

The Literacy of U.S. Adults with GED Credentials: 2003 NAAL and 1992 NALS

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The Literacy of U.S. Adults with GED® Credentials: 2003 NAAL and 1992 NALS

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Abstract

Many adult basic education programs use the Tests of General Educational Development (GED® Tests) to measure the skills and knowledge associated with a high school program of study as well as to assess the achievement gains of adult learners through participation in their programs. Using data from the 2003 National Assessment of Adult Literacy (NAAL) and the 1992 National Adult Literacy Survey (NALS), this study provides evidence of the validity of the GED credential as an indication of achieving the literacy skills and knowledge equivalent to those skills and knowledge demonstrated by adults with high school diplomas and aids many adult education programs in evaluating their effectiveness through adult learners' performance on the GED Tests.

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The Literacy of U.S. Adults with GED® Credentials: 2003 NAAL and 1992 NALS

According to the 2000 Census, about 18 percent of the entire adult population does not have a high school diploma. In serving those adults without a high school diploma, the federal government and states have funded adult education and literacy programs to support adults in basic education, secondary education, and English language acquisition to improve their basic skills in reading, writing, math, English language competency, and problem-solving (Office of Vocational and Adult Education, 2006). In addition, for adults without a high school diploma, the Tests of General Educational Development (GED Tests) provide them with a second chance to obtain a high school equivalency credential to advance their educational achievement and personal goals.

The GED Tests are taken by adults without a high school diploma to obtain certification of their level of academic knowledge and skills in English language arts, mathematics, science, and social studies (American Council on Education, 2006). The GED Tests have also been one of the most popular instruments used by many Adult Basic and Literacy Education (ABLE)-funded agencies to report learner gains (Molek, 1999). Content-, criterion-, and construct-related evidence of validity for GED Tests scores are reported in the technical manual (American Council on Education, 1993), and a new technical manual is currently in progress. Other studies also provided evidence of the validity of GED Tests scores (e.g., Agba, Klosowski, & Miller, 2002; Lipiec, Campbell, & Giguere, 1993). Based on the intended use of GED Tests scores, adults who pass the GED Tests should show evidence of possessing a level of literacy skills comparable to adults with a high school diploma.

Literacy skills are important for functioning efficiently in and contributing to society; furthermore, they are fundamental skills measured within the GED Tests. The National Center for Education Statistics (NCES) in the United States' Department of Education's Institute of Education Sciences sponsored the 2003 National Assessment of Adult Literacy (NAAL) to assess the nation's

progress in adult literacy since the administration of the 1992 National Adult Literacy Survey (NALS) (White, 2005). The 2003 NAAL defined literacy as “using printed and written information to function in society, to achieve one’s goals, and to develop one’s knowledge and potential” (Kutner, Greenberg, & Baer, 2005, p.2).

The 2003 NAAL and 1992 NALS measured literacy in three areas, or scales – prose, document, and quantitative literacy. The questions, or tasks, in the three literacy areas measured in the studies covered a broad range of tasks and skills that adults encounter on a regular basis and represent real-world literacy tasks such as searching, comprehending, using continuous and non-continuous texts, and identifying and performing computations using numbers embedded in texts (White, Chen, & Santangelo, 2005). A total of 152 prose, document, and quantitative literacy tasks were included in the 2003 NAAL. Sixty-five of the tasks were taken from the 1992 NALS and 87 were developed for the 2003 NAAL. The 1992 NALS tasks were included to measure changes in literacy between 1992 and 2003. In order to reduce the time requirement of respondents, the tasks were organized into 13 unique blocks, and each respondent was asked to answer three blocks of tasks (approximately 40 tasks). More detailed information regarding assessment design, sample size, and data collection procedures for the 2003 NAAL is available on the Web at <http://nces.ed.gov/naal/>.

NCES released its first results of the 2003 NAAL in *A First Look at the Literacy of America’s Adults in the 21st Century* (Kutner, Greenberg, & Baer, 2005). Average literacy scores and the percentages of adults classified in the four literacy levels (below basic, basic, intermediate, and proficient) were compared for the three literacy areas between the 1992 NALS and the 2003 NAAL by various demographic backgrounds of race/ethnicity, gender, age, language spoken before starting school, educational attainment, and employment status. Several of the statistically significant results found between 1992 and 2003 included the following:

1. an increase in average prose and document literacy scores for blacks and Asians and a decrease for Hispanics;
2. a decrease in average prose and document literacy for males and an increase in average document literacy for females;
3. an increase in all three literacy areas for adults aged 50 and older; and
4. a decrease in average prose literacy for adults of all levels of educational attainment except for students still in high school and adults with GED/equivalency credentials.

The first look at the results of the 2003 NAAL also demonstrated that adults with less than a high school education (0 to 8 years education) or some high school education (9 to 12 years but did not graduate) have the lowest literacy skills. This was evidenced by the increased percentage of adults who had not completed a high school education classified as “below basic” and “basic”. A comparison of the data between the 1992 and 2003 studies revealed that the literacy levels of adults with GED/equivalency credentials did not show statistically significant changes; however, adults with other levels of educational attainment, such as completion of high school and/or college, showed a decrease in several literacy areas. Adults with GED/equivalency credentials had average literacy scores significantly higher than scores of those adults without a high school education and similar to those of high school graduates. These results provide evidence that, in both the 1992 and 2003 studies, GED credential holders have a level of English literacy similar to adults with a high school diploma. However, the first report of 2003 NAAL did not assess the variability of literacy levels of these lower educational attainment groups by demographic variables. In further exploring the literacy levels of lower educational attainment groups, including those adults who earned GED credentials, this study used the newly released adult literacy data and provided evidence of whether

1. literacy skill levels of adults with GED/equivalency credentials and adults with high school diplomas are comparable, and whether literacy skill levels of adults with

- GED/equivalency credentials are higher than those of adults without a high school diploma,
2. adult literacy trends for adults with GED/equivalency credentials and for adults with and without high school diplomas vary within demographic variables such as race/ethnicity, gender, age, language spoken before starting school, English as a second language status, immigration status, and employment status,
 3. there has been a change in adult literacy levels from 1992 to 2003, and
 4. subpopulations exist that appear, based on lower literacy levels, to be in need of particular outreach by adult education programs.

Methods

The analyses in the study focused on the estimates of the literacy level of three groups of adults with lower educational attainment: (1) adults with less than or some high school education, (2) adults with GED/high school equivalency credentials, and (3) adults who are high school graduates but did not pursue postsecondary education. These groups of adults, along with demographic variables, were selected from the 1992 NALS and 2003 NAAL data sets for further analyses.

Statistical comparisons among the above three groups of adults included average literacy score comparisons across race/ethnicity, gender, age, language spoken before starting school, country of birth, age of arrival in U.S, age learned to speak English, and employment status. All statistical comparisons of the estimates of literacy level among the three educational attainment groups and between 1992 and 2003 were based on the t statistic, using a 95 percent confidence interval (two-tailed). The formula used to compute the t statistic was

$$t = \frac{(P_1 - P_2)}{\sqrt{SE_1^2 + SE_2^2}},$$

where P_1 and P_2 are the estimates to be compared and SE_1 and SE_2 are their corresponding standard errors. The multiple t -tests conducted in this study replicated the method performed in the 2003 NAAL study (Kutner, Greenberg, & Baer, 2005); Bonferroni adjustments were not applied.

Data Sources

Data for this study were obtained from the first publicly available data files from the 2003 NAAL and 1992 NALS; the files were released by the U.S. Department of Education's National Center for Education Statistics (NCES, 2005). These files contained demographic and literacy level information on adults in the U.S. The 2003 NAAL data set included 19,258 respondents, and the 1992 NALS data set included 25,468 respondents. Both data sets defined adults as individuals 16 years of age and older living in households or prisons. Adults who could not be interviewed because of language spoken or cognitive or mental disabilities (3 percent in 2003 and 4 percent in 1992) were not included in either data set.

The data were analyzed using AM software, which was developed by the American Institutes for Research. AM is a free statistical software that analyzes data from complex samples, especially large-scale assessments such as the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Studies (TIMSS), and the National Assessment of Adult Literacy (NAAL). The software can be downloaded from <http://am.air.org/naal.asp>.

Results

As reported in *A First Look at the Literacy of America's Adults in the 21st Century* (Kutner, Greenberg, & Baer, 2005), adults with less than or some high school education (not including adults still in high school) represented 15 percent of the total U.S. population in 2003, which significantly decreased by 6 percentage points from 1992. Adults with a GED/equivalency credential represented 5 percent of the population with 1 percentage point increase from 1992. Additionally, adults who

completed high school but did not continue with a postsecondary education represented about 26 percent of the population with a 1 percentage point decrease from 1992.

Before analyzing the English literacy of the adults in the three educational attainment groups, the demographic characteristics of the adults were examined. Figures A1 and A2 show the percentage of adults of the three groups with lower educational attainment by eight selected demographic characteristics, and Table B1 provides detailed percentages and standard errors in both the 1992 NALS and 2003 NAAL; multiple comparisons of the percentage among the three groups using *t*-tests can be obtained accordingly. For example, the percentage of Whites with a high school diploma was significantly higher than the percentage of Whites with a GED/equivalency credential and those with less than or some high school education; however, the percentage of Hispanic adults with less than or some high school education was significantly higher than the percentage of Hispanic adults with a GED/equivalency credential and those with a high school diploma. About one third of the adults with GED/equivalency credentials were between 25 to 39 years old compared to less than one fourth of the adults with some high school or those having high school diplomas; additionally, even though about 40 percent of adults with less than or some high school and high school graduates were 50-years-old or older, only 30 percent of adults with GED/equivalency credentials were 50-years-old or older.

With regard to immigration status, approximately 29 percent of adults who had less than or some high school were not born in the U.S. compared to only 9 percent immigrants in the other two groups. About 30 percent of adults in the “less than or some high school education” group spoke a language other than English or Spanish before starting school; this percentage was significantly higher than the percentage of adults in the other two groups who spoke a language other than English or Spanish before starting school. There was a significantly higher percentage of adults in the “less than or some high school education” group who reported they do not speak English (13 percent) and

who reported they learned to speak English after they were 11 years old (12 percent) compared to the percentages of adults in the other two groups. In addition, for employment status, the percentage of full time workers in the “less than or some high school” group was significantly lower than the percentage of full time workers in the other two groups. Also, the “less than or some high school” group had significantly more (about 47 percent) adults who were out of the labor force compared to the percentage of the “GED/equivalency” group (27 percent) and the percentage of the “high school graduate” group (35 percent).

Figures A3 to A10 present the 2003 NAAL average prose, document, and quantitative literacy scores of adults without high school diplomas, adults with GED/equivalency credentials, and adults with high school diplomas as reported by eight demographic variables. The average scores and standard errors for both the 2003 NAAL and the 1992 NALS can be found in Tables B2 to B9; the *t*-test statistics for comparing average score differences across the 2003 NAAL and 1992 NALS are also included in these tables. The *t*-test statistics and significance values computed to assess the differences between group averages within the 2003 NAAL were not included in these tables but can be easily computed by using the reported averages and standard errors.

Figure A3 indicates that the average prose, document, and quantitative literacy scores of adults with GED/equivalency credentials and those of adults with high school diplomas were significantly greater than the average scores of adults with less than or some high school education for all of the four ethnic groups (White, Black, Hispanic, and Other). The average scores earned by adults with GED/equivalency credentials and the average scores earned by adults with high school diplomas on the three scales were not significantly different from one another for any of the four ethnic groups. Adults of Hispanic origin with less than or some high school education had the lowest scores across the three literacy scales.

Figure A4 shows that the literacy skill levels of female and male adults with GED/equivalency credentials did not differ from those of female and male high school graduates but were significantly higher than the literacy skill levels of female and male adults with less than or some high school education. Figure A5 shows the literacy levels of adults of the three groups by four age ranges (16–24 years old, 25-39, 40-49, and 50 and older). The results indicated that average literacy scale scores for adults in each age range with GED/equivalency credentials were not significantly different from the average literacy scores for high school graduates in each corresponding age range but were significantly higher than average scores obtained by adults with less than or some high school education.

Figure A6 shows that the average literacy scores of adults who had GED/equivalency credentials did not differ from the average scores of adults who graduated from high school regardless of the language spoken before starting school (English only, English and other language [including Spanish], other language only) but were significantly higher than the average scores of adults with less than or some high school education. Moreover, the results also show that adults with less than or some high school who spoke only another language before starting school had the lowest average literacy scores. As shown in Figure A7, adults who were and were not born in the U.S. and who earned GED/equivalency credentials achieved the same literacy levels as high school graduates who were and were not born in the U.S., respectively; they also outperformed the adults who were not born in the U.S. and had less than or some high school education. Adults who arrived in the U.S. after 19 years old or older had the lowest prose literacy level (Figure A8). Regardless of the age they learned to speak English, adults with a GED/equivalency credential earned average literacy scores equivalent to those of high school graduates (Figure A9). Across employment statuses of full time, part time, unemployment, or not in labor force, adults with GED/equivalency credentials also

exhibited literacy levels comparable to those of high school graduates and that were significantly higher than those of adults with less than or some high school education (Figure A10).

To assess if there was a change in adult literacy levels from 1992 to 2003, longitudinal analyses were performed by examining the differences in average prose, document, and quantitative literacy scores across 1992 and 2003 for the three lower educational attainment groups (adults with less than or some high school, GED/equivalency credentials, and high school diplomas) by several demographic variables. The average scores, standard errors, *t*-test statistics, and significance values are presented in Tables B2 to B9. Figures A11 to A18 provide direct comparisons of the average scores for the prose literacy scale only. In summary, adults with GED/equivalency credentials had no significant change in prose literacy skills between the 1992 NALS and the 2003 NAAL for race/ethnicity, gender, age range, language spoken before starting school, born in the U.S. or not, or employment status. However, the prose literacy skills did significantly decrease for those adults with GED/equivalency credentials who arrived in the U.S. after 19 years old and those who learned to speak English after 11 years of age (Figures A16 and A17). The document and quantitative literacy skills were stable for adults with GED/equivalency credentials between the 1992 NALS and the 2003 NAAL by all of the eight demographic characteristics.

Because the adult education and literacy programs primarily serve adults who have not completed a high school education, this research aimed to identify any significant changes in the literacy skills for this group over the past decade. Indeed, some statistically significant differences in literacy levels from the 1992 NALS and the 2003 NAAL were found for those adults without a high school diploma. Increases in literacy levels for adults with less than or some high school education were mainly in the document and quantitative literacy areas; Whites, adults who spoke English only before starting school, and adults who learned English between the ages of 1–10 increased in both literacy areas, while Blacks and adults who learned English after 10 years of age increased in only

quantitative literacy. Adults who spoke English plus another language before starting school increased in only document literacy. Many more significant decreases in literacy levels were seen than increases, and all these decreases were in the areas of prose and document literacy. Five groups of adults with less than or some high school education exhibited decreases in both prose and document literacy: Hispanics, adults not born in the U.S., adults who arrived in the U.S. at age 19 or older, adults who spoke a language other than English or Spanish before starting school, and adults employed full time. Adults with less than or some high school education in the following demographic groups decreased in prose literacy only: both males and females, adults aged 25 and older, adults who arrived in the U.S. between the ages of 0 and 18, and adults employed part time. Also, adults with less than or some high school education aged 25-39 decreased in document literacy.

Conclusion

Many adult basic education programs use GED Tests scores as a measure of achieving the major literacy skills and knowledge associated with a high school program of study as well as to assess adult learner gains from participation in ABLÉ programs. This study provides further evidence of the validity of the GED Tests scores as an indication of achieving the literacy skills and knowledge associated with a high school program of study and, therefore, supports the GED Tests as appropriate for use in evaluating adult basic education programs.

This study examined whether the literacy levels of adults across the U.S. with a GED/equivalency credential measure up to those of adults with a high school diploma who did not continue on to postsecondary education. By using NAAL and NALS data, this study focused on literacy as defined by one's ability to use everyday printed information – with and without numerical processing – to not only function in society, but also for personal development and accomplishment. The results of this study provided critical evidence that: (1) levels of English literacy are comparable for adults with a GED/equivalency credential and those with a high school diploma, (2) English

literacy levels of adults with a GED/equivalency credential have been consistent across time, and (3) adults with a GED/equivalency credential show equivalent levels of English literacy across race/ethnicity, age, language spoken before starting school, English as a second language status, immigration status, and employment status. Furthermore, this study identified specific populations with low and declining English literacy levels so that adult education entities and policymakers can target these groups with more support, funding, and better programs to improve their English literacy skills.

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Appendix A

Figures

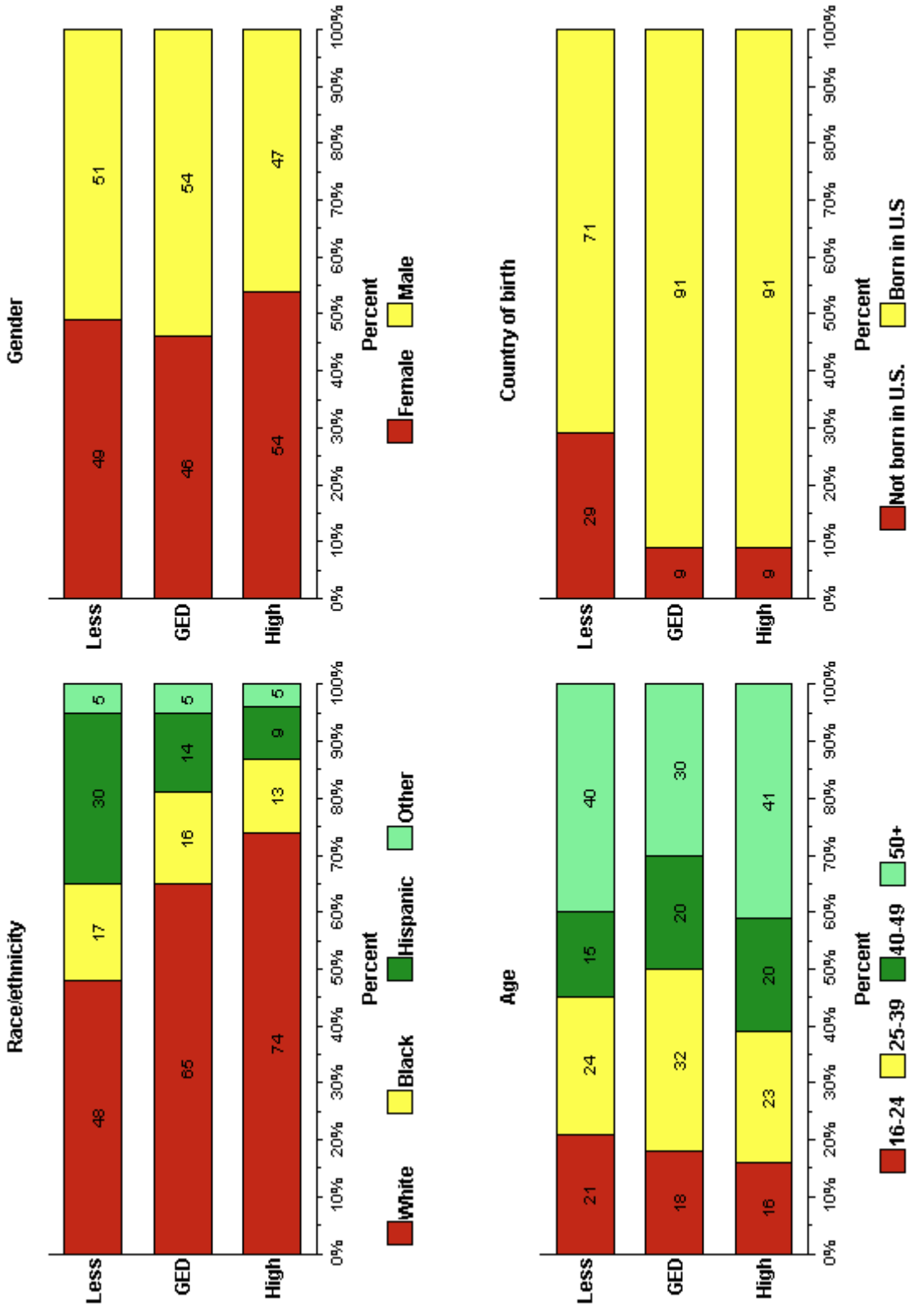


Figure A1. Percentage of adults with less than/some high school, GED, and high school graduate, by race/ethnicity, gender, age, and country of birth: 2003 NAAL

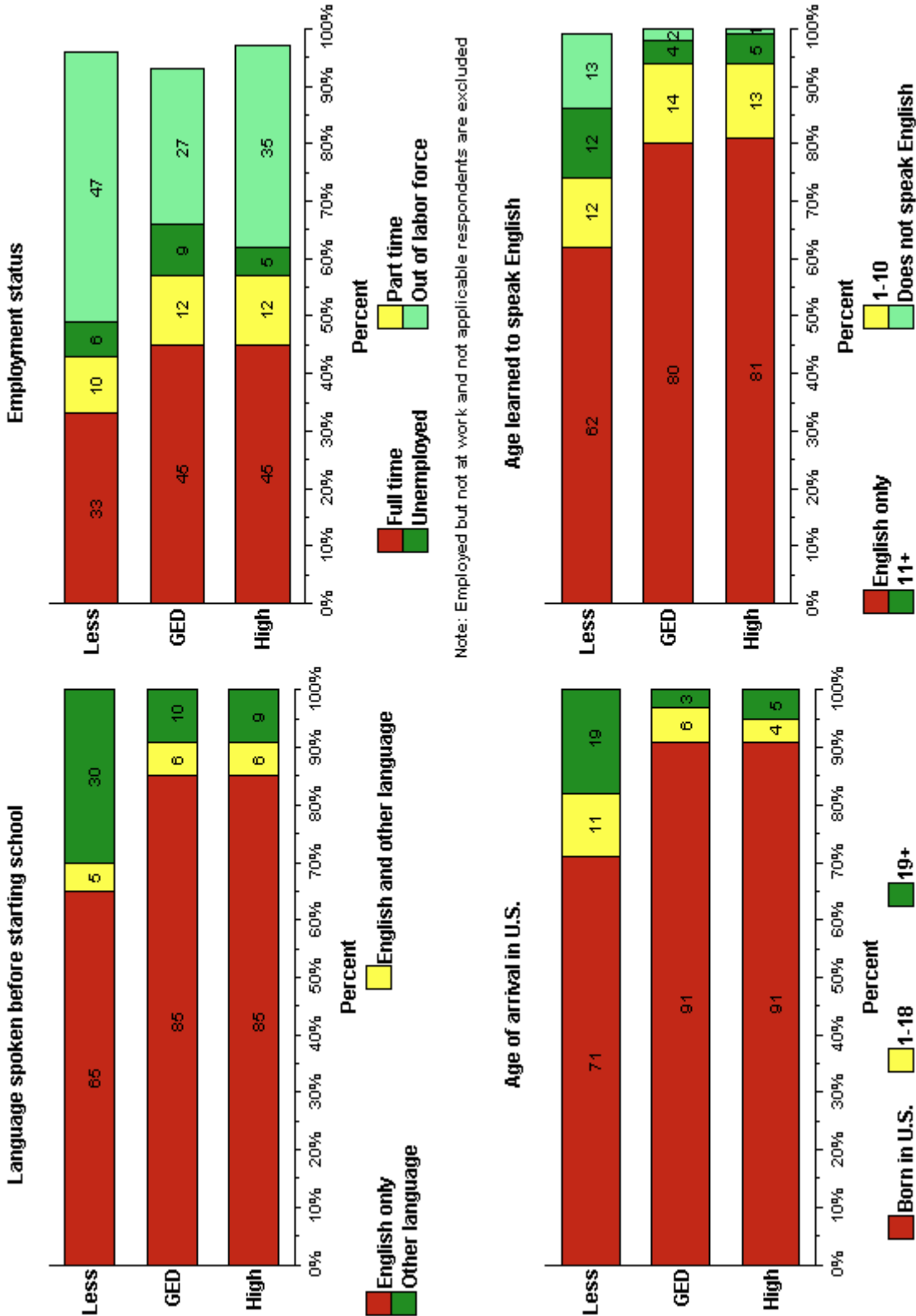


Figure A2. Percentage of adults with less than/some high school, GED/equivalency, and high school graduate, by language spoken before starting school, employment status, age of arrival in U.S., and age learned to speak English: 2003

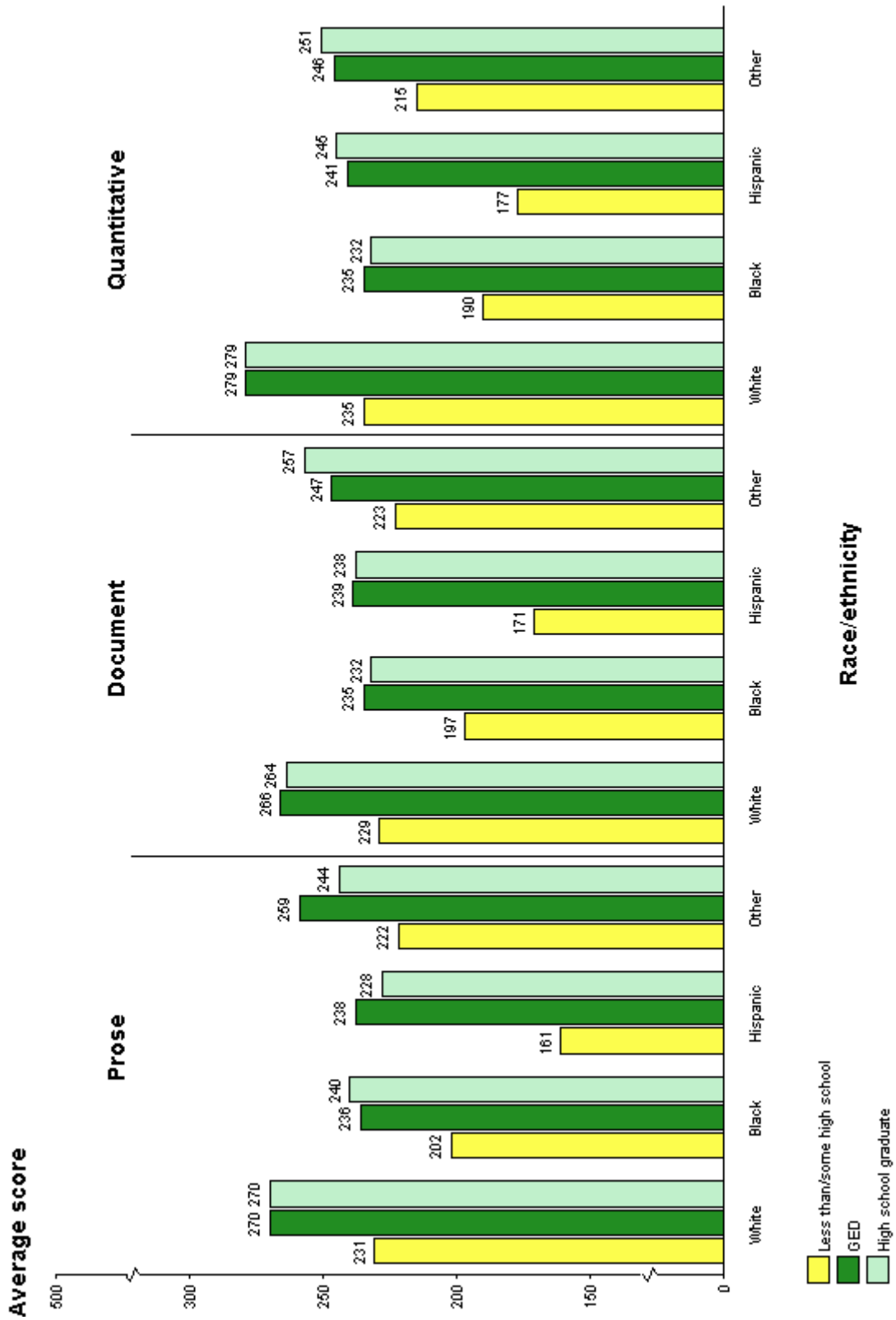


Figure A3. Average prose, document, and quantitative literacy scores of adults, by race/ethnicity: 2003 NAAL
Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

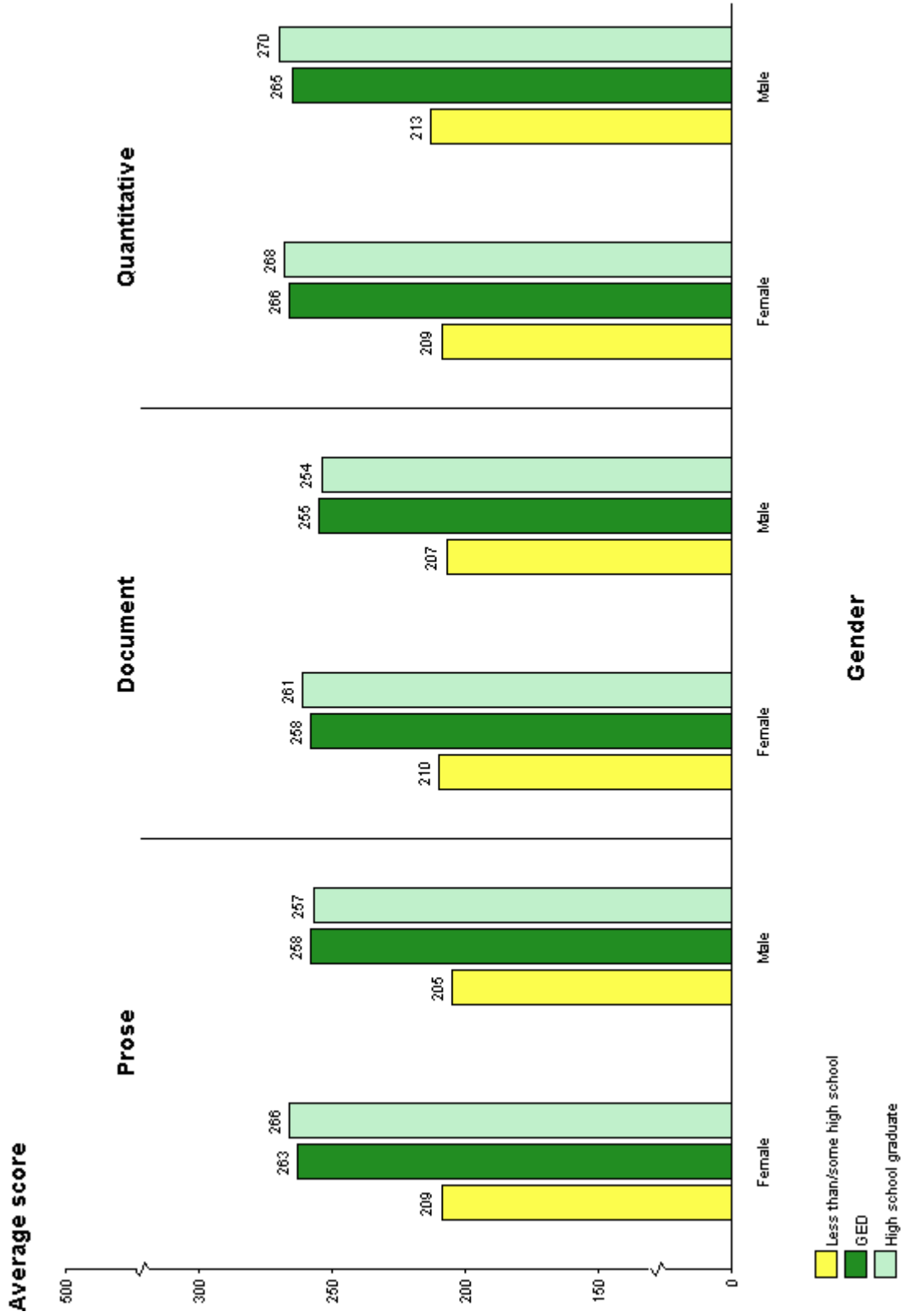


Figure A4. Average prose, document, and quantitative literacy of adults, by gender: 2003 NAAL
Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school (p<.05) and had scores equal to those of adults with a high school diploma.

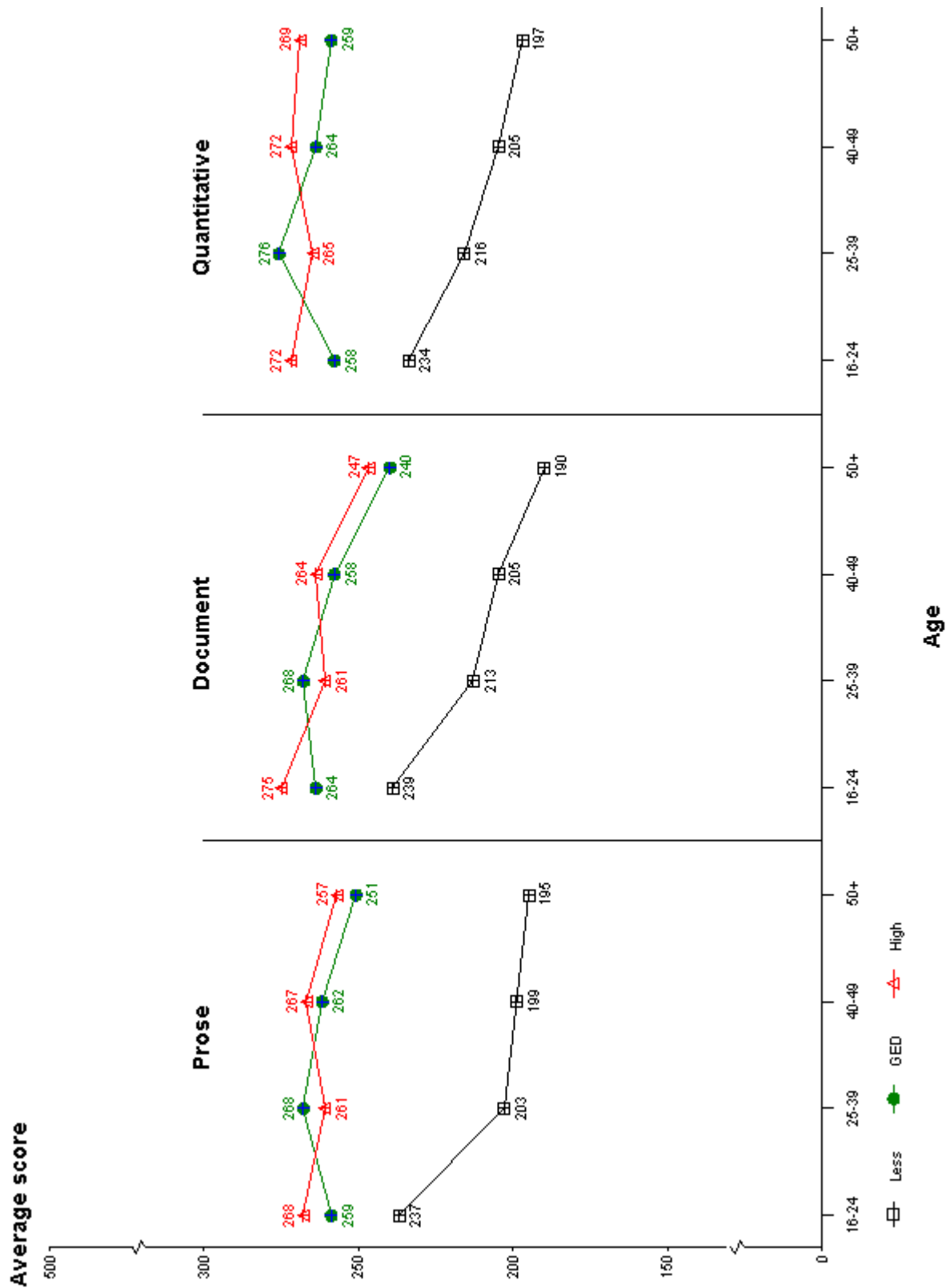


Figure A5. Prose, document, and quantitative literacy scores of adults, by age: 2003 NAAL
 Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school

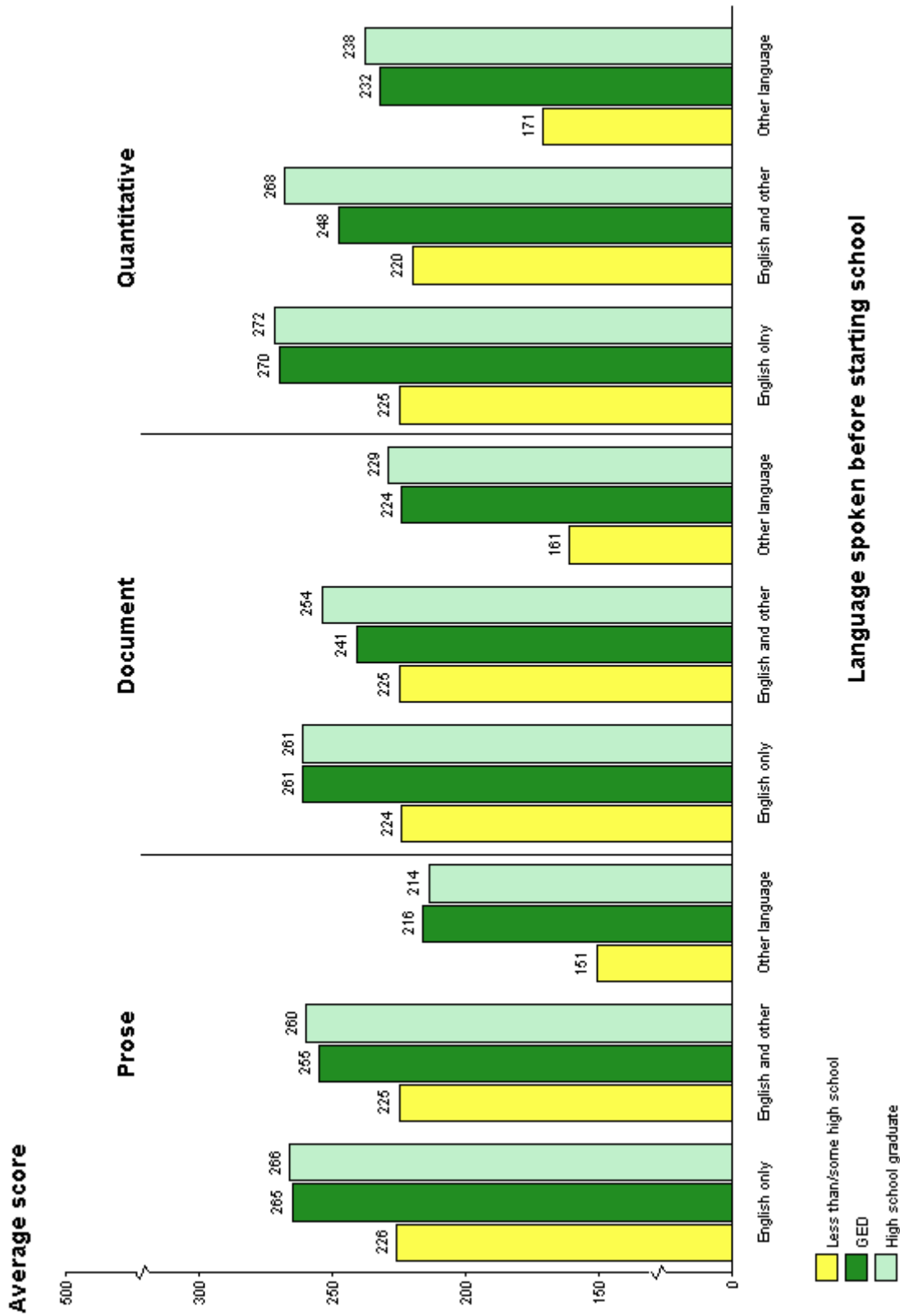


Figure A6. Average prose, document, and quantitative literacy scores of adults, by language spoken before starting school: 2003 NAAL

Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

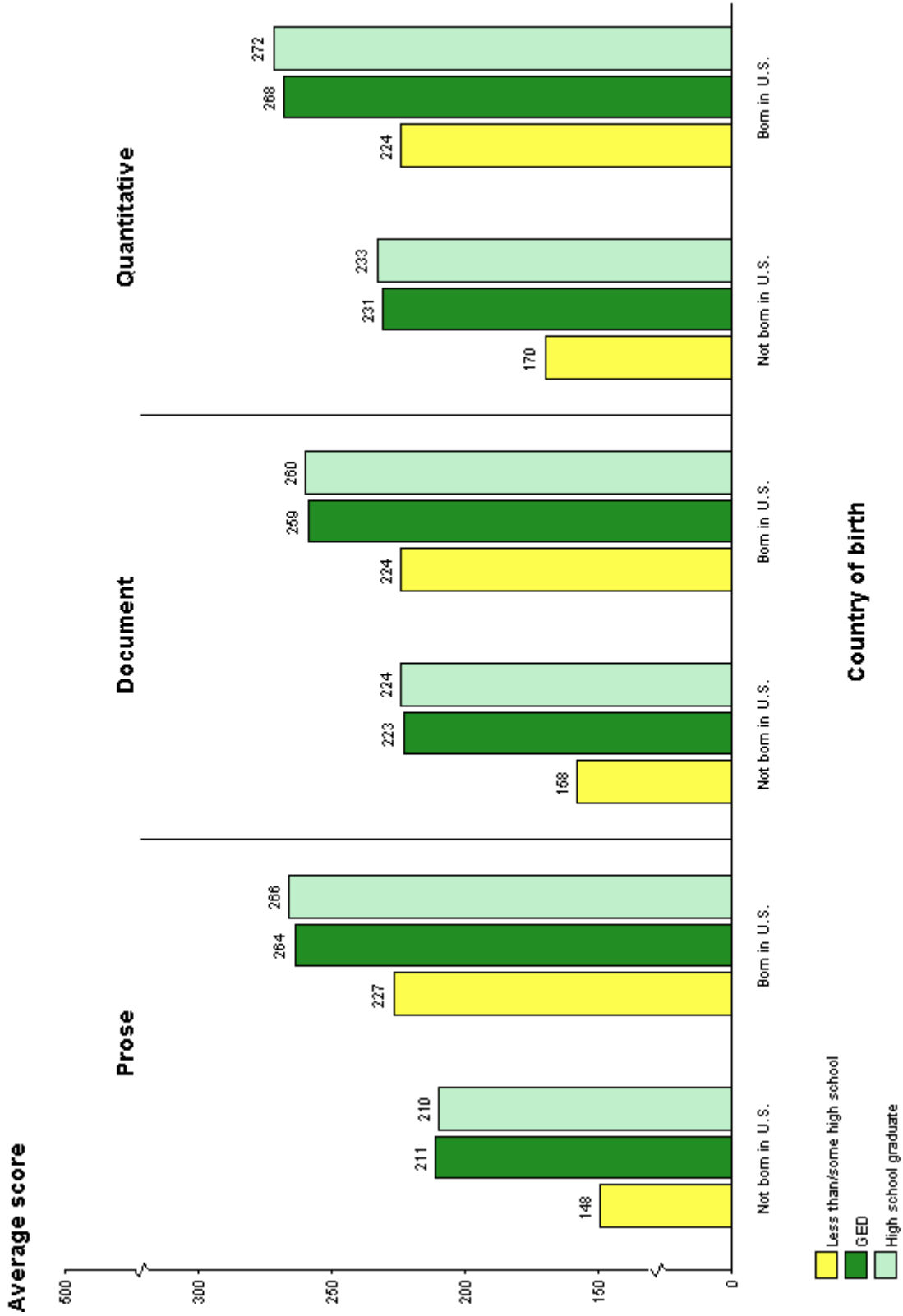


Figure A7: Average prose, document, and quantitative literacy scores of adults, by country of birth: 2003 NAAL

Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

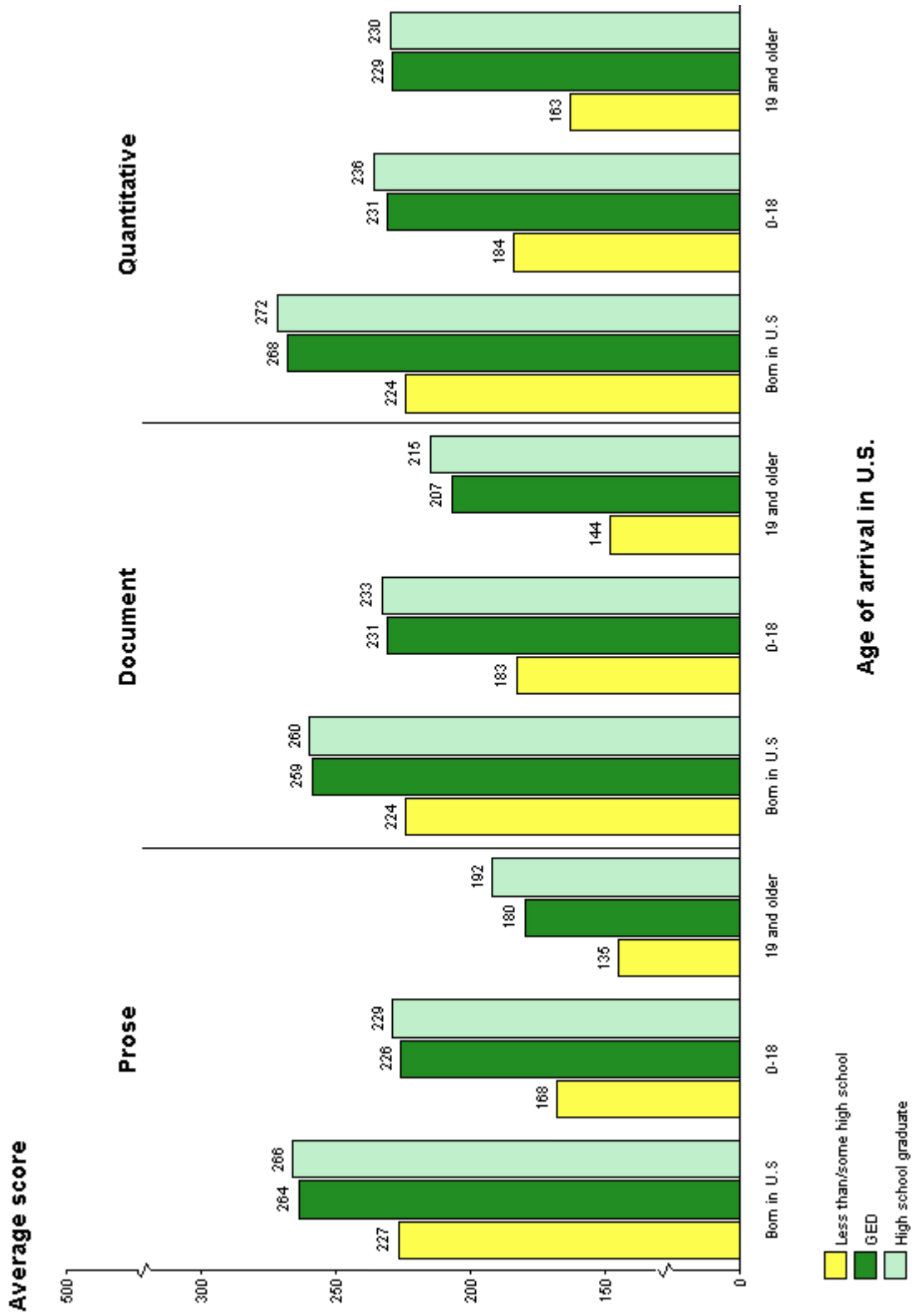


Figure A8. Average prose, document, and quantitative literacy scores of adults, by age of arrival in U.S.: 2003 NAAL
Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

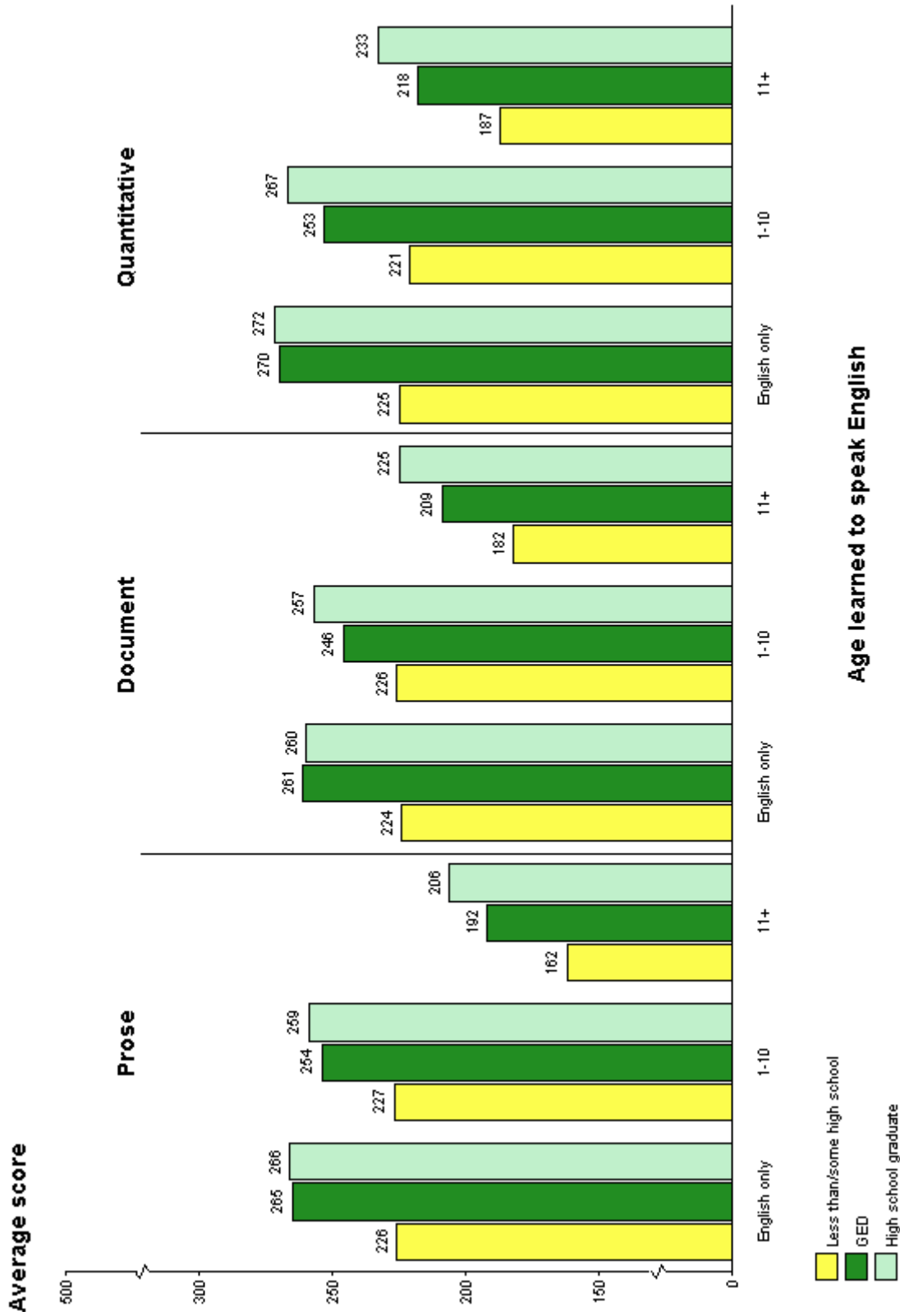


Figure A9. Average prose, document, and quantitative literacy of adult, by age learned to speak English: 2003 NAAL
Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

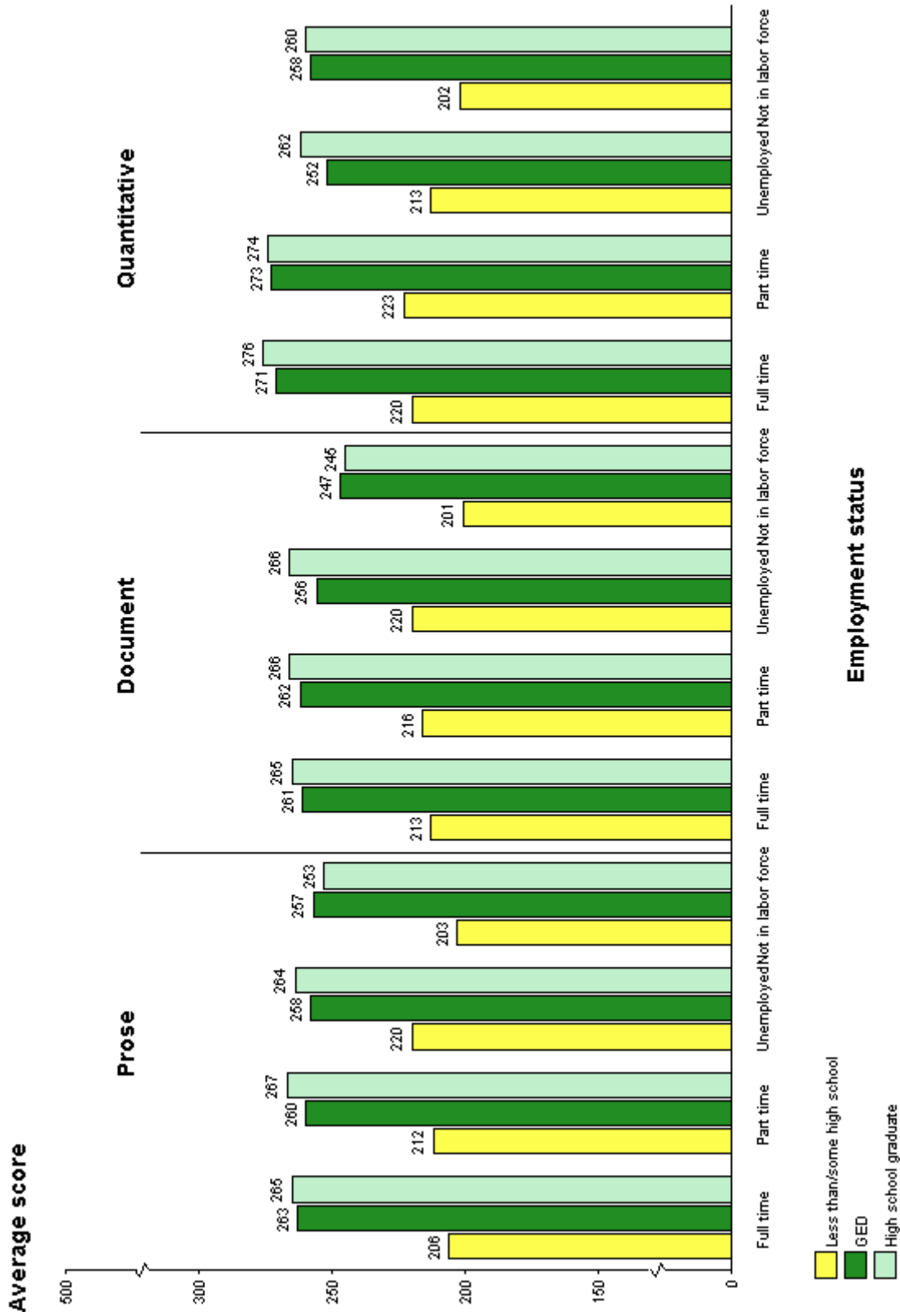


Figure A10. Average prose, document, and quantitative literacy scores of adults, by employment status: 2003 NAAL
Note. Adults with GED/equivalency credentials achieved significantly higher scores than adults with less than/some high school ($p < .05$) and had scores equal to those of adults with a high school diploma.

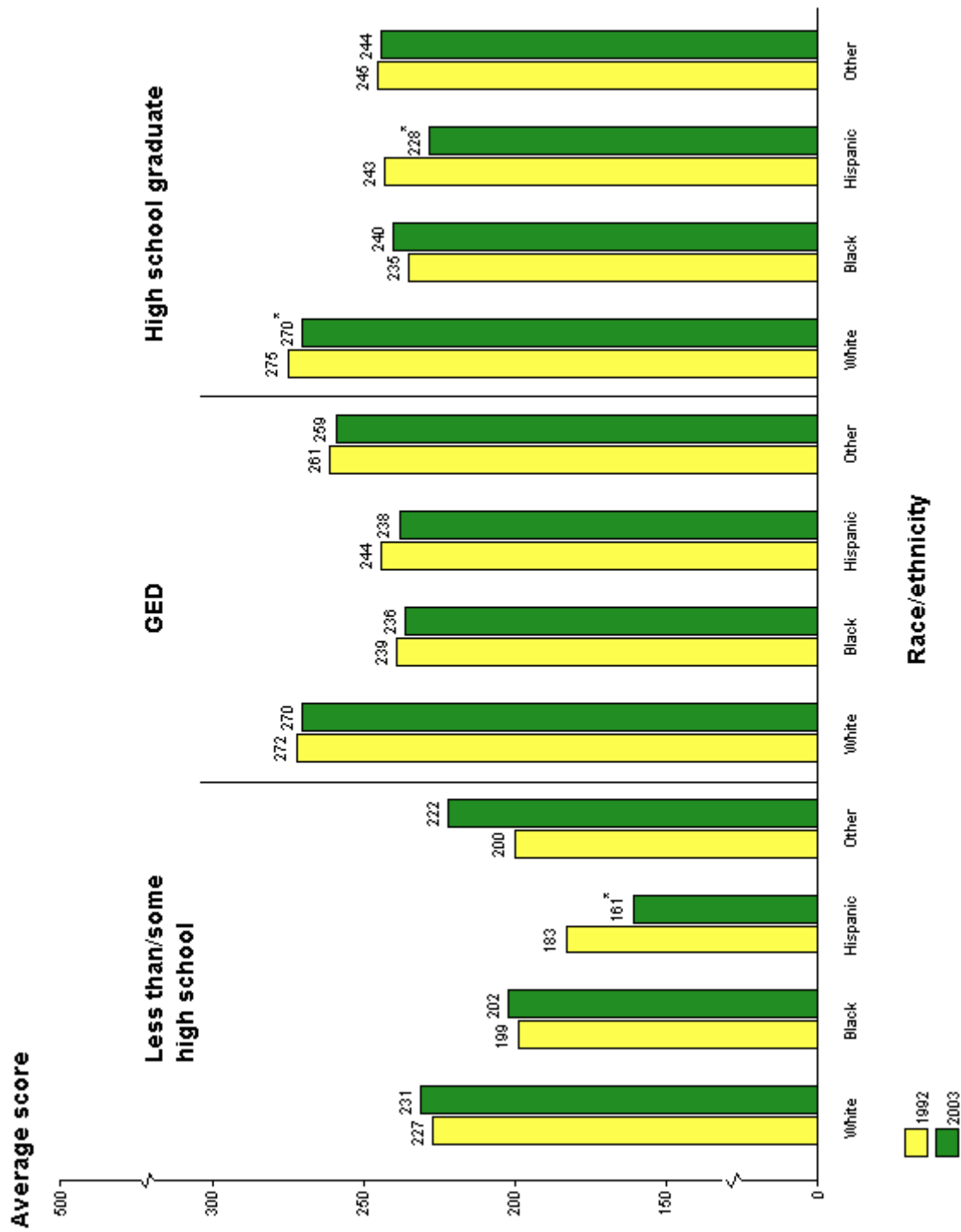


Figure A1.1. Average prose literacy scores of adults, by race/ethnicity: 1992 NALS and 2003 NAAL
 * Significantly different from 1992 (p < .05).

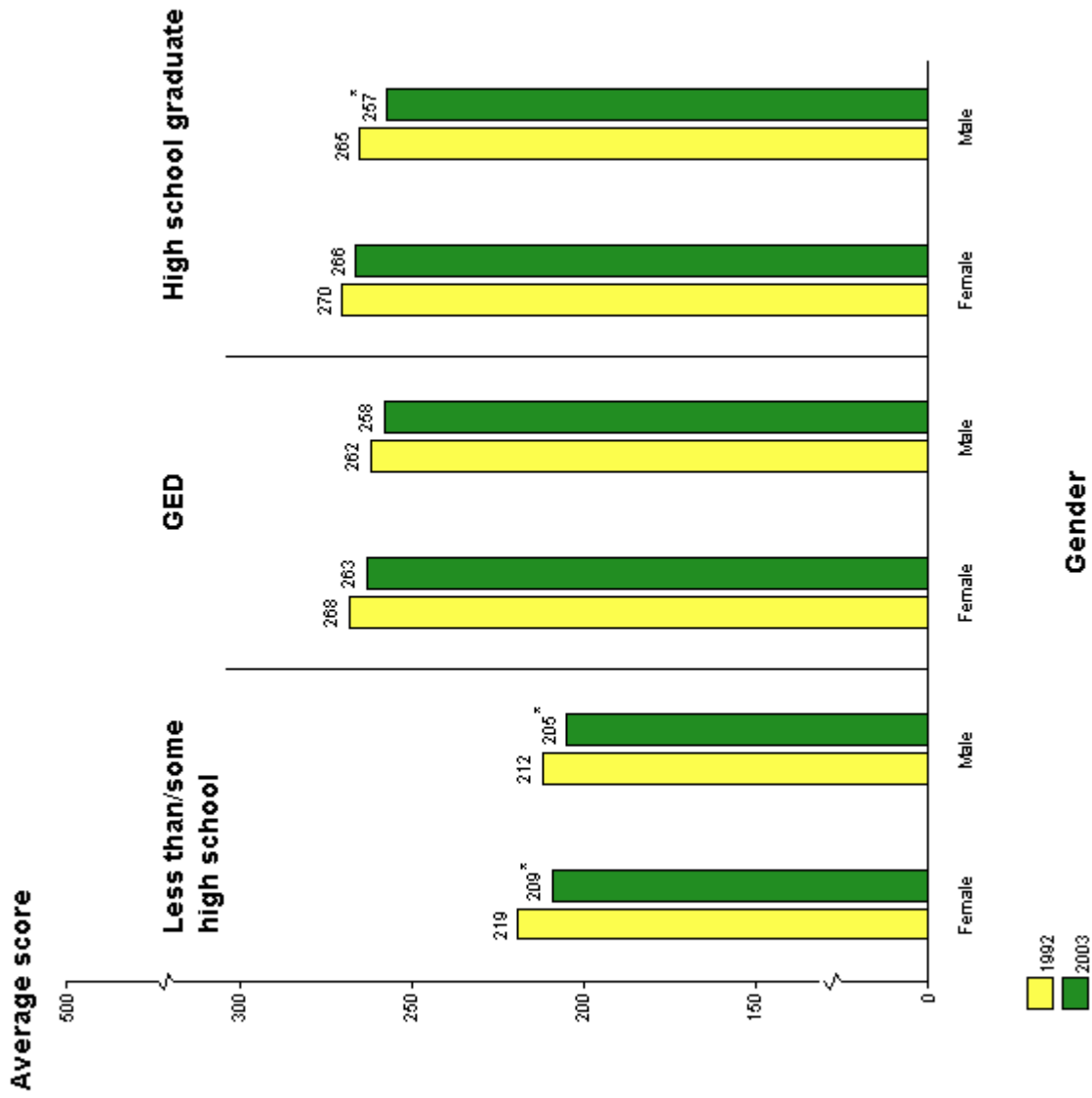


Figure A12. Average prose literacy scores of adults, by gender: 1992 NALS and 2003 NAAL

* Significantly different from 1992 ($p < .05$).

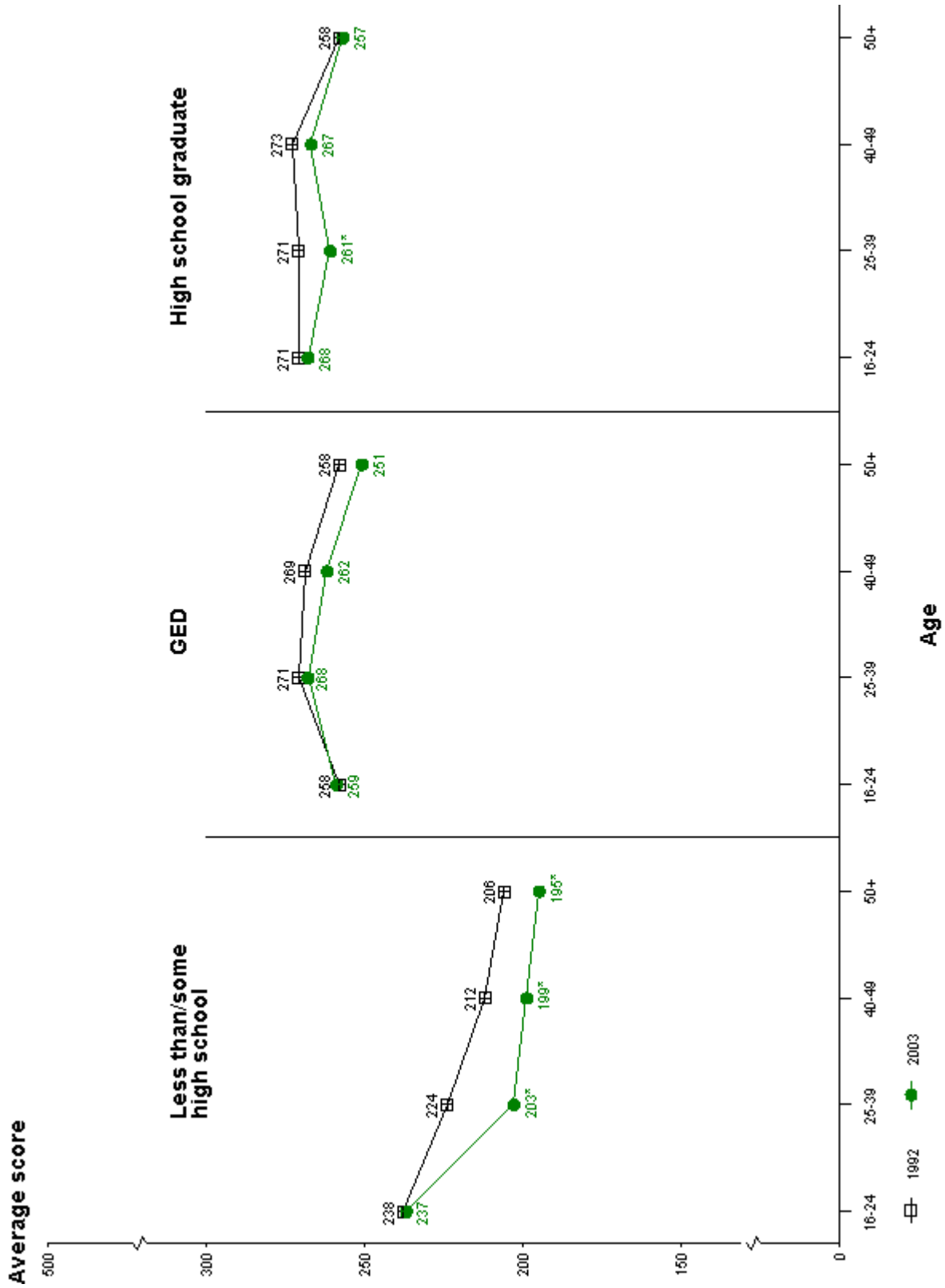


Figure AI.3. Average prose literacy scores of adults, by age: 1992 NALS and 2003 NAAL
 * Significantly different from 1992 (p < .05).

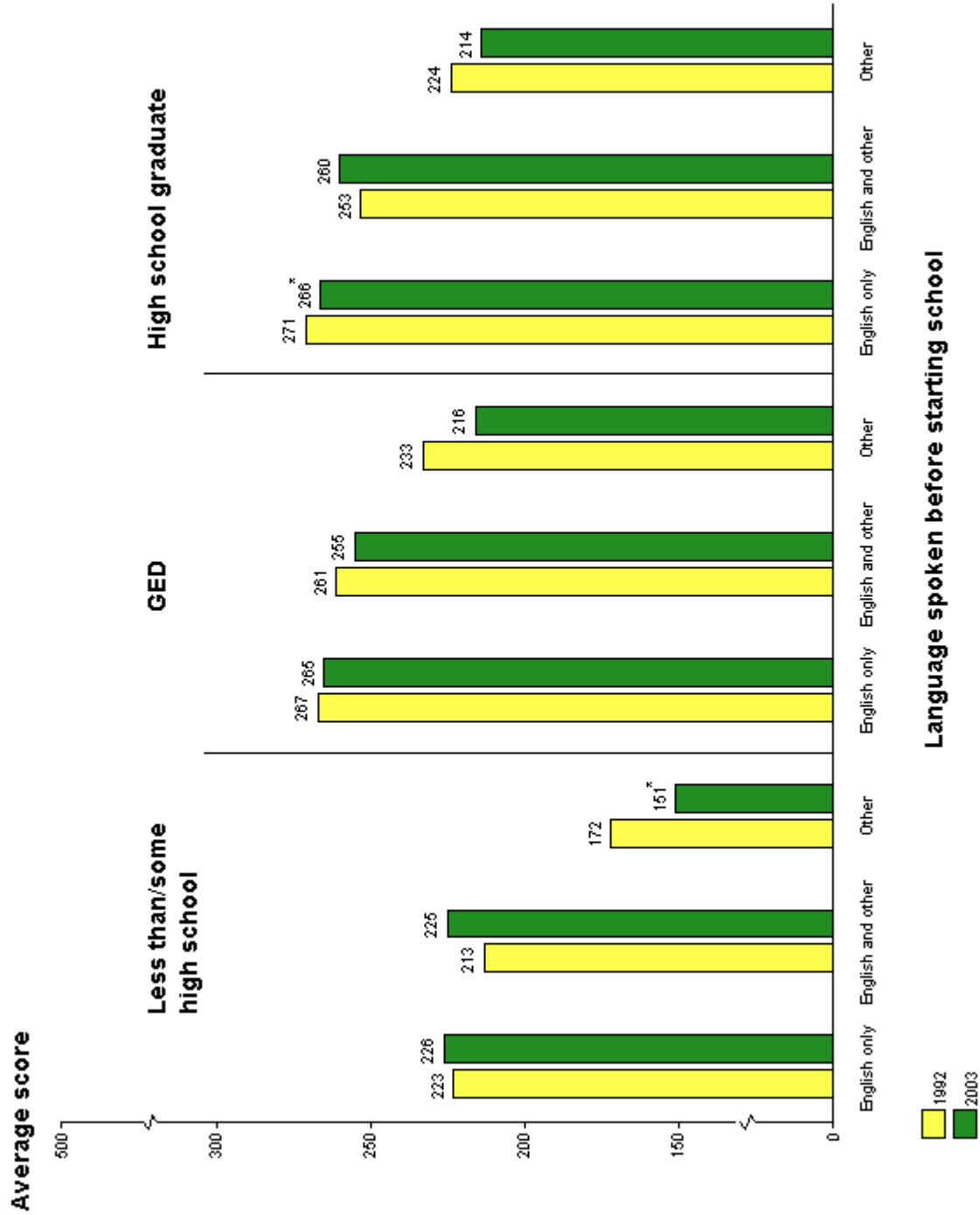


Figure A14. Average prose literacy scores of adults, by language spoken before starting school: 1992 NAAL and 2003 NAAL

* Significantly different from 1992 ($p < .05$).

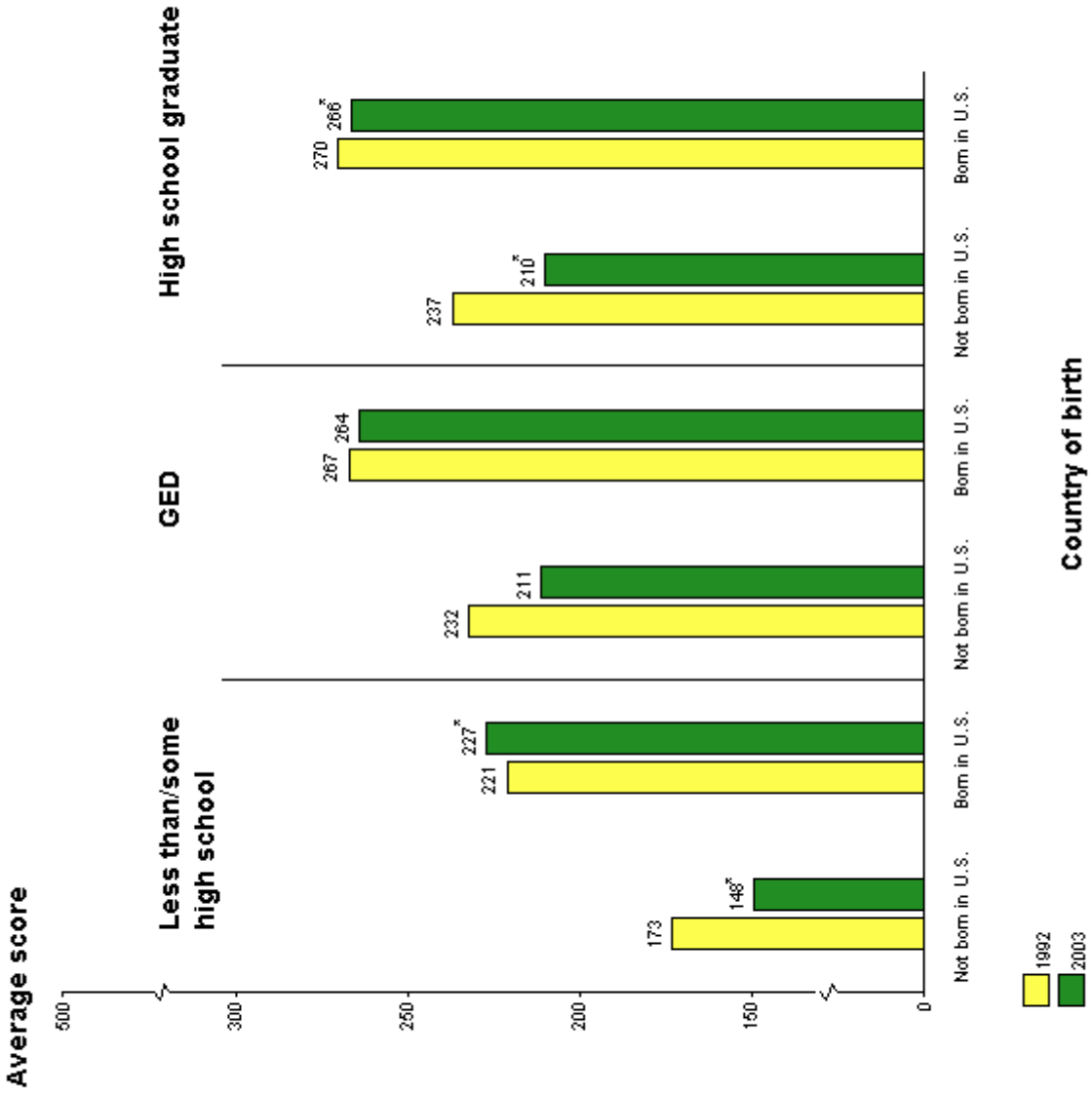


Figure A15. Average prose literacy scores of adults, by country of birth 1992 NALS and 2003 NAAL

* Significantly different from 1992 (p < .05).

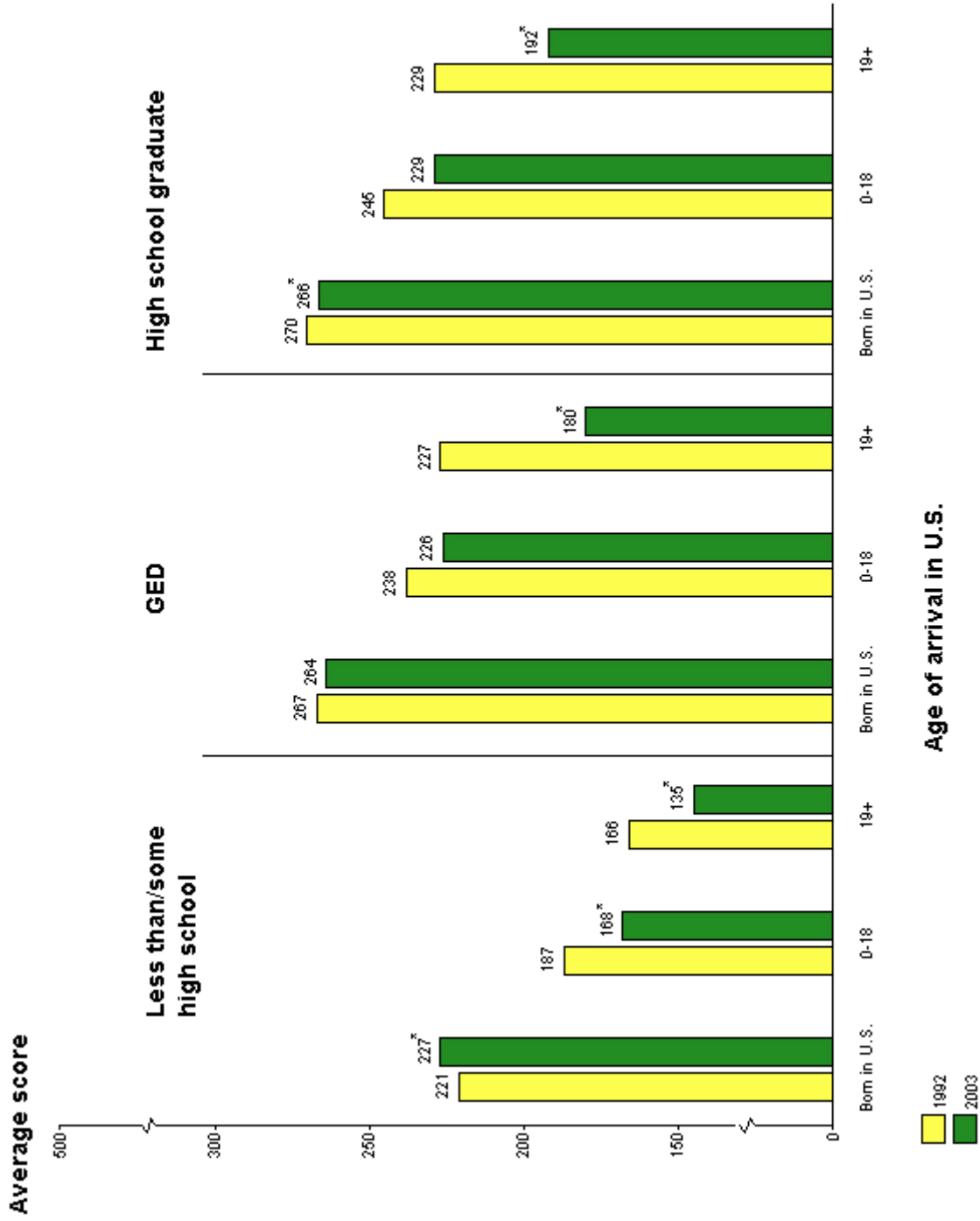


Figure A16. Average prose literacy scores of adults, by age of arrival in U.S.: 1992 NALS and 2003 NAAL

* Significantly different from 1992 (p < .05).

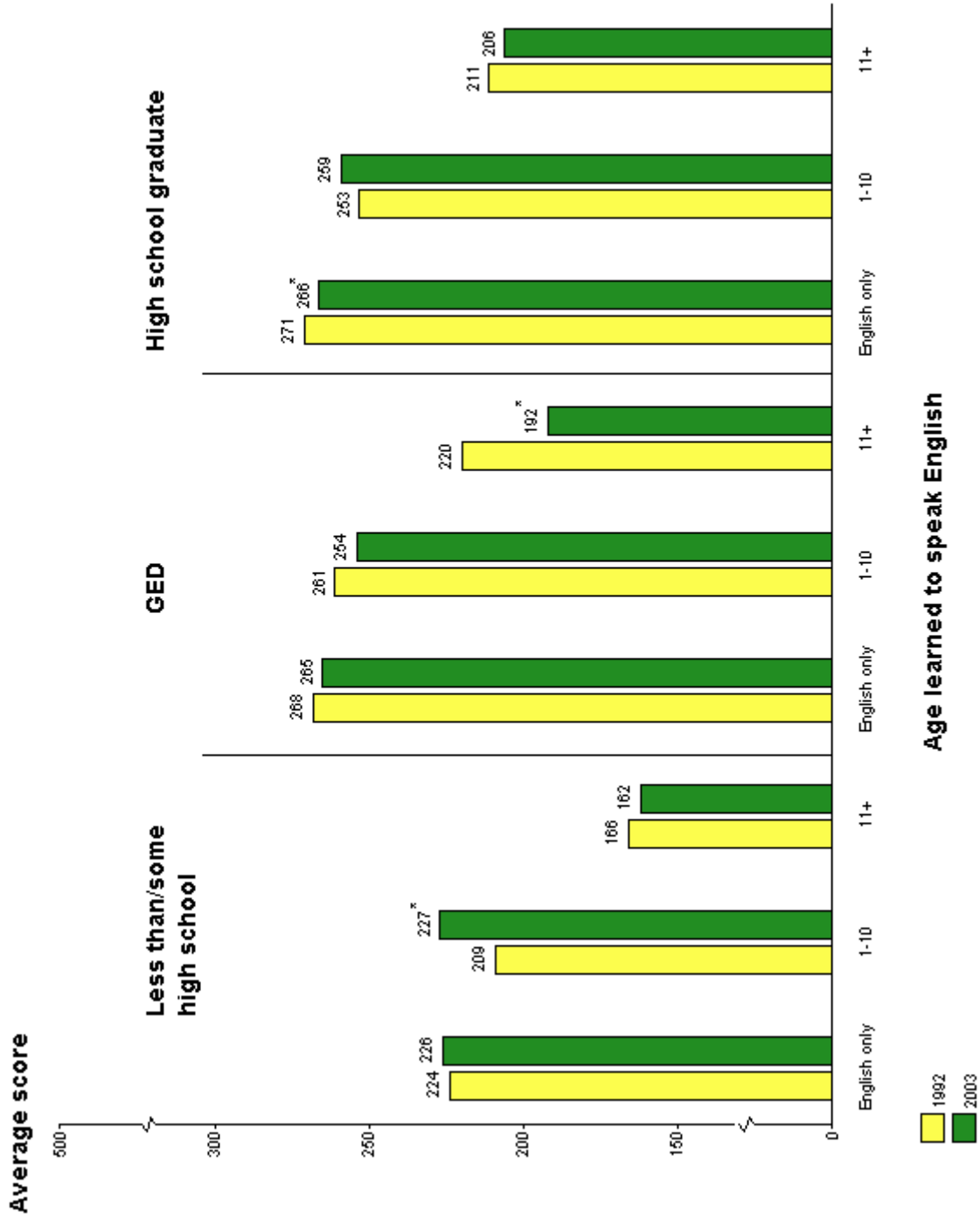


Figure A17. Average prose literacy scores of adults, by age learned to speak English: 1992 NALS and 2003 NAAL
 * Significantly different from 1992 (p < .05).

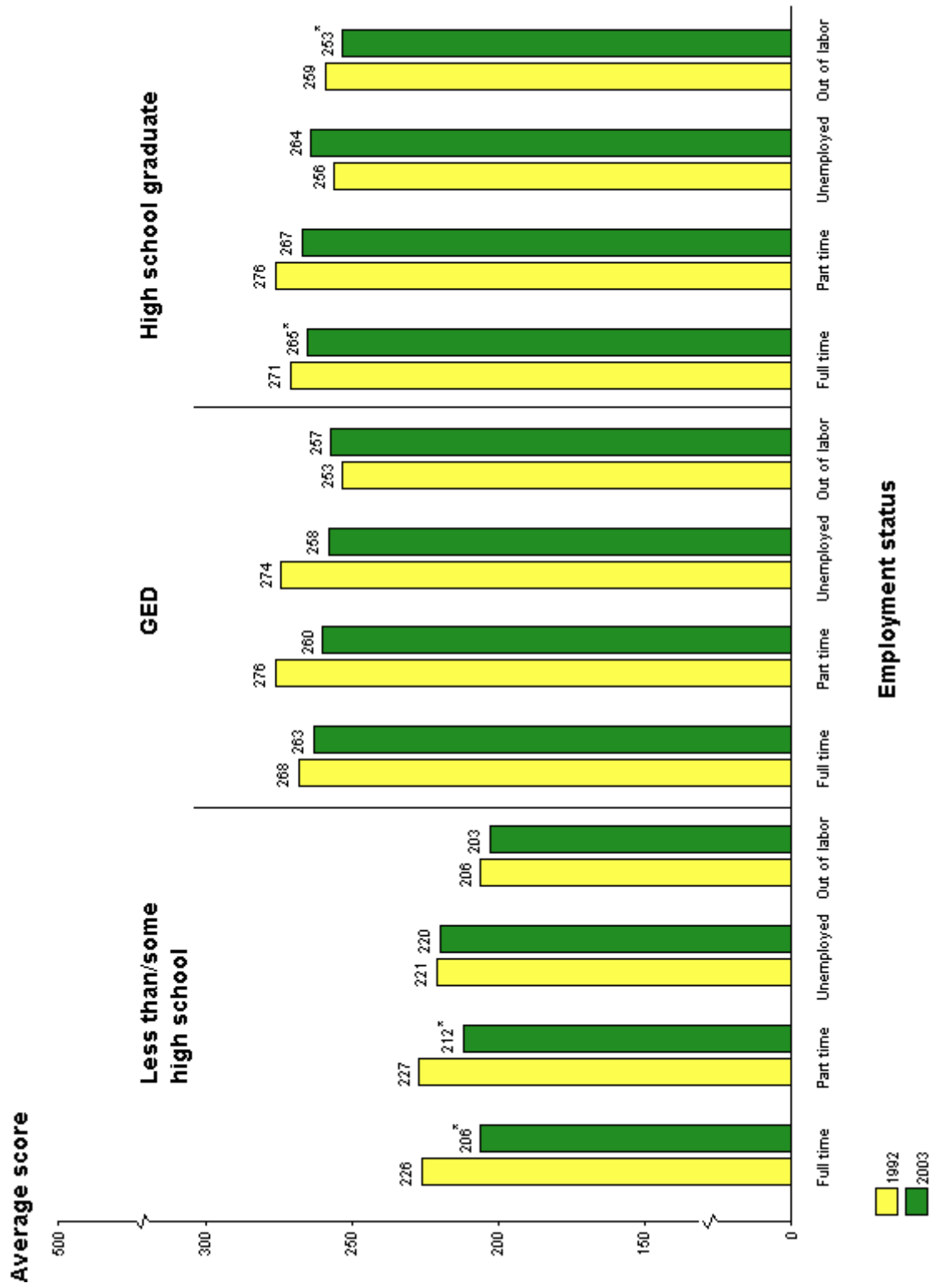


Figure A18. Average prose literacy scores of adults, by Employment status: 1992 NALS and 2003 NAAL
 * Significantly different from 1992 (p < .05).

Appendix B

Tables

Appendix

Table B1

Percentage of adults by selected demographic characteristics and educational attainment: 1992 NALS and 2003 NAAL

	Less than/some high school				GED/Equivalency				High school graduate			
	1992 (N=4,979)		2003 (N=4,205)		1992 (N=1,051)		2003 (N=1,124)		1992 (N=6,060)		2003 (N=3,941)	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Race/ethnicity												
White	66	1.4	48	2.6	74	2.1	65	3.2	80	1.0	74	1.6
Black	17	0.9	17	1.9	11	1.0	16	1.6	11	0.6	13	1.1
Hispanic	14	1.1	30	2.5	11	1.6	14	2.3	7	0.6	9	1.2
Other	3	0.5	5	0.7	4	1.3	5	1.6	2	0.4	5	0.7
Gender												
female	54	1.1	49	1.2	51	2.7	46	2.3	55	0.8	54	1.0
male	46	1.1	51	1.2	49	2.7	54	2.3	45	0.8	47	1.0
Age												
16-24	12	0.6	21	1.1	18	1.9	18	2.1	20	0.8	16	0.9
25-39	24	0.9	24	0.9	42	2.5	32	2.3	33	0.8	23	1.0
40-49	11	0.6	15	0.7	16	1.2	20	1.8	16	0.7	20	1.0
50+	52	1.1	40	1.2	24	1.9	30	2.4	31	0.9	41	1.4
Language spoken before starting school												
English only	78	1.4	65	2.4	88	1.6	85	2.4	90	0.7	85	1.3
English and other	6	0.7	5	0.5	5	1.1	6	1.3	4	0.4	6	0.6
Other language	15	1.0	30	2.2	7	1.1	10	1.8	6	0.4	9	1.0
Birth place												
Not born in U.S.	13	0.9	29	2.1	7	1.1	9	1.7	7	0.5	9	1.0
U.S. born	87	0.9	71	2.1	93	1.1	91	1.7	93	0.5	91	1.0
Age of arrival in the U.S.												
U.S. born	87	0.9	71	2.1	93	1.1	91	1.7	93	0.5	91	1.0
0-18	4	0.3	11	0.9	3	0.6	6	1.2	3	0.4	4	0.5
19+	9	0.7	19	1.5	4	0.8	3	0.9	3	0.3	5	0.7
Age learned to speak English												
English only	75	1.5	62	2.4	85	2.1	80	2.8	87	0.8	81	1.6
1-10	14	1.1	12	1.0	10	1.6	14	2.3	10	0.7	13	1.0
11+	8	0.7	12	1.0	3	0.8	4	0.9	3	0.3	5	0.6
Does not speak English	2	0.3	13	1.3	1	0.2	2	0.8	<1	0.1	1	0.3
Employment status*												
Full time	29	1.2	33	1.3	50	2.4	45	2.6	51	0.9	45	1.3
Part time	10	0.5	10	0.7	8	1.4	12	2.0	12	0.7	12	0.8
Unemployed	6	0.4	6	0.5	9	1.3	9	1.5	6	0.4	5	0.5
Out of labor force	53	1.3	47	1.2	29	1.8	27	2.1	29	1.0	35	1.2

Note. Percentages may not sum to 100% because of rounding. *Employed but not at work and not applicable respondents are excluded.

Table B2

Average prose, document, and quantitative literacy scores of adults, by educational attainment and race/ethnicity: 1992 NALS and 2003 NAAL

	Race/ethnicity	1992		2003		<i>t</i>
		Mean	SE	Mean	SE	
Prose						
	Less than or some high school					
	White	227	1.7	231	2.9	1.17
	Black	199	2.1	202	3.3	0.69
	Hispanic	183	3.2	161	4.3	-4.03*
	Other (inc. multiracial)	200	9.3	222	9.6	1.68
	GED/equivalency					
	White	272	2.4	270	2.2	-0.57
	Black	239	3.9	236	2.7	-0.52
	Hispanic	244	5.0	238	7.3	-0.71
	Other (inc. multiracial)	261	9.0	259	4.9	-0.27
	High school graduate					
	White	275	1.1	270	1.4	-2.97*
	Black	235	1.7	240	2.6	1.76
	Hispanic	243	3.5	228	4.4	-2.69*
	Other (inc. multiracial)	245	8.7	244	6.8	-0.07
Document						
	Less than or some high school					
	White	220	1.8	229	3.5	2.26*
	Black	192	2.0	197	3.9	1.29
	Hispanic	193	3.3	171	4.2	-4.24*
	Other (inc. multiracial)	200	8.2	223	9.3	1.83
	GED/equivalency					
	White	266	2.7	266	3.3	0.04
	Black	226	3.8	235	4.4	1.41
	Hispanic	236	4.9	239	7.9	0.24
	Other (inc. multiracial)	273	12.3	247	7.7	-1.75
	High school graduate					
	White	268	1.5	264	1.9	-1.29
	Black	229	2.0	232	2.9	0.92
	Hispanic	246	3.8	238	5.0	-1.37
	Other (inc. multiracial)	235	6.8	257	8.0	2.19*
Quantitative						
	Less than or some high school					
	White	224	2.5	235	3.0	2.65*
	Black	172	3.1	190	4.2	3.44*
	Hispanic	180	3.7	177	4.2	-0.59
	Other (inc. multiracial)	192	9.3	215	9.8	1.73
	GED/equivalency					
	White	272	2.7	279	3.7	1.55
	Black	231	4.9	235	4.9	0.52
	Hispanic	248	6.8	241	7.2	-0.62
	Other (inc. multiracial)	269	8.7	246	10.5	-1.65
	High school graduate					
	White	276	1.3	279	1.7	1.20
	Black	223	2.1	232	2.7	2.88*
	Hispanic	240	4.2	245	3.8	0.83
	Other (inc. multiracial)	243	8.5	251	7.8	0.70

* $p < .05$

Table B3

Average prose, document, and quantitative literacy scores of adults, by educational attainment and gender: 1992 NALS and 2003 NAAL

	Gender	1992		2003		<i>t</i>
		Mean	SE	Mean	SE	
Prose						
	Less than or some high school					
	Female	219	1.9	209	2.8	-3.03*
	Male	212	1.9	205	2.8	-1.98*
	GED/equivalency					
	Female	268	3.0	263	3.3	-1.04
	Male	262	3.0	258	2.8	-1.04
	High school graduate					
	Female	270	1.3	266	1.7	-1.73
	Male	265	1.8	257	1.7	-3.42*
Document						
	Less than or some high school					
	Female	211	2.1	210	2.8	-0.32
	Male	212	1.8	207	3.1	-1.51
	GED/equivalency					
	Female	262	3.5	258	3.6	-0.71
	Male	256	3.3	255	3.7	-0.11
	High school graduate					
	Female	261	1.4	261	1.9	0.31
	Male	261	2.3	254	1.9	-2.43*
Quantitative						
	Less than or some high school					
	Female	205	2.6	209	2.7	1.12
	Male	214	2.5	213	2.9	-0.14
	GED/equivalency					
	Female	263	3.0	266	3.9	0.50
	Male	266	3.6	265	4.1	-0.17
	High school graduate					
	Female	263	1.5	268	2.0	1.86
	Male	272	1.9	270	2.1	-0.56

* $p < .05$

Table B4
Average prose, document, and quantitative literacy scores of adults, by educational attainment and age: 1992 NALS and 2003 NAAL

	Age	1992		2003		<i>t</i>
		Mean	SE	Mean	SE	
Prose						
	Less than or some high school					
	16-24	238	3.0	237	3.9	-0.23
	25-39	224	2.7	203	3.8	-4.43*
	40-49	212	3.7	199	4.1	-2.48*
	50+	206	1.8	195	2.8	-3.02*
	GED/equivalency					
	16-24	258	6.4	259	5.0	0.17
	25-39	271	2.7	268	3.8	-0.52
	40-49	269	6.3	262	4.8	-0.85
	50+	258	4.7	251	4.0	-1.11
	High school graduate					
	16-24	271	2.2	268	3.4	-0.82
	25-39	271	1.7	261	2.3	-3.69*
	40-49	273	2.4	267	3.0	-1.62
	50+	258	1.6	257	1.9	-0.41
Document						
	Less than or some high school					
	16-24	239	3.5	239	3.7	-0.02
	25-39	226	2.5	213	4.0	-2.81*
	40-49	211	3.4	205	5.4	-1.02
	50+	196	2.4	190	3.5	-1.46
	GED/equivalency					
	16-24	260	5.3	264	8.5	0.35
	25-39	268	3.0	268	5.2	-0.09
	40-49	257	5.4	258	5.0	0.16
	50+	242	5.4	240	4.9	-0.22
	High school graduate					
	16-24	273	2.6	275	4.4	0.36
	25-39	270	2.0	261	2.5	-2.80*
	40-49	262	3.0	264	3.2	0.45
	50+	242	1.7	247	2.0	1.93
Quantitative						
	Less than or some high school					
	16-24	228	3.7	234	3.9	1.13
	25-39	214	3.3	216	3.4	0.49
	40-49	205	3.5	205	4.1	-0.14
	50+	202	3.1	197	3.7	-0.93
	GED/equivalency					
	16-24	258	6.2	258	7.0	0.08
	25-39	270	3.8	276	4.9	1.04
	40-49	263	5.0	264	5.1	0.15
	50+	263	5.1	259	5.6	-0.41
	High school graduate					
	16-24	270	2.5	272	4.0	0.56
	25-39	270	1.9	265	2.6	-1.48
	40-49	273	2.7	272	3.0	-0.33
	50+	259	1.9	269	2.1	3.30*

* $p < .05$

Table B5

Average prose, document, and quantitative literacy scores of adults, by educational attainment and language spoken before starting school: 1992 NALS and 2003 NAAL

		1992		2003		
Language spoken before starting school		Mean	SE	Mean	SE	<i>t</i>
Prose						
Less than or some high school						
	English only	223	1.5	226	2.4	1.09
	English and other	213	5.0	225	5.8	1.61
	Other language	172	3.1	151	3.8	-4.21*
GED/equivalency						
	English only	267	2.2	265	2.0	-0.95
	English and other	261	8.8	255	8.0	-0.48
	Other language	233	6.1	216	12.7	-1.22
High school graduate						
	English only	271	1.1	266	1.4	-2.71*
	English and other	253	3.4	260	3.7	1.37
	Other language	224	3.8	214	4.6	-1.83
Document						
Less than or some high school						
	English only	217	1.6	224	2.8	2.3*
	English and other	202	6.5	225	6.6	2.4*
	Other language	185	3.3	161	4.6	-4.2*
GED/equivalency						
	English only	262	2.3	261	2.6	-0.3
	English and other	257	9.7	241	8.0	-1.3
	Other language	221	6.4	224	9.9	0.3
High school graduate						
	English only	264	1.5	261	1.7	-1.3
	English and other	244	4.2	254	3.9	1.7
	Other language	226	4.3	229	5.1	0.4
Quantitative						
Less than or some high school						
	English only	215	2.3	225	2.4	2.92*
	English and other	204	7.8	220	7.2	1.45
	Other language	175	3.7	171	4.4	-0.78
GED/equivalency						
	English only	266	2.5	270	3.3	0.80
	English and other	267	8.2	248	9.7	-1.55
	Other language	238	7.9	232	13.0	-0.44
High school graduate						
	English only	270	1.3	272	1.8	0.78
	English and other	248	5.0	268	5.5	2.77*
	Other language	230	4.6	238	5.4	1.10

* $p < .05$

Table B6

Average prose, document, and quantitative literacy scores of adults, by educational attainment and country of birth. 1992 NALS and 2003 NAAL

		1992		2003		
Born in U.S.		Mean	SE	Mean	SE	<i>t</i>
Prose						
Less than or some high school						
Not born in U.S.		173	4.1	148	4.5	-4.16*
U.S. born		221	1.4	227	2.3	2.15*
GED/equivalency						
Not born in U.S.		232	7.8	211	8.7	-1.77
U.S. born		267	2.2	264	1.9	-0.92
High school graduate						
Not born in U.S.		237	4.2	210	5.4	-4.01*
U.S. born		270	1.0	266	1.3	-2.33*
Document						
Less than or some high school						
Not born in U.S.		187	4.2	158	4.4	-4.79*
U.S. born		214	1.6	224	2.7	3.18*
GED/equivalency						
Not born in U.S.		227	7.8	223	9.3	-0.32
U.S. born		261	2.3	259	2.5	-0.43
High school graduate						
Not born in U.S.		235	4.8	224	5.1	-1.63
U.S. born		263	1.4	260	1.7	-1.02
Quantitative						
Less than or some high school						
Not born in U.S.		176	4.3	170	4.5	-0.98
U.S. born		213	2.2	224	2.3	3.46*
GED/equivalency						
Not born in U.S.		238	10.0	231	8.4	-0.55
U.S. born		266	2.4	268	3.3	0.52
High school graduate						
Not born in U.S.		234	4.8	233	6.4	-0.19
U.S. born		269	1.2	272	1.7	1.17

* $p < .05$

Table B7

Average prose, document, and quantitative literacy scores of adults, by educational attainment and age of arrival in the U.S.: 1992 NALS and 2003 NAAL

		1992		2003		
Age of arrival in U.S.		Mean	SE	Mean	SE	<i>t</i>
Prose						
Less than or some high school						
Born in U.S.		221	1.4	227	2.3	2.15*
0-18		187	6.3	168	5.3	-2.23*
19 and older		166	5.3	135	4.8	-4.27*
GED/equivalency						
Born in U.S.		267	2.2	264	1.9	-0.92
0-18		238	11.1	226	7.4	-0.87
19 and older		227	9.6	180	13.4	-2.85*
High school graduate						
Born in U.S.		270	1.0	266	1.3	-2.33*
0-18		245	5.6	229	6.0	-1.95
19 and older		229	5.6	192	8.8	-3.55*
Document						
Less than or some high school						
Born in U.S.		214	1.6	224	2.7	3.18*
0-18		196	6.0	183	5.3	-1.61
19 and older		185	5.1	144	5.2	-5.54*
GED/equivalency						
Born in U.S.		261	2.3	259	2.5	-0.43
0-18		244	10.4	231	9.8	-0.86
19 and older		212	12.4	207	13.7	-0.30
High school graduate						
Born in U.S.		263	1.4	260	1.7	-1.02
0-18		247	6.3	233	6.9	-1.52
19 and older		221	7.3	215	8.6	-0.60
Quantitative						
Less than or some high school						
Born in U.S.		213	2.2	224	2.3	3.46*
0-18		187	6.0	184	5.7	-0.41
19 and older		172	5.9	163	5.1	-1.24
GED/equivalency						
Born in U.S.		266	2.4	268	3.3	0.52
0-18		257	11.1	231	9.5	-1.74
19 and older		216	17.3	229	10.1	0.65
High school graduate						
Born in U.S.		269	1.2	272	1.7	1.17
0-18		248	5.5	236	5.7	-1.47
19 and older		220	7.3	230	11.1	0.69

* $p < .05$

Table B8

Average prose, document, and quantitative literacy scores of adults, by educational attainment and age learned to speak English: 1992 NALS and 2003 NAAL

		1992		2003		
Age learned to speak English		Mean	SE	Mean	SE	<i>t</i>
Prose						
Less than or some high school						
English only		224	1.6	226	2.4	0.83
1-10		209	3.2	227	3.7	3.59*
11+		166	4.5	162	3.8	-0.61
GED/equivalency						
English only		268	2.2	265	2.1	-0.77
1-10		261	5.6	254	4.9	-0.87
11+		220	4.8	192	10.1	-2.52*
High school graduate						
English only		271	1.1	266	1.5	-2.92*
1-10		253	2.6	259	3.3	1.48
11+		211	5.0	206	5.5	-0.64
Document						
Less than or some high school						
English only		217	1.7	224	2.9	2.11*
1-10		202	3.7	226	4.1	4.32*
11+		186	4.9	182	3.9	-0.56
GED/equivalency						
English only		261	2.4	261	2.6	-0.04
1-10		251	7.2	246	5.1	-0.58
11+		227	6.9	209	11.1	-1.36
High school graduate						
English only		264	1.6	260	1.8	-1.57
1-10		245	3.1	257	2.9	2.70*
11+		215	6.0	225	8.2	1.01
Quantitative						
Less than or some high school						
English only		215	2.4	225	2.6	2.62*
1-10		202	4.4	221	4.2	3.19*
11+		172	5.9	187	4.2	2.08*
GED/equivalency						
English only		266	2.6	270	3.2	1.07
1-10		262	6.0	253	7.1	-1.04
11+		243	9.9	218	12.7	-1.53
High school graduate						
English only		271	1.3	272	1.9	0.44
1-10		251	3.3	267	3.4	3.22*
11+		216	5.9	233	8.6	1.63

* $p < .05$

Table B9

Average prose, document, and quantitative literacy scores of adults, by educational attainment and employment status: 1992 NALS and 2003 NAAL

	Employment status	1992		2003		<i>t</i>
		Mean	SE	Mean	SE	
Prose						
	Less than or some high school					
	Full time	226	2.4	206	3.6	-4.62*
	Part time	227	3.9	212	5.9	-2.15*
	Unemployed	221	4.7	220	5.5	-0.07
	Not in labor force	206	2.0	203	3.3	-0.76
	GED/equivalency					
	Full time	268	2.6	263	3.5	-1.09
	Part time	276	9.9	260	6.5	-1.28
	Unemployed	274	9.8	258	6.0	-1.43
	Not in labor force	253	3.4	257	4.4	0.68
	High school graduate					
	Full time	271	1.6	265	2.0	-2.44*
	Part time	276	3.3	267	4.0	-1.74
	Unemployed	256	3.4	264	4.2	1.45
	Not in labor force	259	1.7	253	2.2	-2.26*
Document						
	Less than or some high school					
	Full time	225	2.2	213	4.2	-2.47*
	Part time	223	3.8	216	6.0	-0.95
	Unemployed	226	4.0	220	7.3	-0.79
	Not in labor force	198	2.5	201	4.3	0.57
	GED/equivalency					
	Full time	264	2.7	261	3.7	-0.65
	Part time	270	10.1	262	7.8	-0.58
	Unemployed	261	6.5	256	9.0	-0.42
	Not in labor force	247	3.9	247	4.6	-0.06
	High school graduate					
	Full time	269	2.0	265	2.0	-1.42
	Part time	266	3.0	266	4.5	0.04
	Unemployed	253	3.5	266	7.4	1.63
	Not in labor force	246	2.0	245	2.3	-0.50
Quantitative						
	Less than or some high school					
	Full time	224	2.5	220	3.9	-0.82
	Part time	225	3.8	223	5.2	-0.29
	Unemployed	216	6.7	213	6.9	-0.33
	Not in labor force	196	3.2	202	4.1	1.29
	GED/equivalency					
	Full time	272	3.5	271	3.5	-0.20
	Part time	266	8.4	273	6.8	0.63
	Unemployed	261	9.3	252	10.4	-0.68
	Not in labor force	253	4.2	258	5.7	0.73
	High school graduate					
	Full time	274	1.6	276	2.3	0.47
	Part time	269	3.5	274	4.6	0.85
	Unemployed	253	4.2	262	7.0	1.10
	Not in labor force	256	2.1	260	2.3	1.10

* $p < .05$



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