.9 (1.3)	320.0 (0.7)	317.5 (1.5)	321.0 (0.9)	319.4 (1.5)
	90	346.4 (1.5)	343.6 (0.9)	340.3 (1.9)	343.2 (0.9)	339.8 (1.7)
	95	360.9 (1.1)	357.1 (1.3)	353.6 (2.2)	355.5 (1.2)	351.7 (2.7)
WHITE						
Mean		291.4 (1.0)	293.0 (0.6)	293.1 (1.2)	295.6 (0.7)	294.7 (1.3)
Standard Deviation		42.4 (0.4)	39.8 (0.3)	37.9 (0.4)	38.2 (0.3)	36.0 (0.7)
Percentiles	5	220.7 (1.8)	226.8 (1.4)	229.3 (1.8)	230.7 (1.2)	232.7 (1.0)
	10	237.2 (1.0)	242.2 (0.9)	244.2 (1.8)	246.1 (0.8)	247.4 (3.8)
	25	264.3 (1.3)	267.2 (0.8)	268.2 (1.2)	270.9 (1.2)	271.4 (1.7)
	50	293.1 (1.1)	294.1 (0.8)	294.2 (1.2)	296.8 (1.1)	295.4 (1.6)
	75	320.1 (1.1)	320.0 (0.6)	319.2 (1.2)	321.7 (0.6)	319.9 (1.9)
	90	344.6 (1.0)	343.3 (0.6)	340.9 (1.9)	343.2 (0.8)	339.8 (1.5)
	95	358.9 (1.4)	357.0 (1.1)	353.8 (1.8)	355.8 (0.9)	351.6 (2.9)
BLACK						
Mean		238.6 (1.7)	240.4 (1.9)	242.5 (2.0)	264.2 (1.2)	274.4 (2.6)
Standard Deviation		43.6 (0.7)	43.8 (1.1)	41.2 (1.3)	37.0 (0.8)	35.9 (1.3)
Percentiles	5	164.6 (4.2)	164.9 (3.2)	175.0 (3.0)	201.9 (3.9)	214.5 (9.5)
	10	181.8 (3.3)	182.4 (5.0)	189.8 (5.0)	216.1 (1.9)	227.8 (4.2)
	25	210.1 (2.2)	211.8 (2.2)	216.0 (2.9)	239.0 (1.3)	250.5 (2.3)
	50	239.2 (1.7)	241.6 (2.1)	243.3 (2.9)	264.2 (1.2)	274.3 (3.5)
	75	268.1 (1.4)	271.4 (1.6)	270.0 (2.2)	288.4 (1.6)	299.6 (3.0)
	90	294.2 (2.4)	295.7 (1.4)	294.0 (1.7)	310.5 (1.9)	321.0 (3.8)
	95	309.9 (2.1)	308.4 (2.7)	307.2 (2.4)	323.6 (3.3)	333.1 (4.8)
HISPANIC[1]						
Mean		—	252.2 (3.6)	260.7 (3.3)	268.1 (1.9)	270.8 (4.9)
Standard Deviation		—	41.8 (2.1)	40.0 (1.4)	39.7 (1.4)	37.7 (2.0)
Percentiles	5	—	184.3 (4.3)	193.4 (8.4)	201.6 (2.3)	204.2 (11.5)
	10	—	197.3 (5.1)	207.5 (3.3)	216.6 (2.8)	218.0 (6.9)
	25	—	225.2 (5.3)	234.8 (5.1)	241.5 (2.6)	246.4 (5.5)
	50	—	252.5 (4.4)	261.7 (3.7)	268.6 (3.1)	273.6 (5.0)
	75	—	279.2 (3.9)	287.9 (3.5)	295.4 (3.8)	297.9 (7.0)
	90	—	306.4 (5.6)	311.6 (3.8)	318.3 (6.1)	315.9 (18.0)
	95	—	320.3 (8.2)	324.5 (1.8)	332.3 (7.6)	328.0 (8.6)

[1]No data were available for Hispanic students in 1971. Jackknifed standard errors are presented in parentheses.

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