APPENDIX A

Interpreting the Literacy Scales[1]

Building on the two earlier literacy surveys conducted by Educational Testing Service (ETS), the performance results from the National Adult Literacy Survey are reported on three literacy scales — prose, document, and quantitative — rather than on a single conglomerate scale. Each of the three literacy scales ranges from 0 to 500.

The purpose of this section of the report is to give meaning to the literacy scales — or, more specifically, to interpret the numerical scores that are used to represent adults' proficiencies on these scales. Toward this end, the section begins with a brief summary of the task development process and of the way in which the literacy levels are defined. A detailed description of the prose, document, and quantitative scales is then provided. The five levels on each scale are defined, and the skills and strategies needed to successfully perform the tasks in each level are discussed. Sample tasks are presented to illustrate the types of materials and task demands that characterize the levels on each scale. The section ends with a brief summary of the probabilities of successful performance on tasks within each level for individuals who demonstrated different proficiencies.

Building the Literacy Tasks

The literacy scales make it possible not only to summarize the literacy proficiencies of the total population and of various subpopulations, but also to determine the relative difficulty of the literacy tasks administered in the survey. That is, just as an individual receives a score according to his or her performance on the assessment tasks, each task receives a value according to its difficulty as determined by the performance of the adults who participated in the survey. Previous research conducted at ETS has shown that the difficulty of a literacy task, and therefore its placement on a particular literacy scale, is determined by three factors: the structure or

[1] This chapter originally appeared in the first report on the National Adult Literacy Survey, I.S. Kirsch, A. Jungeblut, L. Jenkins, and A. Kolstad (September 1993). *Adult Literacy in America: A First Look at the Results of the National Adult Literacy Survey*. Washington, D.C.: U.S. Department of Education.

linguistic format of the material, the content and/or the context from which it is selected, and the nature of the task, or what the individual is asked to do with the material.

Materials. The materials selected for inclusion in NALS reflect a variety of linguistic formats that adults encounter in their daily activities. Most of the prose materials used in the survey are expository — that is, they describe, define, or inform — since most of the prose that adults read is expository in nature; however, narratives and poetry are included, as well. The prose materials include an array of linguistic structures, ranging from texts that are highly organized both topically and visually to those that are loosely organized. They also include texts of varying lengths, from multiple-page magazine selections to short newspaper articles. All prose materials included in the survey were reproduced in their original format.

The document materials represent a wide variety of structures, which are characterized as tables, charts and graphs, forms, and maps, among other categories. Tables include matrix documents in which information is arrayed in rows and columns — for example, bus or airplane schedules, lists, or tables of numbers. Documents categorized as charts and graphs include pie charts, bar graphs, and line graphs. Forms are documents that require information to be filled in, while other structures include such materials as advertisements and coupons.

The quantitative tasks require the reader to perform arithmetic operations using numbers that are embedded in print. Since there are no materials that are unique to quantitative tasks, these tasks were based on prose materials and documents. Most quantitative tasks were, in fact, based on document structures.

Content and/or Contexts. Adults do not read printed or written materials in a vacuum. Rather, they read within a particular context or for a particular purpose. Accordingly, the NALS materials represent a variety of contexts and contents. Six such areas were identified: home and family; health and safety; community and citizenship; consumer economics; work; and leisure and recreation.

In selecting materials to represent these areas, efforts were made to include as broad a range as possible, as well as to select universally relevant contexts and contents. This was to ensure that the materials would not be so specialized as to be familiar only to certain groups. In this way, disadvantages for individuals with limited background knowledge were minimized.

Types of Tasks. After the materials were selected, tasks were developed to accompany the materials. These tasks were designed to simulate the ways in which people use various types of materials and to require different strategies for successful task completion. For both the prose and document scales, the tasks can be organized into three major categories: *locating, integrating*, and *generating* information. In the locating tasks, readers are asked to match information that is given in a question or directive with either literal or synonymous information in the text or document. Integrating tasks require the reader to incorporate two or more pieces of information located in different parts of the text or document. Generating tasks require readers not only to process information located in different parts of the material, but also to go beyond that information by drawing on their knowledge about a subject or by making broad text-based inferences.

Quantitative tasks require readers to perform arithmetic operations — addition, subtraction, multiplication, or division — either singly or in combination. In some tasks, the type of operation that must be performed is obvious from the wording of the question, while in other tasks the readers must infer which operation is to be performed. Similarly, the numbers that are required to perform the operation can, in some cases, be easily identified, while in others, the numbers that are needed are embedded in text. Moreover, some quantitative tasks require the reader to explain how the problem would be solved rather than perform the calculation, and on some tasks the use of a simple four-function calculator is required.

Defining the Literacy Levels

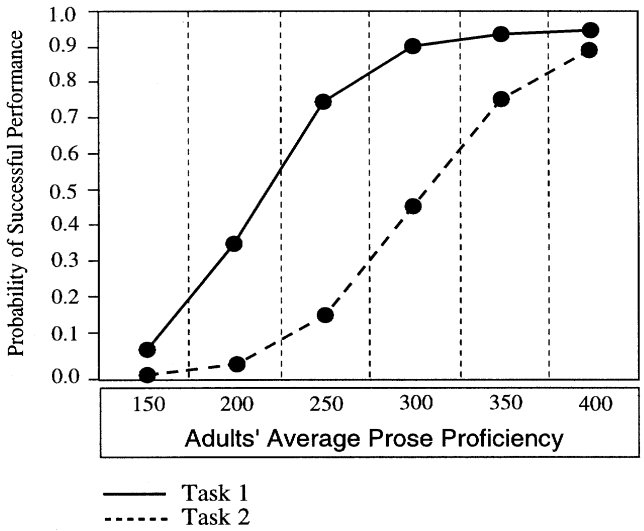
The relative difficulty of the assessment tasks reflects the interactions among the various task characteristics described here. As shown in Figure 1 in the Introduction to this report, the score point assigned to each task is the point at which the individuals with that proficiency score have a high probability of responding correctly. In this survey, an 80 percent probability of correct response was the criterion used. While some tasks were at the very low end of the scale and some at the very high end, most had difficulty values in the 200 to 400 range.

By assigning scale values to both the individuals and tasks, it is possible to see how well adults with varying proficiencies performed on tasks of varying difficulty. While individuals with low proficiency tend to perform well on tasks with difficulty values equivalent to or below their

level of proficiency, they are less likely to succeed on tasks with higher difficulty values. This does not mean that individuals with low proficiency can never succeed on more difficult literacy tasks — that is, on tasks whose difficulty values are higher than their proficiencies. They may do so some of the time. Rather, it means that their probability of success is not as high. In other words, the more difficult the task relative to their proficiency, the lower their likelihood of responding correctly.

The response probabilities for two tasks on the prose scale are displayed in Figure A.1. The difficulty of the first task is measured at the 250 point on the scale, and the second task is at the 350 point. This means that an individual would have to score at the 250 point on the prose scale to have an 80 percent chance (that is, a .8 probability) of responding correctly to Task 1. Adults scoring at the 200 point on the prose scale have only a 40 percent chance of responding correctly to this task, whereas those scoring at the 300 point and above would be expected to rarely miss this task and others like it.

Figure A.1: Probabilities of successful performance on two prose tasks by individuals at selected points on the prose scale



Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

In contrast, an individual would need to score at the 350 point to have an 80 percent chance of responding correctly to Task 2. While individuals performing at the 250 point would have an 80 percent chance

of success on the first task, their probability of answering the more difficult second task correctly is only 20 percent. An individual scoring at the 300 point is likely to succeed on this more difficult task only half the time.

An analogy may help clarify the information presented for the two prose tasks. The relationship between task difficulty and individual proficiency is much like the high jump event in track and field, in which an athlete tries to jump over a bar that is placed at increasing heights. Each high jumper has a height at which he or she is proficient. That is, he or she is able to clear the bar at that height with a high probability of success, and can clear the bar at lower levels almost every time. When the bar is higher than their level of proficiency, however, they can be expected to have a much lower chance of clearing it successfully.

Once the literacy tasks are placed on their respective scales, using the criterion described here, it is possible to see how well the interactions among the task characteristics explain the placement of various tasks along the scales.[2] In investigating the progression of task characteristics across the scales, certain questions are of interest. Do tasks with similar difficulty values (that is, with difficulty values near one another on a scale) have certain shared characteristics? Do these characteristics differ in systematic ways from tasks in either higher or lower levels of difficulty? Analyses of the interactions between the materials read and the tasks based on these materials reveal that an ordered set of information-processing skills appears to be called into play to perform the range of tasks along each scale.

To capture this ordering, each scale was divided into five levels that reflect the progression of information-processing skills and strategies: Level 1 (0 to 225), Level 2 (226 to 275), Level 3 (276 to 325), Level 4 (326 to 375), and Level 5 (376 to 500). These levels were determined not as a result of any statistical property of the scales, but rather as a result of shifts in the skills and strategies required to succeed on various tasks along the scales, from simple to complex.

The remaining pages of this section describe each scale in terms of the nature of the task demands at each of the five levels. After a brief introduction to each scale, sample tasks in each level are presented and the factors contributing to their difficulty are discussed. The aim of these discussions is to give meaning to the scales and to facilitate interpretation of the results provided in the first and second sections of this report.

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[2] I.S. Kirsch, P.B. Mosentlal (1990). *"Exploring Document Literacy: Variables Underlying the Performance of Young Adults,"* Reading Research Quarterly, 25. pp 5-30. .

Interpreting the Literacy Levels

Prose Literacy

The ability to understand and use information contained in various kinds of textual material is an important aspect of literacy. Most of the prose materials administered in this assessment were expository — that is, they inform, define, or describe — since these constitute much of the prose that adults read. Some narrative texts and poems were included, as well. The prose materials were drawn from newspapers, magazines, books, brochures, and pamphlets and reprinted in their entirety, using the typography and layout of the original source. As a result, the materials vary widely in length, density of information, and the use of structural or organizational aids such as section or paragraph headings, italic or bold face type, and bullets.

Each prose selection was accompanied by one or more questions or directives which asked the reader to perform specific tasks. These tasks represent three major aspects of information-processing: locating, integrating, and generating. Locating tasks require the reader to find information in the text based on conditions or features specified in the question or directive. The match may be literal or synonymous, or the reader may need to make a text-based inference in order to perform the task successfully. Integrating tasks ask the reader to compare or contrast two or more pieces of information from the text. In some cases the information can be found in a single paragraph, while in others it appears in different paragraphs or sections. In the generating tasks, readers must produce a written response by making text-based inferences or drawing on their own background knowledge.

In all, the prose literacy scale includes 41 tasks with difficulty values ranging from 149 to 468. It is important to remember that the locating, generating, and integrating tasks extend over a range of difficulty as a result of interactions with other variables including:

- the number of categories or features of information that the reader must process;
- the number of categories or features of information in the text that can distract the reader, or that may seem plausible but are incorrect;
- the degree to which information given in the question is obviously related to the information contained in the text; and
- the length and density of the text.

The five levels of prose literacy are defined, and sample tasks provided, in the following pages.

Prose Level 1 Scale range: 0 to 225

Most of the tasks in this level require the reader to read relatively short text to locate a single piece of information which is identical to or synonymous with the information given in the question or directive. If plausible but incorrect information is present in the text, it tends not to be located near the correct information.

Average difficulty value of tasks in this level: 198
Percentage of adults performing in this level: 21%

Tasks in this level require the reader to locate and match a single piece of information in the text. Typically the match between the question or directive and the text is literal, although sometimes synonymous matches may be necessary. The text is usually brief or has organizational aids such as paragraph headings or italics that suggest where in the text the reader should search for the specified information. The word or phrase to be matched appears only once in the text.

One task in Level 1 with a difficulty value of 210 asks respondents to read a newspaper article about a marathon swimmer and to underline the sentence that tells what she ate during a swim. Only one reference to food is contained in the passage, and it does not use the word "ate." Rather, the article says the swimmer "kept up her strength with banana and honey sandwiches, hot chocolate, lots of water and granola bars." The reader must match the word "ate" in the directive with the only reference to foods in the article.

Underline the sentence that tells what Ms. Chanin ate during the swim.

Swimmer completes Manhattan marathon

The Associated Press

NEW YORK-University of Maryland senior Stacy Chanin on Wednesday became the first person to swim three 28-mile laps around Manhattan.

Chanin, 23, of Virginia, climbed out of the East River at 96th Street at 9:30 p.m. She began the swim at noon on Tues-day.

A spokesman for the swimmer, Roy Brunett, said Chanin had kept up her strength with "banana and honey" sandwiches, hot chocolate, lots of water and granola bars."

Chanin has twice circled Manhattan before and trained for the new feat by swimming about 28.4 miles a week. The Yonkers native has competed as a swim-mer since she was 15 and hoped to persuade Olympic authorities to add a long-distance swimming event.

The Leukemia Society of America solicited pledges for each mile she swam.

In July 1983, Julie Ridge became the first person to swim around Manhattan twice. With her three laps, Chanin came up just short of Diana Nyad's distance record, set on a Florida-to-Cuba swim.

Prose Level 2 Scale range: 226 to 275

Some tasks in this level require readers to locate a single piece of information in the text; however, several distractors or plausible but incorrect pieces of information may be present, or low-level inferences may be required. Other tasks require the reader to integrate two or more pieces of information or to compare and contrast easily identifiable information based on a criterion provided in the question or directive.

Average difficulty value of tasks in this level: 259
Percentage of adults performing in this level: 27%

Like the tasks in Level 1, most of the tasks in this level ask the reader to locate information. However, these tasks place more varied demands on the reader. For example, they frequently require readers to match more than a single piece of information in the text and to discount information that only partially satisfies the question. If plausible but incomplete information is included in the text, such distractors do not

appear near the sentence or paragraph that contains the correct answer. For example, a task based on the sports article reproduced earlier asks the reader to identify the age at which the marathon swimmer began to swim competitively. The article first provides the swimmer's current age of 23, which is a plausible but incorrect answer. The correct information, age 15, is found toward the end of the article.

In addition to directing the reader to locate more than a single piece of information in the text, low-level inferences based on the text may be required to respond correctly. Other tasks in Level 2 (226 to 275) require the reader to identify information that matches a given criterion. For example, in one task with a difficulty value of 275, readers were asked to identify specifically what was wrong with an appliance by choosing the most appropriate of four statements describing its malfunction.

A manufacturing company provides its customers with the following instructions for returning appliances for service:

> When returning appliance for servicing, include a note telling as clearly and as specifically as possible what is wrong with the appliance.

A repair person for the company receives four appliances with the following notes attached. Circle the letter next to the note which best follows the instructions supplied by the company.

A
> The clock does not run correctly on this clock radio. I tried fixing it, but I couldn't.

C
> The alarm on my clock radio doesn't go off at the time I set. It rings 15-30 minutes later.

B
> My clock radio is not working. It stopped working right after I used it for five days.

D
> This radio is broken. Please repair and return by United Parcel Service to the address on my slip.

Readers in this level may also be asked to infer a recurring theme. One task with a difficulty value of 262 asks respondents to read a poem that uses several metaphors to represent a single, familiar concept and to identify its theme. The repetitiveness and familiarity of the allusions appear to make this "generating" task relatively easy.

Prose Level 3 Scale range: 276 to 325

Tasks in this level tend to require readers to make literal or synonymous matches between the text and information given in the task, or to make matches that require low-level inferences. Other tasks ask readers to integrate information from dense or lengthy text that contains no organizational aids such as headings. Readers may also be asked to generate a response based on information that can be easily identified in the text. Distracting information is present, but is not located near the correct information.

Average difficulty value of tasks in this level: 298
Percentage of adults performing in this level: 32%

One of the easier Level 3 tasks requires the reader to write a brief letter explaining that an error has been made on a credit card bill. This task is at 288 on the prose scale. Other tasks in this level require the reader to search fairly dense text for information. Some of the tasks ask respondents to make a literal or synonymous match on more than a single feature, while other tasks ask them to integrate multiple pieces of information from a long passage that does not contain organizational aids.

One of the more difficult Level 3 tasks (with a difficulty value of 316) requires the reader to read a magazine article about an Asian-American woman and to provide two facts that support an inference made from the text. The question directs the reader to identify what Ida Chen did to help resolve conflicts due to discrimination.

List two things that Chen became involved in or has done to help resolve conflicts due to discrimination.

IDA CHEN is the first Asian-American woman to become a judge of the Commonwealth of Pennsylvania.

She understands discrimination because she has experienced it herself.

Soft-spoken and eminently dignified, Judge Ida Chen prefers hearing about a new acquaintance rather than talking about herself. She wants to know about career plans, hopes, dreams, fears. She gives unsolicited advice as well as encouragement. She instills confidence.

Her father once hoped that she would become a professor. And she would have also made an outstanding social worker or guidance counselor. The truth is that Chen wears the caps of all these professions as a Family Court judge of the Court of Common Pleas of Philadelphia County, as a participant in public advocacy for minorities, and as a particularly sensitive, caring person.

She understands discrimination because she has experienced it herself. As an elementary school student, Chen tried to join the local Brownie troop. ''You can't be a member,'' she was told. ''Only American girls are in the Brownies.''

Originally intent upon a career as a journalist, she selected Temple University because of its outstanding journalism department and affordable tuition. Independence being a personal need, she paid for her tuition by working for Temple's Department of Criminal Justice. There she had her first encounter with the legal world and it turned her career plans in a new direction — law school.

Through meticulous planning, Chen was able to earn her undergraduate degree in two and a half years and she continued to work three jobs. But when she began her first semester as a Temple law student in the fall of 1973, she was barely able to stay awake. Her teacher Lynne Abraham, now a Common Pleas Court judge herself, couldn't help but notice Chen yawning in the back of the class, and when she determined that this student was not a party animal but a workhorse, she arranged a teaching assistant's job for Chen on campus.

After graduating from Temple Law School in 1976, Chen worked for the U.S. Equal Employment Opportunity Commission where she was a litigator on behalf of plaintiffs who experienced discrimination in the workplace, and then moved on to become the first Asian-American to serve on the Philadelphia Commission on Human Relations.

Appointed by Mayor Wilson Goode, Chen worked with community leaders to resolve racial and ethnic tensions and also made time to contribute free legal counsel to a variety of activist groups.

The ''Help Wanted'' section of the newspaper contained an entry that aroused Chen's curiosity — an ad for a judge's position. Her application resulted in her selection by a state judicial committee to fill a seat in the state court. And in July of 1988, she officially became a judge of the Court of Common Pleas. Running as both a Republican and Democratic candidate, her position was secured when she won her seat on the bench at last November's election.

At Family Court, Chen presides over criminal and civil cases which include adult sex crimes, domestic violence, juvenile delinquency, custody, divorce and support. Not a pretty picture.

Chen recalls her first day as judge, hearing a juvenile dependency case — ''It was a horrifying experience. I broke down because the cases were so depressing,'' she remembers.

Outside of the courtroom, Chen has made a name for herself in resolving interracial conflicts, while glorying in her Chinese-American identity. In a 1986 incident involving the desecration of Korean street signs in a Philadelphia neighborhood, Chen called for a meeting with the leaders of that community to help resolve the conflict.

Chen's interest in community advocacy is not limited to Asian communities. She has been involved in Hispanic, Jewish and Black issues, and because of her participation in the Ethnic Affairs Committee of the Anti-Defamation League of B'nai B'rith, Chen was one of 10 women nationwide selected to take part in a mission to Israel.

With her recently won mandate to judicate in the affairs of Pennsylvania's citizens, Chen has pledged to work tirelessly to defend the rights of its people and contribute to the improvement of human welfare. She would have made a fabulous Brownie.

— Jessica Schultz

Prose Level 4 Scale range: 326 to 375

These tasks require readers to perform multiple-feature matches and to integrate or synthesize information from complex or lengthy passages. More complex inferences are needed to perform successfully. Conditional information is frequently present in tasks in this level and must be taken into consideration by the reader.

Average difficulty value of tasks in this level: 352
Percentage of adults performing in this level: 17%

A prose task with a difficulty value of 328 requires the reader to synthesize the repeated statements of an argument from a newspaper column in order to generate a theme or organizing principle. In this instance, the supporting statements are elaborated in different parts of a lengthy text.

A more challenging task (with a difficulty value of 359) directs the reader to contrast the two opposing views stated in the newspaper feature reprinted here that discusses the existence of technologies that can be used to produce more fuel-efficient cars.

Contrast Dewey's and Hanna's views about the existence of technologies that can be used to produce more fuel-efficient cars while maintaining the size of the cars.

Face-Off: Getting More Miles Per Gallon

Demand cars with better gas mileage

By Robert Dewey
Guest columnist

WASHINGTON — Warning: Automakers are resurrecting their heavy-metal dinosaurs, aka gas guzzlers.

Government reports show that average new-car mileage has declined to 28.2 miles per gallon — the 1986 level. To reverse this trend, Congress must significantly increase existing gas-mileage standards.

More than half our Nobel laureates and 700 members of the National Academy of Sciences recently called global warming "the most serious environmental threat of the 21st century." In 1989, oil imports climbed to a near-record 46% of U.S. consumption. Increasing gas mileage is the single biggest step we can take to reduce oil imports and curb global warming. Greater efficiency also lowers our trade deficit (oil imports represent 40% of it) and decreases the need to drill in pristine areas.

Bigger engines and bigger cars mean bigger profits for automakers, who offer us the products they want us to buy. More than ever, Americans want products that have less of an environmental impact. But with only a few fuel-efficient cars to choose from, how do we find ones that meet all our needs?

Government studies show automakers have the technology to dramatically improve gas mileage — while maintaining the 1987 levels of comfort, performance and size mix of vehicles. Automakers also have the ability to make their products safer. The cost of these improvements will be offset by savings at the gas pump!

Cars can average 45 mpg and light trucks 35 mpg primarily by utilizing engine and transmission technologies already on a few cars today. Further improvements are possible by using technologies like the two-stroke engine and better aerodynamics that have been developed but not used.

When the current vehicle efficiency standards were proposed in 1974, Ford wrongly predicted that they "would require either all sub-Pinto-sized vehicles or some mix of vehicles ranging from a sub-subcompact to perhaps a Maverick." At that time, Congress required a 100% efficiency increase; raising gas mileage to 45 mpg requires only a 60% increase.

Americans want comfortable, safe and efficient cars. If automakers won't provide them, Congress must mandate them when it considers the issue this summer.

Let's hope lawmakers put the best interest of the environment and the nation ahead of the automakers' lobbyists and political action committees.

Robert Dewey is a conservation analyst for the Environmental Action Foundation.

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Don't demand end to cars people want

By Thomas H. Hanna
Guest columnist

DETROIT — Do Americans look forward to the day when they'll have to haul groceries, shuttle the kids to and from school or take family vacations in compact and subcompact cars?

I doubt it — which is why U.S. and import carmakers oppose the 40-miles-per-gallon to 45 mpg corporate average fuel economy mandates that some are pushing in Congress, either to curb tailpipe carbon dioxide emissions because of alleged global warming or for energy conservation.

Since the mid-1970s, automakers have doubled the fleet average fuel economy of new cars to 28 mpg — and further progress will be made.

Compact and subcompact cars with mileage of 40 mpg or better are now available, yet they appeal to only 5% of U.S. car buyers.

But to achieve a U.S. fleet average of 40 mpg to 45 mpg, carmakers would have to sharply limit the availability of family-size models and dramatically trim the size and weight of most cars.

There simply are not magic technologies to meet such a standard.

Almost every car now sold in the USA would have to be drastically downsized, and many would be obsolete.

As a result, Americans each year would be unable to buy the vehicles most suited for their needs: mid- and family-size models, luxury automobiles, mini-vans, small trucks and utility vehicles.

The fleet shift to compacts and subcompacts could also force the closing of assembly plants, supplier firms and dealerships, at a cost of thousands of U.S. jobs.

Although a growing number of scientists are skeptical of global warming, the issue deserves thorough international scientific evaluation, not premature unilateral U.S. action.

Carbon dioxide emissions from U.S. vehicles total less than 2.5% of worldwide "greenhouse" gases. Even doubling today's corporate average fuel economy for U.S. cars — if technically possible — would cut those gases about .5%

Whatever the motivation — alleged global warming or energy conservation — the stakes are high for millions of Americans and thousands of U.S. jobs in unrealistic corporate average fuel economy mandates.

Thomas H. Hanna is president and chief executive officer of the Motor Vehicle Manufacturers Association of the United States.

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Two other tasks in Level 4 on the prose scale require the reader to draw on background knowledge in responding to questions asked about two poems. In one they are asked to generate an unfamiliar theme from a short poem (difficulty value of 362), and in the other they are asked to compare two metaphors (value of 374).

Prose Level 5 Scale range: 376 to 500

Some tasks in this level require the reader to search for information in dense text which contains a number of plausible distractors. Others ask readers to make high-level inferences or use specialized background knowledge. Some tasks ask readers to contrast complex information.

Average difficulty value of tasks in this level: 423
Percentage of adults performing in this level: 3%

Two tasks in Level 5 require the reader to search for information in dense text containing several plausible distractors. One such task (difficulty value of 410) requires the respondent to read information about jury selection and service. The question requires the reader to interpret information to identify two ways in which prospective jurors may be challenged.

Identify and summarize the two kinds of challenges that attorneys use while selecting members of a jury.

DO YOU HAVE A QUESTION?

QUESTION: What is the new program for scheduling jurors?

ANSWER: This is a new way of organizing and scheduling jurors that is being introduced all over the country. The goals of this program are to save money, increase the number of citizens who are summoned to serve and decrease the inconvenience of serving.

The program means that instead of calling jurors for two weeks, jurors now serve only one day, or for the length of one trial if they are selected to hear a case. Jurors who are not selected to hear a case are excused at the end of the day, and their obligations to serve as jurors are fulfilled for three years. The average trial lasts two days once testimony begins.

An important part of what is called the One Day – One Trial program is the "standby" juror. This is a person called to the Courthouse if the number of cases to be tried requires more jurors than originally estimated. Once called to the Courthouse, the standby becomes a "regular" juror, and his or her service is complete at the end of one day or one trial, the same as everyone else.

Q. How was I summoned?

A. The basic source for names of eligible jurors is the Driver's License list which is supplemented by the voter registration list. Names are chosen from these combined lists by a computer in a completely random manner.

Once in the Courthouse, jurors are selected for a trial by this same computer and random selection process.

Q. How is the Jury for a particular trial selected?

A. When a group of prospective jurors is selected, more than the number needed for a trial are called. Once this group has been seated in the courtroom, either the Judge or the attorneys ask questions. This is called *voir dire*. The purpose of questions asked during *voir dire* is to ensure that all of the jurors who are selected to hear the case will be unbiased, objective and attentive.

In most cases, prospective jurors will be asked to raise their hands when a particular question applies to them. Examples of questions often asked are: Do you know the Plaintiff, Defendant or the attorneys in this case? Have you been involved in a case similar to this one yourself? Where the answer is yes, the jurors raising hands may be asked additional questions, as the purpose is to guarantee a fair trial for all parties. When an attorney believes that there is a legal reason to excuse a juror, he or she will challenge the juror for cause. Unless both attorneys agree that the juror should be excused, the Judge must either sustain or override the challenge.

After all challenges for cause have been ruled upon, the attorneys will select the trial jury from those who remain by exercising peremptory challenges. Unlike challenges for cause, no reason need be given for excusing a juror by peremptory challenge. Attorneys usually exercise these challenges by taking turns striking names from a list until both are satisfied with the jurors at the top of the list or until they use up the number of challenges allowed. Challenged jurors and any extra jurors will then be excused and asked to return to the jury selection room.

Jurors should not feel rejected or insulted if they are excused for cause by the Court or peremptorily challenged by one of the attorneys. The *voir dire* process and challenging of jurors is simply our judicial system's way of guaranteeing both parties to a lawsuit a fair trial.

Q. Am I guaranteed to serve on a jury?

A. Not all jurors who are summoned actually hear a case. Sometimes all the Judges are still working on trials from the previous day, and no new jurors are chosen. Normally, however, some new cases begin every day. Sometimes jurors are challenged and not selected.

A somewhat more demanding task (difficulty value of 423) involves the magazine article on Ida Chen reproduced earlier. This more challenging task requires the reader to explain the phrase "recently won mandate" used at the end of the text. To explain this phrase, the reader needs to understand the concept of a political mandate as it applies to Ida Chen and the way she is portrayed in this article.

Document Literacy

Another important aspect of being literate in modern society is having the knowledge and skills needed to process information from documents. We often encounter tables, schedules, charts, graphs, maps, and forms in everyday life, both at home and at work. In fact, researchers have found that many of us spend more time reading documents than any other type of material.[3] The ability to locate and use information from documents is therefore essential.

Success in processing documents appears to depend at least in part on the ability to locate information in complex arrays and to use this information in the appropriate ways. Procedural knowledge may be needed to transfer information from one source or document to another, as is necessary in completing applications or order forms.

The NALS document literacy scale contains 81 tasks with difficulty values that range from 69 to 396 on the scale. By examining tasks associated with various proficiency levels, we can identify characteristics that appear to make certain types of document tasks more or less difficult for readers. Questions and directives associated with these tasks are basically of four types: *locating, cycling, integrating,* and *generating*. Locating tasks require the readers to match one or more features of information stated in the question to either identical or synonymous information given in the document. Cycling tasks require the reader to locate and match one or more features, but differ in that they require the reader to engage in a series of feature matches to satisfy conditions given in the question. The integrating tasks typically require the reader to compare and contrast information in adjacent parts of the document. In the generating tasks, readers must produce a written response by processing information found in the document and also making text-based inferences or drawing on their own background knowledge.

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[3] J.T. Guthrie, M. Seifert, and I.S. Kirsch (1986). "*Effects of Education, Occupation, and Setting on Reading Practices.*" American Educational Research Journal, 23. pp. 151-160.

As with the prose tasks, each type of question or directive extends over a range of difficulty as a result of interactions among several variables or task characteristics that include:

- the number of categories or features of information in the question that the reader has to process or match;
- the number of categories or features of information in the document that can serve to distract the reader or that may seem plausible but are incorrect;
- the extent to which the information asked for in the question is obviously related to the information stated in the document; and
- the structure of the document.
- A more detailed discussion of the five levels of document literacy is provided in the following pages.

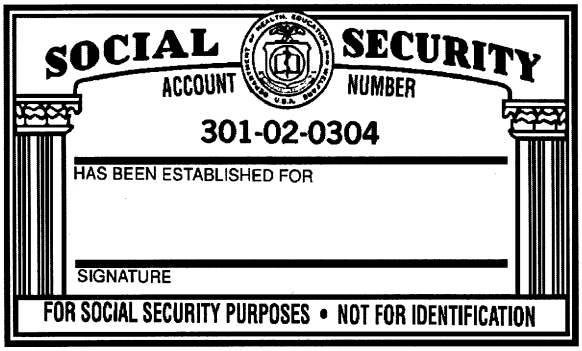
Document Level 1 Scale range: 0 to 225

Tasks in this level tend to require the reader either to locate a piece of information based on a literal match or to enter information from personal knowledge onto a document. Little, if any, distracting information is present.

Average difficulty value of tasks in this level: 195
Percentage of adults performing in this level: 23%

Some of the Level 1 tasks require the reader to match one piece of information in the directive with an identical or synonymous piece of information in the document. For example, readers may be asked to write a piece of personal background information — such as their name or age — in the appropriate place on a document. One task with a difficulty value of 69 directs individuals to look at a Social Security card and sign their name on the line marked "signature." Tasks such as this are quite simple, since only one piece of information is required, it is known to the respondent, and there is only one logical place on the document where it may be entered.

Here is a Social Security card. Sign your name on the line that reads "signature."



Other tasks in this level are slightly more complex. For example, in one task, readers were asked to complete a section of a job application by providing several pieces of information. This was more complicated than the previous task described, since respondents had to conduct a series of one-feature matches. As a result, the difficulty value of this task was higher (218).

You have gone to an employment center for help in finding a job. You know that this center handles many different kinds of jobs. Also, several of your friends who have applied here have found jobs that appeal to you.

The agent has taken your name and address and given you the rest of the form to fill out. Complete the form so the employment center can help you get a job.

Birth date _____ Age _____ Sex: Male ___ Female___

Height _____ Weight_____ Health _____

Last grade completed in school _____

Kind of work wanted:

Part-time _____ Summer _____

Full-time _____ Year-round _____

Other tasks in this level ask the reader to locate specific elements in a document that contains a variety of information. In one task, for

example, respondents were given a form providing details about a meeting and asked to indicate the date and time of the meeting, which were stated in the form. The difficulty values associated with these tasks were 183 and 180, respectively. The necessary information was referred to only once in the document.

Document Level 2 Scale range: 226 to 275

Tasks in this level are more varied than those in Level 1. Some require the reader to match a single piece of information; however, several distractors may be present, or the match may require low-level inferences. Tasks in this level may also ask the reader to cycle through information in a document or to integrate information from various parts of a document.

Average difficulty value of tasks in this level: 249
Percentage of adults performing in this level: 28%

Some tasks in Level 2 ask readers to match two pieces of information in the text. For example, one task with a difficulty value of 261 directs the respondent to look at a pay stub and to write "the gross pay for this year to date." To perform the task successfully, respondents must match both "gross pay" and "year to date" correctly. If readers fail to match on both features, they are likely to indicate an incorrect amount.

What is the gross pay for this year to date?

HOURS			
REGULAR	2ND SHIFT	OVERTIME	TOTAL
50.0			50.0

PERIOD ENDING	REGULAR	OVERTIME	GROSS	DEF. ANN	NET PAY
03/15/85					
CURRENT	625.00		625.00		459.88
YEAR TO DATE			4268.85		

TAX DEDUCTIONS

	FED. W/H	STATE W/H	CITY W/H	FICA
CURRENT	108.94	13.75		38.31
YEAR TO DATE	734.98	82.50		261.67

OTHER DEDUCTIONS

CR UNION		UNITED FD	PERS INS.	MISC.	MISC CODE

NON-NEGOTIABLE

OTHER DEDUCTIONS

CODE	TYPE	AMOUNT	CODE	TYPE	AMOUNT
07	DEN	4.12			

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A second question based on this document — What is the current net pay? — was also expected to require readers to make a two-feature

match. Accordingly, the difficulty values of the two items were expected to be similar. The task anchored at about the 200 point on the scale, however, and an analysis of the pay stub reveals why its difficulty was lower than that of the previous task. To succeed on the second task, the reader only needs to match on the feature "net pay." Since the term appears only once on the pay stub and there is only one number in the column, this task requires only a one-feature match and receives a difficulty value that lies within the Level 1 range on the document scale.

Tasks in Level 2 may also require the reader to integrate information from different parts of the document by looking for similarities or differences. For example, a task with a difficulty value of 268 asks respondents to study a line graph showing a company's seasonal sales over a three-year period, then predict the level of sales for the following year, based on the seasonal trends shown in the graph.

You are a marketing manager for a small manufacturing firm. This graph shows your company's sales over the last three years. Given the seasonal pattern shown on the graph, predict the sales for Spring 1985 (in thousands) by putting an "x" on the graph.

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Document Level 3 Scale range: 276 to 325

Some tasks in this level require the reader to integrate multiple pieces of information from one or more documents. Others ask readers to cycle through rather complex tables or graphs which contain information that is irrelevant or inappropriate to the task.

Average difficulty value of tasks in this level: 302
Percentage of adults performing in this level: 31%

Tasks within the range for Level 3 ask the reader to locate particular features in complex displays, such as tables that contain nested information. Typically, distractor information is present in the same row or column as the correct answer. For example, the reader might be asked to use a table that summarizes appropriate uses for a variety of products, and then choose which product to use for a certain project. One such task had a difficulty value of 305. To perform this task successfully, the respondent uses a table containing nested information to determine the type of sandpaper to buy if one needs "to smooth wood in preparation for sealing and plans to buy garnet sandpaper." This task requires matching not only on more than a single feature of information but also on features that are not always superordinate categories in the document. For example, "preparation for sealing" is subordinated or nested under the category "wood," while the type of sandpaper is under the main heading of "garnet." In addition, there are three other types of sandpaper that the reader might select that partially satisfy the directive.

You need to smooth wood in preparation for sealing and plan to buy garnet sandpaper. What type of sandpaper should you buy?

ABRASIVE SELECTION GUIDE

MATERIAL & OPERATION	PRODUCTION™					GARNET				WETORDRY™				FRE-CUT™		EMERY		
	EC	C	M	F	EF	C	M	F	EF	VF	EF	SF	UF	VF	EF	C	M	F
WOOD																		
Paint Removal	■	■																
Heavy Stock Removal	■	■				■												
Moderate Stock Removal			■				■											
Preparation for Sealing				■				■										
After Sealer					■				■		■							
Between Coats											■	■			■			
After Final Coat												■	■					
METAL																		
Rust and Paint Removal	■	■														■		
Light Stock Removal	■	■																
Preparation for Priming			■	■										■			■	
Finishing and Polishing					■					■	■	■	■					■
After Primer					■						■	■			■			
Between Coats												■			■			
After Final Coat													■					
PLASTIC & FIBERGLASS																		
Shaping	■	■																
Light Stock Removal			■															
Finishing & Scuffing				■	■					■				■				

EC = Extra Coarse C = Coarse M = Medium F = Fine VF = Very Fine EF = Extra Fine SF = Super Fine UF = Ultra Fine

SAFETY INFORMATION:
n Wear approved safety goggles when sanding.
n Use particle/dust mask or other means to prevent inhalation of sanding dust.
n When using power tools, follow manufacturer's recommended procedures and safety instructions.

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At the same level of difficulty (306), another task directs the reader to a stacked bar graph depicting estimated power consumption by source for four different years. The reader is asked to select an energy source that will provide more power in the year 2000 than it did in 1971. To succeed on this task, the reader must first identify the correct years and then compare each of the five pairs of energy sources given.

Document Level 4 Scale range: 326 to 375

Tasks in this level, like those in the previous levels, ask readers to perform multiple-feature matches, cycle through documents, and integrate information; however, they require a greater degree of inferencing. Many of these tasks require readers to provide numerous responses but do not designate how many responses are needed. Conditional information is also present in the document tasks in this level and must be taken into account by the reader.

Average difficulty value of tasks in this level: 340

Percentage of adults performing in this level: 15%

One task in this level (348) combines many of the variables that contribute to difficulty in Level 4. These include: multiple feature matching, complex displays involving nested information, numerous distractors, and conditional information that must be taken into account in order to arrive at a correct response. Using the bus schedule shown here, readers are asked to select the time of the next bus on a Saturday afternoon, if they miss the 2:35 bus leaving Hancock and Buena Ventura going to Flintridge and Academy. Several departure times are given, from which respondents must choose the correct one.

On Saturday afternoon, if you miss the 2:35 bus leaving Hancock and Buena Ventura going to Flintridge and Academy, how long will you have to wait for the next bus?

ROUTE **5**

VISTA GRANDE

This bus line operates Monday through Saturday providing *"local service"* to most neighborhoods in the northeast section.

Buses run thirty minutes apart during the morning and afternoon rush hours Monday through Friday.

Buses run one hour apart at all other times of day and Saturday.

No Sunday, holiday or night service.

	OUTBOUND from Terminal						INBOUND toward Terminal					*You can transfer from this bus to another headed anywhere else in the city bus system*	
	Leave Downtown Terminal	Leave Hancock and Buena Ventura	Leave Citadel	Leave Rustic Hills	Leave North Carefree and Oro Blanco	Arrive Flintridge and Academy	Leave Flintridge and Academy	Leave North Carefree and Oro Blanco	Leave Rustic Hills	Leave Citadel	Leave Hancock and Buena Ventura	Arrive Downtown Terminal	
AM							6:15	6:27	6:42	6:47	6:57	7:15	
							6:45	**6:57**	**7:12**	**7:17**	**7:27**	**7:45**	**Monday through Friday only**
	6:20	6:35	6:45	6:50	7:03	7:15	7:15	7:27	7:42	7:47	7:57	8:15	
	6:50	**7:05**	**7:15**	**7:20**	**7:33**	**7:45**	**7:45**	**7:57**	**8:12**	**8:17**	**8:27**	**8:45**	**Monday through Friday only**
	7:20	7:35	7:45	7:50	8:03	8:15	8:15	8:27	8:42	8:47	8:57	9:15	
	7:50	**8:05**	**8:15**	**8:20**	**8:33**	**8:45**	**8:45**	**8:57**	**9:12**	**9:17**	**9:27**	**9:45**	**Monday through Friday only**
	8:20	8:35	8:45	8:50	9:03	9:15	9:15	9:27	9:42	9:47	9:57	10:15	
	8:50	**9:05**	**9:15**	**9:20**	**9:33**	**9:45**	**9:45**	**9:57**	**10:12**	**10:17**	**10:27**	**10:45**	**Monday through Friday only**
	9:20	9:35	9:45	9:50	10:03	10:15	10:15	10:27	10:42	10:47	10:57	11:15	
	10:20	10:35	10:45	10:50	11:03	11:15	11:15	11:27	11:42	11:47	11:57	12:15	
	11:20	11:35	11:45	11:50	12:03	12:15	12:15	12:27	12:42 p.m.	12:47 p.m.	12:57 p.m.	1:15 p.m.	
PM	12:20	12:35	12:45	12:50	1:03	1:15	1:15	1:27	1:42	1:47	1:57	2:15	
	1:20	1:35	1:45	1:50	2:03	2:15	2:15	2:27	2:42	2:47	2:57	3:15	
	2:20	2:35	2:45	2:50	3:03	3:15	3:15	3:27	3:42	3:47	3:57	4:15	
	2:50	**3:05**	**3:15**	**3:20**	**3:33**	**3:45**	**3:45**	**3:57**	**4:12**	**4:17**	**4:27**	**4:45**	**Monday through Friday only**
	3:20	3:35	3:45	3:50	4:03	4:15	4:15	4:27	4:42	4:47	4:57	5:15	
	3:50	**4:05**	**4:15**	**4:20**	**4:33**	**4:45**	**4:45**	**4:57**	**4:12**	**4:17**	**5:27**	**5:45**	**Monday through Friday only**
	4:20	4:35	4:45	4:50	5:03	5:15	5:15	5:27	5:42	5:47	5:57	6:15	
	4:50	**5:05**	**5:15**	**5:20**	**5:33**	**5:45**	**5:45**	**5:57**	**6:12**	**6:17**	**6:27**	**6:45**	**Monday through Friday only**
	5:20	5:35	5:45	5:50	6:03	6:15							
	5:50	**6:05**	**6:15**	**6:20**	**6:33**	**6:45**							**Monday through Friday only**
	6:20	6:35	6:45	6:50	7:03	7:15							

To be sure of a smooth transfer tell the driver of this buss the name of the second bus you need.

Other tasks involving this bus schedule are found in Level 3. These tasks require the reader to match on fewer features of information and do not involve the use of conditional information.

Document Level 5 Scale range: 376 to 500

Tasks in this level require the reader to search through complex displays that contain multiple distractors, to make high-level text-based inferences, and to use specialized knowledge.

Average difficulty value of tasks in this level: 391
Percentage of adults performing in this level: 3%

A task receiving a difficulty value of 396 involves reading and understanding a table depicting the results from a survey of parents and teachers evaluating parental involvement in their school. Respondents were asked to write a brief paragraph summarizing the results. This particular task requires readers to integrate the information in the table to compare and contrast the viewpoints of parents and teachers on a selected number of
school issues.

Using the information in the table, write a brief paragraph summarizing the extent to which parents and teachers agreed or disagreed on the statements about issues pertaining to parental involvement at their school.

Parents and Teachers Evaluate Parental Involvement at Their School

Do you agree or disagree that . . . ?

	Total	Level of School: Elementary	Junior High	High School
		percent agreeing		
Our school does a good job of encouraging parental involvement in sports, arts, and other nonsubject areas				
Parents	77	76	74	79
Teachers	77	73	77	85
Our school does a good job of encouraging parental involvement in educational areas				
Parents	73	82	71	64
Teachers	80	84	78	70
Our school only contacts parents when there is a problem with their child				
Parents	55	46	62	63
Teachers	23	18	22	33
Our school does not give parents the opportunity for any meaningful roles				
Parents	22	18	22	28
Teachers	8	8	12	7

Source: The Metropolitan Life Survey of the American Teacher, 1987

Quantitative Literacy

Since adults are often required to perform numerical operations in everyday life, the ability to perform quantitative tasks is another important aspect of literacy. These abilities may seem, at first glance, to be fundamentally different from the types of skills involved in reading prose and documents and, therefore, to extend the concept of literacy beyond its traditional limits. However, research indicates that the processing of printed information plays a critical role in affecting the difficulty of tasks along this scale.[4]

[4] I.S. Kirsch, A. Jungeblut, (1986). *Literacy: Profiles of America's Young Adults, Final Report.* Princeton, NJ: Educational Testing Service. I.S. Kirsch, A. Jungeblut (1992). *Beyond the School Doors: The Literacy Needs of Job Seekers served by the U.S. Department of Labor.* Princeton, NJ: Educational Testing Service.

The quantitative literacy scale contains some 39 tasks with difficulty values that range from 191 to 436. The difficulty of these tasks appears to be a function of several factors, including:

- the particular arithmetic operation called for;
- the number of operations needed to perform the task ;
- the extent to which the numbers are embedded in printed materials; and
- the extent to which an inference must be made to identify the type of operation to be performed.

In general, it appears that many individuals can perform simple arithmetic operations when both the numbers and operations are made explicit. However, when the numbers to be used must be located in and extracted from different types of documents that contain similar but irrelevant information, or when the operations to be used must be inferred from printed directions, the tasks become increasingly difficult.

A detailed discussion of the five levels of quantitative literacy is provided on the following pages.

Quantitative Level 1 Scale range: 0 to 225

Tasks in this level require readers to perform single, relatively simple arithmetic operations, such as addition. The numbers to be used are provided and the arithmetic operation to be performed is specified.

Average difficulty value of tasks in this level: 206
Percentage of adults performing in this level: 22%

The least demanding task on the quantitative scale (191) requires the reader to total two numbers on a bank deposit slip. In this task, both the numbers and the arithmetic operation are judged to be easily identified and the operation involves the simple addition of two decimal numbers that are set up in column format.

You wish to use the automatic teller machine at your bank to make a deposit. Figure the total amount of the two checks being deposited. Enter the amount on the form in the space next to TOTAL.

Availability of Deposits

Funds from deposits may not be available for immediate withdrawal. Please refer to your institution's rules governing funds availability for details.

Crediting of deposits and payments is subject to verification and collection of actual amounts deposited or paid in accordance with the rules and regulations of your financial institution.

PLEASE PRINT

YOUR MAC CARD NUMBER (No PINs PLEASE)
111 222 333 4

YOUR FINANCIAL INSTITUTION
Union Bank

YOUR ACCOUNT NUMBER
987 555 674

YOUR NAME
Chris Jones

CHECK ONE ☐ DEPOSIT or ☐ PAYMENT

CASH	$	00
LIST CHECKS BY BANK NO.	ENDORSE WITH NAME & ACCOUNT NUMBER	
	557	19
	75	00
TOTAL		

DO NOT DETACH TICKET

DO NOT FOLD NO COINS OR PAPER CLIPS PLEASE

Quantitative Level 2 Scale range: 226 to 275

Tasks in this level typically require readers to perform a single operation using numbers that are either stated in the task or easily located in the material. The operation to be performed may be stated in the question or easily determined from the format of the material (for example, an order form).

Average difficulty value of tasks in this level: 251
Percentage of adults performing in this level: 25%

In the easier tasks in Level 2, the quantities are also easy to locate. In one such task at 250 on the quantitative scale, the cost of a ticket and bus is given for each of two shows. The reader is directed to determine how much less attending one show will cost in comparison to the other.

The price of one ticket and bus for "Sleuth" costs how much less than the price of one ticket and bus for "On the Town"?

THEATER TRIP

A charter bus will leave from the bus stop (near the Conference Center) at 4 p.m., giving you plenty of time for dinner in New York. Return trip will start from West 45th Street directly following the plays. Both theaters are on West 45th Street. Allow about 1½ hours for the return trip.

Time:	4 p.m., Saturday, November 20		
Price:	"On the Town"	Ticket and bus	$11.00
	"Sleuth"	Ticket and bus	$8.50
Limit:	Two tickets per person		

In a more complex set of tasks, the reader is directed to complete an order form for office supplies using a page from a catalogue. No other specific instructions as to what parts of the form should be completed are given in the directive. One task (difficulty value of 270) requires the reader to use a table on the form to locate the appropriate shipping charges based on the amount of a specified set of office supplies, to enter the correct amount on an order form, and then to calculate the total price of the supplies.

Quantitative Level 3 Scale range: 276 to 325

In tasks in this level, two or more numbers are typically needed to solve the problem, and these must be found in the material. The operation(s) needed can be determined from the arithmetic relation terms used in the question or directive.

Average difficulty value of tasks in this level: 293
Percentage of adults performing in this level: 31%

In general, tasks within the range for Level 3 ask the reader to perform a single operation of addition, subtraction, multiplication, or division. However, the operation is not stated explicitly in the directive or made clear by the format of the document. Instead, it must be inferred

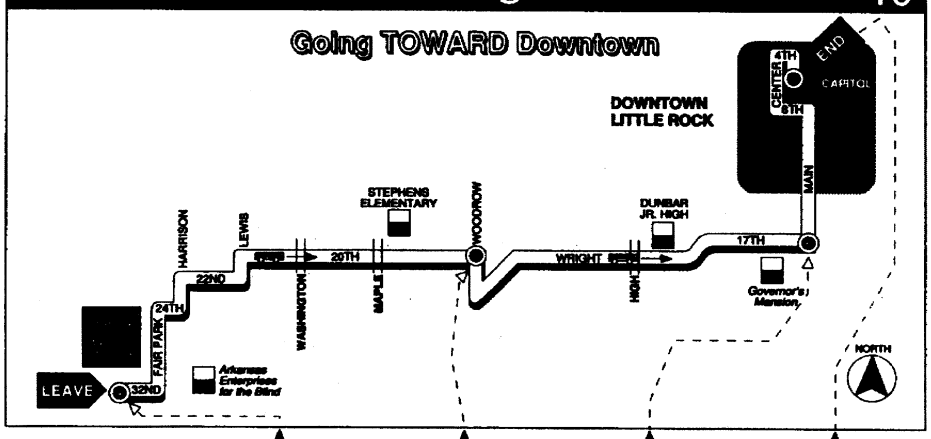
from the terms used in the directive. These tasks are also more difficult because the reader must locate the numbers in various parts of the document in order to perform the operation.

From a bar graph showing percentages of population growth for two groups across six periods, a task at the 278 point on the scale directs the reader to calculate the difference between the groups for one of the years.

A more difficult task in Level 3 (321) requires the use of a bus schedule to determine how long it takes to travel from one location to another on a Saturday. To respond correctly, the reader must match on several features of information given in the question to locate the appropriate times.

Suppose that you took the 12:45 p.m. bus from U.A.L.R. Student Union to 17th and Main on a Saturday. According to the schedule, how many minutes is the bus ride?

16 South Highland 16



4	5	6	7
BUS LEAVES from U.A.L.R. Student Union	**Bus arrives** at 20th & Woodrow	**Bus arrives** at 17th & Main	**BUS ENDS** at Capitol & Louisiana

WEEKDAYS

A.M.	♿	5:38	5:51	6:00	6:09
		6:11	6:25	6:35	6:45
	♿	6:41	6:55	7:05	7:15
		7:11	7:25	7:35	7:45
	♿	7:41	7:55	8:05	8:15
		8:11	8:25	8:35	8:45
	♿	8:41	8:55	9:05	9:15
		9:14	9:27	9:36	9:45
	♿	9:44	9:57	10:06	10:15
		10:14	10:27	10:36	10:45
	♿	10:44	10:57	11:06	11:15
		11:14	11:27	11:36	11:45
	♿	11:44	11:57	12:06	12:15
P.M.		12:14	12:27	12:36	12:45
	♿	12:44	12:57	1:06	1:15
		1:14	1:27	1:36	1:45
	♿	1:44	1:57	2:06	2:15
		2:14	2:27	2:36	2:45
	♿	2:44	2:57	3:06	3:15
		3:14	3:27	3:36	3:45
	♿	3:43	3:56	4:05	4:15
		4:13	4:26	4:35	4:45
	♿	4:43	4:56	5:05	5:15
		5:13	5:26	5:35	5:45
	♿	5:45	5:58	6:07	6:17
		6:11	6:22	6:30	–
	♿	6:46	6:57	7:05	–

SATURDAY

A.M.	♿	5:38	5:51	6:00	6:09
	♿	6:45	6:57	7:06	7:15
	♿	7:45	7:57	8:06	8:15
	♿	8:45	8:57	9:06	9:15
	♿	9:45	9:57	10:06	10:15
	♿	10:45	10:57	11:06	11:15
	♿	11:45	11:57	12:06	12:15
P.M.	♿	12:45	12:57	1:06	1:15
	♿	1:45	1:57	2:06	2:15
	♿	2:45	2:57	3:06	3:15
	♿	3:45	3:57	4:06	4:15
	♿	4:45	4:57	5:06	5:15
	♿	5:45	5:57	6:06	6:15
	♿	6:44	6:56	7:05	–

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Quantitative Level 4 Scale range: 326 to 375

These tasks tend to require readers to perform two or more sequential operations or a single operation in which the quantities are found in different types of displays, or the operations must be inferred from semantic information given or drawn from prior knowledge.

Average difficulty value of tasks in this level: 349
Percentage of adults performing in this level: 17%

One task in this level, with a difficulty value of 332, asks the reader to estimate, based on information in a news article, how many miles per day a driver covered in a sled-dog race. The respondent must know that to calculate a "per day" rate requires the use of division.

A more difficult task (355) requires the reader to select from two unit price labels to estimate the cost per ounce of creamy peanut butter. To perform this task successfully, readers may have to draw some information from prior knowledge.

Estimate the cost per ounce of the creamy peanut butter. Write your estimate on the line provided.

Unit price	**You pay**
11.8¢ per oz.	1.89
rich chnky pnt bt	
10693	16 oz.

Unit price	**You pay**
1.59 per lb.	1.99
creamy pnt butter	
10732	20 oz.

Quantitative Level 5 Scale range: 376 to 500

These tasks require readers to perform multiple operations sequentially. They must disembed the features of the problem from text or rely on background knowledge to determine the quantities or operations needed.

Average difficulty value of tasks in this level: 411
Percentage of adults performing in this level: 4%

One of the most difficult tasks on the quantitative scale (433) requires readers to look at an advertisement for a home equity loan and then, using the information given, explain how they would calculate the total amount of interest charges associated with the loan.

You need to borrow $10,000. Find the ad for Home Equity Loans on page 2 in the newspaper provided. Explain to the interviewer how you would compute the total amount of interest charges you would pay under this loan plan. Please tell the interviewer when you are ready to begin.

FIXED RATE • FIXED TERM

HOME EQUITY LOANS

14.25%

Annual Percentage Rate
Ten Year Term

SAMPLE MONTHLY REPAYMENT SCHEDULE

Amount Financed	Monthly Payment
$10,000	$156.77
$25,000	$391.93
$40,000	$627.09

120 Months 14.25% APR

Estimating Performance Across the Literacy Levels

The literacy levels not only provide a way to explore the progression of information-processing demands across the scales; they can also be used to explore the likelihood that individuals in each level will succeed on tasks of varying difficulty.

The following graphs (Figure A.2) display the probability that individuals performing at selected points on each scale will give a correct response to tasks with varying difficulty values. We see, for example, that a person whose prose proficiency is 150 has less than a 50 percent chance of giving a correct response to the Level 1 tasks. Individuals whose proficiency scores were at the 200 point, on the other hand, have an almost 80 percent probability of responding correctly to these tasks.

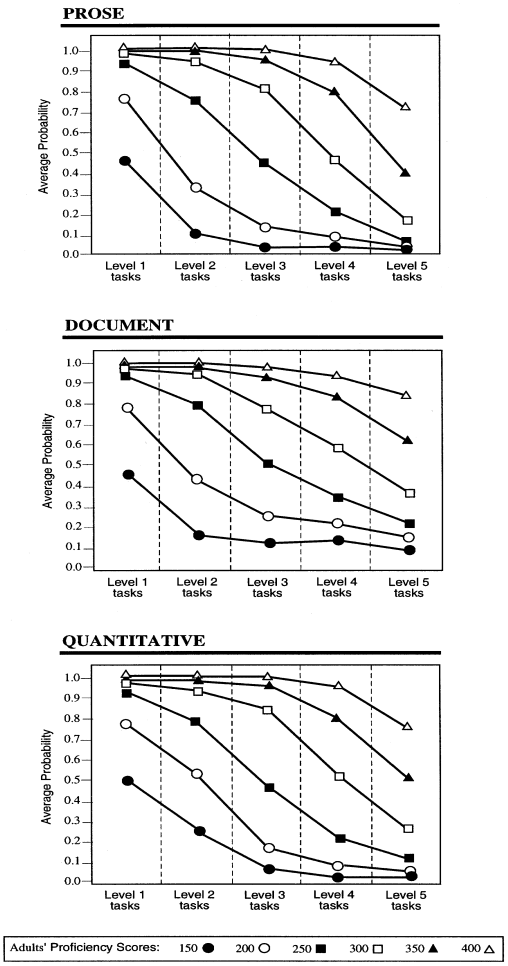
In terms of task demands, we can infer that adults performing at the 200 point on the prose scale are likely to be able to locate a single piece of information in a brief piece of text where there is no distracting information, or when any distracting information is located apart from the desired information. They are likely to have far more difficulty with the types of tasks that occur in Levels 2 through 5, however. For example, they would have only about a 30 percent chance of performing the average task in Level 2 correctly and only about a 10 percent chance of success, or less, on the more challenging tasks found in Levels 3, 4, and 5.

In contrast, readers at the 300 point on the prose scale have an 80 percent (or higher) likelihood of success on tasks in Levels 1, 2, and 3. This means that they demonstrate skill identifying information in fairly dense text without organizational aids. They can also integrate, compare, and contrast information that is easily identified in the text. On the other hand, they are likely to have difficulty with tasks that require them to make higher level inferences, to take conditional information into account, and to use specialized knowledge. The probabilities of their performing these Level 4 tasks successfully are just under 50 percent, and on the Level 5 tasks their likelihood of responding correctly falls to under 20 percent.

Similar interpretations can be made using the performance results on the document and quantitative scales. For example, an individual with a proficiency of 150 on the quantitative scale is estimated to have only a 50 percent chance of responding correctly to tasks in Level 1 and less than a 30 percent chance of responding to tasks in each of the other levels. Such an individual demonstrates little or no proficiency in performing the range of quantitative tasks found in this assessment. In contrast, someone

with a proficiency of 300 meets or exceeds the 80 percent criterion for the average tasks in Levels 1, 2, and 3. They can be expected to encounter more difficulty with tasks in Levels 4 and 5.

Figure A.2: Average Probabilities of Successful Performance by Individuals with Selected Proficiency Scores on the Tasks in Each Literacy level



Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Missing Responses to Literacy Tasks

In any educational, social, or political opinion survey, missing responses are always present. Sometimes missing data can be ignored when tabulating and reporting survey results. If the reasons the data are missing are related to the outcome of the study, however, the missing responses will bias the results unless some adjustment can be made to counter the bias. In this survey, there were reasons to believe that the literacy performance data were missing more often for adults with lower levels of literacy than for adults with higher levels. Field test evidence and experience with surveys indicated that adults with lower levels of literacy would be more likely than adults with higher proficiencies either to decline to respond to the survey at all or to begin the assessment but not to complete it. Ignoring the pattern of missing data would have resulted in overestimating the literacy skills of adults in the United States.

For this survey, several procedures were developed to reduce biases due to nonresponse, based on how much of the survey the respondent completed.[5] Individuals who refused to participate in the survey before any information about them was collected were omitted from the analyses. Because they were unlikely to know that the survey intended to assess their literacy, it was assumed that their reason for refusing was not related to their level of literacy skills.

Some individuals began the interview, but stopped before they completed at least five tasks on each literacy scale.[6] The interviewers were trained to record accurately their reasons for stopping. The reasons were subsequently classified as either related or unrelated to literacy skills. Literacy-related reasons included difficulty with reading or writing, inability to read or write in English, and mental or learning disabilities. Reasons unrelated to literacy included physical disabilities, time conflicts, and interruptions. Some adults gave no reason for stopping the assessment.

Overall, 88 percent of respondents completed the assessment (at least five tasks on each literacy scale). Twelve percent started the survey but stopped before completing five tasks. About half of these individuals,

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[5] For a full discussion of the procedures used in scoring, scaling, weighting, and handling nonresponse problems see I.S. Kirsch and others (2000). *Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey.* Washington, D.C.: U.S. Department of Education.

[6] Five was the minimum number of completed tasks needed for accurate proficiency estimation. No special procedures were needed to estimate the proficiencies of those who broke off the assessment after attempting five or more tasks on each scale.

or 6 percent of the adult population, did not complete the assessment for reasons related to their literacy skills, while the other 6 percent did not complete it for reasons unrelated to literacy or for no stated reason.

The missing data were treated differently depending on whether nonrespondents' reasons were related or unrelated to their literacy skills. The missing responses of those who gave literacy-related reasons for terminating the assessment were treated as wrong answers, based on the assumption that they could not have correctly completed the literacy tasks. The missing responses of those who broke off the assessment for no stated reason or for reasons unrelated to literacy were essentially ignored, since it could not be assumed that their answers would have been either correct or incorrect. The proficiencies of such respondents were inferred from the performance of other adults with similar characteristics.

Table A.1 shows the proficiency scores resulting from these procedures. Adults who completed the assessment had average proficiencies ranging from 279 to 285 on the three literacy scales. Because the missing responses of adults who did not complete the assessment for reasons related to literacy were treated as wrong answers, the average scores of these adults were considerably lower, ranging from 114 to 124. Nearly all adults who terminated the assessment for literacy-related reasons scored in the Level 1 range (below 225). Adults who stopped for other reasons or for unstated reasons had scores between those of the other two groups, ranging from 228 to 237. These adults were not found only in the lowest literacy level, but were distributed across the five levels.

Table A.1: Percentages and average proficiencies of adults on each scale, by assessment completion status

		Literacy Scale		
Assessment completion status	**CPCT**	**Pros PROF (se)**	**Document PROF (se)**	**Quantitative PROF (se)**
Total	100	272 (0.6)	267 (0.7)	271 (0.7)
Completed assessment	88	285 (0.6)	279 (0.6)	284 (0.6)
Did not complete assessment for literacy-related reasons	6	124 (1.5)	116 (1.4).	114 (1.9)
Do not complete assessment for reasons unrelated to literacy	6	237 (3.0)	228 (2.8)	231 (3.6)

Notes: CPCT = column percentage; PROF = average proficiency; se = standard error.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

It is likely that there were some errors in classifying non-espondents' reasons for not completing the assessment. Some adults may have given an explanation that reflected badly on their literacy skills simply because they found completing the assessment too burdensome. Perhaps they could have performed better if they had they tried harder. The assumption that such adults are unable to succeed with the literacy tasks may be too strong, and the assignment of wrong answers may underestimate their skills. Other adults may have anticipated failure in the assessment, yet concealed their lack of literacy kills by citing other reasons for not responding, or by refusing to explain their reason. The assumption that these adults are just like others in their demographic group may also be too strong, and the failure to assign wrong answers may overestimate their skills. To some extent the errors can be expected to counterbalance one another, but the available data are insufficient to assess which kind of classification error occurred more often.

Performance in the Lowest Literacy Level

Level 1 is somewhat different from the other literacy levels. For Levels 2 through 5, adults who can consistently perform the tasks in a given level (that is, at least 80 percent of the time) are said to perform in that level. For example, adults in Level 2 have a high probability of success on the tasks in that level, and more than an 80 percent likelihood of success on the Level 1 tasks. Likewise, adults in Level 3 have a high probability of success on the tasks in that level, as well as on the tasks in Levels 1 and 2.

Level 1, on the other hand, includes adults with a wide range of literacy skills, including some who performed the Level 1 tasks consistently and others who did not. Individuals who do not have an 80 percent probability of success with Level 1 tasks are still grouped in Level 1. Thus, some but not all adults in this level met the relatively undemanding requirements of the Level 1 tasks. This section describes how many adults in Level 1 did not meet the demands of the tasks in this level.

The failure to perform correctly at least one of the literacy tasks can be taken as an indicator of not being able to meet the demands of tasks in Level 1. Table A.2 provides information on the size of the groups that met or did not meet the relatively undemanding requirements of the Level 1 tasks.

Most adults in the lowest literacy level on each scale performed at least one literacy task correctly. Nearly three-quarters (72 percent) of

adults in Level 1 on the prose scale performed at least one task correctly, as did 83 percent of those in Level 1 on the document scale and 66 percent of those in Level 1 on the quantitative scale. The difference in performance among the scales occurs because the least difficult document task had a value of 68, while the least difficult prose task had a value of 149 and the least difficult quantitative task had a value of 191.

Table A.2: Percentages and average proficiencies on each scale of adults in Level 1

	Literacy scale					
	Prose		Document		Quantitative	
Performance	**CPCT**	**PROF**	**CPCT**	**PROF**	**CPCT**	**PROF**
Total in Level 1	100	173	100	172	100	167
At least one task correct	72	190	83	182	66	190
No tasks correct	21	113	11	94	26	110
No performance data	7	177	6	177	8	159

Notes: CPCT = column percentage; PROF = average proficiency.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

A small proportion of adults in Level 1 did not perform any literacy tasks correctly. Some of these adults completed the survey, while others did not for literacy-related or other reasons. Those who did not succeed on any literacy tasks constitute 21 percent of adults in Level 1 on the prose scale, 11 percent of adults in Level 1 on the document scale, and 26 percent of adults in Level 1 on the quantitative scale. There are wide disparities in average proficiencies between those who performed at least one task correctly (182 to 190 across the scales) and those who did not (94 to 113 across the scales).

For some adults in Level 1 (6 to 8 percent) there are no literacy performance data because they did not respond to any of the literacy tasks for reasons unrelated to their literacy skills or for unknown reasons. These persons could not be described as either meeting or failing to meet the demands of the literacy tasks, so they are distinguished as a separate group. Their proficiencies were inferred from the performance of other adults with similar demographic backgrounds and fell in the middle range between the other two groups.Nearly all adults who correctly responded to at least one literacy task also completed the assessment. Still, some adults broke off the assessment after already having shown some initial success. Table A.3 divides adults in Level 1 who were

successful with at least one task into two groups: those who completed the assessment (at least five literacy tasks) and those who did not.

Across the scales, from 83 to 90 percent of those in Level 1 who correctly responded to at least one task also completed the assessment. Their average scores ranged from 192 to 196. The remainder (10 to 17 percent) performed at least one task correctly before breaking off the assessment. Their average scores were much lower, ranging from 132 to 153.

Table A.3: Percentages and average proficiencies of adults in Level 1 with at least one task correct, by assessment completion status

	Literacy scale					
	Prose		Document		Quantitative	
Performance	**CPCT**	**PROF**	**CPCT**	**PROF**	**CPCT**	**PROF**
Total in Level 1 with at least one task correct	100	190	100	182	100	190
Completed assessment	87	196	83	192	90	194
Did not complete assessment	13	153	17	132	10	153

Notes: CPCT = column percentage; PROF = average proficiency.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

The population of adults who scored in Level 1 on each scale includes not only those who demonstrated success with at least some of the tasks in Level 1 — who constituted the majority — but also those who did not succeed with any of the tasks in this level. Nearly all of those in Level 1 who did not perform any literacy tasks correctly also failed to complete the assessment (86 to 98 percent), as shown in Table A.4. Their average scores range from 93 to 107 across the scales. Most of these adults either did not start or broke off the assessment for literacy-related reasons, so that any literacy tasks that remained unanswered were treated as incorrect.

Table A.4: Percentages and average proficiencies of adults in Level 1 with no tasks correct, by assessment completion status

Literacy scale	Literacy scale					
	Prose		Document		Quantitative	
	CPCT	PROF	CPCT	PROF	CPCT	PROF
Total in Level 1 with no tasks correct	100	113	100	94	100	110
Completed assessment	14	148	2	---	14	146
Did not complete assessment	86	107	98	93	86	98

Notes: CPCT = column percentage; PROF = average proficiency.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Two to 14 percent of the adults in Level 1 who did not succeed on any of the literacy tasks did, in fact, complete the assessment. Their average scores were 148 on the prose scale and 146 on the quantitative scale; too few cases were available to estimate an average document score.

The pattern of Level 1 proficiencies associated with various combinations of missing and incorrect answers shows the consequences of including, rather than excluding, adults who did not complete the assessment for literacy-related reasons. In general, the very low scores of these adults bring down the average for any group in which they are a significant component. Omitting these persons from the assessment would have resulted in inflated estimates of the literacy skills of the adult population overall and particularly of certain subgroups.

Population Diversity within the Lowest Literacy Level

Certain populations of adults were disproportionately likely not to meet the demands of the Level 1 tasks. This section describes the characteristics of adults in Level 1 who did not meet the relatively undemanding requirements of the tasks in this level. Tables A.5P, D, and Q provide information on the demographic composition of the total adult population in this country, of adults in Level 1 on each literacy scale, and of those adults in Level 1 who did not succeed on any of the assessment tasks.

Table A.5P: Percentages of adults in selected groups, by membership in total U.S. population, in Level 1, and in Level 1 with no tasks correct

	Prose scale		
	Total U.S. population	Level 1 Population	Level 1, no tasks correct
Population group	**CPCT**	**CPCT**	**CPCT**
Weighted sample size			
(in millions)	191.3	40.0	8.2
Country of birth			
Born in another country	10	25 (1.3)	55 (2.2)
Highest level of education			
0 to 8 years	10	35 (1.6)	61 (2.3)
9 to 12 years	13	27 (1.3)	17 (1.5)
HS diploma or GED	30	24 (1.4)	14 (1.5)
Race/Ethnicity			
White	76	51 (0.6)	29 (2.3)
Black	11	20 (1.0)	15 (1.4)
Hispanic	10	23 (1.4)	49 (2.1)
Asian/Pacific Islander	2	4 (3.9)	5 (0.9)
Age			
16 to 24 years	18	13 (0.8)	10 (1.2)
65 years and older	16	33 (1.5)	28 (1.8)
Disability or condition			
Any condition	12	26 (1.0)	26 (1.7)
Visual difficulty	7	19 (1.5)	20 (1.5)
Hearing difficulty	7	13 (1.6)	13 (2.0)
Learning disability	3	9 (2.1)	15 (1.4)

Notes: CPCT = column percentage; se = standard error.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

While 10 percent of the adult population reported that they were born in another country, from 22 to 25 percent of the individuals who performed in Level 1 on the three scales and 54 to 67 percent of those in Level 1 who did not perform any tasks correctly were foreign born. Some of these individuals were undoubtedly recent immigrants with a limited command of English.

Table A.5D: Percentages of adults in selected groups, by membership in total U.S. population, in Level 1, and in Level 1 with no tasks correct

	Document scale		
	Total U.S. population	Level 1 population	Level 1 no tasks correct
Population group	**CPCT**	**CPCT**	**CPCT**
Weighted sample size			
(in millions)	191.3	44.0	4.7
Country of birth			
Born in another country	10	22 (1.3)	67 (3.2)
Highest level of education			
0 to 8 years	10	33 (1.5)	65 (3.1)
9 to 12 years	13	26 (1.5)	12 (1.7)
HS diploma or GED	30	26 (1.7)	13 (2.1)
Race/Ethnicity			
White	76	54 (0.7)	21 (3.0)
Black	11	20 (0.9)	9 (1.1)
Hispanic	10	21 (1.7)	62 (3.2)
Asian/Pacific Islander	2	3 (3.2)	5 (1.6)
Age			
16 to 24 years	18	11 (0.6)	11 (1.8)
65 years and older	16	35 (1.5)	25 (2.2)
Disability or condition			
Any condition	12	26 (1.2)	22 (2.5)
Visual difficulty	7	18 (1.3)	17 (2.3)
Hearing difficulty	7	13 (2.0)	12 (2.0)
Learning disability	3	8 (2.3)	14 (1.6)

Notes: CPCT = column percentage; se = standard error.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Adults who did not complete high school were also disproportionately represented at the low end of the literacy scales. While 23 percent of the adult population reported that they had not completed high school, 59 to 62 percent of adults who performed in Level 1 on the three scales and 77 to 78 percent of those in Level 1 with no tasks correct said they had not completed high school or its equivalent.

Table A.5Q: Percentages of adults in selected groups, by membership in total U.S. population, in Level 1, and in Level 1 with no tasks correct

	Quantitative scale		
	Total U.S. population	Level 1 population	Level 1 no tasks correct
Population group	**CPCT**	**CPCT**	**CPCT**
Weighted sample size			
(in millions)	191.3	42.0	10.6
Country of birth			
Born in another country	10	22 (1.2)	54 (2.0)
Highest level of education			
0 to 8 years	10	33 (1.6)	58 (2.5)
9 to 12 years	13	27 (1.5)	20 (1.5)
HS diploma or GED	30	25 (1.6)	13 (1.3)
Race/Ethnicity			
White	76	50 (0.5)	34 (2.2)
Black	11	23 (0.9)	19 (1.2)
Hispanic	10	22 (1.3)	40 (1.9)
Asian/Pacific Islander	2	3 (3.6)	5 (0.9)
Age			
16 to 24 years	18	14 (0.8)	10 (0.9)
65 years and older	16	32 (1.5)	32 (1.7)
Disability or condition			
Any condition	12	26 (1.2)	28 (1.4)
Visual difficulty	7	19 (1.4)	21 (1.4)
Hearing difficulty	7	12 (2.1)	13 (1.5)
Learning disability	3	8 (2.7)	15 (1.0)

Notes: CPCT = column percentage; se = standard error.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Relatively high percentages of the respondents in Level 1 were black, Hispanic, or Asian/Pacific Islander. The largest group among those who did not perform any tasks correctly were Hispanic. Hispanics and Asian/Pacific Islanders are more likely than others to be recent immigrants with a limited command of English.

Older adults were overrepresented in the Level 1 population as well as in the population of adults who did not meet the demands of the Level 1 tasks. While 16 percent of the total U.S. population was age 65 or

older, approximately one-third of the Level 1 population and 25 to 32 percent of the adults in Level 1 who performed no literacy tasks correctly were in this age group. In contrast, compared with their representation in the total U.S. population (18 percent), younger adults were underrepresented in Level 1 (11 to 14 percent) and in the subgroup of Level 1 that did not succeed on any of the literacy tasks (10 to 11 percent).

Disabilities are sometimes associated with low literacy performance. While 12 percent of the adult population reported having a physical, mental, or health condition that kept them from participating fully in work and other activities, 26 percent of adults who performed in Level 1 and 22 to 28 percent of those in Level 1 who did not succeed on any of the literacy tasks had such conditions. Further, while only 3 percent of the U.S. population reported having a learning disability, 8 to 9 percent of the adults who performed in Level 1 on the prose, document, and quantitative scales and 14 to 15 percent of those in Level 1 who did not succeed on any task had this type of disability.

These results show that adults in some population groups were disproportionately likely to perform in the lowest literacy level, and among those who performed in this level, were disproportionately likely not to succeed on any of the literacy tasks in the assessment.

APPENDIX B

Supplemental Tables

Table B1.1: Language spoken before starting school

Row percent (s.e.)	Sample size	Population /1000	English only	English/ Spanish	English/ European	English/ Asian	Spanish/ other	Other/ other	Spanish only	European only	Asian only	English/ other
Percentage of population speaking language before starting school	26,091	191,289	85 (0.4)	2 (0.1)	2 (0.1)	- - -	- - -	1 (0.1)	6 (0.1)	2(0.1)	1 (0.1)	1 (0.2)

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B1.2: Language spoken before starting school by racial/ethnic group

Row percent (s.e.)	Sample size	Population /1000	English only	English/ other	Other only
Racial/ethnic group:					
White	17,292	144,968	93 (0.3)	3 (0.2)	3 (0.2)
Black	4,963	21,192	96 (0.5)	1 (0.2)	2 (0.5)
Asian/Pacific Islander	438	4,116	22 (2.8)	14 (2.2)	64 (3.3)
Hispanic	3,126	18,481	23 (1.1)	16 (1.2)	60 (1.6)
Other	272	2,532	61 (7.4)	19 (6.4)	20 (6.0)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B1.3: Self-reported literacy by self-reported fluency

Row percent (s.e.)	Sample size	Population /1000	Biliterate	English monoliterate	Other monoliterate	Not literate
Bilingual	2,789	20,021	62 (1.6)	27 (1.7)	8 (.8)	3 (.5)
English monolingual	22,420	165,414	- - -	100 (0)	- - -	- - -
Other monolingual	868	5,731	6 (1.1)	0 (.1)	82 (1.6)	12 (1.3)

Respondents who reported that they spoke only English before starting school are coded English monolingual, even if they learned to speak another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who reported that they spoke only English before starting school and who report that they read or write English well or very well are coded English monoliterate, even if they learned to read or write another language in school or as an adult. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

- - - Sample size is too small to provide a reliable estimate.

Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B1.4: Self-reported fluency by self-reported literacy

Row percent (s.e.)	Sample size	Population /1000	Bilingual	English monolingual	Other monolingual
Biliterate	1,845	12,834	96 (.6)	1 (.3)	3 (.5)
English monoliterate	23,077	170,499	3 (.3)	97 (.3)	- - -
Other monoliterate	946	6,381	26 (2.1)	- - -	74 (2.1)
Not literate	209	1,453	47 (5.1)	5 (1.5)	46 (4.8)

Respondents who reported that they spoke only English before starting school are coded English monolingual, even if they learned to speak another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who reported that they spoke only English before starting school and who report that they read or write English well or very well are coded English monoliterate, even if they learned to read or write another language in school or as an adult. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.1: Self-reported fluency by racial/ethnic group

Row percent (s.e.)	Sample size	Population /1000	Bilingual	English monolingual	Other monolingual
Total population	26,078	191,207	10 (.4)	87 (.4)	3 (.1)
White	17,291	144,940	5 (.2)	95 (.2)	0 (.1)
Black	4,960	21,182	3 (.5)	97 (.5)	0 (.1)
Asian/Pacific Islander	438	4,116	59 (2.6)	26 (2.7)	15 (2.1)
Total Hispanic	3,121	18462	50 (1.3)	25 (1.2)	25 (1.2)
Mexican	1,776	10,249	48 (1.3)	25 (1.5)	27 (1.6)
Puerto Rican	405	2,190	66 (3.9)	20 (2.6)	13 (2.9)
Cuban	148	936	55 (3.5)	3 (1.3)	41 (3.7)
Central/South American	378	2,288	52 (3.6)	11 (2.2)	37 (3.8)
Other Hispanic	414	2,799	38 (5.5)	49 (4.3)	13 (2.8)
Other	268	2,506	29 (6.7)	65 (7.1)	6 (3.1)

Respondents who reported that they spoke only English before starting school are coded English monolingual, even if they learned to speak another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations.

Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.2: Self-reported literacy by racial/ethnic group

Row percent (s.e.)	Sample size	Population /1000	Biliterate	English monoliterate	Other monoliterate	Not literate
Total population	26,084	191,220	7 (0.2)	89 (0.3)	3 (0.2)	1 (0.1)
White	17,291	144,927	3 (0.1)	97 (0.2)	0 (0.1)	0 (0.1)
Black	4,961	21,189	2 (0.3)	98 (0.5)	1 (0.2)	0 (0.1)
Asian/Pacific Islander	438	4,116	47 (3.4)	36 (3.2)	15 (2.0)	2 (0.7)
Total Hispanic	3,126	18,481	35 (1.3)	33 (1.6)	27 (1.4)	6 (0.6)
Mexican	1,779	10,259	30 (1.6)	34 (2.0)	29 (1.9)	7 (0.9)
Puerto Rican	405	2,190	51 (4.3)	27 (2.1)	16 (3.2)	6 (1.2)
Cuban	148	936	45 (3.7)	9 (2.6)	42 (3.6)	4 (1.3)
Central/South American	380	2,297	42 (3.3)	14 (2.7)	38 (4.0)	6 (1.5)
Other Hispanic	414	2,799	28 (3.3)	58 (3.2)	13 (2.8)	1 (0.3)
Other	268	2,506	12 (3.4)	79 (5.8)	7 (2.9)	2 (1.6)

Respondents who reported that they spoke only English before starting school and who report that they read or write English well or very well are coded English monoliterate, even if they learned to read or write another language in school or as an adult. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations.

Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.3: Self-reported fluency by racial/ethnic group and years living in the United States

Row percent (s.e.)	Sample size	Population /1000	Bilingual	English monolingual	Other monolingual
Total population					
10 or fewer	1,084	7,413	52 (2.4)	10 (1.1)	38 (2.4)
11 to 20	902	5,632	50 (2.3)	19 (1.8)	31 (2.2)
21or more	810	6,468	58 (2.1)	27 (2.1)	15 (1.7)
U.S.-born	23,181	171,018	5 (0.4)	94 (0.4)	- - -
White					
10 or fewer	126	1,058	65 (4.7)	28 (4.7)	7 (1.8)
11 to 20	101	885	43 (6.6)	50 (6.6)	8 (4.2)
21 or more	328	3,231	55 (3.1)	41 (4.1)	4 (1.9)
U.S.-born	16,687	139,502	3 (0.2)	97 (0.2)	- - -
Black					
10 or fewer	92	555	57 (6.3)	40 (7.2)	3 (1.9)
11 to 20	87	370	37 (5.7)	59 (6.9)	4 (2.8)
21 or more	42	205	- - -	- - -	- - -
U.S.-born	4,726	19.991	1 (0.2)	99 (0.2)	- - -
Asian/Pacific Islander					
10 or fewer	166	1.497	70 (3.9)	9 (3.5)	21 (3.9)
11 to 20	117	957	64 (6.3)	17 (6.2)	19 (7.1)
21or more	56	623	64 (6.9)	28 (6.2)	8 (6.0)
U.S.-born	87	851	24 (6.1)	73 (4.9)	3 (2.8)
Total Hispanic					
10 or fewer	667	4,056	41 (3.0)	1 (1.0)	58 (3.2)
11 to 20	572	3,204	50 (2.4)	5 (1.4)	44 (2.4)
21or more	380	2,357	63 (3.5)	5 (1.1)	32 (3.3)
U.S.-born	1,477	8,714	50 (2.1)	49 (2.1)	1 (0.3)
Mexican					
10 or fewer	362	2,113	30 (3.1)	2 (1.2)	68 (3.2)
11 to 20	318	1,811	49 (3.5)	2 (1.0)	48 (3.1)
21or more	125	733	49 (6.2)	5 (2.2)	46 (6.0)
U.S.-born	956	5,509	54 (1.9)	44 (1.8)	2 (0.5)
Puerto Rican					
10 or fewer	46	291	74 (9.6)	1 (1.1)	24 (9.5)
11 to 20	63	256	79 (7.7)	2 (1.5)	19 (7.5)
21or more	118	729	72 (6.0)	4 (2.8)	24 (5.9)
U.S.-born	175	898	55 (6.3)	45 (6.3)	- - -
Cuban					
10 or fewer	15	110	- - -	- - -	- - -
11 to 20	44	254	- - -	- - -	- - -
21or more	67	468	68 (7.0)	1 (1.1)	31 (7.1)
U.S.-born	21	100	- - -	- - -	- - -
Central/South American					
10 or fewer	179	1151	46 (5.3)	0 (0.3)	54 (5.3)
11 to 20	104	539	61 (5.9)	10 (4.8)	29 (5.8)
21or more	50	297	72 (7.1)	7 (2.3)	21 (7.1)
U.S.-born	43	292	- - -	- - -	- - -
Other Hispanic					
10 or fewer	65	392	58 (11.8)	1 (1.7)	40 (11.4)
11 to 20	43	243	- - -	- - -	- - -
21or more	20	131	- - -	- - -	- - -
U.S.-born	282	1,916	33 (8.3)	67 (8.3)	- - -
Other					
10 or fewer	33	246	- - -	- - -	- - -
11 to 20	25	217	- - -	- - -	- - -
21or more	4	52	- - -	- - -	- - -
U.S.-born	204	1,961	23 (8.9)	76 (8.9)	0 (0.5)

Respondents who reported that they spoke only English before starting school are coded English monolingual, even if they learned to speak another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

- - - Sample size is too small to provide a reliable estimate. Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.4: Self-reported literacy by racial/ethnic group and years living in the United States

Row percent (s.e.)	Sample size	Population /1000	Biliterate	English monoliterate	Other monoliterate	Not literate
Total population						
10 or fewer	1,086	7,425	43 (2.4)	13 (1.2)	40 (2.3)	5 (0.8)
11 to 20	903	5,633	38 (1.8)	22 (1.9)	35 (2.1)	5 (1.0)
21or more	812	6,500	45 (1.8)	34 (2.1)	17 (1.9)	4 (0.8)
U.S.-born	23,182	170,987	3 (0.1)	97 (0.2)	- - -	0 (0.1)
White						
10 or fewer	126	1,058	60 (5.5)	28 (4.7)	10 (3.7)	2 (1.4)
11 to 20	101	885	36 (5.2)	55 (5.7)	9 (3.5)	0 (0.0)
21or more	329	3,259	41 (2.6)	49 (3.9)	9 (3.2)	2 (1.1)
U.S.-born	16,686	139,461	1 (0.1)	99 (0.1)	0 (0.0)	0 (0.0)
Black						
10 or fewer	93	562	27 (6.9)	52 (7.1)	15 (5.9)	5 (2.9)
11 to 20	87	370	31 (4.3)	60 (6.9)	7 (5.4)	2 (2.1)
21or more	42	205	- - -	- - -	- - -	- - -
U.S.-born	4,726	19,991	0 (0.2)	100 (0.2)	- - -	- - -
Asian/Pacific Islander						
10 or fewer	166	1.497	61 (4.9)	17 (4.6)	18 (3.9)	4 (1.4)
11 to 20	117	957	50 (5.4)	24 (6.6)	25 (6.4)	1 (0.9)
21or more	56	623	55 (6.9)	34 (6.1)	11 (6.3)	0 (0.0)
U.S.-born	87	851	8 (2.1)	89 (4.2)	3 (2.8)	0 (0.2)
Total Hispanic						
10 or fewer	668	4,061	33 (2.9)	1 (.7)	60 (2.9)	6 (1.2)
11 to 20	573	3,204	35 (2.2)	8 (1.4)	48 (2.6)	9 (1.8)
21or more	381	2,361	51 (3.6)	9 (1.6)	32 (3.2)	8 (1.4)
U.S.-born	1,479	8,724	31 (1.9)	64 (2.0)	2 (0.4)	4 (0.7)
Mexican						
10 or fewer	362	2,113	22 (2.8)	2 (1.3)	70 (3.1)	6 (1.6)
11 to 20	319	1,811	30 (2.6)	5 (1.3)	55 (2.7)	11 (2.1)
21or more	125	733	41 (5.8)	7 (2.7)	41 (6.2)	11 (3.1)
U.S.-born	958	5,518	32 (2.2)	60 (2.3)	2 (0.6)	6 (1.1)
Puerto Rican						
10 or fewer	46	291	61 (7.1)	1 (1.1)	35 (6.8)	3 (3.0)
11 to 20	63	256	61 (8.3)	7 (3.7)	28 (8.3)	4 (3.4)
21or more	118	729	54 (9.9)	11 (3.5)	23 (9.4)	12 (3.1)
U.S.-born	175	898	41 (5.2)	55 (5.0)	0 (0.4)	3 (1.6)
Cuban						
10 or fewer	15	110	- - -	- - -	- - -	- - -
11 to 20	44	254	- - -	- - -	- - -	- - -
21or more	67	468	57 (6.2)	6 (2.0)	32 (6.2)	5 (1.4)
U.S.-born	21	100	- - -	- - -	- - -	- - -
Central/South American						
10 or fewer	180	1,156	38 (5.6)	0 (0.4)	54 (5.7)	8 (2.2)
11 to 20	104	539	49 (5.6)	13 (4.9)	28 (6.0)	9 (3.4)
21or more	51	301	59 (8.0)	11 (5.0)	28 (7.6)	1 (1.7)
U.S.-born	43	292	- - -	- - -	- - -	- - -
Other Hispanic						
10 or fewer	65	392	56 (13.0)	1 (1.7)	40 (12.5)	2 (1.2)
11 to 20	43	243	- - -	- - -	- - -	- - -
21or more	20	131	- - -	- - -	- - -	- - -
U.S.-born	282	1,916	20 (4.7)	79 (4.8)	0 (0.3)	0 (0.3)
Other						
10 or fewer	33	246	- - -	- - -	- - -	- - -
11 to 20	25	217	- - -	- - -	- - -	- - -
21or more	4	52	- - -	- - -	- - -	- - -
U.S.-born	204	1,961	5 (2.01	94 (2.2)	1 (0.6)	0 (0.6)

Respondents who reported that they spoke only English before starting school and who report that they read or write English well or very well are coded English monoliterate, even if they learned to read or write another language in school or as an adult. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

- - - Sample size is too small to provide a reliable estimate. Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.5: Language spoken before starting school by language spoken in home while growing up

Row percent (s.e.)	Sample size	Population /1000	English only	English/ other	Other only
Language spoken in home while growing up:					
English only	21,242	156,620	99 (0.1)	1 (0.1)	0 (0.1)
English/Spanish	789	4,406	31 (2.5)	48 (2.3)	21 (1.5)
English/European	1,017	8,426	51 (2.1)	41 (2.2)	7 (1.1)
English/Asian	56	394	29 (6.4)	40 (7.3)	31 (6.7)
Spanish/other	25	195	-- - -	- - -	- - -
Other/other	258	2,358	10 (2.7)	7 (2.6)	83 (3.1)
Spanish only	1,866	10,979	2 (0.7)	7 (0.7)	91 (1.1)
European only	404	4,093	5 (1.4)	9 (1.9)	86 (2.2)
Asian only	162	1,629	3 (2.0)	3 (1.3)	94 (2.6)
English/other	235	1,901	32 (3.7)	55 (5.0)	13 (3.2)

- - - Sample size is too small to provide a reliable estimate.

Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.6: Language usually and often spoken now by language spoken in home while growing up

Row percent (s.e.)	Sample size	Population /1000	English only	English/ other	Other only
Language spoken in home while growing up:					
English only	21,242	156,620	100 (0.0)	- - -	- - -
English/Spanish	789	4,406	42 (2.4)	57 (2.5)	1 (0.7)
English/European	1,017	8,426	83 (1.7)	17 (1.7)	- - -
English/Asian	56	394	47 (7.8)	53 (7.8)	- - -
Spanish/other	25	195	- - -	- - -	- - -
Other/other	258	2,358	20 (2.9)	73 (3.1)	7 (2.6)
Spanish only	1,866	10,979	5 (0.7)	60 (1.4)	34 (1.4)
European only	404	4,093	33 (3.3)	61 (3.5)	6 (1.6)
Asian only	162	1,629	10 (3.7)	77 (4.7)	13 (4.4)
English/other	235	1,901	58 (5.9)	42 (5.9)	- - -

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.7: Country of birth by language spoken in home while growing up

Row percent (s.e.)	Sample size	Population /1000	United States	Not United States
Language spoken in home while growing up:				
English only	21,242	156 ,620	98 (0.1)	2 (0.1)
English/Spanish	789	4,406	84 (2.1)	16 (2.1)
English/European	1,017	8,426	95 (0.9)	5 (0.9)
English/Asian	56	394	59 (6.5)	41 (6.5)
Spanish/other	25	195	- - -	- - -
Other/other	258	2,358	17 (4.0)	83 (4.0)
Spanish only	1,866	10,979	20 (1.5)	80 (1.5)
European only	404	4,093	34 (3.4)	66 (3.4)
Asian only	162	1,629	8 (2.9)	92 (2.9)
English/other	235	1,901	72 (6.1)	30 (6.1)

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.8: Average literacy proficiencies by racial/ethnic group and years living in the United States

Average proficiency (s.e.)	Sample size	Population /1000	Prose	Document	Quantitative
Total population					
10 or fewer	1,086	7,425	198 (3.8)	200 (3.9)	202 (4.3)
11 to 20	903	5,633	207 (4.4)	208 (4.1)	210 (4.8)
21or more	812	6,500	230 (4.0)	225 (3.9)	229 (4.3)
U.S.-born	23,184	171,031	280 (0.7)	273 (0.7)	278 (0.8)
White					
10 or fewer	126	1,058	273 (9.6)	272 (8.2)	282 (6.8)
11 to 20	101	885	272 (10.2)	266 (9.9)	276 (9.3)
21or more	329	3,259	248 (5.6)	244 (4.4)	247 (5.3)
U.S.-born	16,687	139,502	287 (0.8)	281 (0.9)	288 (0.9)
Black					
10 or fewer	93	562	220 (10.9)	215 (15.5)	217 (11.3)
11 to 20	87	370	238 (7.8)	234 (7.0)	234 (7.7)
21or more	42	- - -	- - -	- - -	- - -
U.S.-born	4,727	19,994	237 (1.4)	230 (1.2)	224 (1.4)
Asian/Pacific Islander					
10 or fewer	166	1,497	229 (8.6)	234 (6.6)	247 (7.6)
11 to 20	117	957	228 (16.2)	238 (12.9)	240 (19.1)
21or more	56	623	256 (18.2)	258 (14.5)	273 (15.6)
U.S.-born	87	851	280 (7.9)	271 (9.3)	285 (7.6)
Total Hispanic					
10 or fewer	668	4,061	165 (5.0)	167 (5.4)	164 (5.6)
11 to 20	573	3,204	179 (3.7)	178 (3.7)	179 (3.7)
21or more	381	2,361	199 (6.2)	190 (7.1)	193 (7.8)
U.S.-born	1,479	8,724	257 (2.3)	254 (2.3)	252 (2.5)
Mexican					
10 or fewer	362	2,113	147 (4.9)	146 (4.8)	145 (5.7)
11 to 20	319	1,812	167 (5.1)	168 (5.6)	170 (5.7)
21or more	125	733	173 (8.9)	167 (10.9)	171 (12.4)
U.S.-born	958	5,518	246 (3.2)	245 (3.0)	244 (3.1)
Puerto Rican					
10 or fewer	46	291	208 (18.9)	213 (15.9)	207 (16.3)
11 to 20	63	256	201 (12.9)	196 (12.2)	193 (10.9)
21or more	118	729	190 (16.1)	179 (15.1)	177 (19.3)
U.S.-born	175	898	250 (6.0)	250 (6.3)	245 (6.6)
Cuban					
10 or fewer	15	- - -	- - -	- - -	- - -
11 to 20	44	- - -	- - -	- - -	- - -
21or more	67	468	220 (14.7)	221 (16.0)	238 (17.3)
U.S.-born	21	- - -	- - -	- - -	- - -
Central/South American					
10 or fewer	180	1,156	175 (8.1)	177 (8.0)	171 (8.2)
11 to 20	104	539	202 (9.9)	204 (9.4)	205 (9.9)
21or more	51	301	228 (16.1)	214 (16.4)	217 (16.3)
U.S.-born	43	292	- - -	- - -	- - -
Other Hispanic					
10 or fewer	65	392	195 (19.6)	201 (25.9)	191 (25.8)
11 to 20	43	- - -	- - -	- - -	- - -
21or more	20	- - -	- - -	- - -	- - -
U.S.-born	282	1,916	283 (6.7)	277 (6.4)	273 (7.4)
Other					
10 or fewer	33	- - -	- - -	- - -	- - -
11 to 20	25	- - -	- - -	- - -	- - -
21or more	4	- - -	- - -	- - -	- - -
U.S.-born	204	1,961	255 (4.7)	254 (5.6)	252 (5.4)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B2.9: Average literacy proficiencies and literacy levels by language usually and often spoken now among adults raised in homes where a language other than English was spoken

Row percent (s.e.)	Sample size	Population /1000	Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher	Average proficiency
PROSE								
English only	746	6,688	25 (2.8)	29 (2.9)	30 (2.9)	14 (2.0)	2 (0.7)	262 (3.5)
English/Spanish	1,683	9,408	49 (2.1)	30 (2.2)	16 (1.5)	4 (0.8)	0 (0.3)	217 (2.7)
English/European	435	3,918	35 (3.7)	28 (4.2)	23 (2.6)	13 (2.2)	2 (1.6)	246 (4.9)
English/Asian	159	1,506	46 (6.7)	27 (6.4)	21 (6.6)	6 (3.7)	1 (0.6)	221 (11.4)
Spanish/other	6	50	- - -	- - -	- - -	- - -	- - -	- - -
Other/other	30	238	- - -	- - -	- - -	- - -	- - -	- - -
Spanish only	624	3,742	96 (1.3)	3 (1.1)	1 (0.6)	0 (0.3)	- - -	127 (2.3)
European only	17	223	- - -	- - -	- - -	- - -	- - -	- - -
Asian only	17	214	- - -	- - -	- - -	- - -	- - -	- - -
English/other	293	2,576	39 (5.4)	30 (4.7)	24 (3.8)	7 (2.2)	1 (0.7)	234 (8.4)
DOCUMENT								
English only	746	6,688	32 (2.9)	32 (2.6)	25 (1.9)	10 (1.5)	1 (0.7)	250 (3.6)
English/Spanish	1,683	9,408	48 (2.1)	31 (2.3)	17 (2.1)	4 (0.7)	1 (0.3)	220 (3.0)
English/European	435	3,918	38 (4.1)	26 (4.1)	22 (4.2)	13 (2.3)	1 (0.8)	245 (4.3)
English/Asian	159	1,506	41 (4.9)	28 (4.0)	22 (3.1)	8 (2.6)	1 (1.4)	228 (9.4)
Spanish/other	6	50	- - -	- - -	- - -	- - -	- - -	- - -
Other/other	30	238	- - -	- - -	- - -	- - -	- - -	- - -
Spanish only	624	3,742	96 (1.3)	4 (1.1)	0 (0.2)	0 (0.1)	- - -	116 (3.4)
European only	17	223	- - -	- - -	- - -	- - -	- - -	- - -
Asian only	17	214	- - -	- - -	- - -	- - -	- - -	- - -
English/other	293	2,576	38 (4.9)	26 (3.8)	27 (5.4)	8 (4.9)	1 (0.7)	243 (7.7)
QUANTITATIVE								
English only	746	6,688	28 (2.7)	30 (3.0)	26 (2.1)	13 (1.6)	3 (0.6)	256 (3.4)
English/Spanish	1,683	9,408	48 (1.8)	29 (2.0)	18 (1.6)	4 (1.0)	1 (0.6)	221 (2.7)
English/European	435	3,918	35 (3.2)	25 (2.9)	25 (2.9)	13 (2.6)	3 (1.5)	249 (5.5)
English/Asian	159	1,506	34 (6.1)	26 (4.5)	24 (5.3)	12 (3.9)	3 (2.9)	246 (9.6)
Spanish/other	6	50	- - -	- - -	- - -	- - -	- - -	- - -
Other/other	30	238	- - -	- - -	- - -	- - -	- - -	- - -
Spanish only	624	3,742	96 (1.1)	4 (1.1)	1 (0.4)	0 (0.2)	0 (0.1)	111 (3.4)
European only	17	223	- - -	- - -	- - -	- - -	- - -	- - -
Asian only	17	214	- - -	- - -	- - -	- - -	- - -	- - -
English/other	293	2,576	33 (4.9)	25 (3.6)	29 (4.2)	11 (3.2)	2 (1.6)	249 (10.1)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

- - - Sample size is too small to provide a reliable estimate.

Percentages below 0.5 are rounded to 0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.1: Educational attainment by immigrant status

Row percent (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary
Country of birth					
United States	23,178	170,947	21 (0.3)	36 (0.2)	43 (0.2)
All immigrants	2,849	19,748	38 (1.4)	25 (1.2)	37 (0.9)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.2: Educational attainment by country of birth

Row percent (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary
Country of birth					
Spanish language	1,605	9,428	57 (1.9)	23 (1.4)	20 (1.3)
European language	521	4,745	24 (2.9)	28 (2.1)	47 (2.6)
Asian language	280	2,728	22 (3.8)	25 (4.9)	53 (4.0)
Other language	443	2,848	17 (2.3)	27 (3.4)	56 (2.9)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.3: Educational attainment among all U.S. adults, all Hispanics, and all U.S.-born Hispanics

Row percent (s.e.)	Sample size	Population /100	Less than high school	High school graduate	Any postsecondary
Total population	26,027	190,695	23 (0.2)	36 (0.2)	42 (0.1)
All Hispanics	3,093	18,236	43 (1.2)	30 (1.1)	27 (1.0)
U.S.-born Hispanics	1,480	8,726	30 (1.7)	38 (1.8)	33 (1.9)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.4: Educational attainment by self-reported fluency

Row percent (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary
Self-reported fluency					
Bilingual	2,773	19,854	32 (1.3)	28 (1.1)	40 (1.2)
English monolingual	22,407	165,364	20 (0.3)	36 (0.2)	44 (0.2)
Other monolingual	838	5,419	74 (1.9)	16 (1.6)	10 (1.2)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.5: Educational attainment by self-reported literacy

Row percent (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary
Self-reported literacy					
Biliterate	1,836	12,749	23 (1.3)	29 (1.5)	48 (1.4)
English monoliterate	23,063	170,399	20 (0.3)	36 (0.2)	43 (0.2)
Other monoliterate	918	6,077	72 (2.2)	18 (1.8)	10 (1.2)
Not literate	207	1,426	87 (2.5)	8 (1.8)	5 (1.6)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.6: Average prose proficiency by educational attainment

Prose proficiency (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary	All
Total population	26,027	190,695	208 (1.6)	270 (0.9)	310 (0.8)	273 (0.6)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.7: Average prose proficiency by educational attainment and country of birth

Prose proficiency (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary	All
Country of birth						
United States	23,178	170,947	220 (1.5)	274 (0.9)	314 (0.9)	280 (0.7)
All immigrants	2,849	19,748	150 (3.0)	224 (4.0)	271 (2.1)	213 (2.2)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.8: Average prose proficiency by educational attainment and self-reported fluency

Prose proficiency (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary	All
Self-reported fluency						
English monolingual	22,407	165,364	223 (1.5)	275 (0.9)	314 (0.8)	281 (0.7)
Bilingual	2,773	19,854	191 (3.8)	241 (2.9)	280 (2.6)	241 (2.0)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.9: Average prose proficiency by educational attainment, Hispanic, and immigrant status among those who speak exclusively English

Row percent (s.e.)	Sample size	Population /1000	Less than high school	High school graduate	Any postsecondary	All
All English monolinguals	22,407	165,364	223 (1.5)	275 (0.9)	314 (0.8)	281 (0.7)
Hispanic English monolinguals	745	4,638	233 (5.9)	270 (3.0)	303 (4.0)	275 (2.4)
Foreign-born English monolinguals	542	3,801	229 (8.5)	272 (4.9)	303 (3.5)	281 (3.4)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.10: Highest level of education completed before coming to the United States by age of arrival and language spoken in country of birth

Row percent (s.e.)	Sample size	Population /1000	0 to 3 Years	4 to 8 Years	9 to 12 Years	Post-secondary /other
Arrived U.S. age 1 to 11						
Spanish language	250	1,430	73 (3.4)	14 (2.7)	9 (2.1)	3 (1.6)
European language	141	961	88 (3.0)	3 (1.2)	6 (2.8)	2 (1.2)
Asian/other language	123	985	76 (5.3)	12 (3.4)	9 (3.5)	3 (1.8)
Arrived U.S. age 12 to 18						
Spanish language	400	2,352	11 (1.7)	47 (3.1)	35 (2.6)	7 (1.7)
European language	77	579	14 (4.4)	31 (5.8)	52 (6.2)	3 (1.7)
Asian/other language	120	894	7 (3.0)	30 (5.8)	53 (6.6)	10 (3.1)
Arrived U.S. age 19 to 24						
Spanish language	411	2,259	13 (2.6)	33 (3.1)	39 (3.5)	15 (2.6)
European language	96	1,090	6 (3.4)	22 (7.6)	42 (8.2)	29 (4.5)
Asian/other language	157	1,127	2 (1.0)	10 (3.1)	50 (4.2)	38 (4.2)
Arrived U.S. age 25 or older						
Spanish language	543	3,437	22 (2.1)	36 (2.7)	27 (1.9)	16 (1.9)
European language	186	2,030	12 (4.1)	21 (4.2)	27 (4.0)	39 (4.4)
Asian/other language	278	2,291	5 (2.1)	19 (3.1)	33 (4.2)	43 (4.2)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.11: Highest level of education completed before coming to the United States by self-reported fluency

Row percent (s.e.)	Sample size	Population /1000	0 to 3 Years	4 to 8 Years	9 to 12 Years	Postsecondary /other
Self-reported fluency						
Bilingual	1,457	10,422	19 (1.6)	22 (1.3)	32 (1.7)	27 (1.4)
English monolingual	493	3,596	41 (2.9)	11 (1.7)	32 (3.5)	16 (2.2)
Other monolingual	841	5,506	19 (1.5)	44 (2.2)	28 (2.0)	9 (1.2)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.12: Highest level of education completed before coming to the United States by self-reported literacy

Row percent (s.e.)	Sample size	Population /100	0 to 3 Years	4 to 8 Years	9 to 12 Years	Postsecondary /other
Self-reported literacy						
Biliterate	1,163	8,204	14 (1.3)	20 (1.5)	34 (1.8)	32 (1.6)
English monoliterate	599	4,407	45 (2.7)	11 (1.2)	29 (2.8)	14 (1.8)
Other monoliterate	902	6,030	13 (1.5)	47 (2.3)	31 (2.2)	9 (1.2)
Not literate	132	928	65 (4.8)	17 (3.6)	11 (2.6)	7 (2.4)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.13: Prose literacy level by highest level of education completed before coming to the United States

Row percent (s.e.)	Sample size	Population /1000	Level 1 (225 or lower)	Level 2 (226 to 275)	Level 3 (276 to 325)	Level 4 or 5 (326 or higher)
Education received prior to U.S. arrival						
0 to 3 years	660	4,577	42 (2.6)	23 (3.0)	22 (2.7)	13 (1.8)
4 to 8 years	756	5,111	76 (2.6)	15 (2.6)	7 (1.4)	2 (1.2)
9 to 12 years	827	6,039	54 (2.2)	25 (2.3)	15 (2.7)	5 (1.5)
Postsecondary	555	3,859	29 (3.3)	31 (2.6)	27 (3.6)	13 (2.7)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.14: Reasons for high school noncompletion among those born in the United States and immigrants

Row percent (s.e.)	Sample size	Population/ 1000	Financial problems	Job or military service	Personal problems, pregnancy	Lost interest, behavior, academic problems	Other (includes incarceration)
Country of birth							
U.S.	4,325	35,222	12 (1.0)	25 (1.0)	18 (0.8)	27 (1.2)	17 (0.9)
Foreign-born	1,061	7,396	34 (1.8)	19 (2.0)	7 (0.9)	18 (1.2)	22 (1.4)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.15: Reasons for high school noncompletion by age of arrival in the United States

Row percent (s.e.)	Sample size	Population /1000	Financial problems	Job or military service	Personal problems, pregnancy	Lost interest, behavior, academic problems	Other (includes incar-ceration)
U.S.-born	4,325	35,222	12 (1.0)	25 (1.0)	18 (0.8)	27 (1.2)	17 (0.9)
Arrived U.S. age 1 to 11	90	501	12 (3.2)	20 (6.6)	25 (5.2)	17 (4.2)	27 (6.4)
Arrived U.S. age 12 to 18	249	1,461	32 (3.7)	17 (3.0)	12 (2.3)	19 (2.2)	20 (2.6)
Arrived U.S. age 19 to 24	279	1,838	36 (4.2)	25 (4.1)	4 (1.1)	18 (2.0)	19 (3.2)
Arrived U.S. age 25 or older	423	3,362	38 (3.0)	14 (2.4)	5 (1.4)	19 (2.0)	24 (2.7)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.16: Average prose proficiency among adults who learned a non-English language before school by ESL-taking history

Average proficiency (s.e.)	Did not take ESL	Took but did not complete ESL	Completed an ESL class
All adults who learned a non-English language before school	230 (2.4)	155 (4.7)	225 (3.2)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.17: Participation in ESL among adults who learned a non-English language before school by country of birth

Percent (s.e.)	Sample size	Population /1000	Percent who took ESL class	Percent who completed ESL class
Country of birth				
United States	1,630	12,042	9 (0.9)	7 (0.8)
Spanish language	1,590	9,348	48 (1.5)	26 (1.4)
European language	304	3,032	55 (3.5)	44 (3.5)
Asian language	249	2,406	68 (3.4)	55 (3.3)
Other language	246	1,792	69 (3.6)	54 (3.9)

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.18: Participation in ESL classes by age learned English among adults who learned a non-English language before starting school

Percent (s.e.)	Sample size	Population /1000	Percent who took ESL class	Percent who completed ESL class
Age learned English				
Age 1 to 4	1,183	8,531	8 (1.0)	7 (0.9)
Age 5 to 15	1,388	10,192	39 (1.6)	33 (1.8)
Age 16 or older	897	6,418	65 (2.0)	40 (2.2)
Did not learn English	538	3,401	35 (2.5)	9 (1.9)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.19: Participation in ESL classes by self-reported fluency among adults who learned a non-English language before starting school

Percent (s.e.)	Sample size	Population /1000	Percent who took ESL class	Percent who completed ESL class
Self-reported fluency				
Bilingual	2,784	19,962	36 (1.1)	28 (1.0)
English monolingual	363	2,892	5 (1.6)	4 (1.5)
Other monolingual	866	5,715	47 (2.2)	1.9 (2.0)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.20: Participation in ESL classes by self-reported literacy among adults who learned a non-English language before starting school

Percent (s.e.)	Sample size	Population /1000	Percent who took ESL class	Percent who completed ESL class
Self-reported literacy				
Biliterate	1,844	12,825	44 (1.5)	36 (1.5)
English monoliterate	1,017	7,901	9 (1.4)	8 (1.3)
Other monoliterate	944	6,365	51 (1.8)	21 (1.7)
Not literate	213	1,490	30 (3.5)	16 (3.2)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.21: Participation in basic skills training by age learned English among adults who learned a non-English language before starting school

Percent (s.e.)	Sample Size	Population /1000	Percent who took basic skills class
Age learned English			
Age 1 to 4	1,206	8,687	11 (1.1)
Age 5 to 15	1,385	10,152	12 (0.9)
Age 16 or older	893	6,397	20 (2.1)
Did not learn English	538	3,403	4 (1.1)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B3.22: Where did you primarily learn to …?

Row percent (s.e)	Sample size	Population /1000	In school	At home or in community	At work	Did not learn	Other
Read newspapers, magazines, or books	24,910	190,180	60 (0.4)	37 (0.5)	1 (0.1)	1 (0.1)	- - -
Read graphs, diagrams, or maps	24,903	190,113	79 (0.3)	10 (0.2)	6 (0.2)	5 (0.1)	1 (0.1)
Fill out forms	24,905	190,207	60 (0.5)	19 (0.4)	17 (0.4)	3 (0.1)	1 (0.1)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B4.1: Mean weeks worked by occupation among people who worked for pay during the past 12 months

Weeks worked (s.e.)	Sample size	Population /1000	Managerial & professional	Technical, sales & admin. support	Prec. prod., operators, fabricators, craft, laborers	Services, farming & fishing
Total population:						
Including the employed and the unemployed	19,985	146,423	44 (0.4)	39 (0.3)	39 (0.4)	34 (0.5)
Including only the employed	18,060	132,222	47 (0.2)	44 (0.2)	43 (0.3)	39 (0.4)

For this table only, the categories employed and unemployed are defined in terms of the past year, not the reference week of the study. The category unemployed includes people who did not work at all during the previous year but who worked at some time during the past three years and therefore reported their occupation. Employed is defined as people who worked a positive number of weeks during the past year, even if they are currently unemployed.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B4.2: Mean annual earnings by occupation among people who worked for pay during the past 12 months

Annual earnings (s.e.)	Sample size	Population /1000	Managerial & professional	Technical, sales & admin. support	Prec. prod., operators, fabricators, craft, laborers	Services, farming & fishing
Mean annual earnings	16,829	122,658	38,791 (869)	17,804 (288)	17,985 (334)	10,566 (283)

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B4.3:Mean annual earnings (in U.S. dollars) by country of birth and language fluency among people who worked for pay during the past 12 months

Annual earnings (s.e.)	Sample size	Population /1000	Mean annual earnings
Total population	16,916	123,638	20,918 (207)
Country of birth			
United States	15,127	111,087	21,030 (215.2)
Spanish language	953	5,953	14,698 (835.5)
European language	326	2,795	26,647 (1,956.7)
Asian language	200	1,863	24,798 (4,385.9)
Other	310	1,940	21,607 (2,242.6)
Total population	16,916	123,638	20,918 (207)
Bilingual	1,686	11,749	21,425 (1,099.3)
English monolingual	14,777	108,756	21,165 (242.5)
Other monolingual	451	3,120	10,441 (401.0)
All immigrants	1,789	12,551	19,926 (940)
Bilingual	968	6,916	23,020 (1,634.8)
English monolingual	371	2,521	23,133 (2,485.2)
Other monolingual	449	3,109	10,453 (401.1)
All Hispanics	1,839	11,624	15,194 (604)
Bilingual	954	5,732	16,195 (906.3)
English monolingual	476	3,256	17,454 (1,847.2)
Spanish monolingual	407	2,623	10,218 (369.8)
Total population	16,916	123,638	20,918 (207)
Biliterate	1,155	8,117	22,730 (1,335.4)
English monoliterate	15,136	111,270	21,140 (233.2)
Other monoliterate	532	3,635	11,911 (729.0)
Not literate	93	617	10,081 (734.6)
All immigrants	1,789	12,551	19,926 (940)
Biliterate	759	5,452	24,555 (1,811.8)
English monoliterate	438	3,026	22,658 (2,120.3)
Other monoliterate	523	3,585	11,964 (739.8)
Not literate	69	489	9,773 (743.2)
All Hispanics	1,839	11,624	15,194 (604)
Biliterate	659	4,087	16,815 (1,102.3)
English monoliterate	639	4,157	16,864 (1,517.4)
Other monoliterate	468	2,921	11,379 (694.7)
Not literate	73	459	9,923 (651.4)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B4.4: Mean annual earnings (in U.S. dollars) by country of birth and document literacy level among people who worked for pay during the past 12 months

Annual earnings (s.e.)	Sample size	Population /1000	Level 1	Level 2	Level 3	Level 4	Level 5	All
Total population	16,916	123,638	13,521 (685)	16,711(451)	21,534 (573)	28,270 (716)	34,106 (1,885)	20,918 (207)
All immigrants	1,789	12,551	13,466 (898)	20,075 (2,254)	26,492 (3,326)	34,005 (4,434)	- - -	19,926 (940)
All Hispanics	1,839	11,624	11,305 (492)	14,570 (841)	21,014 (2,554)	21,809 (3,621)	- - -	15,194 (604)
Country of birth								
United States	15,127	111,087	13,544 (942)	16,348 (435)	21,217 (556)	28,020 (691)	33,775 (2,120)	21,030 (215)
Spanish language	953	5,953	11,211 (443)	15,344 (1,808)	30,244 (8,597)	- - -	- - -	14,698 (835)
European language	326	2,795	18,244 (4,198)	24,151 (4,609)	25,256 (4,231)	38,253 (7,356)	- - -	26,647 (1,957)
Asian language	200	1,863	17,563 (5,042)	27,696 (11,084)	27,446 (9,864)	- - -	- - -	24,798 (4,386)
Other	310	1,940	18,589 (5,400)	19,060 (3,690)	22,597 (4,122)	- - -	- - -	21,607 (2,243)
Total population								
Bilingual	1,686	11,749	15,394 (1,528)	19,663 (2,200)	25,141 (2,905)	31,707 (3,407)	- - -	21,425 (1,099)
English monolingual	14,777	108,756	13,790 (1,030)	16,370 (414)	21,246 (556)	28,089 (707)	34,079 (1,999)	21,165 (242)
Other monolingual	451	3,120	- - -	- - -	- - -	- - -	- - -	10,441 (401)
Total population	16,916	123,638	13,521 (685)	16,711(451)	21,534 (573)	28,270 (716)	34,106 (1,885)	20,918 (207)
Biliterate	1,155	8,117	17,822 (2,564)	20,672 (2,797)	25,481 (3,771)	30,283 (4,138)		22,730 (1,335)
English monoliterate	15,136	111,270	13,688 (965)	16,362 (400)	21,278 (557)	28,185 (705)	34,106 (1,997)	21,140 (233)
Other monoliterate	532	3,635	- - -	- - -	- - -	- - -	- - -	11,911 (729)
Not literate	93	617	- - -	- - -	- - -	- - -	- - -	10,081 (735)
Immigrants								
Bilingual	968	6,916	16,839 (2,019)	22,038 (3,304)	28,161 (4,551)	36,489 (6,711)	- - -	23,020 (1,635)
English monolingual	371	2,520	16,836 (1,787)	16,611 (2,358)	23,853 (5,605)	31,505 (7,229)	- - -	23,133 (2,485)
Other monolingual	449	3,109	- - -	- - -	- - -	- - -	- - -	10,453 (401)
Hispanics								
Bilingual	954	5,732	12,755 (1,066)	15,017 (1,291)	21,158 (2,913)	23,339 (6,901)	- - -	16,195 (906)
English monolingual	476	3,256	11,448 (2,326)	14,320 (1,923)	20,803 (4,527)	20,957 (3,235)	- - -	17,454 (1,847)
Other monolingual	407	2,623	- - -	- - -	- - -	- - -	- - -	10,218 (370)
Immigrants								
Biliterate	759	5,452	19,632 (3,095)	22,431 (3,444)	28,173 (5,110)	35,018 (6,852)	- - -	24,555 (1,812)
English monoliterate	438	3,026	14,745 (1,798)	16,509 (2,143)	23,611 (4,918)	32,922 (6,589)	- - -	22,658 (2,120)
Other monoliterate	523	3,585	- - -	- - -	- - -	- - -	- - -	11,964 (740)
Not literate	69	489	- - -	- - -	- - -	- - -	- - -	9,773 (743)
Hispanics								
Biliterate	659	4,087	13,339 (1,824)	15,158 (1,605)	20,727 (3,060)	- - -	- - -	16,815 (1,102)
English monoliterate	639	4,157	11,512 (1,520)	14,494 (1,354)	20,366 (3,997)	20,961 (3,012)	- - -	16,864 (1,517)
Other monoliterate	468	2,921	- - -	- - -	- - -	- - -	- - -	11,379 (695)
Not literate	73	459	- - -	- - -	- - -	- - -	- - -	9,923 (651)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Spanish speaking and other non-English speaking adults may not be accurate, since the samples are not comparable for these populations.

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Table B4.5: Mean annual earnings (in U.S. dollars) by country of birth and quantitative literacy level among people who worked for pay during the past 12 months

Annual earnings (s.e.)	Sample size	Population /1000	Level 1	Level 2	Level 3	Level 4	Level 5	All
Total population	16,916	123,638	12,188 (296)	16,013 (585)	20,461 (490)	28,113 (932)	39,200 (2,018)	20,918 (207)
All immigrants	1,789	12,551	12,085 (577)	19,732 (2,946)	26,119 (2,543)	37,500 (4,933)	- - -	19,926 (940)
All Hispanics	1,839	11,624	10,893 (412)	14,499 (879)	19,664 (2,253)	27,230 (3,778)	- - -	15,194 (604)
Country of birth								
United States	15,127	111,087	12,237 (408)	15,610 (653)	20,082 (547)	27,699 (903)	39,085 (1,858)	21,030 (215)
Spanish language	953	5,953	10,957 (381)	14,354 (1,337)	26,963 (6,453)	- - -	- - -	14,698 (835)
European language	326	2,795	15,875 (2,026)	20,704 (4,791)	28,181 (5,172)	38,227 (7,684)	- - -	26,647 (1,957)
Asian language	200	1,863	14,132 (3,086)	35,873 (16,411)	25,975 (4,508)	- - -	- - -	24,798 (4,386)
Other	310	1,940	14,093 (3,863)	19,160 (5,104)	21,922 (4,805)	- - -	- - -	21,607 (2,243)
Total population								
Bilingual	1,686	11,749	13,139 (1,050)	19,239 (2,396)	24,363 (2,026)	35,509 (4,534)	- - -	21,425 (1,099)
English monolingual	14,777	108,756	12,497 (391)	15,594 (651)	20,138 (557)	27,715 (893)	39,302 (1,975)	21,165 (242)
Other monolingual	451	3,120	- - -	- - -	- - -	- - -	- - -	10,441 (401)
Immigrants								
Bilingual	968	6,916	14,252 (1,445)	21,717 (4,010)	27,221 (3,163)	42,301 (7,058)	- - -	23,020 (1,635)
English monolingual	371	2,521	15,743 (1,928)	15,145 (2,571)	24,362 (5,668)	31,120 (5,713)	- - -	23,133 (2,485)
Other monolingual	449	3,109	- - -	- - -	- - -	- - -	- - -	10,453 (401)
Hispanics								
Bilingual	954	5,732	12,504 (852)	14,169 (1,198)	19,408 (2,517)	32,585 (6,800)	- - -	16,195 (906)
English monolingual	476	3,256	8,230 (1,333)	15,374 (1,511)	20,085 (4,374)	23,017 (3,379)	- - -	17,454 (1,847)
Other monolingual	407	2,623	- - -	- - -	- - -	- - -	- - -	10,218 (370)
Total population								
Biliterate	1,155	8,117	13,878 (1,652)	20,771 (3,071)	24,476 (2,220)	35,920 (4,989)	- - -	22,730 (1,335)
English monoliterate	15,136	111,270	12,405 (381)	15,587 (627)	20,199 (550)	27,777 (902)	39,343 (2,013)	21,140 (233)
Other monoliterate	532	3,635	- - -	- - -	- - -	- - -	- - -	11,911 (729)
Not literate	93	617	- - -	- - -	- - -	- - -	- - -	10,081 (735)
Immigrants								
Biliterate	759	5,452	15,060 (2,241)	22,914 (4,352)	27,216 (3,022)	41,076 (7,038)	- - -	24,555 (1,812)
English monoliterate	438	3,026	14,124 (1,437)	14,985 (2,057)	24,160 (4,943)	32,223 (6,337)	- - -	22,658 (2,120)
Other monoliterate	523	3,585	- - -	- - -	- - -	- - -	- - -	11,964 (740)
Not literate	69	489	- - -	- - -	- - -	- - -	- - -	9,773 (743)
Hispanics								
Biliterate	659	4,087	12,910 (1,481)	14,299 (1,325)	19,161 (3,009)	30,003 (7,203)	- - -	16,815 (1,102)
English monoliterate	639	4,157	9,455 (1,047)	15,205 (1,258)	19,988 (3,878)	22,772 (3,109)	- - -	16,864 (1,517)
Other monoliterate	468	2,921	- - -	- - -	- - -	- - -	- - -	11,379 (695)
Not literate	73	459	- - -	- - -	- - -	- - -	- - -	9,923 (651)

Respondents who reported that they spoke only English before starting school are coded English monolingual and English monoliterate, even if they learned to speak and/or read another language in school or as an adult. Respondents who spoke a language other than English before starting school and who speak or understand both that language and English well or very well as adults are coded bilingual. Respondents who spoke a language other than English before starting school and who read or write both that language and English well or very well as adults are coded biliterate.

Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations

- - - Sample size is too small to provide a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

APPENDIX C

Overview of Procedures Used in the National Adult Literacy Survey

This appendix provides information about the methods and procedures used in the National Adult Literacy Survey. The *Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey* will provide more extensive information about these procedures.[1] In addition, more detailed information on the development of the background questionnaires and literacy tasks can be found in *Assessing Literacy*.[2]

Sampling

The National and State Adult Literacy Surveys included the following three components: a national household sample, 11 individual state household samples, and a national prison sample. The national and state household components were based on a four-stage stratified area sample with the following stages: the selection of Primary Sampling Units (PSUs) consisting of counties or groups of counties, the selection of segments consisting of census blocks or groups of blocks, the selection of households, and the selection of age-eligible individuals. One national area sample was drawn for the national component; 11 independent, state-specific area samples were drawn for the 11 states participating in the state component (i.e., California, Illinois, Indiana, Iowa, Louisiana, New Jersey, New York, Ohio, Pennsylvania, Texas, Washington.) The sample designs used for all 12 samples were similar, except for two principal differences. In the national sample, black and Hispanic respondents were sampled at a higher rate than the remainder of the population in order to increase their representation in the sample, whereas the state samples used no oversampling. Also, the target population for the national sample consisted of adults 16 years of age or older, whereas the target population for the state samples consisted of adults 16 to 64 years of age.

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[1] I. Kirsch and others (2000). *Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey*. Washington, D.C.: Government Printing Office.
[2] A. Campbell, I. Kirsch, and A. Kolstad (1992). *Assessing Literacy: The Framework for the National Adult Literacy Survey*. Washington, D.C.: Government Printing Office.

The sample designs for all 12 household samples involved four stages of selection, each at a successively finer level of geographic detail. The first stage of sampling involved the selection of PSUs, which consist of counties or groups of counties. The PSUs were stratified on the basis of region, metropolitan status, percent black, percent Hispanic, and, whenever possible, per capita income. The national component used the WESTAT 100 PSU master sample with the Honolulu, Hawaii PSU added to the sample with certainty, to make 101 PSUs in total. The national frame of PSUs was used to construct individual state frames for the state component and a sample of eight to 12 PSUs was selected within each of the given states. All PSUs were selected with probability proportional to the PSU's 1990 population.

The second stage of sampling involved the selection of segments (within the selected PSUs) which consist of census blocks or groups of census blocks. The segments were selected with probability proportional to size where the measure of size for a segment was a function of the number of year-round housing units within the segment. The oversampling of black and Hispanic respondents for the national component was carried out at the segment level, where segments were classified as high minority (segments with more than 25 percent black or Hispanic population) or not high minority. The measure of size for high minority segments was defined as the number of white non-Hispanic households plus three times the number of black or Hispanic households. High minority segments were therefore oversampled at up to three times the rate of comparable, non-high minority segments. The measure of size for nonminority segments was simply the number of year-round housing units within the segment, as was the measure of size for all segments in the state components. One in seven of the national component segments was selected at random to be included in a "no incentive" sample. Respondents from the remaining segments in the national component received a monetary incentive for participation, as did respondents in the state component. (Respondents from the "no incentive" segments are not included in the household sample of this report.)

The third stage of sampling involved the selection of households within the selected segments. Westat field staff visited all selected segments and prepared lists of all housing units within the boundaries of each segment as determined by the 1990 census block maps. The lists were used to construct the sampling frame for households. Households were selected with equal probability within each segment, except for white non-Hispanic households in high minority segments in the national

component, which were subsampled so that the sampling rates for white non-Hispanic respondents would be about the same overall.

The fourth stage of sampling involved the selection of one or two adults within each selected household. A list of age-eligible household members (age 16 and older for the national component, age 16 to 64 for the state component) was constructed for each selected household. One person was selected at random from households with fewer than four eligible members; two persons were selected from households with four or more eligible members. The interviewers, who were instructed to list the eligible household members in descending order by age, then identified one or two household members to interview, based on computer-generated sampling messages that were attached to each questionnaire in advance.

The sample design for the prison component involved two stages of selection. The first stage of sampling involved the selection of state or federal correctional facilities with probability proportional to size, where the measure of size for a given facility was equal to the inmate population. The second stage involved the selection of inmates within each selected facility. Inmates were selected with a probability inversely proportional to their facility's inmate population (up to a maximum of 22 interviews in a facility) so that the product of the first and second stage sampling probabilities would be constant.

Weighting

Full sample and replicate weights were calculated for each record in order to facilitate the calculation of unbiased estimates and their standard errors. The full sample and replicate weights for the household components were calculated as the product of the base weight for a record and a compositing and raking factor. Demographic variables critical to the weighting were recoded and imputed, if necessary, prior to the calculation of base weights.

The base weight was calculated as the reciprocal of the final probability of selection for a respondent, which reflected all stages of sampling. The base weight was then multiplied by a compositing factor which combined the national and state component data in an optimal manner, considering the differences in sample design, sample size, and sampling error between the two components. Twelve different compositing factors were used, one for each of the 11 participating states, and a pseudo factor (equal to one) for all national component records

from outside the 11 participating states. The product of the base weight and compositing factor for a given record was the composite weight.

The composite weights were raked so that several totals calculated with the resulting full sample weights would agree with the 1990 census totals, adjusted for undercount. The cells used for the raking were defined to the finest combination of age, education level, race, and ethnicity that the data would allow. Raking adjustment factors were calculated separately for each of the 11 states and then for the remainder of the United States. The above procedures were repeated for 60 strategically constructed subsets of the sample to create a set of replicate weights to be used for variance estimation using the jackknife method. The replication scheme was designed to produce stable estimates of standard errors for national estimates as well as for the 11 individual states.

The full sample and replicate weights for the incarcerated component were calculated as the product of the base weight for a record and a nonresponse and raking factor. The base weight was calculated as the reciprocal of the final probability of selection for a respondent, which reflected both stages of sampling. The base weights were then nonresponse adjusted to reflect both facility and inmate nonresponse. The resulting nonresponse adjusted weights were then raked to agree with independent estimates for certain subgroups of the population.

Background Questionnaires

One of the primary goals of the National Adult Literacy Survey is to relate the literacy skills of the nation's adults to a variety of demographic characteristics and explanatory variables. Accordingly, survey respondents were asked to complete background questionnaires designed to gather information on their characteristics and experiences. To ensure standardized administration, the questionnaires were read to the respondent by trained interviewers.

As recommended by the Literacy Definition Committee, the development of the background questionnaire was guided by two goals: to ensure the usefulness of the data by addressing issues of concern, and to ensure comparability with the young adult and Department of Labor (DOL) job-seeker surveys by including some of the same questions. With these goals in mind, the background questionnaire addressed the following areas:

- general and language background;

- educational background and experiences;
- political and social participation;
- labor force participation;
- literacy activities and collaboration; and
- demographic information.

Questions in the first category asked survey participants to provide information on their country of birth, their education before coming to the United States, language(s) spoken by others at home, language(s) spoken while growing up, language(s) spoken now, participation in English as a Second Language courses, and self-evaluated proficiency in English and other languages. This information makes it possible to interpret the performance results in light of the increasing racial/ethnic and cultural diversity in the United States.

The questions on educational background and experiences asked respondents to provide information on the highest grade or level of education they had completed; their reasons for not completing high school; whether or not they had completed a high school equivalency program; their educational aspirations; the types and duration of training they had received in addition to traditional schooling; the school, home, or work contexts in which they learned various literacy skills; and any physical, mental, or health conditions they have that may affect their literacy skills. Information on respondents' education is particularly important because level of education is known to be a predictor of performance on the prose, document, and quantitative literacy scales.

The questions on political and social participation asked participants about the sources from which they get information, their television viewing practices, their use of library services, and whether or not they had voted in a recent election. Because an informed citizenry is essential to the democratic process, information was collected on how adults keep abreast of current events and public affairs. Information on adults' use of library services is also important, because libraries promote reading and often provide literacy programs. These questions make it possible to explore connections between adults' activities and their demonstrated literacy proficiencies.

The questions on labor force participation asked participants to provide information on their employment status, weekly wages or salary, weeks of employment in the past year, annual earnings, and the industry or occupation in which they work(ed). These questions respond to

concerns that the literacy skills of our present and future work force are inadequate to compete in the global economy or to cope with our increasingly technological society. The questions were based on labor force concepts widely used in economic surveys and permit the exploration of a variety of labor market activity and experience variables.

Questions on literacy activities and collaboration covered several important areas. Some of the questions focused on the types of materials that adults read, such as newspapers, magazines, books, and brief documents, making it possible to investigate the relationship between reading practices and demonstrated literacy proficiencies. Another set of questions asked respondents about the frequency of particular reading, writing, and mathematics activities. Respondents were asked to provide information on their newspaper, magazine, and book reading practices; reading, writing, and mathematics activities engaged in for personal use and for work; and assistance received from others with particular literacy tasks.

Finally, the survey collected information on respondents' race/ethnicity, age, and gender, as well as the educational attainment of their parents, their marital status, the number of people in their family who were employed full-time and part-time, sources of income other than employment, and family and personal income from all sources. This demographic information enabled researchers to analyze the characteristics of the adult population, as well as to investigate the literacy proficiencies of major subpopulations of interest, such as racial/ethnic groups, males and females, and various age cohorts.

Because some questions included in the household survey were inappropriate for the prison population, a revised version of the background questionnaire was developed for these respondents. Most of the questions in the household background questionnaire on general and language background and on literacy activities and collaboration were included. Many questions concerning education, political and social participation, labor force participation, family income, and employment status were not appropriate, however, and were omitted. In their place, relevant questions were incorporated from the 1991 Survey of Inmates of State Correctional Facilities, sponsored by the Bureau of Justice Statistics of the U.S. Department of Justice.

Literacy Assessment Booklets

The National Adult Literacy Survey measures literacy along three scales — prose, document, and quantitative — composed of literacy tasks that simulate the types of demands that adults encounter in everyday life. The literacy tasks administered in this survey included 81 new tasks as well as 85 tasks that were included in the previous young adult and job-seeker surveys. The administration of a common pool of tasks in each of the three surveys allows for valid comparisons of results across time for different populations.

The new literacy tasks developed for the survey serve to refine and extend the three existing literacy scales and provide a better balance of tasks across the three scales. The framework used to develop these tasks reflects research on the processes and strategies that respondents used to perform the literacy tasks administered in the young adult survey. In creating the new tasks, one goal was to include diverse stimulus materials and to create questions and directives that represent the broad range of skills and processes inherent in the three domains of literacy. Another goal was to create tasks that reflect the kinds of reading, writing, and computational demands that adults encounter in work, community, and home settings. Because the tasks are meant to simulate real-life literacy activities, they are open-ended — that is, individuals must produce a written or oral response, rather than simply choose the correct response from a list of options.

The new literacy tasks were developed with attention to the following elements:

- the structure of the stimulus material — for example, exposition, narrative, table, graph, map, or advertisement;
- the content represented and/or the context from which the stimulus is drawn — for example, work, home, or community; and
- the nature of what the individual is asked to do with the material — that is, the purpose for using the material — which in turn guides the strategies needed to complete the task successfully.

These factors, operating in various combinations, affect the difficulty of a task relative to others administered in the survey.

The printed and written materials selected for the survey reflect a variety of structures and formats. Most of the prose materials are expository — that is, they describe, define, or inform — since most of the

prose that adults read is expository; however, narratives and poetry are included as well. The prose selections include an array of linguistic structures, ranging from texts that are highly organized both topically and visually, to those that are loosely organized. Texts of varying lengths were chosen, ranging from full-page magazine selections to short newspaper articles. All prose materials included in the survey were reproduced in their original format.

The document materials represent a wide variety of structures, including tables, charts and graphs, forms, and maps. Tables include matrix documents in which information is arrayed in rows and columns (for example, bus or airplane schedules, lists, or tables of numbers). Documents categorized as charts and graphs include pie charts, bar graphs, and line graphs. Forms are documents that must be filled in, while other structures include advertisements and coupons.

Quantitative tasks require the reader to perform arithmetic operations using numbers that are embedded in print. Since there are no materials that are unique to quantitative tasks, they were based on prose materials and documents. Most quantitative tasks were, in fact, based on documents.

Adults do not read printed or written materials in a vacuum. Rather, they read within a particular context or for a particular purpose. Accordingly, the survey materials were chosen to represent a variety of contexts and contents. Six such areas were identified: home and family, health and safety, community and citizenship, consumer economics, work, and leisure and recreation. Efforts were made to include as broad a range as possible and to select universally relevant contexts and contents to ensure that the materials would be familiar to all participants. In this way, the disadvantages for individuals with limited background knowledge were minimized.

After the materials were selected, accompanying tasks were developed. The tasks were designed to simulate the way in which people use various types of materials and to require different strategies for successful performance. For both the prose and document scales, the tasks can be organized into three major categories: locating, integrating, and generating information. In the *locating* tasks, readers were asked to match information given in a question or directive with either literal or synonymous information in the text or document. *Integrating* tasks asked the reader to incorporate two or more pieces of information from different parts of the text or document. *Generating* tasks required readers not only to process information located in different parts of the material,

but also to draw on their knowledge about a subject or to make broad, text-based inferences.

Quantitative tasks required readers to perform one or more arithmetic operations (addition, subtraction, multiplication, or division) either singly or in combination. The type of operation to be performed was sometimes obvious from the wording of the question; in other tasks the readers had to infer which operation was to be performed. In some cases the numbers required to perform the operation could be easily identified; in others they were embedded in text. Some quantitative tasks asked the reader to explain how he or she would solve a problem, rather than to perform the actual calculation. The use of a simple, four-function calculator was required for some tasks.

Survey Design: BIB Spiralling

No individual could be expected to respond to the entire set of 166 simulation tasks administered as part of the survey. Accordingly, the survey design gave each respondent a subset of the total pool of literacy tasks, while at the same time ensuring that each of the 166 tasks was administered to a nationally representative sample of the adult population. Literacy tasks were assigned to blocks or sections that could be completed in about 15 minutes. These blocks were then compiled into booklets so that each block appeared in each position (first, middle, and last) and each block was paired with every other block. Thirteen blocks of simulation tasks were assembled into 26 booklets, each of which could be completed in about 45 minutes. During a personal interview, each participant was asked to complete one booklet of literacy tasks and the background questionnaire, which required approximately 20 minutes.

Training the Data Collection Staff

For the national and state samples, 24 field supervisors, 24 field editors, and 421 field interviewers were recruited and trained by Westat in January and February of 1992. The 24 supervisors were trained first at a session in Bethesda, Maryland. The seven-day program included the interviewer training. Additionally, Westat provided training specific to supervisory responsibilities, including the use of Westat's Automated Survey Control System, a computer-based system for managing the data collection effort. Finally, supervisors and editors were trained to perform

an item-by-item edit for each data collection instrument received from the field interviewers.

After the training offered in Bethesda, interviewers attended training sessions geographically closest to their homes, either San Francisco (January 31 - February 2) or Dallas (February 7 - 9). Four training groups were formed at each of the two training sites. Each group was led by a Westat home office field manager. Within each of the four groups, the trainees were divided into "learning communities" with approximately 18 interviewers each. Each community was led by the field supervisor who would supervise the interviewers during the data collection phase.

The training program was modeled closely after Westat's general approach for training field staff. This approach uses a mix of techniques to present study material, focusing heavily on trainee participation and practice. The training program was standardized with verbatim scripts and a detailed agenda to ensure comparability in presentation across groups.

The key training topics were the data collection instruments — the household screener,[3] the background questionnaire, and the interview guide and literacy exercise booklet. The majority of training time was devoted to instructions for administering these documents. In addition, sessions were used to present instructional material on gaining respondent cooperation, keeping records of nonresponse cases, editing completed work, and completing administrative forms. A bilingual field supervisor provided Spanish speaking interviewers with training on the Spanish translations of the screener and background questionnaires.

Prior to project-specific training, new interviewers attended an additional one-half day of training on general interviewing techniques. Interviewers selected to work on the prison sample received an additional day of training on interview procedures unique to that sample.

Administering the Data Collection Instruments

Data collection instruments included the screener, which was designed to enumerate household members and select survey respondents, the background questionnaire, and the literacy exercise booklets. Interviewers were given their first assignments and began work

[3] The household screner was filled out as part of the fourth stage of sampling discussed earlier in this appendix. The screener consisted of a list of all household members in descending order by age. It was used to select survey participants.

immediately after training. The interviewer was given a call record folder and screener for each sampled dwelling unit in his or her assignment. A computer-generated label attached to the front of each folder and screener provided the case identification number, address, and assigned exercise booklet number. Additionally, interviewers were provided with all other field materials necessary to conduct interviews and meet reporting requirements.

Case assignments were made by the field supervisors, who also mailed letters to households about one week before the interviewers planned to contact the household. When making contact, the interviewer first verified that the address was in the sample and the unit was, in fact, an occupied dwelling. If the unit did not meet the definition of a year-round housing unit or was vacant, or for some other reason the interviewer was unable to complete a screener at an assigned address, she or he documented the situation in a noninterview report form.

The interviewer introduced the study using an introduction printed on the front of the screener. As part of the introduction, the interviewer indicated that if someone from the household was selected for an interview, the respondent would be paid $20 for participating. After introducing the study, the interviewer proceeded to conduct the screening interview with any household member 16 years of age or older. If the household members spoke only a language other than Spanish or English, the interviewer could obtain the services of a translator to complete the screener interview.

The screener was used to collect names, relationships, sex, age and race/ethnicity of all household members at the selected dwelling unit. For the national sample, household members aged 16 years and older were eligible for selection. For the state sample, however, household members 16 to 64 years of age were eligible. In households with three or fewer eligible household members, one was randomly selected for the interview. In households with four or more eligibles, two respondents were selected. To select respondents, interviewers first listed the names and ages (in descending age order) of all eligible household members. They then referred to a sampling table which selected one or two respondents from the household.

Once the screener was completed and a respondent(s) selected, the interviewer proceeded to administer the background questionnaire and the exercise booklet. If the selected respondent was not available at the time the screener was conducted, the interviewer returned to

administer the background questionnaire and exercise booklet, which were administered on the same visit.

The background questionnaire took approximately 20 minutes to administer and could be conducted in English or Spanish (using the Spanish printed version) only. In the introduction to the background questionnaire, the respondent was told that he or she would be given a check for $20 in appreciation of the time and effort involved in completing the interview, questionnaires, and assessment. The background questionnaire was divided into six sections and collected demographic data as well as data on literacy-related behaviors. Respondents from each of the 11 participating states were asked five state-specific questions, which appeared at the end of the questionnaire.

When the background questionnaire was completed, the interviewer administered the exercise booklet, which took approximately 45 minutes. There were 26 different versions of the exercise booklet, and each version had a corresponding interview guide, which the interviewer used to facilitate the respondent's completion of tasks in the booklet.

For the prison population, the interviewer informed the selected inmate about the study using an introduction printed in the background questionnaire since there was no screener. As part of the introduction, the interviewer indicated that the inmate would receive a certificate of participation if he or she completed the survey. Because of varying prison regulations, it was not possible to pay inmates $20 for their participation and so they received the certificate. The background questionnaire and exercise booklet were administered using the same procedures as for the household population.

Response Rates

Since there were three instruments — screener, background questionnaire, and exercise booklet — required for the administration of the survey, it was possible for a household or respondent to refuse to participate at the time of the administration of any one of these instruments. Thus, response rates were calculated for each of the three instruments. For the prison sample there were only two points at which a respondent could refuse — at the administration of either the background questionnaire or exercise booklet. The response rates presented below reflect the percentage of those who had the opportunity to participate at each stage of the survey. The response rates for the national household and prison samples are as follows.

Table C.1: Response rates

Instrument	National	Prison
Screener	89.1%	N/A
Background questionnaire	81.0%	85.7%
Exercise booklet	95.8%	96.1%

Data Collection Quality Control

Several quality control procedures relating to data collection were used. These included the interviewer field edit, a complete edit of all documents by a trained field editor, validation of 10 percent of each interviewer's close-out work, and field observation of both supervisors and interviewers.

At the interviewer training session, interviewers were instructed on procedures for performing a field edit of all data collection documents. The main purpose of this edit was to catch and correct or explain any errors or omissions in recording, to learn from mistakes so they were not repeated, and to remove stray marks and completely fill in bubbles on the documents that were to be optically scanned.

Additionally, a complete edit was performed on all documents by a trained field editor. An item-by-item review was performed on each document, and each error was fully documented on an edit form. The supervisor reviewed the results of the edit with the interviewer during his or her weekly telephone conference.

Validation is the quality control procedure used to verify that an interview was conducted and it took place at the correct address and according to specified procedures, or that nonresponse statuses (e.g., refusals, vacancies, language problems) were accurately reported by the interviewers. Interviewers knew that their work would be validated but did not know to what extent or which cases. A 10 percent subsample of dwelling units were selected and flagged in the supervisor's log and in the automated survey control system. The supervisors performed validation interviews by telephone if a phone number was available. Otherwise, validation was performed in person by the supervisor or by another interviewer.

Field observations of both supervisors and interviewers were performed by Westat field management staff. One purpose of the interviewer observation was to provide home office staff with an

opportunity to observe effectively both performance of field procedures and respondents' reactions to the survey. Another purpose was to provide feedback to weak interviewers when there was concern about their skills and/or performance. In addition to in-person observations, interviewers were required to tape record one complete interview and assessment. The field supervisor selected the particular case in advance and listened to the tape to "observe" each interviewer.

Finally, nine of the 24 supervisors were visited by field management staff and evaluated on their editing, coding, office organization, ability to maintain up-to-date records on production data, and supervision of interviewers.

Scoring the Literacy Exercise Booklets

As the first shipments of exercise booklets were received at ETS, copies were made of actual responses to the tasks. These sample responses were then scored by various staff, including the test developer and scoring supervisor, using either the scoring guides developed for the young adult tasks or guides prepared during the development of the new tasks. As the sample responses were scored, adjustments were made to the scoring guides for the new tasks to reflect the kinds of answers that the respondents were providing.

The sample papers comprised the training sets used to train a group of readers who would score the exercise booklets. The purposes of the training were to familiarize the readers with the scoring guides and to ensure a high level of agreement among the readers. Each task and its scoring guide were explained and sample responses representative of the score points in the guide were discussed. The readers then scored and discussed an additional 10 to 30 responses. After group training had been completed, all the readers scored all the tasks in over a hundred booklets to give them practice in scoring actual booklets, as well as an opportunity to score more responses on a practice basis. A follow-up session was then held to discuss responses on which readers disagreed. The entire training process was completed in about four weeks.

Twenty percent of all the exercise booklets were subjected to a reader reliability check, which entailed a scoring by a second reader. To prevent the second reader from being influenced by the first reader's scores, the first reader masked the scores in every fifth booklet that he or she scored. These booklets were then passed on for a second reader to score. When the second reader had scored every item, the first reader's

scores were unmasked. If there was a discrepancy between the two scores for any response, the scoring supervisor reviewed the response and discussed it with the readers involved.

The statistic used to report inter-reader reliability is the percentage of exact agreement — that is, the percentage of times the two readers agreed exactly in their scores. There was a high degree of reader reliability across all the tasks in the survey, ranging from a low of 88.1 percent to a high of 99.9 percent with an average agreement of 97 percent. For 133 out of 166 open-ended tasks, the agreement was above 95 percent.

Data Entry

The background questionnaire was designed to be read by a computerized scanning device. For most questions, field personnel filled in ovals next to the respondent's answers. Open-ended items in the background questionnaire were coded and the ovals filled in by ETS staff before they were shipped to the scanning department. Responses on the screener were transferred to scannable documents by ETS personnel when the check-in process was complete, and the screener documents were batched and sent to the scanning department on a regular basis. Exercise booklet scores were transferred to scannable documents by the readers who scored the items, and these were also batched and sent to the scanning department at regular intervals. The scanned data from screeners, background questionnaires, and exercise booklets were transmitted to magnetic tape, which was then sent to the ETS computer center. As each of the different instruments were processed, the data were transferred to a database on the main computer for editing.

Editing and Quality Control

Editing included an assessment of the internal logic and consistency of the data received. For example, data were examined for nonexistent housing locations or booklets, illogical or inconsistent responses, and multiple responses. Where indicated, an error listing was generated and sent back to the processing area, where the original document was retrieved and the discrepancies were corrected. If resolution of a conflict in the data was not possible, the information was left in the form in which it was received. Wherever possible, however, conflicts were resolved. For example, in the infrequent cases in which field personnel provided more than one response to a single-response noncognitive item, specific

guidelines were developed to incorporate these responses consistently and accurately. The background questionnaires were also checked to make sure that the skip patterns had been followed and all data errors were resolved. In addition, a random set of booklets was selected to provide an additional check on the accuracy of transferring information from booklets and answer sheets to the database.

Scaling

The results from the 1992 National Adult Literacy Survey are reported on three scales established by the 1985 young adult literacy assessment: prose literacy, document literacy, and quantitative literacy. With scaling methods, the performance of a sample of examinees can be summarized on a series of subscales even when different respondents have been administered different items. Conventional scoring methods are not suited for assessments like the national survey. Statistics based on the number of correct responses, such as proportion of correct responses, are inappropriate for examinees who receive different sets of items. Moreover, item-by-item reporting ignores similarities of subgroup comparisons that are common across items. Finally, using average percent correct to estimate means of proficiencies of examinees within subpopulations does not provide any other information about the distribution of skills among the examinees.

The limitations of conventional scoring methods can be overcome by the use of item response theory (IRT) scaling. When several items require similar skills, the response patterns should have some uniformity. Such uniformity can be used to characterize both examinees and items in terms of a common scale attached to the skills, even when all examinees do not take identical sets of items. Comparisons of items and examinees can then be made in reference to a scale, rather than to percent correct. IRT scaling also allows distributions of groups of examinees to be compared.

Scaling was carried out separately for each of the three domains of literacy (prose, document, and quantitative). The NAEP reading scale, used in the young adult literacy assessment, was dropped because of its lack of relevance to the current NAEP reading scale. The scaling model used for the national survey is the three-parameter logistic (3PL) model

from item response theory.[4] It is a mathematical model for estimating the probability that a particular person will respond correctly to a particular item from a single domain of items. This probability is given as a function of a parameter characterizing the proficiency of that person, and three parameters characterizing the properties of that item.

Overview of Linking the National Adult Literacy Survey (NALS) Scales to the Young Adult Literacy Survey (YALS) Scales

Prose, document, and quantitative literacy results for the 1992 National Adult Literacy Survey are reported on scales that were established in the 1985 Young Adult Literacy Survey. For each scale, a number of new items unique to the national survey were added to the item pool that was administered in the original young adult survey. The NALS scales are linked to the YALS scales based upon the commonality of the two assessments, namely, the original young adult survey common items. Fifty-one percent of the items administered in the national survey were common to the young adult survey. The composition of the item pool is presented in Table C.1.

A unidimensional IRT model like the three-parameter logistic model employed in this study assumes that performance on all the items in a domain can, for the most part, be accounted for by a single (unobservable) proficiency variable. Subsequent IRT linking and scaling analyses treat each scale separately, that is, a unique proficiency is assumed for each scale. As a result, the linking of corresponding scales was carried out for each pair of scales separately. The three steps used to link the scales are listed below.

1. Establish provisional IRT scales through common item parameter calibration based on a pooling of the NALS and YALS items.
2. Estimate distribution of proficiencies on the provisional IRT scales using "plausible value" methodology.
3. Align the NALS scale to the YALS scale by a linear transformation based upon the commonality of proficiency distribution of the YALS sample.

[4] A. Birnbaum (1968). "Some Latent Trait Models." In F.M. Lord and M.R. Novick, *Statistical Theories of Mental Test Scores.* Reading, MA: Addison-Wesley. F.M. Lord (1980). *Applications of Item Response Theory to Practical Testing Problems.* Hillscale, NJ: Erlbaum.

Table C.2: Composition of item pool for the National Adult Literacy Survey

	Number of items		
Scale	**YALS Items**	**New items**	**NALS total**
Prose	14	27	41
Document	56	25	81
Quantitative	15	28	43
Total	85	81	165

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992 and Young Adult Literacy Survey, 1985.

Statistical Procedures

The statistical comparisons in this report were based on the t-statistic. Generally, whether or not a difference is considered significant is determined by calculating a t-value for the difference between a pair of means, or proportions, and comparing this value to published tables of values at certain critical levels, called *alpha levels*. The alpha level is an *a priori* statement of the probability of inferring that a difference exists when, in fact, it does not.

In order to make proper inferences and interpretations from the statistics, several points must be kept in mind. First, comparisons resulting in large t-statistics may appear to merit special note. This is not always the case, because the size of the t-statistic depends not only on the observed differences in means or the percentage being compared, but also on the standard error of the difference. Thus, a small difference between two groups with a much smaller standard error could result in a large t-statistic, but this small difference is not necessarily noteworthy. Second, when multiple statistical comparisons are made on the same data, it becomes increasingly likely that an indication of a population difference is erroneous. Even when there is no difference in the population, at an alpha level of .05, there is still a 5 percent chance of concluding that an observed t-value representing one comparison in the sample is large enough to be statistically significant. As the number of comparisons increases, the risk of making such an error in inference also increases.

To guard against errors of inference based upon multiple comparisons, the Bonferroni procedure to correct significance tests for multiple contrasts was used. This method corrects the significance (or

alpha) level for the total number of contrasts made with a particular classification variable. For each classification variable, there are (K*(K-1)/2) possible contrasts (or nonredundant pairwise comparisons), where K is the number of categories. The Bonferroni procedure divides the alpha level for a single t test (for example, .05) by the number of possible pairwise comparisons in order to give a new alpha that is corrected for the fact that multiple contrasts are being made.

The formula used to compute the t-statistic when observations are independent is:

$$t = \frac{(P_1 - P_2)}{\sqrt{se_1^{\ 2} + se_2^{\ 2}}}$$

where P_1 and P_2 are the estimates to be compared, se_1 and se_2 are their corresponding standard errors, and P_1 and P_2 are independent.

If P_1 and P_2 are not independent, the formula to compute to t-statistic is:

$$t = \frac{(P_1 - P_2)}{\sqrt{se_1^{\ 2} + se_2^{\ 2} + 2se_1 se_2}}$$

where P_1 and P_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors.

APPENDIX D

Definitions of Subpopulations and Variables

[In Order of Appearance in Report]

Bilingual/English Monolingual/Other Monolingual

All survey respondents were asked how well they understand spoken English and how well they speak English. They were given four alternative categories for their responses: not at all, not well, well or very well. People who answered well or very well to either question were coded as being fluent in English.

All respondents were also asked what language or languages they spoke before they started school. If they answered anything other than simply English, they were asked how well they understand that language when it is spoken to them and how well they speak that language. They were provided with the same four categories for their response: not at all, not well, well or very well. People who answered well or very well were coded as being fluent in a language other than English.

People who reported they were fluent only in English were coded English monolingual. People who reported they were fluent only in a language other than English were coded non-English monolingual. People who reported they were fluent in two languages were coded bilingual.

Biliterate/English Monoliterate/Other Monoliterate

All survey respondents were asked how well they read English and how well they write English. They were given four alternative categories for their responses: not at all, not well, well or very well. People who answered well or very well to either question were coded as being literate in English.

All respondents were also asked what language or languages they spoke before they started school. If they answered anything other than simply English, they were asked how well they read that language and how well they write that language. They were provided with the same four categories for their response: not at all, not well, well or very well. People who answered well or very well were coded as being literate in a language other than English.

People who reported they were literate only in English were coded English monoliterate. People who reported they were literate only in a language other than English were coded non-English monoliterate. People who reported they were literate in two languages were coded biliterate.

Race/Ethnicity

Respondents were asked two questions about their race and ethnicity. The first question asked them to indicate which of the following best described them:

- White
- Black, African American
- American Indian
- Alaskan Native
- Pacific Islander
- Asian
- Other

The interviewer recorded from observation the races of respondents who refused to answer the question. The second question asked respondents whether they were of Spanish or Hispanic origin or descent. Those who responded "yes" were asked to identify which of the following groups best describes their Hispanic origin:

- Mexicano, Mexican, Mexican American, Chicano
- Puerto Rican
- Cuban
- Central/South American
- Other Spanish/Hispanic

In cases where people answered that they were of Spanish or Hispanic descent but did not specify their country of origin, we grouped them with people who specified "other Spanish/Hispanic." In some cases people who answered that they were of Hispanic origin should have been asked their country of origin but were not. We grouped these people with "other Spanish/Hispanic" unless they gave a country of birth other than the United States in response to the question, "In what country were you born?" If they gave a country of birth other than the United States, we used that to classify their Hispanic origin. Additionally, a few respondents gave multiple countries of origin. These cases are grouped with "other Spanish/Hispanic."

All respondents who indicated they were of Spanish or Hispanic origin are classified as Hispanic, regardless of what race they said best described them. We grouped Asians and Pacific Islanders in one category. American Indians are included in the category Other.

Age of Arrival

All survey respondents who stated that they were born in a country other than the United States were asked, "How many years have you lived in the United States?" They were given a choice of eight categories for their answer: 1 to 5, 6 to 10, 11 to 15, 16 to 20, 21 to 30, 31 to 40, 41 to 50, and 51 or more.

We took the midpoint of the category they chose (3, 7, 13, 18, 25, 35, 45, or 51) and subtracted it from their age to get their age of arrival. If the result was less than 1, and we knew they were not born in the United States, we coded their age of arrival as 1. We then grouped the respondents into four categories based on this calculated age of arrival: 1 to 11, 12 to 18, 19 to 24, and 25 or older. We also created a fifth category, U.S.-born for respondents born in the United States.

Language Spoken in Home While Growing Up

All respondents were asked "When you were growing up, what language or languages were usually spoken in your home?" The categories given were: English, Spanish and Other (specify).

The Educational Testing Service took these answers and coded them into ten categories: English only, English/Spanish, English/European, English/Asian, English/other, Other/other, Spanish only, European only, and Asian only. We use these ten categories in this report.

Language Spoken Before Starting School

All respondents were asked "What language or languages did you learn to speak before you started school?" The categories given were: English, Spanish and Other (specify).

The Educational Testing Service took these answers and coded them into ten categories: English only, English/Spanish, English/European, English/Asian, English/other, Other/other, Spanish only, European only, and Asian only. We use these ten categories in this report.

At places in this report we collapsed the ten categories into three categories: English only, English/other, and Other only. The categories were coded as follows:

English only

- English

English/other

- English/Spanish
- English/European
- English/Asian
- English/other

Other only

- Other/other
- Spanish only
- European only
- Asian only

Language Usually and Often Spoken Now

All respondents who indicated that they spoke a language other than English before starting school were asked, "Which language do you usually speak now?" and "What other language do you often speak now?" The response categories given for both questions were the same: English, Spanish, and Other (specify).

The Educational Testing Service combined these two questions into a recoded variable "languages usually and often spoken now" with ten categories: English only, English/Spanish, English/European, English/Asian, English/other, Other/other, Spanish only, European only, and Asian only. We used that variable in this report.

In some parts of this report, clearly indicated in the text, we added people who were not asked the two questions about language(s) usually and often spoken to the English only categories. These are all people who indicated that they spoke only English before starting school.

At places in this report we collapsed the ten categories into three categories: English only, English/other, and Other only. The categories were coded as follows:

English only

- English

English/other

- English/Spanish
- English/European
- English/Asian
- English/other

Other only

- Other/other
- Spanish only
- European only
- Asian only

Country of Birth

All people who answered the survey were asked, "In what country were you born?" Respondents were classified into one of five categories, depending upon the language spoken in their country of birth: United States, Spanish language, European language, Asian language, and Other.

Respondents who did not give their country of birth but who indicated on other questions that they were not born in the United States were placed in one of the categories whenever possible based on their answers to the questions about the language(s) spoken in their home before they started school.

Respondents born in territories of the United States were not included with people born in the United States. Instead, they were categorized based on the language spoken in the territory.

Countries were grouped together as follows:

Spanish Language

- Argentina
- Bolivia
- Chile
- Colombia
- Costa Rica
- Cuba
- Dominican Republic
- Ecuador
- El Salvador
- Guatemala
- Honduras
- Mexico
- Nicaragua
- Panama
- Peru
- Puerto Rico
- Spain
- Uruguay
- Venezuela

European Language

- Australia
- Austria
- Belgium
- Brazil
- Canada

- Czechoslovakia
- Denmark
- England
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Russia
- Scotland
- Sweden
- Switzerland
- Yugoslavia

Asian Language

- Hong Kong
- Japan
- Korea
- Philippines
- Taiwan
- Thailand
- Vietnam

Other

- All other countries

Immigrants

All respondents who were classified under the country of birth variable as being born in a country other than the United States were also classified as immigrants.

Educational Attainment

All respondents were asked, "I'd like to ask you about your educational background and experiences. What is the highest level of public or private education you

completed?" The interviewer was instructed to probe for the U.S. equivalent if the respondents went to school outside the United States.

We grouped the possible responses as follows:

Less than high school

- less than high school (0 to 8 years)
- some high school (9 to 12 years but did not complete 12th grade)

High school diploma

- still in high school
- GED or high school equivalency
- high school graduate

Postsecondary

- attended a vocational, trade or business school after high school
- college: less than two years
- college: associate's degree (A.A.)
- college: two or more years, no degree
- college graduate (B.S. or B.A.)
- post graduate/no degree
- postgraduate/degree (M.S., M.A., Ph.D., M.D., etc.)

Education Prior to Arrival in the United States

All respondents not born in the United States were asked, "What was the highest level of education you completed before coming to the United States?" The interviewer was instructed to probe for U.S. equivalents if the response did not fit any of the categories.

We grouped the possible responses as follows:

0 to 3 years

- did not attend school before coming to U.S.
- primary (grades K-3)

4 to 8 years

- elementary (grades 4-8)

9 to 12 years

- secondary (grades 9-12)

Postsecondary

- vocational (postsecondary)
- college/university

Reason for Leaving School Before Graduating from High School

All respondents who indicated that they did not finish high school were asked, "What was the main reason you stopped your public or private school when you did?"

We grouped the possible responses as follows:

Financial problems

- financial problems

Job or military service

- went to work or into the military

Personal problems

- pregnancy
- family or academic problems

School-related problems

- lost interest or behavior problems in school
- academic problems at school

Other

- other
- incarceration (prison survey only)

Participation in English as a Second Language (ESL) classes

The background questionnaire asked respondents who had learned a language other than English before school the following: "Have you ever taken a course to learn how to read and write English as a second language?" and "Have you ever taken a

course to learn how to speak and understand English as a second language?" Those who indicated that they had taken such courses were then asked if they had completed them. On the basis of these responses, we categorized individuals who reported taking one or both types of classes as having taken ESL, and those who reported having completed at least one type of class as having completed ESL.

Participation In Basic Skills Classes

The background questionnaire for the household sample asked all respondents: "Are you currently enrolled in or have you ever taken part in a program other than in regular school in order to improve your basic skills, that is, basic reading, writing, and arithmetic skills?" Incarcerated individuals were asked three questions: "Since your current admission to prison, have you ever been in any education program, excluding vocational training?" and, if yes, "What kind of program was that--basic classes up to the 9th grade, high school classes to get a diploma or GED, or college level classes? (check all that apply)." They were also asked a question similar to the one asked in the household sample, referring to any basic skills training received prior to their current incarceration. We coded members of the prison population as participants in basic skills classes if they had participated in a prison program involving curriculum up to the 9th grade or if they answered yes to the question about taking basic skills classes before incarceration.

Continuity of Employment

All respondents were asked, "Including weeks of paid leave, such as vacation and sick leave, how many weeks did you work for pay or profit during the past 12 months?" We coded the responses into three categories: none, 1 to 39 weeks, and 40 or more weeks.

Employed/Unemployed/Not in the Labor Force

Respondents were asked what they were doing the week before the survey:

- Working a full-time job for pay or profit, that is, 35 hours or more
- Working for pay or profit part-time, that is, 1 to 34 hours
- Working two or more part-time jobs for pay, totaling 35 or more hours
- Unemployed, laid off, or looking for work
- With a job but not at work because of temporary illness, vacation, or work stoppage
- With a job but on family leave (maternity or paternity leave)
- In school
- Keeping house
- Retired
- Doing volunteer work

If they answered "unemployed, laid off, or looking for work" they were asked, "Have you looked for a job at any time during the past four weeks?"

Respondents who answered that they were working full-time, working part-time, with a job but not at work, or with a job but on family leave were classified as employed.

Respondents who answered that they were unemployed, laid off, or looking for work and who also answered that they had looked for a job at some time during the past four weeks were classified as unemployed.

Respondents who answered that they were unemployed, laid off, or looking for work but stated that they had not looked for a job at any time during the past four weeks were classified as out of the labor force. Additionally, respondents who indicated that they were in school, keeping house, retired, or doing volunteer work were classified as out of the labor force.

Occupation

All respondents who worked at any time during the past three years were asked three questions about their employment: "For what kind of business or industry did/do you work?" "What is your occupation, that is, what (is/was) your job called?" "What (are/were) the most important activities or duties at this job?"

The Educational Testing Service took the answers to these questions and coded people into 40 occupations. We recoded 39 of those occupations into four categories based on the single digit Standard Occupational Codes (SOC): managerial and professional; technical sales and support; precision production, operators, fabricators, crafts and laborers (also referred to as blue collar in this report); and services, farming and fishing. The 40th occupation, military, was coded as missing and left out of our analysis in Chapter 5. The following occupations are included in each of our categories:

Managerial and Professional

- Architects/surveyors
- Engineers
- Math/computer scientists
- Natural scientists
- Registered nurses
- Health diagnostics
- Other health related
- Accountants/auditors
- Public sector executives and management
- Private sector executives and management
- Other management
- Teachers

Technical, Sales, and Administrative Support

- Engineering technicians
- Health technicians
- Science technicians
- Other technicians
- Sales representatives
- Sales supervisors and proprietors
- Other sales related
- Adjustors and invest
- Computer equipment operators
- Information clerks
- Secretaries
- Stenographers/typists
- Supervisors
- Other administrative support

Precision production, operators, fabricators, crafts and laborers

- Construction crafts
- Other crafts/precision products
- Transport operative
- Fabricate/assemble/inspect
- Other assemble/operate/fabricate
- Clean equip. handler/laboratory

Services, farming, and fishing

- Personal service occupations
- Public safety
- Health services
- Other services
- Manager/operators
- Other farm/fish/hunt

Annual Earnings

All respondents who stated that they had worked for pay during the past 12 months were asked, "For the past 12 months, what was your average weekly wage or salary before any deductions? Include tips and commissions." The figure given was multiplied by the number of weeks worked during the past year (see continuity of employment above) to get annual earnings.

APPENDIX E

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