International comparisons of adult literacy

Literacy has been viewed as one of the fundamental tools necessary for successful economic performance in industrialized societies. The International Adult Literacy Survey (IALS) assessed adult literacy performance in 12 countries. The five literacy levels expressed along three scales—prose, document, and quantitative—measure a range of literacy, from the basic ability to locate information within simple text, to the ability to understand and use printed information in daily activities, at home, at work, and in the community. As society becomes more complex and low skill jobs continue to disappear, concern about adults' ability to use written information to function in society continues to increase.

- Approximately one-fifth of adults in the United States scored at or above level 4 on the prose, document, and quantitative literacy scales. Of the 11 other countries that participated in the International Adult Literacy Survey (IALS), only Sweden exceeded the United States in the percentage of adults scoring at the highest levels of literacy in any of the three domains; the only exception was Canada, which had a greater proportion of adults scoring at or above level 4 on the document scale than did the United States.

- Adults with a college degree were much more likely to score at level 4 or above than adults with a high school degree, across all countries and across all three literacy scales. In some countries, the difference between the percentages of college graduates and high school graduates scoring at the highest levels of literacy was relatively large (29 percentage points for document literacy in the United States), while in other countries, the difference was relatively small (10 percentage points for document literacy in the Netherlands) (see supplemental table 21-1).

Percentage distribution of the population scoring at each of five literacy levels, by literacy scale and country: 1994

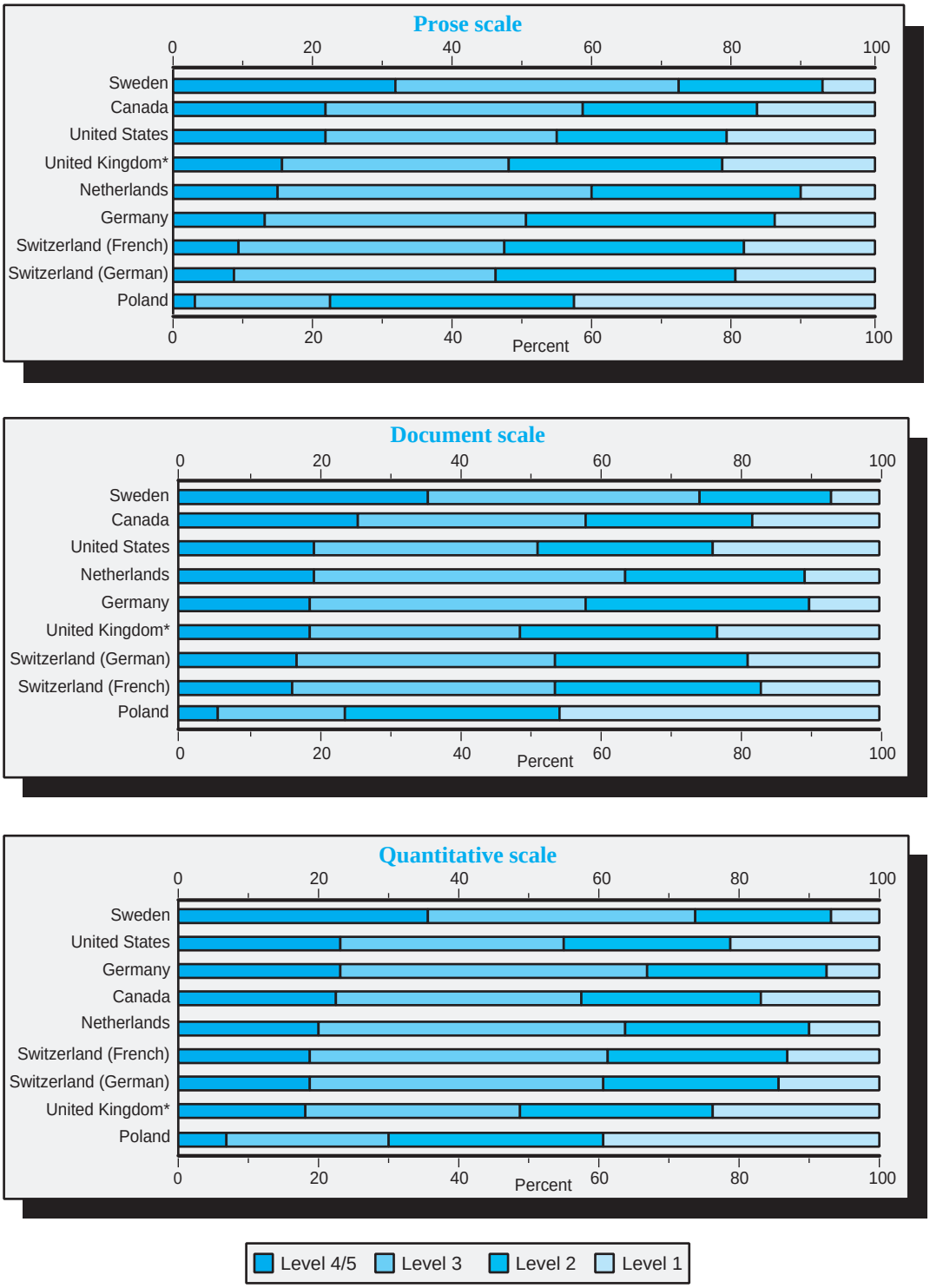
	Prose scale				Document scale				Quantitative scale			
Country	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5
Belgium*	18.6	29.0	37.4	15.0	15.0	25.7	41.5	17.5	16.5	23.3	37.0	23.2
Canada	16.6	24.8	36.4	22.3	17.9	23.7	32.7	25.7	16.6	25.6	34.7	23.1
Germany	13.8	35.3	37.3	13.6	9.6	32.0	39.5	18.9	7.0	26.1	43.6	23.4
Ireland*	22.6	30.6	33.7	13.2	25.6	32.0	31.5	10.9	24.9	28.8	30.3	15.9
Netherlands	10.4	29.4	44.7	15.5	10.3	25.5	44.5	19.7	10.0	25.7	44.1	20.3
New Zealand*	18.2	28.5	34.5	18.8	21.1	29.6	32.5	16.8	20.3	28.9	33.9	16.9
Poland	42.7	34.3	19.2	3.7	45.4	30.3	18.5	5.8	39.0	30.6	23.2	7.2
Sweden	7.2	20.7	39.8	32.2	6.3	19.2	38.8	35.7	6.6	19.1	38.4	35.9
Switzerland (French)	18.5	34.3	37.7	9.6	16.4	29.6	37.6	16.3	12.8	25.4	42.7	19.1
Switzerland (German)	19.5	34.2	37.1	9.3	18.4	27.5	36.9	17.3	14.1	25.0	41.9	19.0
United Kingdom*	21.6	30.1	32.6	15.7	23.1	27.6	30.5	18.8	23.4	27.6	30.5	18.5
United States	20.8	24.4	32.8	22.0	23.6	25.0	31.5	19.9	21.0	24.0	31.6	23.5

* Data are for 1996.

NOTE: Some data are revised from previously published figures due to differences in the calculations of proficiency scores. Individuals who performed at level 1 demonstrated the lowest level of literacy proficiency, while those scoring at level 5 displayed the highest level. See the supplemental note to this indicator for a description of the literacy scales and levels.

SOURCE: Organization for Economic Co-operation and Development, *International Adult Literacy Survey*, unpublished tabulations, 1994 and 1996.

Percentage distribution of the population in selected countries scoring at each of five literacy levels, by literacy scale: 1994



* Data are for 1996.

NOTE: See the supplemental note to this indicator for a description of the literacy scales and levels.

SOURCE: Organization for Economic Co-operation and Development, *International Adult Literacy Survey*, unpublished tabulations, 1994 and 1996.

Table 21-1 Percentage distribution of the population scoring at each of five literacy levels, by literacy scale, country, and highest level of educational attainment: 1994

Country and highest level of educational attainment	Prose scale				Document scale				Quantitative scale			
	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5
Belgium*												
Less than high school	34.0	35.5	25.5	5.0	27.8	33.1	32.9	6.2	30.0	29.0	31.6	9.5
High school degree	10.3	31.3	45.3	13.2	7.8	25.6	47.9	18.7	9.7	24.6	41.9	23.8
Some college, no degree	2.5	15.2	51.4	30.9	2.4	14.4	50.5	32.8	2.6	12.7	43.2	41.5
College degree or more	2.1	10.8	42.6	44.5	1.7	7.9	47.2	43.2	1.0	5.2	35.1	58.7
Canada												
Less than high school	39.4	29.0	26.4	5.2	40.9	32.6	20.3	6.3	39.8	33.3	21.5	5.4
High school degree	8.6	29.2	41.7	20.5	10.3	24.2	39.0	26.5	8.4	29.1	42.9	19.6
Some college, no degree	4.7	21.7	46.0	27.6	4.7	17.8	40.8	36.7	4.2	22.2	46.8	26.9
College degree or more	0.5	10.3	34.7	54.6	2.4	10.8	35.8	51.0	1.1	5.7	31.1	62.2
Germany												
Less than high school	17.5	40.5	33.7	8.3	12.2	37.6	38.1	12.1	9.0	30.6	43.2	17.2
High school degree	8.1	32.6	44.0	15.3	5.1	25.6	44.2	25.1	4.3	20.8	47.9	26.9
Some college, no degree	3.0	16.5	53.0	27.5	4.7	18.3	51.9	25.0	2.4	15.0	56.0	26.7
College degree or more	3.6	17.7	39.7	39.0	1.5	18.8	33.4	46.3	1.9	12.1	32.4	53.7
Ireland*												
Less than high school	37.3	35.7	22.8	4.2	41.6	34.9	20.1	3.3	39.5	31.9	22.2	6.5
High school degree	7.3	29.8	46.3	16.7	10.1	33.3	43.3	13.4	10.8	30.0	39.1	20.1
Some college, no degree	4.6	21.3	49.4	24.6	6.4	24.0	50.3	19.3	8.2	20.7	42.7	28.3
College degree or more	1.2	16.1	39.8	42.9	1.2	19.7	40.9	38.3	1.7	16.5	35.5	46.3
Netherlands												
Less than high school	21.1	42.8	32.1	4.1	20.7	36.3	35.4	7.6	19.9	36.1	35.8	8.2
High school degree	2.6	22.5	55.1	19.9	2.6	19.3	52.2	25.9	2.5	21.2	51.9	24.5
Some college, no degree	—	—	—	—	—	—	—	—	—	—	—	—
College degree or more	1.2	12.1	52.6	34.1	1.6	12.9	50.0	35.4	1.8	10.5	47.2	40.6
New Zealand*												
Less than high school	27.8	36.2	29.2	6.8	32.3	36.9	24.9	6.0	31.3	35.4	26.9	6.5
High school degree	9.5	26.6	41.0	22.8	10.7	27.2	40.9	21.2	11.0	27.4	40.7	21.0
Some college, no degree	7.7	18.0	41.2	33.1	9.6	21.0	41.7	27.6	8.4	22.0	43.3	26.2
College degree or more	6.7	11.0	35.5	46.8	6.7	12.0	37.1	44.2	5.8	10.7	39.0	44.5
Poland												
Less than high school	56.2	30.4	11.9	1.5	58.0	27.5	11.9	2.5	51.8	29.4	15.7	3.1
High school degree	24.5	45.0	26.5	4.1	28.2	37.2	27.2	7.4	20.8	35.8	33.0	10.4
Some college, no degree	13.5	39.0	38.3	9.2	18.8	33.1	34.1	14.1	13.5	30.0	42.8	13.7
College degree or more	11.1	30.6	41.3	17.0	15.8	29.6	33.2	21.4	9.6	25.8	38.2	26.4
Sweden												
Less than high school	15.4	30.7	37.2	16.7	14.3	27.6	36.4	21.7	14.0	26.3	37.2	22.6
High school degree	5.2	21.3	42.7	30.9	4.0	19.0	42.2	34.9	4.8	19.2	41.5	34.5
Some college, no degree	1.2	9.5	42.1	47.2	0.9	11.9	39.4	47.8	1.0	14.0	39.7	45.3
College degree or more	0.9	7.3	33.1	58.8	0.9	8.9	30.1	60.1	1.0	7.2	27.9	63.8

Table 21-1 Percentage distribution of the population scoring at each of five literacy levels, by literacy scale, country, and highest level of educational attainment: 1994—Continued

Country and highest level of educational attainment	Prose scale				Document scale				Quantitative scale			
	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5
Switzerland (French)												
Less than high school	38.7	44.3	15.8	1.2	36.4	42.3	18.7	2.7	28.6	43.5	24.1	3.8
High school degree	11.4	37.9	42.8	7.9	8.8	32.5	44.2	14.5	5.7	25.1	49.6	19.5
Some college, no degree	6.0	29.1	53.0	12.0	3.0	20.7	49.4	26.9	3.0	13.8	52.7	30.5
College degree or more	4.7	12.2	51.5	31.5	4.3	8.3	42.8	44.6	4.3	8.4	48.1	39.1
Switzerland (German)												
Less than high school	41.4	37.1	18.7	2.8	42.9	30.4	18.8	7.8	30.1	36.6	25.1	8.2
High school degree	11.4	37.4	41.2	10.0	9.6	30.3	41.5	18.6	6.7	26.3	47.0	20.1
Some college, no degree	5.9	32.2	51.1	10.7	4.3	23.0	50.3	22.4	2.3	15.6	54.5	27.6
College degree or more	6.0	21.9	46.4	25.7	6.0	15.7	41.7	36.6	5.4	15.3	42.3	37.0
United Kingdom*												
Less than high school	29.9	35.0	27.2	7.9	31.9	31.7	26.2	10.3	32.5	31.8	26.6	9.1
High school degree	13.4	27.9	39.4	19.3	13.7	26.2	35.5	24.6	13.3	26.4	37.4	22.9
Some college, no degree	4.4	23.0	46.8	25.8	7.2	22.7	41.8	28.4	7.2	23.6	40.3	29.0
College degree or more	2.9	12.4	40.0	44.7	3.6	11.2	36.8	48.4	3.5	10.2	32.3	54.0
United States												
Less than high school	57.2	24.4	15.5	2.9	60.5	22.8	13.5	3.2	55.3	25.9	15.0	3.9
High school degree	16.6	32.1	36.9	14.4	20.1	32.1	33.9	13.9	18.0	30.9	35.4	15.7
Some college, no degree	10.5	22.2	39.9	27.3	13.1	23.8	38.5	24.7	10.4	21.0	41.6	27.1
College degree or more	5.1	11.0	34.5	49.5	6.6	13.4	37.2	42.8	5.3	10.7	31.2	52.8

— Not available.

* Data are for 1996.

NOTE: Some data are revised from previously published figures due to differences in the calculations of proficiency scores. Some data are unavailable because the category was not included in the survey question. Details may not add to 100.0 due to rounding.

SOURCE: Organization for Economic Co-operation and Development, *International Adult Literacy Survey*, unpublished tabulations, 1994 and 1996.

Note to Indicator 21: Definition of literacy scales and levels

The International Adult Literacy Survey (IALS) was a collaborative effort among seven governments and three intergovernmental organizations. This survey reports the results of a wide-ranging test of literacy skills given to a large sample of adults (ranging from 1,500 to 1,800 per country) in Europe and North America in fall 1994. Each country participating in the survey was required to draw a probability sample that represented the civilian, non-institutionalized population ages 16–65. In six countries, the survey was conducted in the national language; in Canada, respondents were given a choice of taking the survey in either English or French; in Switzerland, respondents in French-speaking and German-speaking cantons responded to survey questions in their respective languages.

As literacy cannot be narrowed down to a single skill suited for dealing with all types of text, nor defined as an infinite set of skills, the IALS defined literacy in terms of three scales, each encompassing a common set of skills relevant for diverse tasks:

Prose literacy: The knowledge and skills required to understand and use information from texts, including editorials, news stories, poems, and fiction;

Document literacy: The knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables, and graphics; and

Quantitative literacy: The knowledge and skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a checkbook, figuring a tip, completing an order form, or determining the amount of interest on a loan from an advertisement.

In each of these three scales, rather than expressing a threshold for achieving literacy, a scale from 0–500 was constructed, upon which tasks of varying difficulty were placed. These scales were developed through the item response theory (IRT) scaling procedures. First, the difficulty of tasks was ranked on a scale according to how well respondents actually performed. Then, each scale was divided into five levels, reflecting the empirically determined progression of information-processing skills and strategies. Next, individuals were assigned scores between 0 and 500 according to how well they performed on a variety of tasks at different levels. Finally, the percentage of readers falling into each skill level was calculated.

A person's ability in each literacy scale can be expressed by a score, defined as the point at which he or she has an 80 percent chance of successfully performing a given task. If a person scores at level 2, it means that this individual has an 80 percent chance of successfully performing level 2 tasks and a greater than 80 percent chance of performing level 1 tasks. It does not mean, however, that individuals with low proficiency cannot succeed at tasks that are rated at higher skill levels—only that the probability of their success is relatively low. Below is a description of the three literacy scales and the tasks required at each proficiency level:

Prose literacy includes text from newspapers, magazines, and brochures accompanied by one or more questions or directives asking 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. Integrating tasks ask the reader to pull together two or more pieces of information in the text. Generating tasks ask the reader to produce a written response by processing information from the text, making text-based references, and drawing on background knowledge.

Prose Level 1 (Difficulty values 0–225). Most of the tasks at this level require the reader to locate and match a single piece of information in the text that is identical to or synonymous with the information given in the directive. If a plausible incorrect answer is present in the text, it tends not to be near the correct information.

Prose Level 2 (*Difficulty values 226–275*). Tasks at this level tend to require the reader to locate one or more pieces of information in the text; however, several distracters may be present and the reader may need to make low-level inferences. Tasks at this level also begin to ask readers to integrate two or more pieces of information, or to compare and contrast information.

Prose Level 3 (*Difficulty values 276–325*). Tasks at this level tend to direct readers to search the text to match information, requiring the reader to make low-level inferences or to locate text that meets

specified conditions. Sometimes the reader is required to identify several pieces of information that are located in different sentences or paragraphs rather than search for information located in a single sentence. Readers may also be asked to integrate or to compare and contrast information across paragraphs or sections of text.

Prose Level 4 (*Difficulty values 326–375*). These tasks require readers to perform multiple-feature matching or to provide several responses where the requested information must be identified through text-based inferences. Tasks at this level may also require the reader to integrate or contrast pieces of information that are sometimes presented in relatively lengthy texts. Typically, these texts contain more distracting information, and the information that is requested is more abstract.

Prose Level 5 (*Difficulty values 376–500*). Some tasks at this level require the reader to search for information in dense text that contains a number of plausible distracters. Some tasks require readers to make high-level inferences or use specialized knowledge.

Document literacy involves using materials such as tables, schedules, charts, graphs, maps, and forms. Questions or directives associated with the various document tasks are categorized into four basic types: locating, cycling, integrating, and generating. Locating, integrating, and generating refer to the same skills as those in prose literacy. Cycling tasks require the reader to locate and match one or more features of information, but differ from locating tasks in that they require the reader to engage in a series of feature matches to satisfy conditions given in the question.

Document Level 1 (Difficulty values 0–225). Most of the tasks at this level require the reader to locate a piece of information based on a literal match. Distracting information, if present, is typically located away from the correct answer. Some tasks may direct the reader to enter personal information onto a form.

Document Level 2 (Difficulty values 226–275). Document tasks at this level are more varied. While some still require the reader to match a single feature, more distracting information may be present, and the match may require a low-level inference. Some tasks at this level may require the reader to enter information onto a form or to cycle through information in a document.

Document Level 3 (Difficulty values 276–325). Tasks at this level appear to be the most varied. Some require the reader to make identical or synonymous matches; however, these matches usually require the reader to take conditional information into account or to match multiple features of information.

Document Level 4 (Difficulty values 326–375). Tasks at this level, like those in the previous levels, ask the reader to match multiple features of information, to cycle through documents, and to integrate information; frequently, these tasks require the reader to make higher order inferences to arrive at the correct answer. Sometimes the reader must take conditional information into account.

Document Level 5 (Difficulty values 376–500). Tasks at this level require the reader to search through complex displays of information that contain multiple distracters, make high-level inferences, process conditional information, or use specialized knowledge.

Quantitative literacy involves using numbers and arithmetic operations to complete a task. These tasks require the reader to locate and extract numbers from different types of documents that contain similar but irrelevant information, infer numbers from printed directions, or calculate numbers using multiple operations.

Quantitative Level 1 (Difficulty values 0–225). Although no quantitative tasks used in the IALS fall below the score of 225, experience suggests that such tasks would require the reader to perform a single, relatively simple operation (usually addition) for which either the numbers are already entered into the given document and the operation is stipulated, or the numbers are provided and the operation does not require the reader to borrow.

Quantitative Level 2 (Difficulty values 226–275). Tasks at this level typically require readers to perform a single arithmetic operation (frequently addition or subtraction) using numbers that are easily located in the text or document. The operation to be performed may be easily inferred from the wording of the question or the format of the material (for example, a bank deposit form or an order form).

Quantitative Level 3 (Difficulty values 276–325). Tasks at this level typically require the reader to perform a single operation. However, the operations are more varied—some multiplication and division tasks are found at this level. Sometimes two or more

numbers are needed to solve the problem, and the numbers are frequently embedded in more complex displays. While semantic relation terms such as "how many" or "calculate the difference" are often used, some of the tasks require the reader to make higher order inferences to determine the appropriate operation.

Quantitative Level 4 (Difficulty values 326–375). With one exception, the tasks at this level require the reader to perform a single arithmetic operation in which the quantities or the operations are not easily determined. That is, for most of the tasks at this level, the question or directive does not provide a semantic relation term such as "how many" or "calculate the difference" to help the reader.

Quantitative Level 5 (Difficulty values 376–500). Tasks at this level require readers to perform multiple operations sequentially; the reader must pull out the features of the problem from the material provided or rely on background knowledge to determine the quantities or operations needed.

SOURCE: Organization for Economic Co-operation and Development and Statistics Canada, *Literacy, Economy and Society, Results of the International Adult Literacy Survey*, 1995.

Table S21 Standard errors for the text table in *Indicator 21*

	Prose scale				Document scale				Quantitative scale			
Country	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5	Level 1	Level 2	Level 3	Level 4/5
Belgium	1.5	2.4	2.7	1.3	1.7	3.0	4.2	1.0	1.8	1.8	2.2	1.4
Canada	1.7	2.0	2.6	2.4	1.9	1.6	2.2	1.5	1.8	2.6	2.8	2.2
Germany	1.3	1.3	1.8	1.2	0.8	1.4	1.2	1.0	0.5	1.3	1.2	1.1
Ireland	1.5	1.8	1.7	1.7	1.8	1.4	1.6	1.4	1.6	1.1	1.1	1.7
Netherlands	0.7	1.1	1.4	1.1	0.8	0.9	1.4	1.1	0.8	1.0	1.1	1.0
New Zealand	1.0	1.3	1.0	0.8	1.1	1.5	1.1	1.0	1.1	1.2	1.2	0.8
Poland	0.9	0.9	0.8	0.6	1.4	1.1	0.9	0.5	1.3	1.4	0.9	0.6
Sweden	0.5	0.7	1.1	0.7	0.4	1.0	1.2	0.9	0.6	0.9	1.2	0.9
Switzerland (French)	1.4	1.9	2.1	0.9	1.4	2.0	1.7	1.4	1.0	1.7	2.0	1.4
Switzerland (German)	1.0	2.0	1.9	1.2	1.4	2.2	1.0	1.3	1.1	1.9	2.1	1.4
United Kingdom	1.1	1.3	1.5	1.0	1.1	1.2	1.1	1.0	0.9	1.3	1.3	1.1
United States	1.1	1.4	1.5	1.4	0.9	1.5	1.2	1.3	0.9	1.5	0.9	1.2

SOURCE: Organization for Economic Co-operation and Development, *International Adult Literacy Survey*, unpublished tabulations, 1994 and 1996.