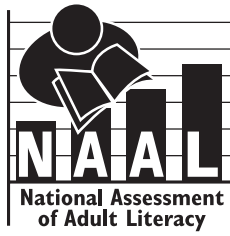


Literacy Behind Bars

Results From the 2003 National Assessment of Adult Literacy Prison Survey





U.S. Department of Education
NCES 2007-473

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May 2007

Elizabeth Greenberg
Eric Dunleavy
Mark Kutner
**American Institutes
for Research**

Sheida White
Project Officer
**National Center for
Education Statistics**

U.S. Department of Education

Margaret Spellings
Secretary

Institute of Education Sciences

Grover J. Whitehurst
Director

National Center for Education Statistics

Mark Schneider
Commissioner

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Content Contact

Sheida White
(202) 502-7473
sheida.white@ed.gov

Executive Summary

The 2003 National Assessment of Adult Literacy (NAAL) assessed the English literacy of incarcerated adults for the first time since 1992. The assessment was administered to approximately 1,200 inmates (ages 16 and older) in state and federal prisons, as well as to approximately 18,000 adults (ages 16 and older) living in households. The prison sample is representative of the 1,380,000 adults in prison and the household sample is representative of the 221,020,000 adults in households in 2003.¹ The 2003 adult literacy assessment covered the same content as the 1992 National Adult Literacy Survey, and both assessments used the same definition of literacy:

Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential.

Unlike indirect measures of literacy, which rely on self-reports and other subjective evaluations, the assessment measured literacy directly through tasks completed by adults. These tasks represent a range of literacy activities that adults are likely to face in their daily lives. Prison inmates were asked to complete the same tasks as adults living in households.

¹Household data collection was conducted from March 2003 through February 2004; prison data collection was conducted from March through July 2004. Following the precedent set with the 1992 adult literacy assessment, for which data collection also extended into a second year and all prison data collection was conducted during the second year (1993), this assessment is referred to as the 2003 NAAL throughout this report.

Literacy Levels

Changes in the Prison Population and Prisoners' Literacy Between 1992 and 2003

Comparing the Prison and Household Populations

Education and Job Training in Prison

Work and Literacy Experiences in Prison

Criminal History and Current Offense

Three types of literacy were measured by the assessment on 0- to 500-point scales:

1. **Prose literacy.** The knowledge and skills needed to search, comprehend, and use information from continuous texts. Prose examples include editorials, news stories, brochures, and instructional materials.
2. **Document literacy.** The knowledge and skills needed to search, comprehend, and use information from noncontinuous texts. Document examples include job applications, payroll forms, transportation schedules, maps, tables, and drug or food labels.
3. **Quantitative literacy.** The knowledge and skills needed to identify and perform computations using numbers that are embedded in printed materials. Examples include balancing a checkbook, computing a tip, completing an order form, or determining the amount of interest on a loan from an advertisement.

This report presents the findings from the 2003 prison adult literacy assessment. The report includes analyses that compare the literacy of the U.S. prison population in 2003 with the literacy of the U.S. prison population in 1992. It also includes analyses that compare the literacy of the prison and household populations in 2003. The analyses in this report use standard *t* tests to determine statistical significance. Statistical significance is reported at $p < .05$.

Literacy Levels

The Committee on Performance Levels for Adult Literacy, appointed by the National Research Council's Board on Testing and Assessment (BOTA), recommended a set of performance levels for the prose, document, and quantitative scales. Drawing on their recommendations, the U.S. Department of Education decided to report the assessment results by using four literacy levels for these scales: *Below Basic*, *Basic*, *Intermediate*, and *Proficient*.

Below Basic indicates that an adult has no more than the most simple and concrete literacy skills. *Basic* indicates that an adult has the skills necessary to perform simple and everyday literacy activities. *Intermediate* indicates that an adult has the skills necessary to perform moderately challenging literacy activities. *Proficient* indicates that an adult has the skills necessary to perform more complex and challenging literacy activities.

BOTA's Committee on Performance Levels for Adult Literacy also recommended reporting the 2003 results by using a separate category: nonliterate in English. Adults were considered to be nonliterate in English if they were unable to complete a minimum number of simple literacy questions or if they were unable to communicate in English or Spanish.

Adults who were classified as nonliterate in English because they could not complete a minimum number of simple literacy questions were generally able to complete the background questionnaire, which was administered orally in either English or Spanish; for reporting purposes, they were included in the *Below Basic* literacy level. Adults who were classified as nonliterate in English because they were unable to communicate in either English or Spanish could not complete the background questionnaire; they are not included in the analyses in this report, which rely on background data. Adults who could not be tested because of a cognitive or mental disability are also not included in the analyses in this report, but in the absence of any information about their literacy abilities, they are not considered to be nonliterate in English.

Changes in the Prison Population and Prisoners' Literacy Between 1992 and 2003

The rate of incarceration in federal and state prisons in the United States increased from 332 per 100,000 in 1992 to 487 per 100,000 in 2003. (These figures do not include jails.) The prison population was larger, older, and somewhat better educated in 2003 than in

1992. The parents of prison inmates were also better educated in 2003 than in 1992.

- The average prose and quantitative literacy of the prison population was higher in 2003 than in 1992. In 2003, some 3 percent of the prison population was considered to be nonliterate in English (figure 2-1).²
- Average prose, document, and quantitative literacy was higher for Black³ prison inmates in 2003 than in 1992, and average quantitative literacy increased for Hispanic⁴ inmates. In 2003, White inmates had higher average prose, document, and quantitative literacy than Black and Hispanic inmates. Black prison inmates had higher average document literacy than Hispanic inmates (figure 2-3).
- In 2003, prison inmates' average prose and quantitative literacy was higher with each increasing level of education. For example, inmates with less than a high school education had lower average prose and quantitative literacy than inmates with some high school (figure 2-5).
- The average prose and quantitative literacy of incarcerated men increased between 1992 and 2003 (figure 2-7).
- Average prose, document, and quantitative literacy increased between 1992 and 2003 for prison inmates in the 25 to 39 age group. In 2003, incarcerated adults who were 40 years old or older had lower average prose and document literacy than incarcerated adults who were 25 to 39 years old (figure 2-9).
- Average prose and quantitative literacy increased between 1992 and 2003 for prison

inmates who spoke only English before starting school (figure 2-11).

Comparing the Prison and Household Populations

In 2003, a higher percentage of prison inmates than adults living in households were male, Black, and Hispanic, and a higher percentage had been diagnosed with a learning disability. A lower percentage of prison inmates than adults living in households were ages 40 or older, and a lower percentage spoke a language other than English as children.

- Prison inmates had lower average prose, document, and quantitative literacy than adults living in households (figure 3-1).
- Incarcerated White adults had lower average prose literacy than White adults living in households. Incarcerated Black and Hispanic adults had higher average prose literacy than Black and Hispanic adults in households (figure 3-3).
- Black inmates who had been in prison for a shorter period of time (incarcerated in 2002 or later) had prose literacy that was not statistically significantly different from that of Black adults living in households, whereas Black inmates who had been incarcerated since before 2002 had higher average prose literacy than Black adults living in households (figure 3-3 and table 3-3).⁵
- In general, either prison inmates had lower average prose, document, and quantitative literacy than adults living in households with the same level of highest educational attainment or there was no statistically significant difference between the two groups. The exception was that among adults without any high school education, prison inmates had higher average

² The design of the 1992 assessment did not allow the estimation of the size of the population nonliterate in English.

³ Black includes African American.

⁴ All adults of Hispanic origin are classified as Hispanic, regardless of race. Hispanic includes Latino.

⁵ The sample size for Hispanic inmates did not allow the separate estimation of literacy by length of incarceration.

literacy on all three scales than adults living in households (figure 3-5).

- Both male and female prison inmates had lower average literacy on all three scales than adults of the same gender living in households (figure 3-9).
- In every age group examined (16 to 24, 25 to 39, and 40 or older), incarcerated adults had lower average prose, document, and quantitative literacy than adults in the same age group living in households (figure 3-11).
- Among adults who spoke only English before starting school, those who were incarcerated had lower average prose, document, and quantitative literacy than those who lived in households (figure 3-13).
- Among adults whose parents were high school graduates or attained postsecondary education, prison inmates had lower average prose, document, and quantitative literacy than those adults who lived in households whose parents had the same level of highest educational attainment (figure 3-15).

Education and Job Training in Prison

Educational and vocational training programs are an important component of prisons' rehabilitative purpose. In general, inmates who participated in prison education and training programs had higher average literacy than inmates who did not.

- Forty-three percent of prison inmates had obtained a high school diploma or a high school equivalency certificate before the start of their current incarceration. An additional 19 percent of prison inmates had earned their high school equivalency certificate during their current incarceration, and 5 percent were enrolled in academic classes that might eventually lead to a high school equivalency certificate (figure 4-1).

- Prison inmates with a high school diploma or a high school equivalency certificate had higher average prose, document, and quantitative literacy than prison inmates with lower levels of education. Inmates who earned their high school equivalency certificate during their current incarceration had higher average quantitative literacy than prison inmates who entered prison with a high school diploma or a high school equivalency certificate (figure 4-3).
- Twenty-nine percent of prison inmates had participated in some sort of vocational training. However, more inmates reported being on waiting lists for these programs than were enrolled (figures 4-5 and 4-6).
- Prison inmates who had participated in vocational training had higher average prose, document, and quantitative literacy than prison inmates who had not participated in any sort of vocational training program during their current incarceration (figure 4-9).
- Prison inmates who had received either information technology (IT) certification or some other type of certification recognized by a licensing board or an industry or professional association had higher average prose, document, and quantitative literacy than prison inmates who did not have the same type of certification. However, prison inmates who had received either type of certification had lower average levels of prose, document, and quantitative literacy than adults in the household population with similar certifications (figure 4-12).

Work and Literacy Experiences in Prison

The relationship between literacy and participation in prison activities is complex. Inmates who enter prison with higher literacy may be more likely to engage in some activities, such as using the library and computers, reading, or even getting certain work assignments.

Participating in any of these activities may help inmates improve their literacy. In general, there was a relationship between literacy and participation in activities in prison, such that inmates who participated in activities that required some reading or writing had average literacy that was either higher than or not measurably different from the average literacy of inmates who did not participate in these activities.

- In 2003, some 68 percent of prison inmates had a work assignment. Prison inmates with work assignments had higher average prose and quantitative literacy than inmates who did not have work assignments (figure 5-1).
- A higher percentage of inmates with *Proficient* and *Intermediate* prose literacy than prison inmates with *Below Basic* prose literacy had prison work assignments that required writing every day (figure 5-6).
- A higher percentage of inmates with *Basic*, *Intermediate*, and *Proficient* prose literacy than with *Below Basic* prose literacy used the library. Moreover, prison inmates who used the prison library had higher average prose literacy than prison inmates who never used the library (figure 5-9).
- Prison inmates who used a computer for word processing or for using a CD-ROM had higher average document and quantitative literacy than inmates who never used a computer for these things (figure 5-10).
- A higher percentage of prison inmates with *Proficient* than with *Below Basic* or *Basic* quantitative literacy used a spreadsheet program (figure 5-13).
- Prison inmates who read newspapers and magazines, books, or letters and notes had higher average prose and document literacy than prison inmates who never read, regardless of the frequency with which they read. Additionally, a

higher percentage of inmates with *Basic* or *Intermediate* than with *Below Basic* prose literacy read newspapers and magazines, books, and letters and notes every day (figures 5-14 and 5-15).

Criminal History and Current Offense

On average, prison sentences were longer in 2003 than in 1992. In both 1992 and 2003, the commission of a violent crime was the most common reason adults were incarcerated. There was a slight decline between 1992 and 2003 in the percentage of inmates who were imprisoned because of property crimes.

Literacy is perhaps of most concern for inmates who are nearing their expected date of release because they will need to find jobs outside of prison. In 2003, some 62 percent of inmates expected to be released within 2 years.

- Average prose, document, and quantitative literacy was higher in 2003 than in 1992 for prison inmates who expected to be incarcerated for 10 years or longer (figure 6-3).
- In 2003, there were no statistically significant differences in average prose, document, and quantitative literacy between inmates who expected to be released within the next 2 years and inmates with longer amounts of time remaining on their sentences. However, between 1992 and 2003, the percentage of inmates who expected to be released within the next 2 years and had *Below Basic* prose and quantitative literacy did decrease (figures 6-5 and 6-6).
- In 2003, average prose and quantitative literacy was higher among inmates who had previously been sentenced to both probation and incarceration, and average document literacy was higher among inmates who had previously been sentenced to probation only, than for inmates with the same criminal histories in 1992 (figure 6-7).

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Introduction

The skills and credentials that are acquired through formal education are important tools for navigating everyday life in the United States. Adults with low levels of education and literacy are more likely than adults with high education and literacy levels to be unemployed or to have incomes that put them below the poverty level (Kutner et al. 2007). Adults who have not obtained a high school diploma or any postsecondary education are also more likely to be incarcerated than adults with higher levels of education (Harlow 2003).

The 2003 National Assessment of Adult Literacy assessed the English literacy of incarcerated adults in the United States for the first time since 1992. The assessment was administered to approximately 1,200 inmates in state and federal prisons, as well as to approximately 18,000 adults living in households. The original motivation for the prison sample was to ensure the assessment was representative of the entire population of the United States. For the population estimates presented in other reports, the prison and household samples are combined or results are reported for the household population only. This report presents findings separately for the prison adult literacy assessment. The report presents analyses that compare the literacy of the U.S. prison population in 2003 with the literacy of the prison population in 1992. It also presents analyses that compare the literacy of the prison and household populations.

Defining and Measuring
Literacy

Interpreting Literacy Results

Conducting the Survey

Interpretation of Results

Organization of the Report

Defining and Measuring Literacy

Defining Literacy

Unlike indirect measures of literacy—which rely on self-reports and other subjective evaluations of literacy and education—the 1992 and 2003 adult literacy assessments measured literacy directly by tasks representing a range of literacy activities that adults are likely to face in their daily lives.

The literacy tasks in the assessment were drawn from actual texts and documents, which were either used in their original format or reproduced in the assessment booklets. Each question appeared before the materials needed to answer it, thus encouraging respondents to read with purpose.

Respondents could correctly answer many assessment questions by skimming the text or document for the information necessary to perform a given literacy task. All tasks were open-ended.

The 2003 adult literacy assessment covered the same content of the 1992 assessment, and both assessments used the same definition of literacy:

Using printed and written information to function in society, to achieve one’s goals, and to develop one’s knowledge and potential.

The definition implies that literacy goes beyond simply decoding and comprehending text. A central feature of the definition is that literacy is related to achieving an objective and adults often read for a purpose.

Measuring Literacy

As in 1992, three literacy scales—prose literacy, document literacy, and quantitative literacy—were used in the 2003 assessment:

- *Prose literacy.* The knowledge and skills needed to perform prose tasks (i.e., to search, comprehend,

and use information from continuous texts). Prose examples include editorials, news stories, brochures, and instructional materials. Prose texts can be further broken down as expository, narrative, procedural, or persuasive.

- *Document literacy.* The knowledge and skills needed to perform document tasks (i.e., to search, comprehend, and use information from noncontinuous texts in various formats). Document examples include job applications, payroll forms, transportation schedules, maps, tables, and drug or food labels.
- *Quantitative literacy.* The knowledge and skills required to perform quantitative tasks (i.e., to identify and perform computations, either alone or sequentially, using numbers embedded in printed materials). Examples include balancing a checkbook, figuring out a tip, completing an order form, or determining the amount of interest on a loan from an advertisement.

Table 1-1 shows the correlations among the prose, document, and quantitative scales for the prison population in 2003, and table 1-2 shows the same correlations for the household population in 2003. All the correlations for the prison population are between .78 and .87; all the correlations for the household population are between .86 and .89. In chapter 12 of the *Technical Report and Data File User’s Manual for the 1992 National Adult Literacy Survey*, Rock and

Table 1-1. Correlations among the prose, document, and quantitative scales for the prison population: 2003

	Prose	Document	Quantitative
Prose	1.0	.83	.78
Document	.83	1.0	.87
Quantitative	.78	.87	1.0

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.

Table 1-2. Correlations among the prose, document, and quantitative scales for the household population: 2003

	Prose	Document	Quantitative
Prose	1.0	.86	.88
Document	.86	1.0	.89
Quantitative	.88	.89	1.0

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.

Yamamoto (2001) examined the correlations among the three scales and concluded that even though the scales were highly related, there were still group differences across the scales, indicating that the scales did not all measure the same construct.

Additional information on the construction of the literacy scales is presented in Kutner et al. (2007).

Background Questionnaire

The 2003 National Assessment of Adult Literacy prison background questionnaire was used to collect demographic data on inmates and to provide contextual data on their experiences in prison that were related to literacy, including participation in classes, job training, and prison work assignments. A primary goal of the assessment was to measure literacy trends between 1992 and 2003, so many of the questions on the 2003 background questionnaire were identical to questions on the 1992 background questionnaire. The 2003 background questionnaire also included some new questions that were added in response to input from stakeholders and users of the 1992 data.

A separate background questionnaire was developed for the household study. The demographic questions were identical on the prison and household questionnaires.

Interpreting Literacy Results

The Committee on Performance Levels for Adult Literacy, appointed by National Research Council's

Board on Testing and Assessment (BOTA), recommended a set of performance levels for the 2003 assessment (Hauser et al. 2005). Drawing on their recommendations, the U.S. Department of Education decided to report the assessment results using four literacy levels for each scale. Table 1-3 summarizes the knowledge, skills, and capabilities that adults needed to demonstrate to be classified into one of the four levels. Figures 1-1, 1-2, and 1-3 show the types of tasks that map the different levels on the prose, document, and quantitative scales. These levels are different from the levels used in 1992. The 1992 data were reanalyzed using the new levels, and those results are included in this report.

BOTA's Committee on Performance Levels for Adult Literacy also recommended reporting the 2003 results by using a separate category: nonliterate in English. Adults were considered to be nonliterate in English if they were unable to complete a minimum number of simple literacy questions or if they were unable to communicate in English or Spanish. Adults who were classified as nonliterate in English because they could not complete a minimum number of simple literacy questions were generally able to complete the background questionnaire, which was administered orally in either English or Spanish; for reporting purposes, they were included in the *Below Basic* literacy level. Adults who were classified as nonliterate in English because they were unable to communicate in either English or Spanish could not complete the background questionnaire; they are not included in the analyses in this report that rely on background data. Adults who could not be tested because of a cognitive or mental disability are also not included in the analyses in this report, but in the absence of any information about their literacy abilities, they are not considered to be nonliterate in English.

Conducting the Survey⁶

The 2003 National Assessment of Adult Literacy included two samples: (1) adults ages 16 and older living in households and (2) inmates ages 16 and older in federal and state prisons. The household sample is representative of the 21,020,000 adults in households, and the prison sample is representative of

the 1,380,000 adults in prison in 2003. The sampling frame for households was based on the 2000 Census and the sampling frame for prisons was a list of all federal and state prisons provided by the Bureau of Justice Statistics. Each sample was weighted to represent its share of the total population of the United States. Household data collection was conducted from March 2003 through February 2004; prison data collection was conducted from March through July 2004. Throughout this report, the 2003–04 survey is referred to as the 2003 survey to simplify the

⁶Nonresponse bias analyses are discussed on page 102 of this report. All percentages in this section are weighted. For unweighted percentages, see tables C-1 and C-2 in appendix C.

Table 1-3. Overview of the literacy levels

Level and definition	Key abilities associated with level
<p>Below Basic indicates no more than the most simple and concrete literacy skills.</p> <p>Score ranges for <i>Below Basic</i>:</p> <p>Prose: 0–209 Document: 0–204 Quantitative: 0–234</p>	<p>Adults at the <i>Below Basic</i> level range from being nonliterate in English to having the abilities listed below:</p> <ul style="list-style-type: none"> ■ locating easily identifiable information in short, commonplace prose texts ■ locating easily identifiable information and following written instructions in simple documents (e.g., charts or forms) ■ locating numbers and using them to perform simple quantitative operations (primarily addition) when the mathematical information is very concrete and familiar
<p>Basic indicates skills necessary to perform simple and everyday literacy activities.</p> <p>Score ranges for <i>Basic</i>:</p> <p>Prose: 210–264 Document: 205–249 Quantitative: 235–289</p>	<ul style="list-style-type: none"> ■ reading and understanding information in short, commonplace prose texts ■ reading and understanding information in simple documents ■ locating easily identifiable quantitative information and using it to solve simple, one-step problems when the arithmetic operation is specified or easily inferred
<p>Intermediate indicates skills necessary to perform moderately challenging literacy activities.</p> <p>Score ranges for <i>Intermediate</i>:</p> <p>Prose: 265–339 Document: 250–334 Quantitative: 290–349</p>	<ul style="list-style-type: none"> ■ reading and understanding moderately dense, less commonplace prose texts as well as summarizing, making simple inferences, determining cause and effect, and recognizing the author's purpose ■ locating information in dense, complex documents and making simple inferences about the information ■ locating less familiar quantitative information and using it to solve problems when the arithmetic operation is not specified or easily inferred
<p>Proficient indicates skills necessary to perform more complex and challenging literacy activities.</p> <p>Score ranges for <i>Proficient</i>:</p> <p>Prose: 340–500 Document: 335–500 Quantitative: 350–500</p>	<ul style="list-style-type: none"> ■ reading lengthy, complex, abstract prose texts as well as synthesizing information and making complex inferences ■ integrating, synthesizing, and analyzing multiple pieces of information located in complex documents ■ locating more abstract quantitative information and using it to solve multi-step problems when the arithmetic operations are not easily inferred and the problems are more complex

NOTE: Although the literacy levels share common names with the National Assessment of Educational Progress (NAEP) levels, they do not correspond to the NAEP levels.

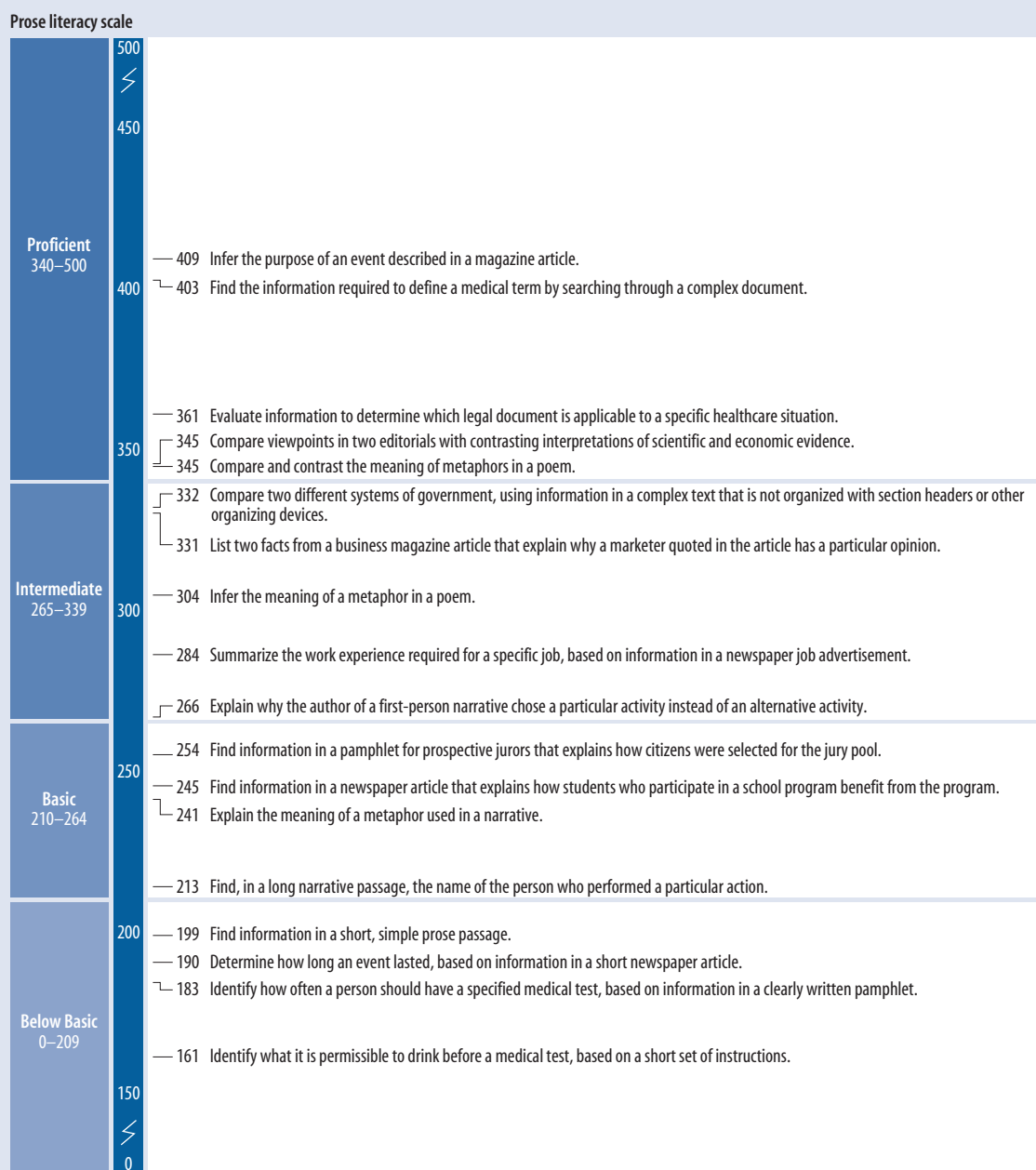
SOURCE: Hauser, R.M., Edley, C.F. Jr., Koenig, J.A., and Elliott, S.W. (Eds.). (2005). *Measuring Literacy: Performance Levels for Adults, Interim Report*. Washington, DC: National Academies Press; White, S. and Dillow, S. (2005). *Key Concepts and Features of the 2003 National Assessment of Adult Literacy* (NCES 2006-471). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

presentation, and the 1992–93 survey is referred to as the 1992 survey. Literacy changes very slowly among adults, so we would not expect to find significant difference between 2003 and 2004.⁷

⁷ The 1992 adult literacy prison data collection took place in 1993, but results for that survey have been reported using the date of 1992.

For the prison sample, 97 percent (weighted) of prisons that were selected for the study agreed to participate, and the background questionnaire response rate among prison inmates was 91 percent (weighted). The final prison sample response rate was 88 percent (weighted). For the household sample, the screener response rate was 82 percent (weighted) and

Figure 1-1. Difficulty of selected prose literacy tasks: 2003



NOTE: The position of a question on the scale represents the average scale score attained by adults who had a 67 percent probability of successfully answering the question. Only selected questions are presented. Scale score ranges for performance levels are referenced on the figure.

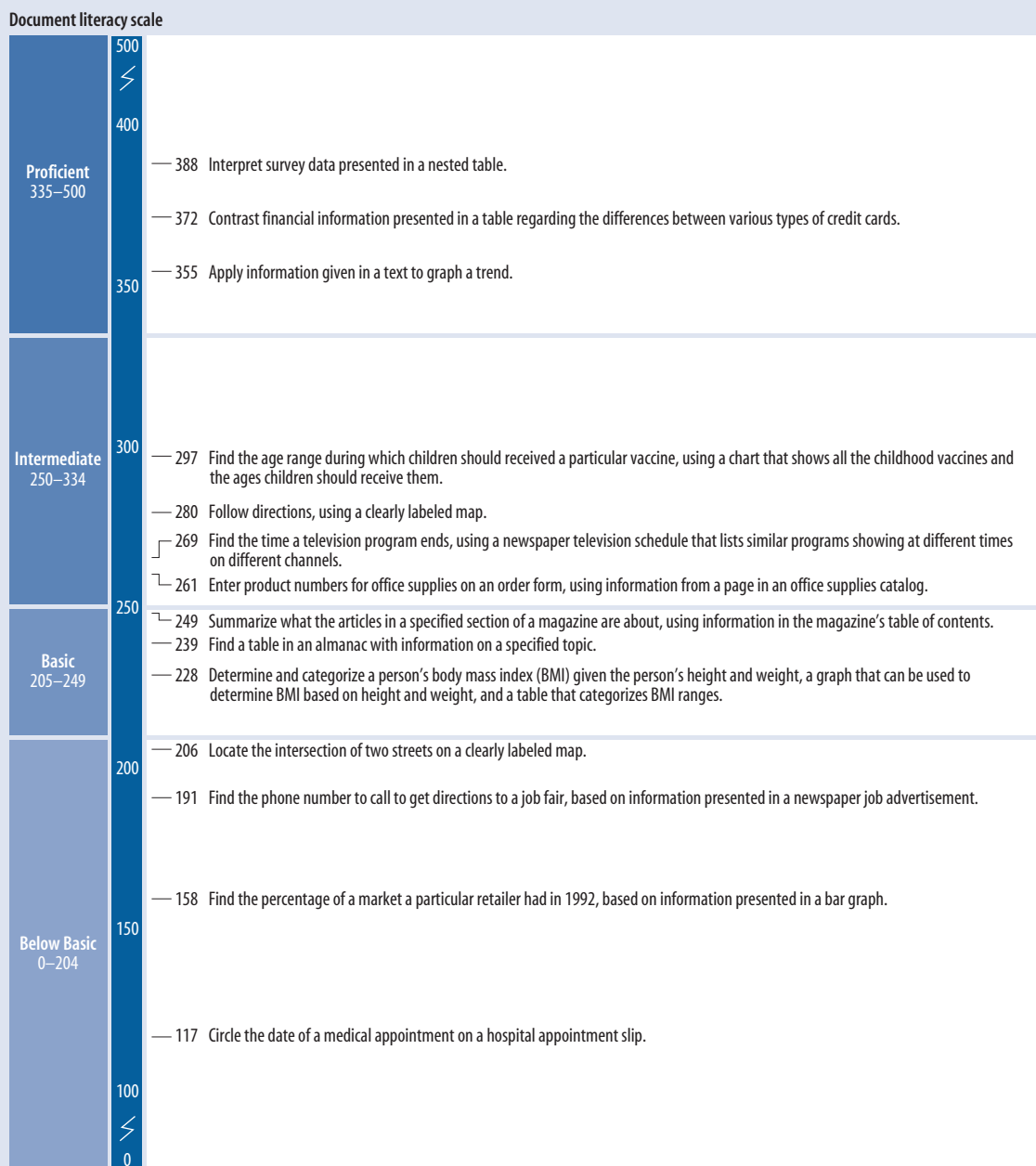
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.

the background questionnaire response rate was 76 percent (weighted). The final household sample response rate was 62 percent (weighted).

Prison interviews usually took place in a classroom or library in the prison; household interviews were conducted in respondents' homes. Whenever possible,

interviewers administered the background questionnaire and assessment in a private setting. Assessments were administered one-on-one using a computer-assisted personal interviewing system (CAPI) programmed into laptop computers. Respondents were encouraged to use whatever aids they normally used

Figure 1-2. Difficulty of selected document literacy tasks: 2003



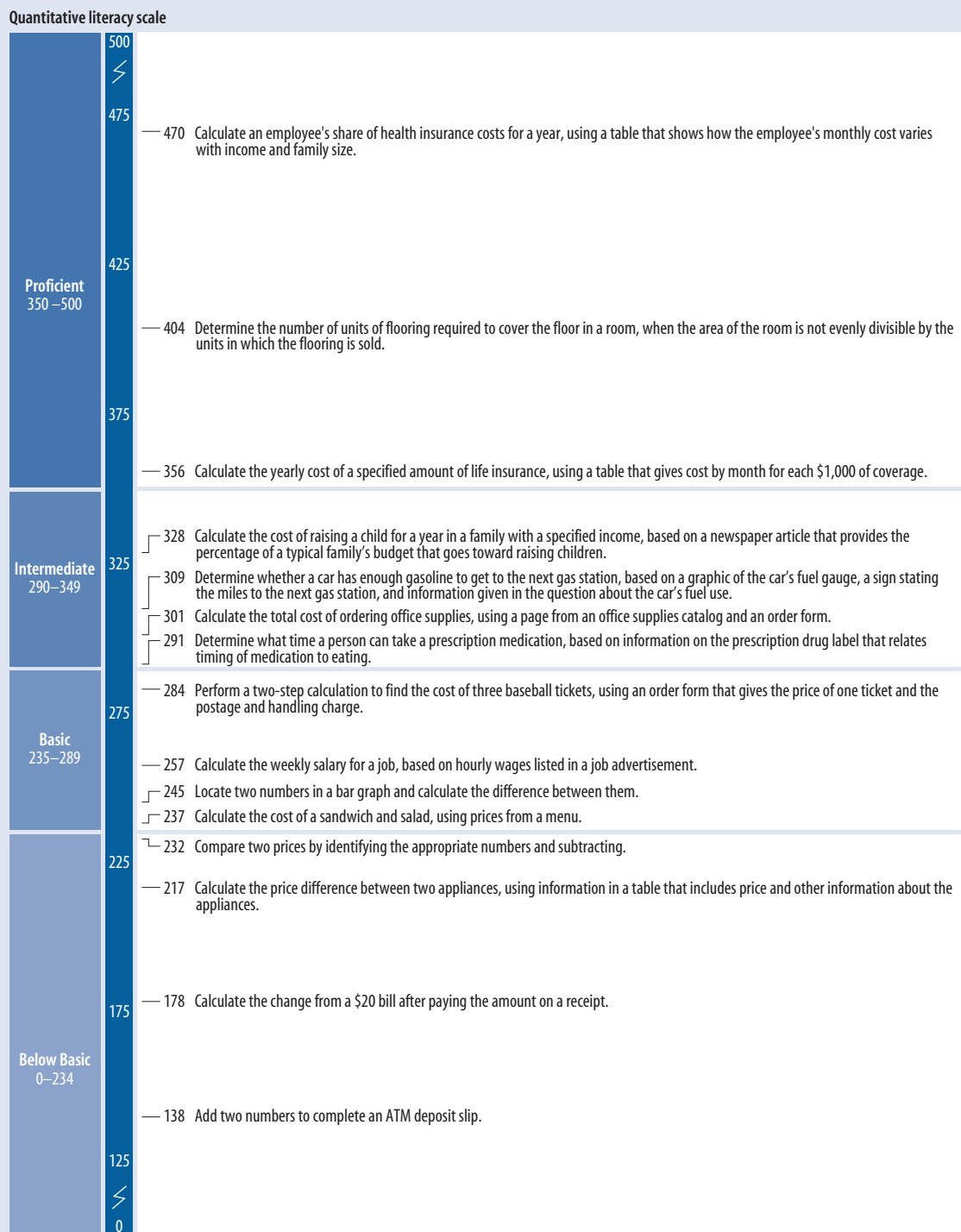
NOTE: The position of a question on the scale represents the average scale score attained by adults who had a 67 percent probability of successfully answering the question. Only selected questions are presented. Scale score ranges for performance levels are referenced on the figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.

when reading and performing quantitative tasks, including eyeglasses, magnifying glasses, rulers, and calculators.

The interviewers provided calculators to respondents who wanted to use one and did not have their own.

Figure 1-3. Difficulty of selected quantitative literacy tasks: 2003



NOTE: The position of a question on the scale represents the average scale score attained by adults who had a 67 percent probability of successfully answering the question. Only selected questions are presented. Scale score ranges for performance levels are referenced on the figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy.

One percent of adults in the prison sample and 3 percent of adults in the household sample were unable to participate in the assessment because they could not communicate in either English or Spanish or because they had a mental disability that prevented them from being tested. Literacy scores for these adults could not be estimated, and they are not included in the results presented in this report.

Additional information on sampling, response rates, and data collection procedures is in appendix C.

Interpretation of Results

The adult literacy scales make it possible to examine relationships between adults' literacy and various self-reported background factors. However, a relationship that exists between literacy and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, the assessment does not reflect the influence of unmeasured variables. The results are most useful when they are considered in combination with other knowledge about the adult population and literacy levels in the United States, such as trends in population demographics and societal demands and expectations. Some of the changes in population demographics are discussed in chapter 2 of this report.

The statistics presented in this report are estimates of performance based on a sample of respondents, rather than the values that could be calculated if every person in the nation answered every question on the assessment. Estimates of performance of the population and groups within the population were calculated by using sampling weights to account for the fact that the probabilities of selection were not identical for all respondents. Information about the uncertainty of each statistic that takes into account the complex sample design was estimated by using Taylor series procedures to estimate standard errors (Binder 1983).

The analyses in this report examine differences related to literacy based on self-reported background characteristics among groups in 2003, as well as changes within groups between 1992 and 2003, by using standard *t* tests to determine statistical significance. Statistical significance is reported at $p < .05$. Differences between averages or percentages that are statistically significant are discussed by using comparative terms such as *higher* or *lower*. Differences that are not statistically significant either are not discussed or are referred to as “not statistically significant.”

Because the sample size was small for some groups in the prison population, such as women and Hispanics, standard errors were larger for estimates relating to those groups and differences that look large were not necessarily statistically significant. The fact that a difference was not statistically significant does not necessarily mean there was no difference. Rather, it means we cannot be 95 percent certain that the differences we see in the sample would hold for the population as a whole.

For most of the analyses in this report, results are presented for all three scales: prose, document, and quantitative. However, for some of the analyses for which one or two of the scales were more conceptually related to the background variable being discussed than were others, results are presented for a subset of the scales only.

Detailed tables with estimates and standard errors for all tables and figures in this report are in appendix D. Appendix C includes more information about the weights used for the sample and the procedures used to estimate standard errors and statistical significance.

Organization of the Report

Chapter 2 of the report presents the prose, document, and quantitative literacy of the prison population of the United States as a whole and discusses how the

literacy of the prison population changed between 1992 and 2003. The chapter also examines how literacy varies across groups of prison inmates with different characteristics, including race/ethnicity, gender, educational attainment, age, language spoken before starting school, and parents' educational attainment.

Chapter 3 compares the literacy of adults in the prison and household populations in 2003. In addition to comparing the populations as a whole, the chapter examines how literacy differs between adults in the prison and household populations in groups with selected characteristics, including race/ethnicity, gender, educational attainment, age, language spoken before starting school, and parents' educational attainment.

Chapter 4 examines the relationship between literacy and education and job training, including traditional academic education, vocational education, and skill certification.

Chapter 5 discusses the relationship between literacy and experiences in prison other than education. Topics in chapter 5 are prison work assignments, library use, computer use, and reading frequency.

Chapter 6 looks at the relationship between literacy, criminal history, and current offense. The results presented in chapter 6 compare how the relationship between literacy, type of offense, expected length of incarceration, expected date of release, and previous criminal history has changed since 1992.

Changes in the Prison Population and Prisoners' Literacy Between 1992 and 2003

Approximately 1.4 million adults were incarcerated in state or federal prisons in 2003, half a million more than were incarcerated in prisons 10 years earlier, an increase of approximately 55 percent (Glaze and Palla 2005; Snell 1995). The incarceration rate per 100,000 population increased from 332 in 1992 to 487 in 2003 (Bureau of Justice Statistics 1997; Harrison and Beck 2005). In addition to being larger, the prison population was somewhat older in 2003 than in 1992: in 2003, some 32 percent of prison inmates were age 40 or older, compared with 19 percent in 1992 (table 2-1). A lower percentage of prison inmates ended their education before completing high school in 2003 than in 1992. In 2003, some 9 percent of prison inmates dropped out of school before starting high school and 28 percent started high school but did not obtain a diploma or a General Educational Development (GED) credential/high school equivalency certificate, compared with 13 percent and 36 percent, respectively, in 1992. The parents of prison inmates were also better educated in 2003 than in 1992. In 2003, some 33 percent of prison inmates had parents who had completed at least some postsecondary education, compared with 25 percent in 1992.

Total Prison Population

Race/Ethnicity

Highest Level of Educational Attainment

Gender

Age

Language Spoken Before Starting School

Parents' Highest Level of Educational Attainment

Summary

Table 2-1. Percentage of the adult prison population in selected groups: 1992 and 2003

Characteristic	1992	2003
Race/ethnicity		
White	35	32
Black	45	46
Hispanic	16	18
Other	3	5
Gender		
Male	94	94
Female	6	6
Highest educational attainment		
Less than high school	13	9*
Some high school	36	28*
GED/high school equivalency	17	28*
High school graduate	14	13
Postsecondary	20	22
Age		
16–24	23	16*
25–39	58	52*
40+	19	32*
Language spoken before starting school		
English only	85	85
English and other	6	6
Other only	9	9
Parents' highest educational attainment		
Less than high school	19	13*
Some high school	16	13
GED/high school equivalency/ high school graduate	39	41
Postsecondary	25	33*

*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this table. In 1992, respondents were allowed to identify only one race but could identify “other” as their race. In 2003, respondents were allowed to identify multiple races but could not choose “other” as their race. The “Other” category includes Asians, Pacific Islanders, Native Hawaiians, American Indians, and Alaska Natives. In 2003, the “Other” category also includes adults who said they were multi-racial; in 1992, it also includes adults who chose “other” as their race. All adults of Hispanic origin are classified as Hispanic, regardless of race. Black includes African American, and Hispanic includes Latino. Postsecondary includes any education beyond high school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

The analyses in this chapter examine how the literacy levels of prison inmates changed between 1992 and 2003. The chapter starts with an examination of the change in literacy between 1992 and 2003 among the entire prison population. Because the 2003 prison population is larger than the prison population in 1992 and is different in terms of age and educational background, just looking at differences in literacy among all prison inmates can obscure important changes within different groups in the prison population. Therefore, the majority of the chapter is focused on analyses that examine the literacy of different groups within the prison population characterized by demographic category, educational attainment, and language background.

When interpreting the results presented in this chapter, it is important to remember that the population of prison inmates changes every year because some people are released after serving their sentences and other people are newly incarcerated. This is not a longitudinal study. Therefore, it is not possible to track the performance of individual prison inmates over time by using the results of this study. If the results presented in this chapter show that average literacy changed between 1992 and 2003 among a particular group of prison inmates, it should not be interpreted as meaning that the literacy of adults who were incarcerated in 1992 changed.⁸

⁸ The study design did not permit the separate examination of the literacy of inmates who were incarcerated for the entire 11-year time period between the 1992 and 2003 assessments.

Total Prison Population

The average prose and quantitative literacy of the prison population was higher in 2003 than in 1992 (figure 2-1). On all three scales, a lower percentage of prison inmates had *Below Basic* literacy and a higher percentage of prison inmates had *Intermediate* literacy in 2003 than in 1992 (figure 2-2). Because of the increase in the size of the prison population, the number of prison inmates with *Below Basic* prose literacy was approximately 200,000 in both years,

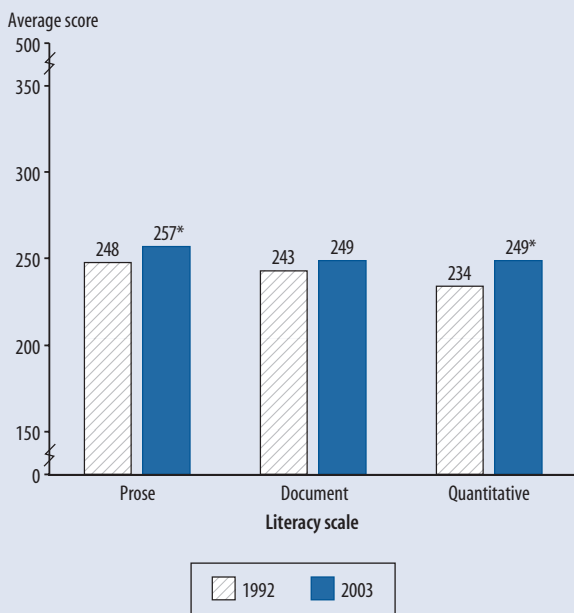
despite the decline in the percentage of incarcerated adults with *Below Basic* prose literacy from 22 to 16 percent.

Nonliterate in English

In 2003, 3 percent of the prison population (42,000 adults) was considered to be nonliterate in English either because the inmates did poorly on the easiest test questions or because language barriers kept them from taking the test.⁹

⁹The design of the 1992 assessment did not allow the estimation of the size of the nonliterate-in-English population.

Figure 2-1. Average prose, document, and quantitative literacy scores of the adult prison population: 1992 and 2003

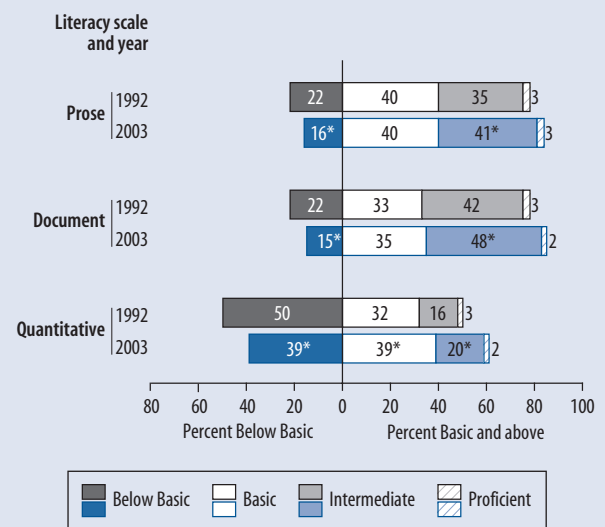


*Significantly different from 1992.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-2. Percentage of the adult prison population in each prose, document, and quantitative literacy level: 1992 and 2003



*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Race/Ethnicity

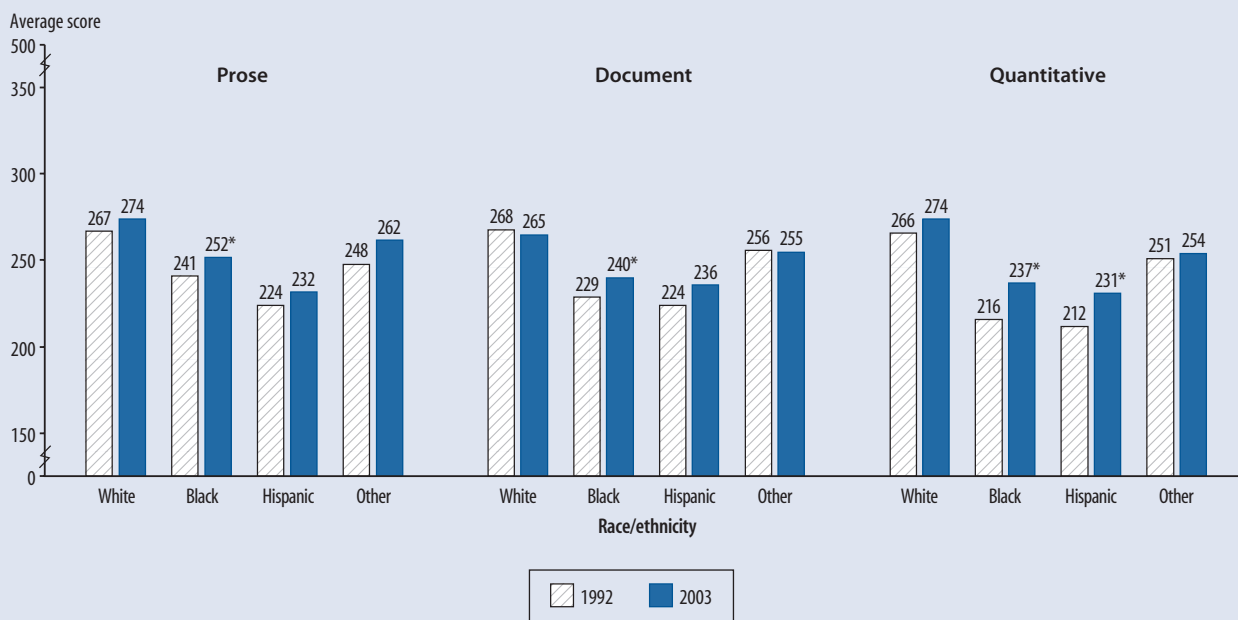
Average prose, document, and quantitative literacy increased for Black prison inmates between 1992 and 2003 (figure 2-3). Average quantitative literacy also increased for Hispanic inmates. There were no statistically significant changes in average literacy on any of the three scales for White prison inmates. The gap in document literacy scores between White and Black inmates was smaller in 2003 than in 1992.

Between 1992 and 2003, the percentage of Black prison inmates with *Below Basic* literacy declined from 25 to 15 percent on the prose scale, from 28 to 19 percent on the document scale, and from 63 to 49 percent on the quantitative scale (figure 2-4). A lower

percentage of Hispanic prison inmates had *Below Basic* document and quantitative literacy in 2003 than in 1992: 36 percent had *Below Basic* document literacy and 64 percent had *Below Basic* quantitative literacy in 1992, compared with 23 percent and 53 percent in 2003, respectively (figure 2-4). Adults with *Below Basic* literacy can do no more than the most simple literacy activities.

A comparison across racial/ethnic groups in 2003 shows that White prison inmates had higher average prose, document, and quantitative literacy than Black and Hispanic inmates (figure 2-3). Black prison inmates had higher average document literacy than Hispanic inmates.

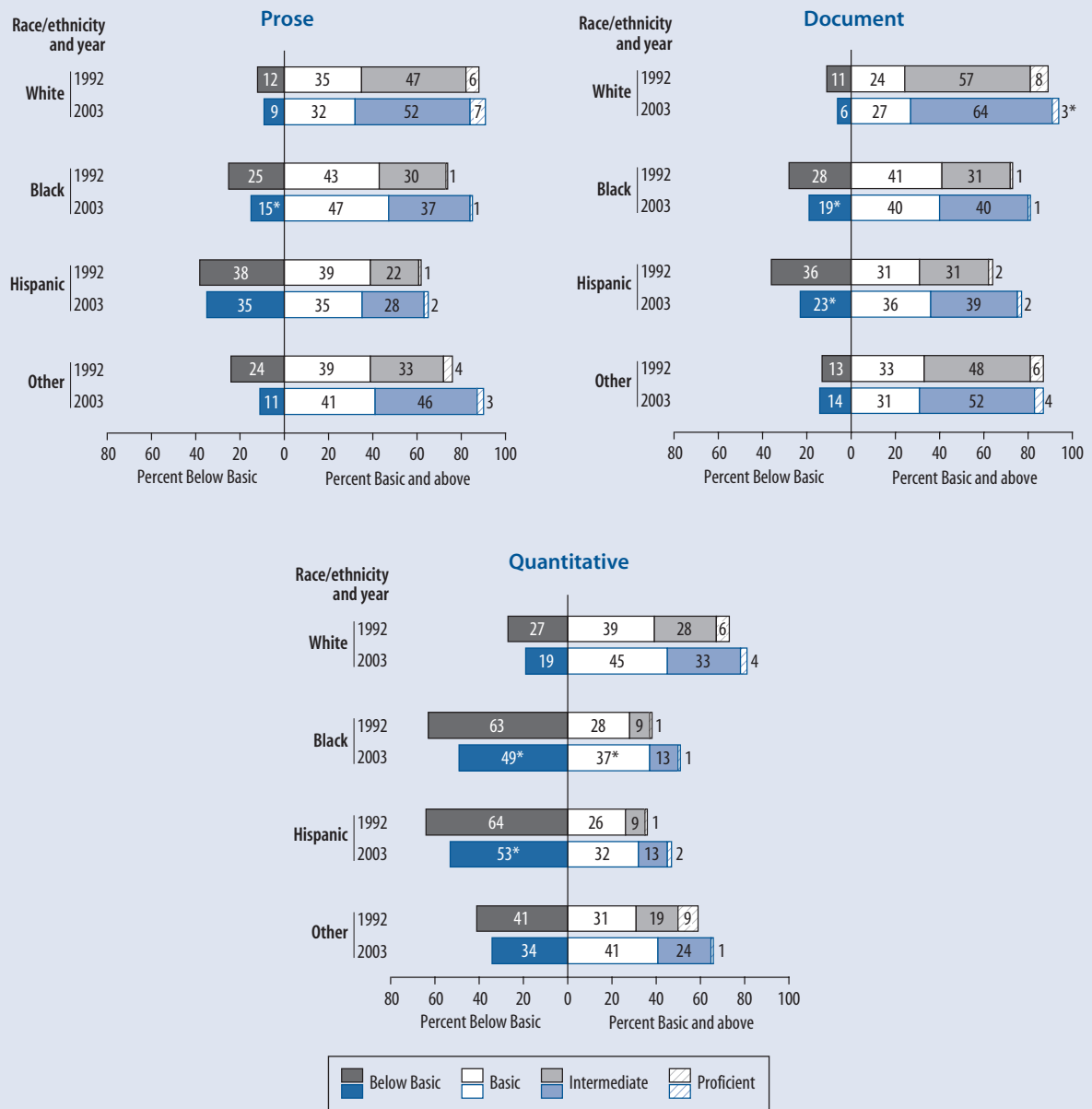
Figure 2-3. Average prose, document, and quantitative literacy scores of the adult prison population, by race/ethnicity: 1992 and 2003



*Significantly different from 1992.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure. In 1992, respondents were allowed to identify only one race but could identify "other" as their race. In 2003, respondents were allowed to identify multiple races but could not choose "other" as their race. The "Other" category includes Asians, Pacific Islanders, Native Hawaiians, American Indians, and Alaska Natives. In 2003, the "Other" category also includes adults who said they were multi-racial; in 1992, it also includes adults who chose "other" as their race. All adults of Hispanic origin are classified as Hispanic, regardless of race. Black includes African American, and Hispanic includes Latino. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-4. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by race/ethnicity: 1992 and 2003



*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure. In 1992, respondents were allowed to identify only one race but could identify "other" as their race. In 2003, respondents were allowed to identify multiple races but could not choose "other" as their race. The "Other" category includes Asians, Pacific Islanders, Native Hawaiians, American Indians, and Alaska Natives. In 2003, the "Other" category also includes adults who said they were multi-racial; in 1992, it also includes adults who chose "other" as their race. All adults of Hispanic origin are classified as Hispanic, regardless of race. Black includes African American, and Hispanic includes Latino.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

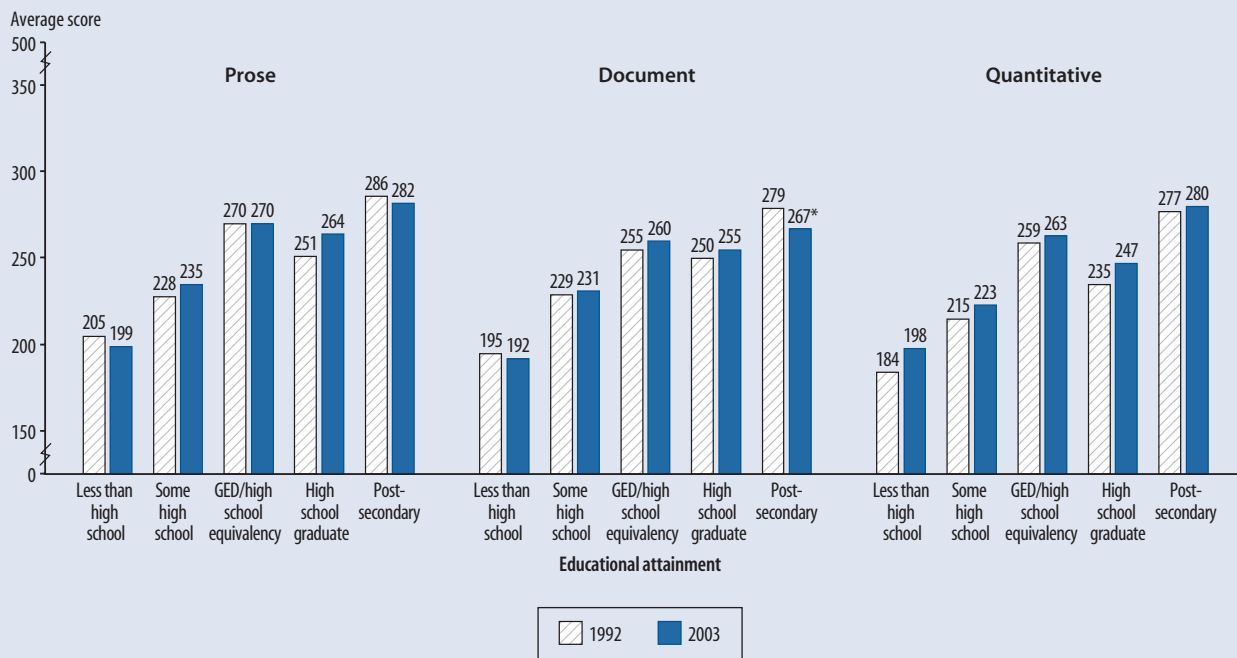
Highest Level of Educational Attainment

Average document literacy declined between 1992 and 2003 for inmates with postsecondary education (figure 2-5). There were no other statistically significant changes in average prose, document, and quantitative literacy for inmates at any other level of educational attainment. Within educational attainment categories, there were no statistically significant changes in the distribution of prison inmates across the literacy levels on any of the three scales (figure 2-6).

In 2003, inmates with less than a high school education had lower average prose and quantitative literacy than inmates with some high school; inmates with

some high school had lower average prose and quantitative literacy than inmates who had received a high school diploma or a GED/high school equivalency certificate; and inmates who had received a high school diploma or a GED/high school equivalency certificate had lower average prose and document literacy than inmates who had postsecondary education (figure 2-5). On the document scale, incarcerated adults' average literacy increased with each increasing level of education up to a high school diploma or a GED/high school equivalency certificate. On all three scales, prison inmates with a high school diploma had lower average literacy than inmates with a GED/high school equivalency certificate.

Figure 2-5. Average prose, document, and quantitative literacy scores of the adult prison population, by highest educational attainment: 1992 and 2003

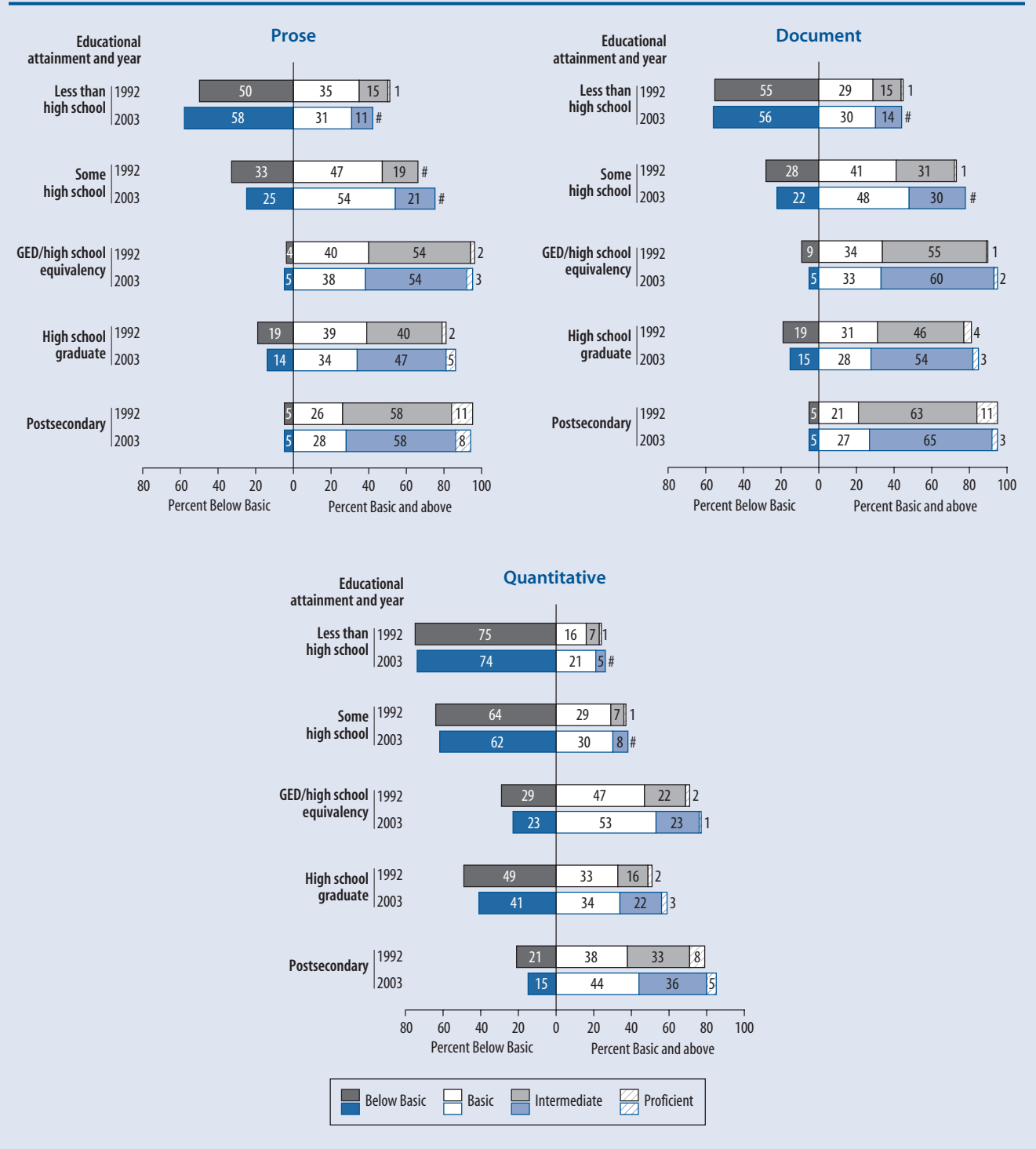


*Significantly different from 1992.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure. Postsecondary includes any education beyond high school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-6. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by highest educational attainment: 1992 and 2003



Gender

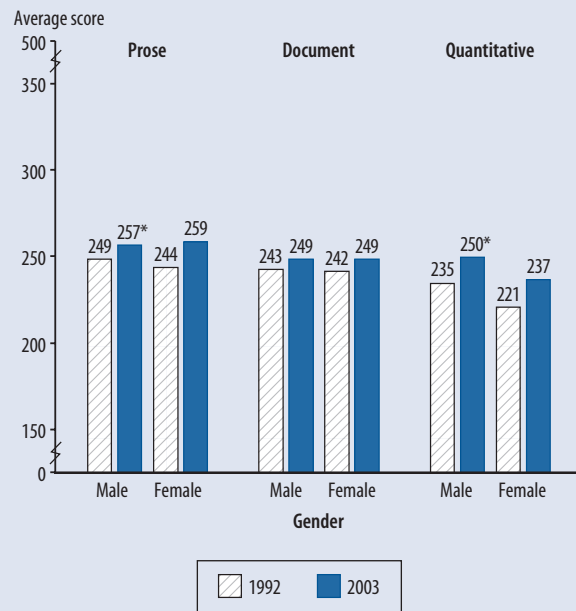
The average prose and quantitative literacy of incarcerated men increased between 1992 and 2003 (figure 2-7). There were no statistically significant changes in the average literacy of incarcerated women on any of the three scales.¹⁰

Between 1992 and 2003, the percentage of male inmates with *Below Basic* literacy declined from 22 to 17 percent on the prose scale, from 22 to 15 percent on the document scale, and from 49 to 39 percent on the quantitative scale (figure 2-8).

There were no statistically significant differences in average prose, document, and quantitative literacy between male and female prison inmates in 2003 (figure 2-7).

¹⁰ The sample of female prison inmates was smaller than the sample of male prison inmates, reflecting the fact that fewer women than men are incarcerated in state and federal prisons. Because the sample was smaller, standard errors were larger, and differences that look large were not necessarily statistically significant. The fact that a difference is not statistically significant does not necessarily mean that there was no difference in literacy between 1992 and 2003 for female inmates; rather, it means that we cannot be 95 percent certain that the difference we see in the sample would hold for the population of female prison inmates as a whole.

Figure 2-7. Average prose, document, and quantitative literacy scores of the adult prison population, by gender: 1992 and 2003

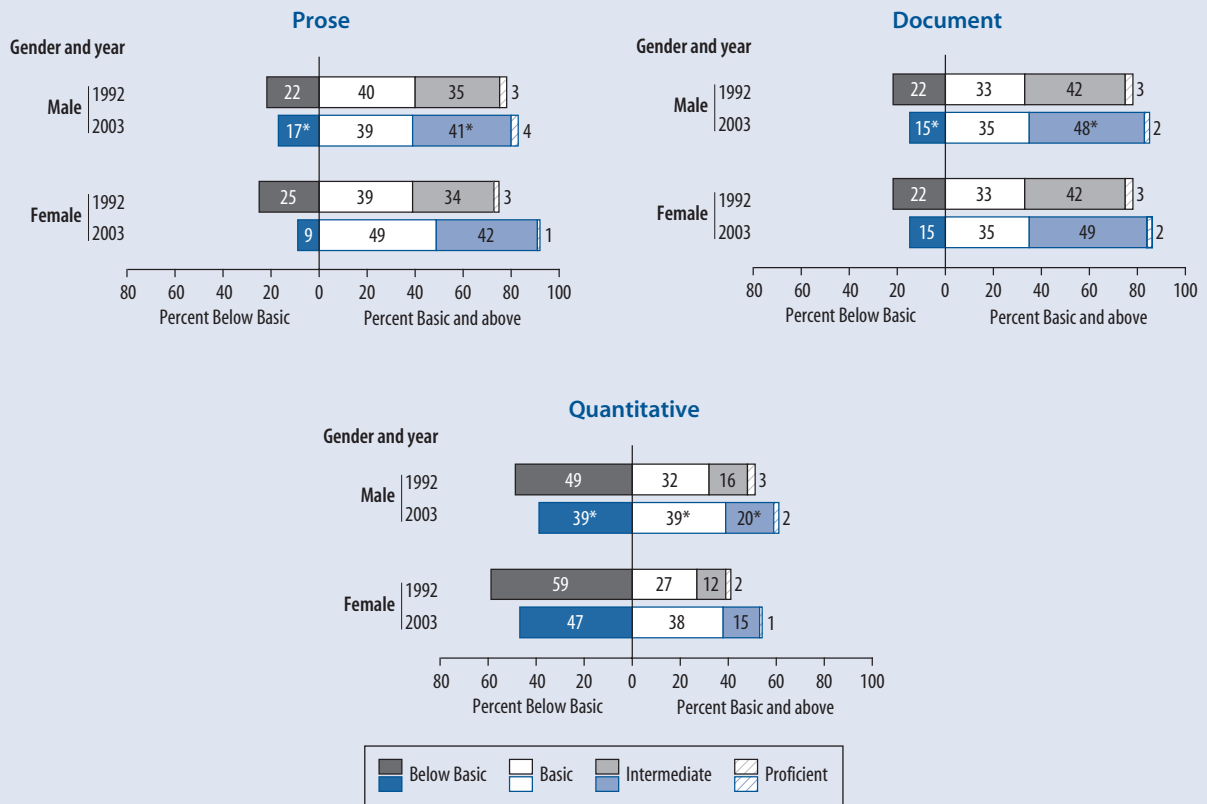


*Significantly different from 1992.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-8. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by gender: 1992 and 2003



*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

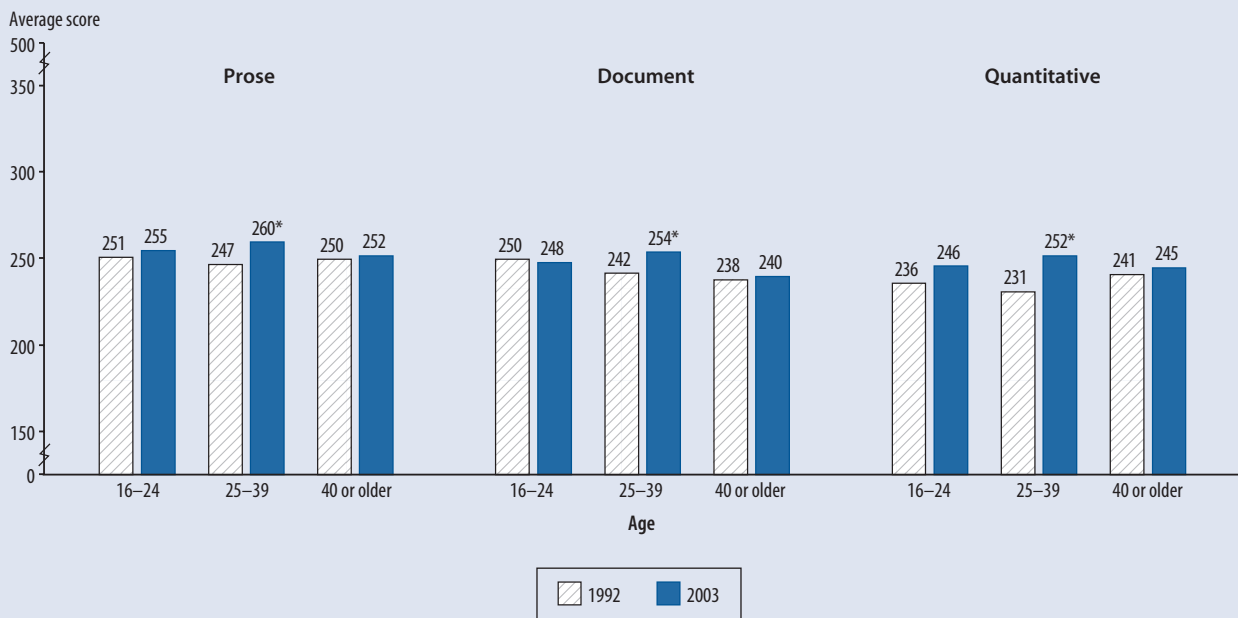
Age

The average prose, document, and quantitative literacy of prison inmates in the 25 to 39 age group increased between 1992 and 2003 (figure 2-9). The 25 to 38 age group was the largest age group in the prison population in both 1992 and 2003, but the percentage of the incarcerated population in this age group fell from 58 percent in 1992 to 52 percent in 2003 (table 2-1). There were no statistically significant changes in average literacy among inmates in the 16 to 24 or 40 and older age groups.

On all three scales, a lower percentage of prison inmates in the 25 to 39 age group had *Below Basic* literacy and a higher percentage had *Intermediate* literacy in 2003 than in 1992 (figure 2-10).

In 2003, incarcerated adults who were 40 years old or older had lower average prose and document literacy than incarcerated adults who were 25 to 39 years old (figure 2-9).

Figure 2-9. Average prose, document, and quantitative literacy scores of the adult prison population, by age: 1992 and 2003

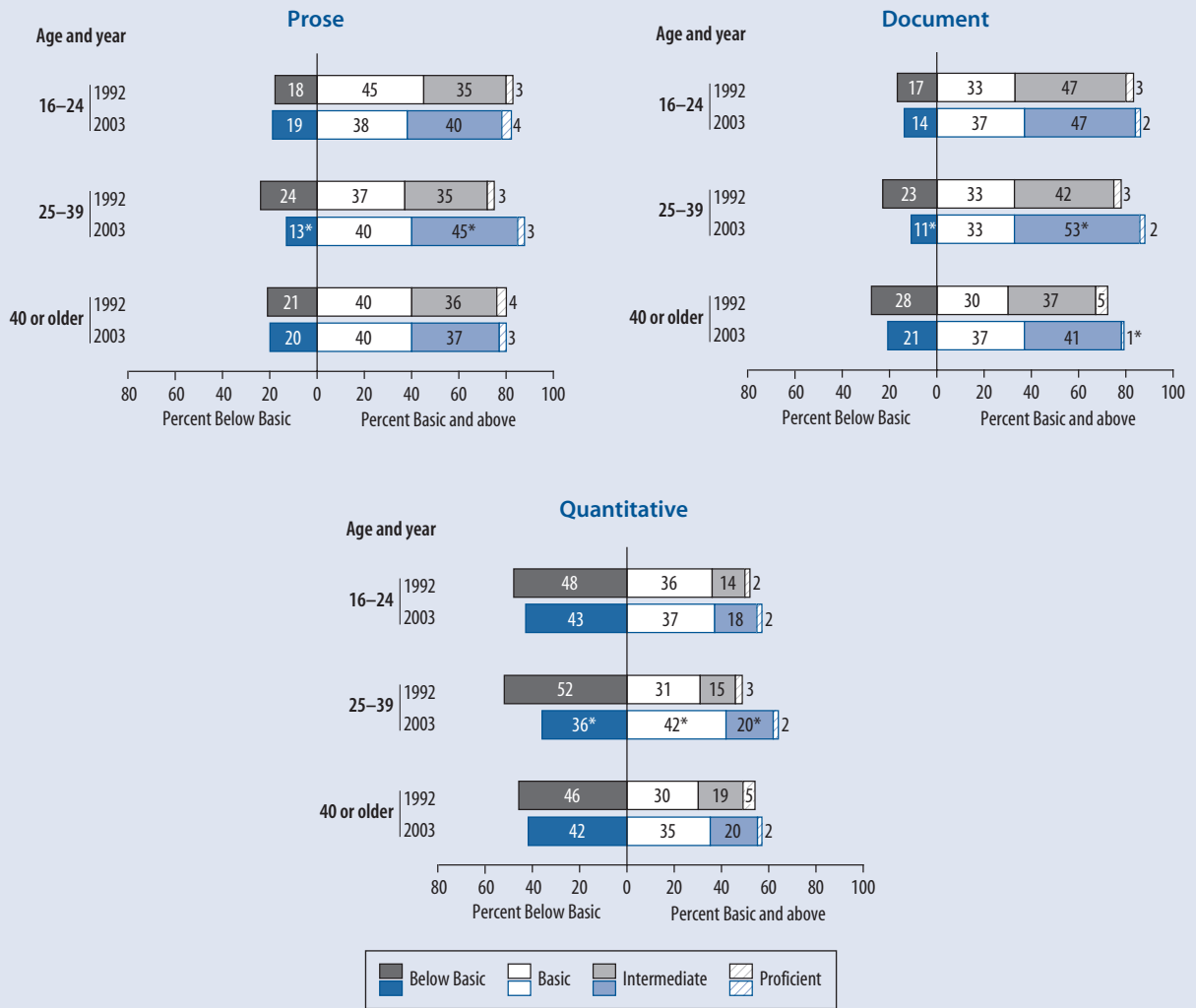


*Significantly different from 1992.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-10. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by age: 1992 and 2003



*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Language Spoken Before Starting School

Average prose and quantitative literacy increased between 1992 and 2003 for prison inmates who spoke only English before starting school (figure 2-11). There were no statistically significant changes in average literacy for inmates who spoke English and another language before starting school or for inmates who spoke only a language other than English.

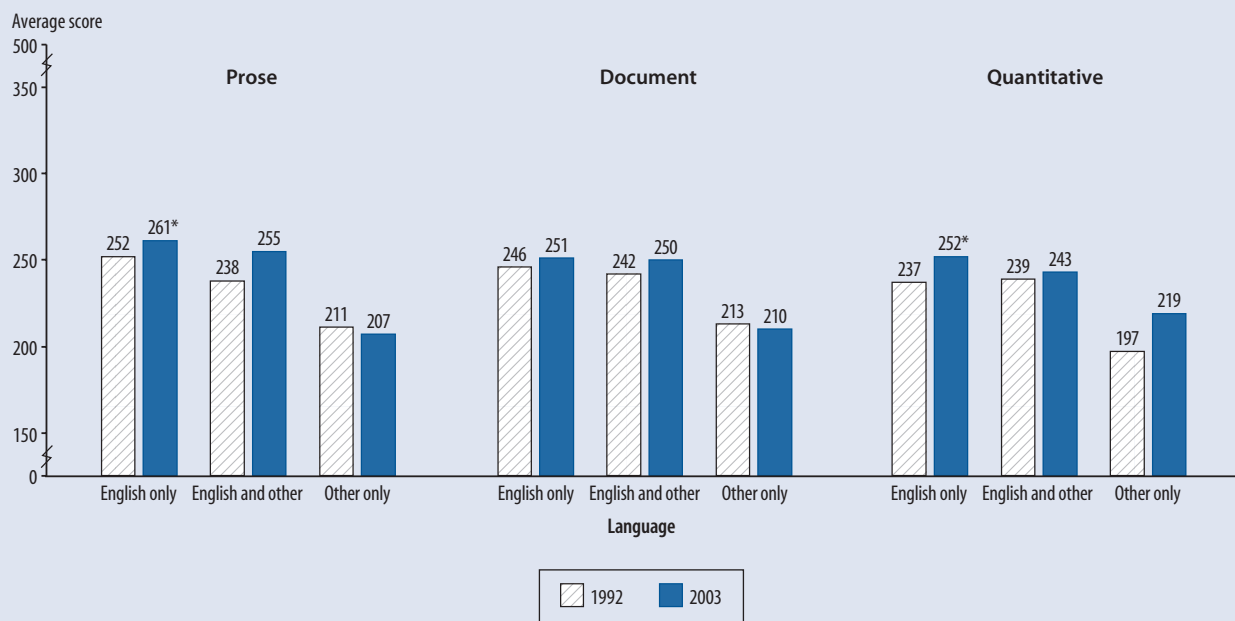
The percentage of prison inmates who spoke only English before starting school and had *Below Basic* literacy decreased from 19 to 13 percent on the prose scale, 21 to 13 percent on the document scale, and 48 to 37 percent on the quantitative scale (figure 2-12). The percentage of prison inmates who spoke only

English before starting school and had *Intermediate* literacy increased from 38 to 44 percent on the prose scale, 44 to 50 percent on the document scale, and 16 to 21 percent on the quantitative scale.

The percentage of prison inmates who spoke English and another language before starting school and had *Below Basic* literacy decreased from 32 to 15 percent on the prose scale (figure 2-12).

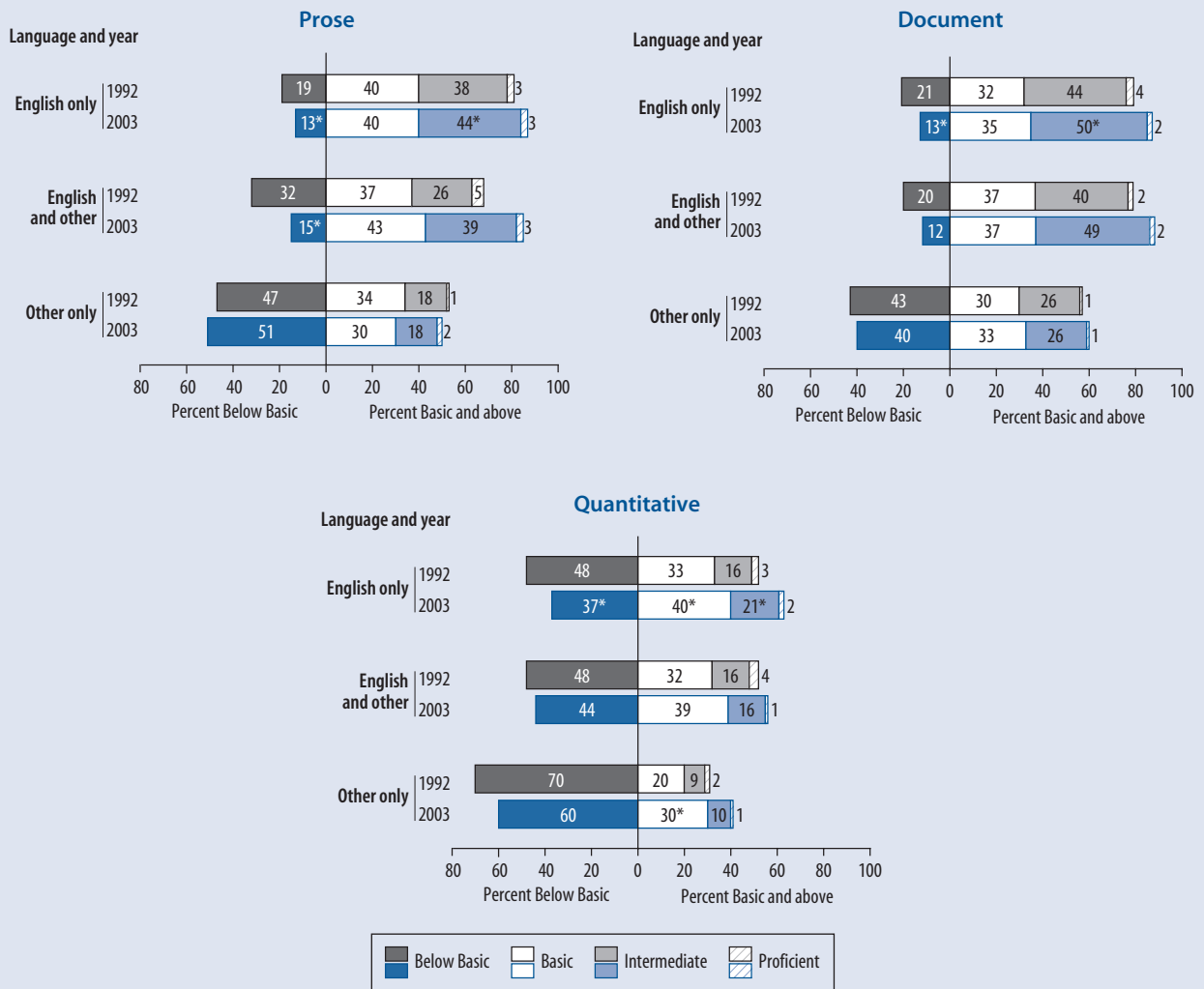
In 2003, prison inmates who spoke only English or English and another language before starting school had higher average prose, document, and quantitative literacy than prison inmates who spoke only a language other than English before starting school (figure 2-11).

Figure 2-11. Average prose, document, and quantitative literacy scores of the adult prison population, by language spoken before starting school: 1992 and 2003



*Significantly different from 1992.
 NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-12. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by language spoken before starting school: 1992 and 2003



*Significantly different from 1992.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Parents' Highest Level of Educational Attainment

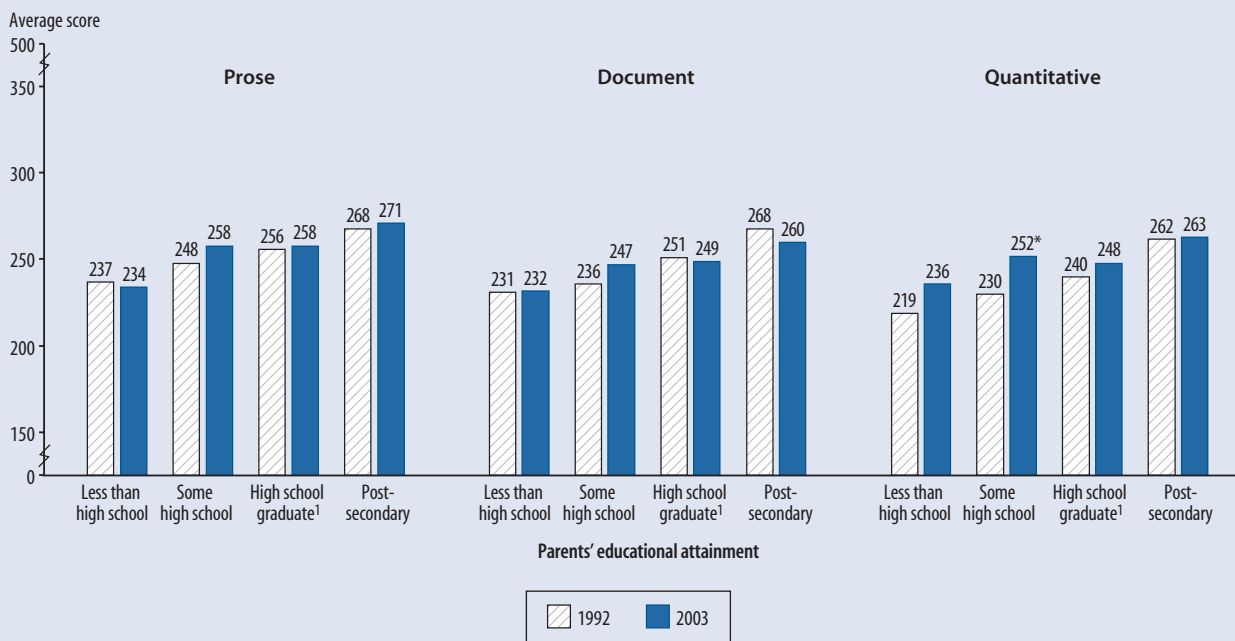
Figure 2-13 shows prison inmates' average levels of prose, document, and quantitative literacy by their parents' level of educational attainment. There were no statistically significant changes in the average literacy of inmates in any of the categories of parents' educational attainment except for an increase in quantitative literacy for inmates whose parents had some high school education.

Figure 2-14 shows the distribution of prison inmates by their literacy level and their parents' level of educational attainment. There were no statistically significant differences between 1992 and 2003, except for

a decrease in the percentage of inmates with *Below Basic* quantitative literacy whose parents completed some high school.

In 2003, prison inmates whose parents had attended some high school (but had not received a high school diploma or a GED/high school equivalency certificate) had higher average prose, document, and quantitative literacy than prison inmates whose parents had not attended any high school (figure 2-13). Prison inmates whose parents had postsecondary education had higher average prose, document, and quantitative literacy than prison inmates whose parents ended their education with a high school diploma or a GED/high school equivalency certificate.

Figure 2-13. Average prose, document, and quantitative literacy scores of the adult prison population, by parents' highest educational attainment: 1992 and 2003



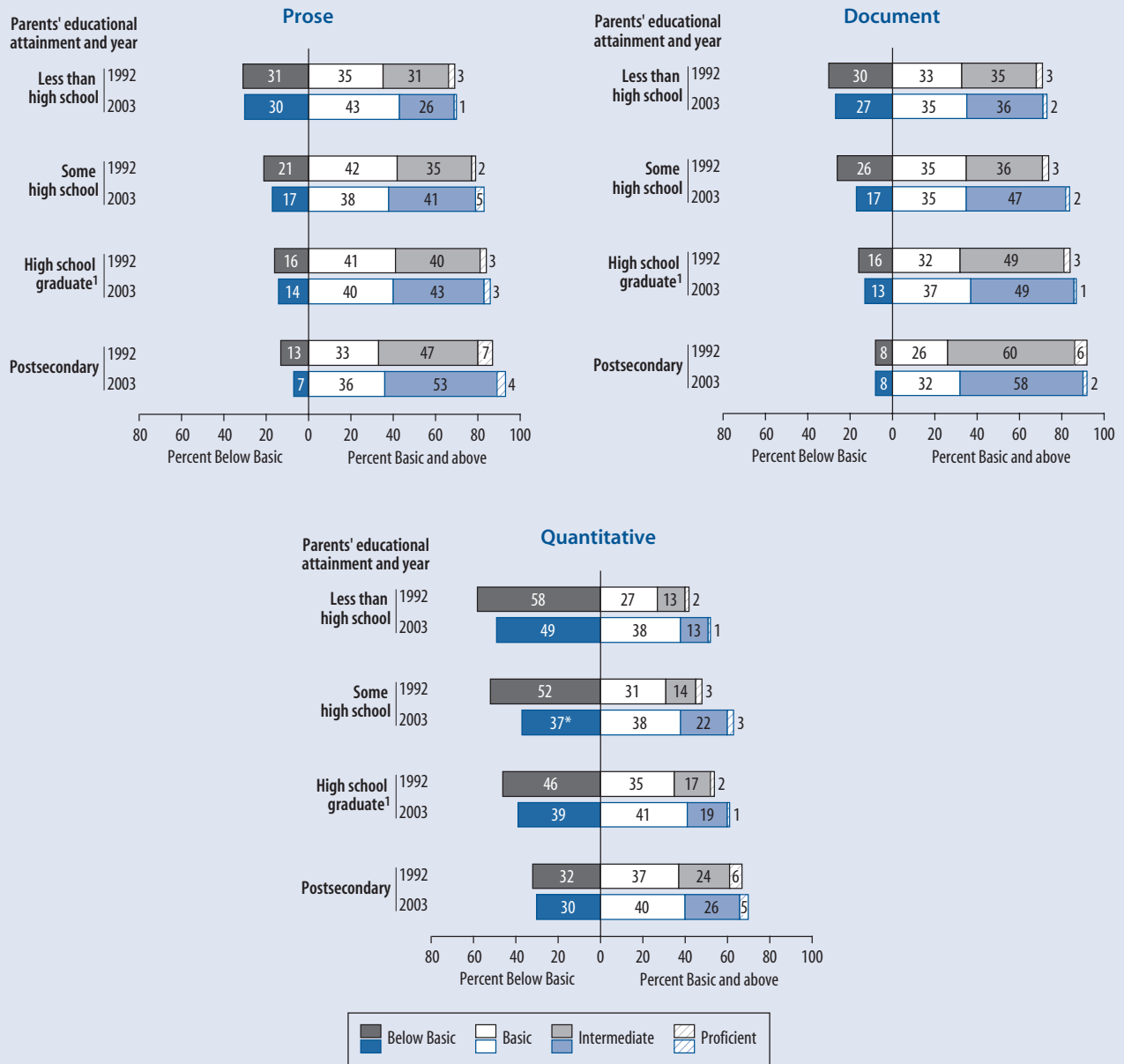
*Significantly different from 1992.

¹High school graduate category includes GED and high school equivalency.

NOTE: Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure. Postsecondary includes any education beyond high school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Figure 2-14. Percentage of the adult prison population in each prose, document, and quantitative literacy level, by parents' highest educational attainment: 1992 and 2003



*Significantly different from 1992.

¹High school graduate category includes GED and high school equivalency.

NOTE: Detail may not sum to totals because of rounding. Adults are defined as people 16 years of age and older living in prisons. Adults who could not be interviewed due to language spoken or cognitive or mental disabilities (3 percent in 1992 and 1 percent in 2003) are excluded from this figure. Postsecondary includes any education beyond high school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 1992 National Adult Literacy Survey and 2003 National Assessment of Adult Literacy.

Summary

The prison population was larger, older, and better educated in 2003 than in 1992. Average prose and quantitative literacy was higher among prison inmates in 2003 than it was among inmates in 1992. More prison inmates had *Intermediate* prose, document, and quantitative literacy in 2003 than in 1992, and fewer had *Below Basic* prose, document, and quantitative literacy.

Between 1992 and 2003, average prose and quantitative literacy levels increased for prison inmates who were Black, male, or in the 25 to 39 age group. Average document literacy increased for inmates who were Black or in the 25 to 39 age group. Average prose and quantitative literacy levels also increased for prison inmates who spoke only English before starting school, and average quantitative literacy levels

increased for Hispanic inmates. Among all the demographic, educational attainment, and language background groups examined in this chapter, there were no decreases in average literacy on any of the three scales between 1992 and 2003.

In 2003, White prison inmates had higher average prose, document, and quantitative literacy than Black and Hispanic prison inmates. Prison inmates who were 40 or older had lower average prose and document literacy than inmates who were 16 to 24 or 25 to 39 years old. Prison inmates who spoke English before starting school had higher average literacy on all three scales than inmates who did not speak any English before starting school. Average prose, document, and quantitative literacy increased or did not change significantly among prison inmates with each increasing level of education for them or their parents.