The majority of candidates who take the Tests of General Educational Development (GED) take those tests within 2 years of leaving school, but this study highlights the demographic profile and performance of candidates who, for a variety of reasons, waited anywhere from 24 to 54 years to attempt to obtain the GED high school equivalency credential. The sample consists of 10,177 adult candidates, between the ages of 40 and 70, residing in the United States who took the GED tests in 2002. The GED Tests Battery contains five tests. This paper provides demographic information on the gender, race, primary language, highest level of formal education, and income of these adult candidates. Adult candidate performance on each of the five GED tests is reported, and differential performance of examinees passing and failing the test battery is examined. Demographic information of candidates based on their pass/fail status is also explored. Two appendixes contain supplemental tables of data. (Contains 1 table, 13 figures, and 12 references.) (Author/SLD)
General Academic Achievement of Adult High School Dropouts

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Abstract

Of the 40 million adults without a high school diploma or credential, about 60% are between the ages of 40 to 70. While the majority of GED candidates take the GED Tests within two years of leaving school, this study highlights the demographic profile and performance of candidates who, for a variety of reasons, waited anywhere from 24 to 54 years to attempt to obtain the GED high school equivalency credential. While the current national trend focuses on measuring academic performance at the K-12 levels, this study depicts the demographic information and GED Tests battery performance of adult candidates who did not complete high school.

The sample consists of adult candidates (herein defined as being between the ages of 40 and 70 years), residing in the United States who took the GED Tests in 2002. The GED Tests battery contains five tests covering the following content areas: Language Arts, Writing; Social Studies; Science; Language Arts, Reading; and Mathematics. Demographic information is provided on adult candidates’ gender, race, primary language, highest level of formal education, and income. Adult candidate performance on each of the GED Tests is reported. Differential performance of examinees passing and failing the test battery is examined. Demographic information of candidates based on their pass/fail status is also explored.
The principles behind President Bush’s “No Child Left Behind” legislation affect primary, secondary, postsecondary, and adult populations. However, given the media focus on mandatory national testing for primary and secondary level students, and fair testing and admissions procedures, the adult learner population may be the last population that comes to mind when the phrase “No Child Left Behind” is considered.

However, there are a number of agencies in the United States that actively support and/or implement programs and activities that assist adult learners in gaining the knowledge and skills required for admission into higher education programs and institutes and help them succeed in the workplace (e.g., Office of Vocational and Adult Education, General Educational Development Testing Service, state offices of adult education). Of equal importance is the role these adult education programs have in helping adults “play active roles in the education of their children, and carry out the rights and responsibilities of citizenship” (Adult Education and Literacy web page).

The extent of adult education programs can be gauged both by the number of students enrolled in adult education programs and by the amount of government funding of such programs. In Program Year 2001, federal funding served 2.7 million adult learners and 42% of all adult education participants were enrolled in an English Literacy program (vs. Adult Basic Education or Adult Secondary Education programs). An increase in enrollment in English Literacy programs was expected in 2002 because there were additional foreign residents needing to learn English in order to apply for citizenship in the wake of September 11. Meanwhile, the United States government has acknowledged the importance of educational programs for adult
learners. Recently, the Senate approved nearly $872 million for adult education state grants, literacy for prisoners, national leadership, Even Start programs, and Community Technology Centers (Office of Vocational and Adult Education, 2002a). However, the 2.7 million adult learners served last year are only a fraction of the estimated 90 million adults who need better literacy skills to get good jobs and provide for themselves and their families (Office of Vocational and Adult Education, 2002b).

Supporting the importance of adult education, several studies have addressed the current educational level of America’s adults and the impact it has on larger issues. For example, nearly three-quarters of American adults understand little about basic science, according to a report by the National Science Foundation (2002). The findings of this report suggested that American adults need help with basic skills required to assess medical claims, determine the merits of genetically engineered food, and understand national scientific issues. A study by Goldman and Smith (2002) examined the role that education levels play in achieving good health. The study found that education is central to understanding why and how to take medication, which, in turn, is critical to quality health care.

The current study provides empirical data on the performance of adult examinees aged 40 to 70 years who have not earned a high school diploma or a measure of general academic achievement. The study is exploratory in nature, and no hypotheses regarding the performance of examinees are made. It is hoped that the empirical results gathered from this study will provide insight into the effectiveness of adult education programs as well as inform adult education curricula and instruction.
Method, Data Sources, and Selection

The study utilized test data obtained from the Tests of General Educational Development (GED Tests) (American Council on Education, 2002a). The GED Tests battery is designed "to measure academic achievement in a four-year program of high school education in the core content areas of U.S. and Canadian high school curricula" (American Council on Education, 2002b, p. 4). The GED Tests consist of five tests: Language Arts, Writing (50 items and an essay); Social Studies (50 items); Science (50 items); Language Arts, Reading (40 items); and Mathematics (50 items). Test and examinee data from three equated forms of the English version of the GED Tests administered in the U.S. during the 2002 examination cycle were included in the analysis.

The data analyzed come from a database containing records on the 2002 GED examination cycle. At the time of this analysis, the database contained partial or complete 2002 test and examinee data from GED administrations in the following 35 states and the District of Columbia: Alaska, Arkansas, Arizona, Delaware, Hawaii, Iowa, Illinois, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, North Carolina, Nebraska, Nevada, New Jersey, New Mexico, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Vermont, West Virginia, Wisconsin, and Wyoming.

It is important to keep in mind that data records were selected only if the candidate met the following criteria: 1) indicated that his/her information could be used for research purposes, 2) took each of the five tests within the test battery only once, 3) tested in the English language, and 4) received no testing accommodation. In addition, records were excluded from analysis if
they met one or more of the following conditions: the candidate failed to indicate his/her gender on the demographic form, or failed to provide a valid United States state code.

Results

Demographics of Sample

The total sample, after removal of the records described above, consisted of demographic and test data on 10,177 adults who took the GED Tests in 2002. Fifty percent of the sample was male, and 50% was female. This gender breakdown differed from the 20- to 39-year-old distribution, which was an estimated 60% male and 40% female. Seventy-five percent of the study's sample was between the ages of 40 and 50, 22% between the ages of 51 and 60, and 3% between the ages of 61 and 70.

Table 1 reports demographic information on the sample of 2002 GED adult candidates selected for this study. Figures 1 through 3 graphically present several pieces of demographic data. Appendix A reports the reported state of residence for the 10,177 adult GED candidates.

In terms of ethnicity, the distribution of 40- to 70-year-old GED candidates did not mirror the total U.S. population as reported by the U.S. Census Bureau (2000). There was a slightly higher proportion of 40- to 70-year-old African-American candidates taking the GED Tests than would be expected. As the data on race and primary language indicate, although approximately 7% of the candidates reported being of Hispanic ethnicity, only 2% of the candidates considered Spanish their primary language.

Figure 2 shows the highest level of education reported by the 2002 GED adult candidates. Nearly 78% of the sample reported completing formal schooling at the 9th grade or higher. The 40- to-70-year-old adult candidates in 2002 reported fewer years of formal education compared to candidates aged 16-39 years old, 91% of which reported completing formal schooling at the 9th
grade or higher. One hypothesis regarding the difference in reported highest grade completed for these two age cohorts is that the 1970's marked an increasing societal emphasis on the value of formal education.

Figure 3 reports the income of 40- to 70-year-old candidates prior to taking the GED Tests. Approximately 1% of all GED candidates in 2002 reported that they were retired. One in two GED candidates of any age reported annual earnings of between $1 and $10,000. The 40- to 70-year-old candidates were, not surprisingly, under-represented in this group with only one in five earning between $1 and $10,000. Forty-five percent of candidates in this age group reported earning more than $10,000 the year prior to taking the GED Tests compared to 27% of all GED candidates. Unfortunately though, only 7% earned more than the national median income (U.S. Census Bureau, 2000).

Figure 4 presents the most frequently reported reasons for not completing high school. Of the ten most frequently reported reasons, four were categorized under student performance, three under social issues, two under family issues, and one under academic environment issues. However, the top four most frequently reported reasons covered all of the four categories of reasons for not completing high school. Reasons that candidates did not complete high school differed based on age with more 40- to 70-year-olds than pre-40-year-olds citing financial reasons, such as getting a job (32% vs. 18%) or needing to earn money to help at home (23% vs. 7%). Student performance issues, such as excessive absences, dislike of and unhappiness with school, were reasons given most frequently by pre-40-year-old GED candidates in 2002. It would seem that the most frequently cited reasons for leaving high school by the 40- to 70-year-old candidates were a result of uncontrollable circumstances, while the pre-40-year-old candidates’ reasons were the result of circumstances that were controllable by the candidate.
Table 1. Demographics of GED 2002 Candidates 40-70 Years Old.

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</tr>
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<td>1949</td>
<td>19.2%</td>
</tr>
</tbody>
</table>
Figure 1. Race and ethnic background of 2002 GED adult candidates.

Figure 2. Highest level of education reported by 2002 GED adult candidates.
Figure 3. 2001 income reported by 2002 GED adult candidates.
Academic Achievement of Adult High School Dropouts

Figure 4. Most frequently reported reasons for not completing high school as reported by 2002 GED adult candidates. Candidates could select multiple reasons.
Personal satisfaction and getting a better job were the two reasons most frequently reported by adult candidates for taking the GED Tests (Figure 5). Positive role modeling, which is probably related to personal satisfaction, was the third most reported reason for testing. Furthering education through either a technical/trade program or a 2-year college was also among the most frequently reported reasons for taking the GED Tests. One noticeable difference in the motivation for taking the GED Tests between post-40-year-olds and pre-40-year-olds was that older candidates were less likely to take the GED Tests to enter a four-year college than were younger candidates.

Both home study and attending adult education classes taught at public schools were popular GED test preparation avenues for post-40 candidates (Figure 6). However, older candidates were less likely than pre-40-year-olds to take advantage of preparation methods outside the home, such as adult education classes offered at the public school or community college. Perhaps other commitments such as family and work prevent the post-40-year-old candidate from attending formal classes. Nearly 16% of the adult candidates reported spending no time preparing for taking the GED Tests (Figure 7), while nearly 61% reported spending 11-99 hours in test preparation activities. An estimated 30% of the adult candidates reportedly completed the 11th grade. With the content of the GED Tests questions reflecting the content an adult would encounter in everyday life and in the workplace, it is not surprising that 16% reported spending no time preparing for the GED Tests.

Analyses by Performance on GED Tests battery

Within the adult candidate population, males had a 78% pass rate, and females had a 64% pass rate. Candidates aged 40-50 had a 72% pass rate, candidates aged 51-60 had a 70% pass rate, and candidates aged 61-70 had a 65% pass rate.
Figure 5. Most frequently reported reasons for testing for 2002 GED adult candidates.
Figure 6. Most frequently reported methods of test preparation reported by 2002 GED adult candidates.
The GED Tests battery pass rate increased steadily as the highest educational grade level reported completed by a candidate increased (Figure 8). The pass rate showed the most marked increase, nearly 20%, between completion of grades 7 and 10. The results indicate that the lower the completed grade level, the harder it may be for an adult GED candidate to catch up with material taught in a high school curriculum.

Similarly, a generally increasing pass rate was associated with increases in reported income (Figure 9). A higher income may result in an increased likelihood of enrollment in test preparation courses, ability and willingness to pay for the Official GED Practice Tests, and ownership of a computer used in test preparation, all of which have been shown to be related to higher GED pass rates.
Figure 8. GED Tests battery pass rate by highest level of education completed by 2002 adult candidates.

Figure 9. GED Tests battery pass rate by reported income of 2002 GED adult candidates.
Preliminary analyses of income level by highest educational grade level reported completed showed that the higher a candidate’s reported educational level, the higher his/her income is likely to be.

A generally steady pass rate of 73-77% was seen across the most frequently reported reasons for not completing high school (Figure 10; the reasons are ordered from left to right in the order of most frequently reported to those reported less frequently). Three exceptions were for candidates who reported “Had trouble with math”, “Poor grades”, and “Needed money to help at home”; in these cases, the pass rates were 63%, 68%, and 69%, respectively. Lower academic achievement in high school was mirrored and highlighted by a lower pass rate on the GED Tests battery and may indicate a need for greater test preparation and study to boost a candidate’s already low academic and study skills. Secondary analyses revealed that, of the 37% of adult candidates who did not pass the GED Tests battery and reported “Had trouble with math”, 87% failed the Mathematics Test.

Figure 11 shows that adult candidates who reported reasons for testing that were related to keeping or getting a job, or job training or requirement, had slightly lower pass rates (57%-69%) than those candidates who indicated reasons for testing that were related to personal satisfaction (75% pass rate), early release from prison (76%), and entering a 4-year college (78%). Higher pass rates were seen for candidates for whom acquiring a high school equivalency credential would enhance their future, while lower pass rates were seen for candidates for whom passing the GED would result in simply maintaining a status quo. It is highly likely that levels of motivation vary significantly depending on whether obtaining a high school equivalency credential would result in being promoted, obtaining a pay raise, gaining additional work responsibilities, or none of the above.
Academic Achievement of Adult High School Dropouts

Figure 10. GED Tests battery pass rate by most frequently reported reasons for not completing high school for 2002 GED adult candidates. Candidates could indicate multiple reasons. The reasons are ordered from left to right in the order of most to least frequently reported.
Figure 11. GED Tests battery pass rate by most frequently reported reasons for testing for 2002 GED adult candidates. Candidates could indicate multiple reasons. The reasons are ordered from left to right in the order of most to least frequently reported.
Figure 12. GED Tests battery pass rate by type of test preparation for 2002 GED adult candidates. Candidates could indicate multiple methods. The methods are ordered from left to right in the order of most to least frequently reported.
Figure 12 presents GED Tests battery pass rates by the most frequently reported methods of test preparation. The methods of test preparation are ordered from left to right in the order of most to least frequently reported. Higher pass rates were associated with adult candidates who reported taking the Official GED Practice Tests and using Internet/computer resources. Lower pass rates were associated with adult candidates who reported preparing through workplace literacy programs (48% pass rate), public school adult education classes (65% pass rate), and television instructional resources (57% pass rate). Many workplace literacy programs might lack consistent structure in curriculum and instruction, employ instructors who may not be specialists in the GED Tests content areas, and pose a difficulty for the adult to focus while at work. Test preparation through television resources only does not allow the candidate immediate interaction with an instructor to address questions or difficulties. Furthermore, preparation by television also requires self-discipline in terms of setting the structure of time allocation and personal attention. Lastly, public school adult education classes may employ instructors who may not be specialists in the GED Tests content areas, have large class sizes (which might restrict the type and amount of personal feedback), and have a widely diverse student population with regard to age and motivation levels.

GED Testing Service recommends to each testing jurisdiction that a candidate achieve a minimum standard score of 410 on each GED content area test and a minimum average standard score of 450 in order to pass the GED Tests battery. GED standard scores range from 200 to 800 with a mean of 500 and a standard deviation of 100. Figure 13 reports the average GED Test standard scores by GED Tests battery pass/fail status; the complete table of descriptive statistics is located in Appendix B. Regardless of whether adult candidates passed or failed the GED Tests
battery, the Mathematics and Language Arts, Writing Tests were, on average, the most difficult tests. With regard to adult candidates' performance on the Language Arts, Writing Test, the inclusion of an essay and multiple-choice items that require an average fluency in written English communication and language skills may make the test more difficult. Lower performance of adult candidates on the Mathematics Test can be attributed to the radical change over the past 10-30 years in mathematics curricula, particularly in the candidates' limited exposure to algebra, geometry, and statistics. The largest difference in average standard scores between candidates who passed versus failed the test battery was seen on the Language Arts, Reading Test. This result is not surprising because reading is a required skill for all of the GED Tests.
Discussion

It is important to note that this study was conducted with data from only 35 of the 50 United States. Further, several of the states that are not yet included in the database are large contributors to the GED population. Further analyses that include data from these states must be examined prior to generalizations of the findings within this report.

Leaving school without a high school diploma in the 1940's, 1950's, and 1960's limited, but did not eliminate, one's employment and advancement possibilities. However, in today's job market, a bachelor's degree is often a minimum job requirement. While the population of 40- to-70-year-old GED candidates is demographically diverse, some general trends and shared experiences were uncovered. First, the adult GED candidates appear to have left school at an earlier age than their younger cohort, and they left school primarily for family, academic, or social reasons. Second, their reasons for taking the GED Tests decades later appear to be largely connected with enhancing their lives both personally and financially. Third, avenues of GED preparation offered outside the home are either not accessible, not desirable, or unknown to adults who are over 40 years old. Determining which theory is the actual reason might assist adult education programs in reaching out to a large population of adults.

It is hoped that the empirical results of the academic achievement level of U.S adults over the age of 40 who have pursued a high school equivalency credential will provide various benefits to adult education agencies and programs that serve adult learners. By providing performance data on a measure of general academic achievement for this group of examinees, this study and other ongoing research on the adult GED candidate population hopes to contribute to research about instructional strategies and learner assessment in adult education. Finally, further exploration of the lower pass rates observed with certain test preparation methods should
be undertaken in order to improve program instruction, outcome, and aspirations of adults seeking a high school equivalency credential.
References


### Appendix A

State of Residence for 2002 GED Adult Candidates

<table>
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<th>State (U.S.)</th>
<th>Number of Adult Candidates</th>
<th>Percent</th>
</tr>
</thead>
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<td>0.77</td>
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<td>69</td>
<td>0.68</td>
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<td>578</td>
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<td>13.29</td>
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<td>Utah</td>
<td>117</td>
<td>1.15</td>
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<tr>
<td>Virginia</td>
<td>613</td>
<td>6.02</td>
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<tr>
<td>Vermont</td>
<td>6</td>
<td>0.06</td>
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<td>Washington</td>
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<td>Wisconsin</td>
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Appendix B
GED Standard Score Descriptive Statistics for 2002 GED Adult Candidates by Pass/Fail Status

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<tr>
<th>GED Test</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Median</th>
<th>Mode</th>
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<td><strong>Total Group (n=10,177)</strong></td>
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<tr>
<td>Language Arts, Writing</td>
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<td>66.3</td>
<td>460.0</td>
<td>440.0</td>
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<tr>
<td>Social Studies</td>
<td>533.7</td>
<td>90.2</td>
<td>520.0</td>
<td>500.0</td>
</tr>
<tr>
<td>Science</td>
<td>522.3</td>
<td>88.4</td>
<td>510.0</td>
<td>470.0</td>
</tr>
<tr>
<td>Language Arts, Reading</td>
<td>551.6</td>
<td>110.5</td>
<td>530.0</td>
<td>580.0</td>
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<tr>
<td>Mathematics</td>
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<td>74.3</td>
<td>450.0</td>
<td>440.0</td>
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<tr>
<td><strong>Pass (n=7240)</strong></td>
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<tr>
<td>Language Arts, Writing</td>
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<td>450.0</td>
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<tr>
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<td>80.2</td>
<td>550.0</td>
<td>580.0</td>
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<tr>
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<td>79.7</td>
<td>540.0</td>
<td>550.0</td>
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<tr>
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<td>470.0</td>
<td>460.0</td>
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<tr>
<td><strong>Fail (n=2937)</strong></td>
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<td>40.8</td>
<td>410.0</td>
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<td>460.0</td>
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<tr>
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<td>52.4</td>
<td>440.0</td>
<td>430.0</td>
</tr>
<tr>
<td>Language Arts, Reading</td>
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<tr>
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<td>45.2</td>
<td>380.0</td>
<td>390.0</td>
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<th>General Academic Achievement of Adult High School Dropouts</th>
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<tr>
<td>Author(s):</td>
<td>Carol E. George, Lyn Schaefer, Chhaya M. Rao</td>
</tr>
<tr>
<td>Corporate Source:</td>
<td>GED Testing Service</td>
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<td>Publication Date:</td>
<td>April 2003</td>
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FAX: 202 659 8875
E-Mail Address: george@ncl.org
Date: 8/29/03
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