Repeat GED® Tests Examinees: Who Persists and Who Passes?

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Abstract

Like most high-stakes testing programs, the GED® testing program allows examinees who do not pass on the first attempt to retake the GED Tests. Studies and reports have described GED Tests candidates' characteristics and testing performance, but no study has targeted repeat examinees. A series of questions related to repeat examinees remains unanswered: Do repeat examinees have the same characteristics as examinees who pass the GED Tests on the first try? What are repeat examinees' retesting behaviors? What relationship do testing center policies have to a repeat examinee's decision about retesting?

The goal of this study is to provide an accurate description of characteristics and testing histories of repeat GED Tests examinees and to examine relationships of individual characteristics and testing center policies with examinees' test performance. Testing and passing rates by GED Tests examinees' social and demographic characteristics are disclosed. The study employs multilevel analyses to disaggregate relationships of individual factors and testing center policies with examinees' decisions about retesting and their passing status.

Overall, about half of GED Tests examinees who did not pass the GED Tests on their first attempt retested. Thirty-two percent of all first-time non-passers retested and passed. Among repeat examinees in the current study, nearly 60 percent of them eventually passed the GED Tests through persistent effort. Fifty-four percent of repeat examinees retested in Mathematics, and 49 percent retested in Language Arts, Writing.

Status as a young candidate, a white candidate, having completed higher than fifth grade, having a higher first-attempt score, having a goal to enter a two-year college, or taking the Official GED Practice Tests was associated with a higher chance of retesting. At the testing center level, both requiring GED Tests completion in one day and allowing testing in one content area at a time reduced the probability of retesting.

The probability of passing also increased for young, white males with English as a primary language, who had a higher first-attempt score, who completed higher than fifth grade, and who had a goal to enter a two-year college. At the testing center level, requiring a retesting fee, requiring GED Tests to be completed in one day, and allowing testing in one content area at a time were negatively associated with the chance of passing for repeat examinees. Completion of GED Tests before scoring increased a repeat examinee's probability of passing the GED Tests. The longer repeat examinees waited before retesting, the higher their chances for passing the GED Tests.

Implications of these and other findings from the study are discussed, and suggestions for future research are offered in this report.

Introduction

More than 700,000 adults without a high school diploma take the GED Tests each year. Not everyone passes the GED Tests on his or her first try. Like most high-stakes testing programs, the GED testing program allows examinees who do not pass on the first attempt to retake the tests. In fact, the GED testing program allows candidates to take the test up to three times within a calendar year.

Studies and reports have described GED Tests candidates' characteristics and testing performance, but no study has yet targeted repeat examinees. A series of questions related to repeat examinees remains unanswered: Do repeat examinees have the same characteristics as examinees who pass the GED Tests on the first try? What are repeat examinees' retesting behaviors? What relationship do testing center policies have to a repeat examinee's decision about retesting?

Examinees who do not pass the GED Tests on their first attempt may need the most help. Understanding the population's characteristics is the first step to helping them achieve their immediate educational goal—passing the GED Tests and obtaining a high school credential. This current study focuses on examinees who do not pass the GED Tests on their first attempt.

The goal of this study is to provide an accurate description of characteristics and testing histories of repeat GED Tests examinees and to investigate individual characteristics and testing center policies in relation to examinees' test performance. The study is divided into two parts: Part I (beginning on page 9) examines GED Tests candidates' testing and retesting history and how repeat examinees' testing performance varies for all five subject areas (Language Arts, Writing; Language Arts, Reading; Social Studies; Science; and Mathematics); part II (beginning on page 19) reveals social and demographic characteristics of repeat examinees. The study employs multilevel analyses to disaggregate relationships of individual factors and testing center policies with examinees' decisions about retesting and their passing statuses. Specifically, six research questions are addressed:

Part I

1. What proportion of GED Tests candidates was not successful on their first attempt to pass the GED Tests? Of those, what percent made at least one more attempt to pass the GED Tests and eventually succeeded?
2. What proportion of repeat examinees did not pass each of the five subject areas on their first attempt? How many times did they retest in each subject area?
3. How did the retesting and passing rate differ by GED Tests examinees' social and demographic characteristics?
4. More broadly, what were the social and demographic characteristics of repeat test-takers, including age, gender, ethnicity, highest grade level completed, and reasons for testing?

Part II

5. Which first-time test-takers who did not pass were most likely to retake the tests? What individual and testing center factors[1] were best at predicting who would retake the tests?
6. Which examinees who retested were most likely to pass the tests? What individual and testing center factors were best at predicting who will pass the tests?

[1] In some jurisdictions, testing center policies may reflect jurisdictional policies; in other jurisdictions, testing center policies are unique to the center. Therefore, testing center factors were employed in this analysis.

Theoretical Background

Repeat test-takers

Few studies have examined characteristics, performances, and retesting behaviors of repeat test-takers, regardless of test type (for example, SAT, ACT, or other high-stakes exams). Scholes and Lain (1997) studied test preparation activities in relation to repeat test-takers who did not pass the ACT on their first try. They studied a pool of 126,253 repeat test-takers, who were defined as "all students who had taken the ACT assessment more than once between October 1, 1994, and September 20, 1995." Fifty-nine percent of repeat test-takers were female and 72 percent were white. The results showed that test preparation activities minimally influenced gains in second ACT scores beyond the increases attributed to simply retaking the test. The results were the same regardless of gender, ethnicity, income, and the first test score.

Spiccuza (2000) and his colleagues studied performance of students with limited English proficiency during their second attempts on a graduation exam. Among students from grade 8 to grade 12, 19,534 retested on the Basic Standards Tests (BSTs) in Minnesota. Fifty-two percent of them passed the math test. Among those 19,534 students, 819 students were at a limited English proficiency (LEP) level. Only 17 percent of LEP students passed the BSTs (math) when retesting. Further, Spiccuza found that "LEP students who scored below 64 percent to 68 percent of items correct on the reading test and below 66 percent to 69 percent of items correct on the math test on the first attempt had less than a 50 percent chance of passing the test the second time."

Martin (1995) studied the effects of increased GED Tests score requirements in Wisconsin. The study investigated the retest rate among GED Tests candidates who did not pass on their first try. The retest rate was 41 percent and 40 percent for 1986 and 1989, respectively. Also, the study showed that "of those who passed, 23.2 percent were aged 17 or 18, 62.7 percent were aged 19 to 35, and 14.2 percent were aged 36 to 70. In contrast, 32.2 percent of those who failed were aged 17 or 18, 56.1 percent were aged 19 to 35, and 11.7 percent were aged 36 to 70" (Martin, p. 131). Compared with 17- and 18-year-old test-takers, test-takers who were older than age 18 were more likely to pass the GED Tests in Martin's study.

Relationships with GED testing policies

GED Testing policies are likely to relate to candidates' testing performance.

> *"The GED exams are high-stakes tests—in both cases, the results matter to the futures of the individuals taking the tests. Second, the GED exams test students who are very much like the students with whom we are often most concerned when considering the effects of state exit exams—relatively low-skilled students who are on the margin of dropping out of school"* (Tyler, Murnane, & Willet, 2004, p. 339–340).

Tyler et al. (2004) investigated the impacts of testing policy options for retesting, relative importance of subject areas, and pass rules "on the number of people who attempt the examinations, on the number of people of whom pass, and on the racial/ethnic composition of both the test-taking group and the passing group" (p. 348). They found that even small details in testing policies could have major effects on rates of testing, retesting, and passing. For example, increased score requirements for passing the GED Tests had a significant impact on the passing rate.

Martin (1995) studied 960 examinees in Wisconsin to disclose the relationship of the change in GED testing policy (increased score requirement) with GED testing performance. The study found that there were statistically significant differences in academic preparation and performance between candidates taking the GED Tests before the policy change and those taking the GED Tests after the policy change. Thirty-two percent of the examinees in 1989 studied for 17 weeks or more, compared with 16.6 percent of the examinees in 1986. Also, there was about a 70 percent decrease of the completion rate between 1986 and 1989.

Medhanie and Patterson (2009) examined the relationship between GED testing policies and testing performance for the population of GED test-takers in 2008. The authors employed a hierarchical linear model (HLM) to disaggregate the relative significance of influences of individual characteristics, testing center policies, and jurisdictional policies on candidates' testing performance. They found that test-taker characteristics play the biggest role in GED Tests performance compared with testing center and jurisdiction policies. The results also suggested that test-takers who were Hispanic or African American displayed lower levels of academic performance even after controlling for relevant test-taker factors. However, for African Americans, if testing centers required a practice test, the disadvantageous effects of being a minority were alleviated.

Aside from individual characteristics like age, primary language, ethnic group, and test preparation that may relate to retest performance, policies also are likely to influence GED Tests candidates' testing behavior and test performance. This current study focuses on a subgroup of the GED tests-taking population—repeat examinees—and aims to understand the relationship between individual- and testing center–level characteristics and the likelihood of retesting and passing the GED Tests.

Method

Data source

The current study used data collected by GED Testing Service (GEDTS), part of the American Council on Education. Two types of data were used in this study. The first dataset contained GED Tests candidates' social and demographic information, testing history for each subject area, and testing performance, including test scores, completion, and passing status. The second dataset provided testing center policies information, such as testing fees, retesting fees, and testing center capacity. There were 2,548 GEDTS testing centers in 2006. The present study focused on U.S. repeat examinees; therefore, only U.S. testing centers providing complete data were selected. As a result, 1,984 testing centers were included in the data analysis.

Sample

The study focused on repeat examinees who took the GED Tests during the 2002 series. *Repeat examinees* were defined as GED Tests examinees who did not pass at least one of five content area tests during their first attempt and took at least one of five content area tests again within three years after they started testing. In order to clearly differentiate repeat examinees in the 2002 series, three recent cohorts (2004, 2005, and 2006) were examined in this study.

The 2006 cohort included GED Tests candidates who started testing in 2006. Some passed the GED Tests on their first try; some did not pass. Among those unsuccessful candidates, some made at least one more attempt to pass the GED Tests while others never retested. As a result, the 2006 cohort contained three groups of candidates: (1) first-time test-takers in 2006 who

passed the GED Tests on their first try between 2006 to 2008; (2) those who did not pass on the first try and retested in at least one content area between 2006 and 2008; or (3) those who did not pass on the first try and did not retake any test between 2006 and 2008.

Table 1 shows the sample sizes and results for first-time test-takers in the three cohorts. Of 564,019 first-time test-takers in 2004, 334,428 (59.29 percent) successfully passed the GED Tests on their first attempt. For the 2004 cohort, 193,268 (34.27 percent) did not pass on their first attempt. Examinees were classified as *did not pass* if they (a) scored below 410 on any single content area test or (b) scored below 2,250 on all five content area tests (an average standard score of 450 per content area test).

For the 2005 cohort, there were 557,208 first-time test-takers. Sixty-one percent of them passed the GED Tests on the first try. In 2004, 59 percent of first-time test-takers succeeded on their first attempt to pass the GED Tests. For the 2006 cohort, among 549,796 first-time test-takers who starting testing in 2006, 56 percent passed the GED Tests on their first try, and 36 percent were unsuccessful on their first attempt.

As shown in Table 1, proportions of first-time test-takers who passed and did not pass were similar across the three cohorts. Approximately 7 percent of first-time test-takers who scored higher than the minimum score requirement for a single content area test did not complete the GED Tests by the end of the third year after the start of testing. This group of candidates was not included in the analysis because the study focused on examinees who could not pass the GED Tests at their first attempt.

Table 1. First-Time Test-Takers, by First-Attempt Pass Status

Cohort	First-Time Test-Takers	Passed on First Attempt		Did Not Pass on First Attempt		Scored Higher Than 410 on a Single Test	
	N	N	%	N	%	N	%
2004	564,019	334,428	59.29	193,268	34.27	36,323	6.44
2005	557,208	339,836	60.99	179,721	32.25	37,651	6.76
2006	549,796	307,957	56.01	199,648	36.31	42,191	7.67

Method

Descriptive statistics. In order to address the first four research questions, frequency tables were employed to describe three cohorts, including repeat GED Tests candidates' completion and passing status, retesting history for each subject, and retesting and passing rates by test-takers' primary demographic variables.

Further, descriptive statistics were used to describe social and demographic characteristics of GED Tests candidates who successfully passed the GED Tests on the first attempt and those who did not pass the GED Tests on the first attempt. Among those candidates who were unsuccessful on the first attempt, repeat examinees were compared with non–repeat examinees in terms of social and demographic characteristics, as well as their reasons for testing.

Multilevel analysis. Nested data structures are a common phenomenon encountered by social and educational researchers. For the current study, individual data (level 1) were nested within testing center–level data (level 2). The present study aimed to predict GED Tests candidates' likelihood of retesting and passing the GED Tests after not passing on their first attempt. Outcomes for the study were two dichotomous variables: whether GED Tests candidates retested after not passing on the first attempt and whether repeat examinees passed the GED Tests when they retested. Therefore, a hierarchical general linear model (HGLM), which handles dichotomous outcomes data, was used to answer research questions five and six. Two sets of HGLM analyses were employed to examine the relationship of predictors from individual and testing center levels with the likelihood of retesting and passing the GED Tests.

Independent variables from individual level. Variables representing individual GED Tests candidates' characteristics were divided into three types: (1) Demographic variables included gender, ethnicity (white and non-white), age (continuous variable), and primary language (English and non-English); (2) academic achievement variables contained first-attempt standard score, taking Official GED Practice Test (yes or no), and highest education level; and (3) goal commitment variables were composed of two variables: testing to enter a two-year college and testing to get a first job. Justifications for choosing these predictors were based on research literature, which suggested that they might be related to individuals' retesting behavior and performance.

To model the likelihood of retesting among GED Tests candidates who did not pass on their first attempt, a completion status variable was added to examine whether a GED Tests candidate who completed all five subject areas was related to his or her decision to retest. All GED Tests candidates who did not pass on their first attempt were categorized into two types: (1) candidates who completed all five content area tests, and (2) candidates who did not complete all five content area tests.

In a similar vein, the HGLM model for the likelihood of passing among GED Tests repeat examinees had one completion status predictor, which had two categories. One referred to GED Tests candidates who retested after completing all five content area tests, and the other referred to those who retested before completing all five content area tests.

Independent variables from the testing center level. Predictors for the testing center level that were believed to be related to retesting and passing, as shown in **Table 2** on the next page, were six dichotomous variables: (1) candidates required to complete the GED Tests in one day (yes or no), (2) candidates allowed to complete the GED Tests in one day (yes or no), (3) candidates required to complete the GED Tests in two sessions (yes or no), (4) candidates allowed to schedule testing on one content area test at a time (yes or no), (5) additional fees charged for retesting (yes or no), and (6) candidates required to complete the GED Tests before scoring and reporting scores (yes or no).[2] Two continuous variables were the number of days a candidate must wait before retesting and the testing fee. Variable selection for testing center level followed from the authors' careful examination of all testing center predictors.

[2] This testing center–level variable is distinct from the individual-level variable for a candidate who retested before completing the GED Test. At the testing center level, the variable represents a requirement. At the individual level, the variable represents a choice the candidate made.

Table 2. Testing Center Variable Descriptions

Testing Center Variable	Description
Testing fee	Fee that first-time candidates pay to take the GED Tests
Required fee for retesting	Do you charge additional fees for retesting?
Test battery completion required in one day	Do you require candidates to take all the tests in one day?
Test battery completion allowed in one day	Do you allow candidates to take all the tests in one day?
Test battery completion required in two sessions	Do you require candidates to take all five tests in two sessions?
Allow scheduling one test at a time	Do you allow candidates to schedule one test at a time?
Days to wait before retesting	If a candidate does not pass a test, how many days does the candidate have to wait before retesting?
Test battery completion before scoring	Do you require candidates to complete all five tests before scoring and reporting scores?

Results

The results section was divided into two major parts. The first part reports descriptive statistics to describe repeat GED Tests examinees in terms of retesting behavior, retesting and passing rates, and demographic depiction. The second part presents results from two sets of HGLM models to examine the likelihood of retesting and passing the GED Tests as a function of individual- and testing center–level predictors.

Part I: Descriptive statistics

Who retested and did not retest among GED Tests candidates who did not pass on the first attempt? Among first-time test-takers, approximately 35 percent did not pass on their first attempt. Approximately 50 percent of GED Tests candidates who did not pass on their first attempt came back for retesting. **Table 3** displays numbers and percentages of retesting and non-retesting examinees for the cohorts from 2004, 2005, and 2006. As displayed in Table 3, percentages of retesting and non-retesting examinees were stable across three cohorts.

Table 3. Retesting and Non-retesting Candidates Among Those Who Did Not Pass on the First Attempt

Cohort	Did Not Pass on First Attempt	Retested		Did Not Retest	
	N	N	%	N	%
2004	193,268	102,515	53.04	90,753	46.96
2005	179,721	89,560	49.83	90,161	50.17
2006	199,648	96,475	48.32	103,173	51.68

Who completed and passed among retested examinees? The GED Tests consist of five subject tests: Language Arts, Writing; Language Arts, Reading; Social Studies; Science; and Mathematics. Depending on an individual jurisdiction's testing policy, candidates can first complete the GED Tests and then retest on specific content area tests that they did not pass. Alternatively, before they complete the rest of the GED Tests, they can retest on one or more content area test(s) they did not pass on the first attempt (see footnote 1). Among all retested examinees, 44.64 percent of the 2004 cohort and 42.34 percent of the 2005 cohort completed the GED Tests before retesting. For the 2006 cohort, the percentage decreased to 34.23 percent. Overall, completion rates for retested examinees were high and stable across the 2004 cohort (96.19 percent), 2005 cohort (95.73 percent), and 2006 cohort (95.58 percent). Passing rates for retested examinees were similar among the three cohorts, around 60 percent. **Table 4** presents detailed information about retesting examinees' completion and passing status for the three cohorts. The first year indicates the original cohort; the second year indicates the year until enough time was allowed to elapse for a non-passing candidate to retest. In order to avoid redundancy, only 2006 cohort results are presented in the following sections.

Table 4. Completion and Passing Status for Retesting Examinees

Cohort	Retested	Retested After Completing the GED Tests		Retested Before Completing the GED Tests		Retested But Not Completed		Completers Among Retested		Passers Among Retested Completers	
	N	N	%	N	%	N	%	N	%	N	%
2004–06	102,515	45,762	44.64	52,843	51.55	3,910	3.81	98,605	96.19	61,295	62.16
2005–07	89,560	37,923	42.34	47,810	53.38	3,827	4.27	85,733	95.73	50,767	59.22
2006–08	96,475	33,025	34.23	59,190	61.35	4,260	4.42	92,215	95.58	58,126	63.03

Retesting in subject areas: Number of subject areas repeat examinees retested. **Table 5** lists the total number of subject areas in which repeat examinees retested. The majority of repeat examinees (52.85 percent) retested in just one subject area. Twenty-one percent of them tested in two subject areas. Approximately 10 percent of repeat examinees retested in all five subject areas.

Table 5. Number of Subject Areas in Which Repeat Examinees Retested: 2006

Total Number of Subject Areas	N	%
1	50,989	52.85
2	20,175	20.91
3	10,008	10.37
4	5,860	6.07
5	9,443	9.79

Number of times retesting in subject areas. In the 2006 cohort, 96,475 examinees retested. Mathematics and Language Arts, Writing, were the two areas that had the highest number of retesting examinees. Fifty-four percent of all repeat examinees retested in Mathematics, and 49.25 percent of all repeat examinees retested in Language Arts, Writing. Compared with all other content area tests, Science and Language Arts, Reading, had the lowest numbers of retesting

examinees at 26.39 percent and 28.42 percent, respectively. These groups are not mutually exclusive because a number of examinees did not pass multiple tests on their first attempt.

As for retesting in each content area, the vast majority of examinees tested no more than two times in a single content area, approximately 83 percent, except in Mathematics (77.57 percent). Mathematics seemed to be the most difficult subject for GED Tests candidates. Compared with all other subject areas, more candidates tested three or more times in Mathematics. Few candidates tested four times or more across the five content areas, as displayed in **Table 6**.

Table 6. Frequency of Repeat Examinees, by Number of Retests in Five Content Areas: 2006

	Language Arts, Writing		**Social Studies**		**Science**		**Language Arts, Reading**		**Mathematics**	
Times Testing	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
2	39,375	82.88	27,815	83.01	21,414	84.10	27,420	83.73	40,733	77.57
3	6,815	14.34	4,797	14.32	3,332	13.09	4,441	13.56	9,169	17.46
4	1,018	2.14	698	2.08	541	2.12	684	2.09	1,758	3.35
5	219	0.46	160	0.48	125	0.49	152	0.46	579	1.10
6	72	0.15	27	0.08	35	0.14	39	0.12	189	0.36
7	9	0.02	11	0.03	14	0.05	6	0.02	63	0.12
8	3	0.01	1	0.00	2	0.01	5	0.02	12	0.02
9									3	0.01
10									2	0.00
Total	47,511	49.25*	33,509	34.73*	25,463	26.39*	27,420	28.42*	52,508	54.43*

Note: The percentage was calculated by dividing the total number of retested examinees for each content area by the total number of retested examinees for the 2006 cohort (96,475).

Number of times testing in subject areas by passing status. **Table 7** on the next page disaggregated frequency of times retesting in each content area by whether repeat examinees passed the GED Tests. Because there were very few candidates retesting more than five times on a single content area test, results reported here only focused on the first five times GED Tests candidates tested in a single subject area. However, one noticeable pattern across the number of trials for all subject areas may reflect program-wide limits on the number of test forms that are permitted per year (i.e., maximum of three test forms per year). It seemed that the probability of passing the GED Tests might be the same for both the second and fourth times a candidate attempted across five content area tests, but not for third-time test-takers. Requiring examinees to wait until a new calendar year to retest may benefit test-takers. Also, candidates who tested for the second time in Language Arts, Writing, had a slightly higher pass rate.[3]

[3] Some candidates who retest in Language Arts, Writing, may have originally written an incomplete or poorly crafted essay, or an essay on a different topic from the topic presented, which would lead to a score of 0, 1, or Off Topic on their first attempt.

Table 7. Frequency of Repeat Examinees, by Number of Times Testing in Five Content Areas and by Passing Status: 2006

Number of Times Testing*	Language Arts, Writing				Social Studies				Science			
	Not Pass		Pass		Not Pass		Pass		Not Pass		Pass	
	N	%	N	%	N	%	N	%	N	%	N	%
2	15,595	39.61	23,780	60.39	13,532	48.65	14,283	51.35	10,949	51.13	10,465	48.87
3	3,115	45.71	3,700	54.29	2,548	53.12	2,249	46.88	1,858	55.76	1,474	44.24
4	409	40.18	609	59.82	336	48.14	362	51.86	282	52.13	259	47.87
5	90	41.10	129	58.90	73	45.63	87	54.38	76	60.80	49	39.20
6	40	55.56	32	44.44	16	59.26	11	40.74	19	54.29	16	45.71
7	6	66.67	3	33.33	8	72.73	3	27.27	11	78.57	3	21.43
8	2	66.67	1	33.33	0	0.00	1	100.00	1	50.00	1	50.00

Number of Times Testing	Language Arts, Reading				Mathematics			
	Not Pass		Pass		Not Pass		Pass	
	N	%	N	%	N	%	N	%
2	12,730	46.43	14,690	53.57	17,816	43.74	22917	56.26
3	2,279	51.32	2,162	48.68	4,815	52.51	4354	47.49
4	298	43.57	386	56.43	877	49.89	881	50.11
5	73	48.03	79	51.97	323	55.79	256	44.21
6	25	64.10	14	35.90	110	58.20	79	41.80
7	4	66.67	2	33.33	46	73.02	17	26.98
8	4	80.00	1	20.00	8	66.67	4	33.33
9					2	66.67	1	33.33
10					1	50.00	1	50.00

**Note:* Number of Times Testing *represents a mutually exclusive group.*

Retesting rate by demographic variables: *Retested versus not retested.* **Table 8** on page 14 reports retesting rates disaggregated by GED Tests candidates' academic and demographic variables. Among 199,648 GED Tests candidates who did not pass a single subject area on the GED Tests on their first attempt, 48 percent retested.

Age and gender. GED Tests candidates between 16 and 18 years old had the highest retesting rate, at 53.53 percent, compared with all other age groups. The least likely to retest after their first unsuccessful attempt were GED Tests candidates who were aged 60 and older, with a retesting rate of 43.97 percent. Retesting rates for other age groups were similar to one another.

There were 107,160 male GED Tests candidates who did not succeed on their first attempt to pass the GED Tests. About half of them endeavored to retake the test. For female candidates, 45.49 percent of unsuccessful first-time test-takers later retested, which was slightly lower than for males.

Ethnicity and primary language. GED Tests candidates who were Pacific Islander/Hawaiian had the highest retesting rate, at 52.87 percent, while African-American candidates had the lowest retesting rate, at 42.51 percent, across six ethnic groups. Nearly 48 percent of Hispanic and Asian candidates retested after not passing on the first attempt. The retesting rates for white and American Indian/Alaska Native candidates were 50.45 percent and 46.16 percent, respectively.

Based on GED Tests candidates' primary language status, candidates whose primary language was French had the lowest retesting rate, around 42.33 percent. Candidates who primarily spoke English, Spanish, and other languages had similar rates for retesting at approximately 48 percent.

Highest education level. There were few variations in retesting rates across different highest education levels. The highest retesting rate (49.72 percent) was observed for GED Tests candidates who completed higher than 12th grade; GED Tests candidates who completed lower than fifth grade had the lowest retesting rate (44.60 percent). Retesting rates were almost the same for candidates who completed sixth to 12th grade, approximately a 1 percent difference between different education levels (see Table 8).

Income. GED Tests candidates who earned more than $40,001 per year had the highest retesting rate—50.54 percent—of different income levels. Overall, there were few differences regarding retesting rate by income level.

Taking the Official GED Practice Tests. GED Tests candidates who took the Official GED Practice Tests before formal testing were more likely to retest more often after their first try (51.46 percent). Among those who did not take the Official GED Practice Tests before the GED Tests, only 41.34 percent who did not pass the first time retook the GED Tests.

Table 8. Retesting Rates for GED Tests Examinees Who Did Not Pass on Their First Attempt, by Demographic Variables: 2006

	Retested		Did Not Retest		Total
	N	% in row	N	% in row	N
Overall	96,475	48.32	103,173	51.68	199,648
Gender					
Male	53,170	49.62	53,990	50.38	107,160
Female	39,717	45.49	47,590	54.51	87,307
Age					
16–18	34,026	53.53	29,535	46.47	63,561
19–24	27,957	45.17	33,938	54.83	61,895
25–29	11,432	46.03	13,403	53.97	24,835
30–34	7,457	47.29	8,312	52.71	15,769
35–39	5,840	47.30	6,507	52.70	12,347
40–49	6,944	46.30	8,054	53.70	14,998
50–59	2,235	46.68	2,553	53.32	4,788
60 and older	459	43.97	585	56.03	1,044
Ethnicity					
Hispanic	19,855	48.79	20,836	51.21	40,691
American Indian/Alaska Native	1,979	46.16	2,308	53.84	4,287
Asian	1,529	48.17	1,645	51.83	3,174
African American	24,151	42.51	32,662	57.49	56,813
Pacific Islander/Hawaiian	618	52.87	551	47.13	1,169
White	35,788	50.45	35,143	49.55	70,931
Primary Language					
English	70,983	48.89	74,214	51.11	145,197
French	207	42.33	282	57.67	489
Spanish	7,279	49.62	7,390	50.38	14,669
Other	1,407	47.58	1,550	52.42	2,957

Table 8 continued on next page

Table 8, continued from previous page

Highest Education Level (Grade)					
None to 5	475	44.60	590	55.40	1,065
6	907	48.61	959	51.39	1,866
7	1,583	46.08	1,852	53.92	3,435
8	7,907	49.31	8,129	50.69	16,036
9	17,061	48.61	18,035	51.39	35,096
10	22,263	48.64	23,512	51.36	45,775
11	23,844	48.66	25,162	51.34	49,006
12	5,572	47.03	6,275	52.97	11,847
Higher than 12	1,396	49.72	1,412	50.28	2,808
Total Prior Year Income (Dollars)					
0	23,403	50.16	23,256	49.84	46,659
1–3,000	16,208	48.99	16,877	51.01	33,085
3,001–5,000	4,614	46.78	5,249	53.22	9,863
5,001–7,500	3,212	46.86	3,643	53.14	6,855
7,501–10,000	3,266	45.92	3,847	54.08	7,113
10,001–15,000	4,257	45.93	5,011	54.07	9,268
15,001–20,000	3,395	45.64	4,044	54.36	7,439
20,001–25,000	2,461	46.29	2,855	53.71	5,316
25,001–30,000	1,891	47.22	2,114	52.78	4,005
30,001–40,000	1,456	48.94	1,519	51.06	2,975
40,001 or higher	1,076	50.54	1,053	49.46	2,129
Took Official GED Practice Tests					
Yes	58,515	51.46	55,198	48.54	113,713
No	26,356	41.34	37,400	58.66	63,756

Passing rates for repeat examinees by demographic variables. Approximately 48 percent of GED Tests examinees who did not pass on their first attempt returned to retest. Questions still remain: Who among those repeat examinees eventually passed the GED Tests? Were there any differences of pass rate based on repeat examinees' academic and demographic characteristics? **Table 9** on page 17 presents the overall and disaggregated pass rates for GED Tests repeat examinees. Among 96,475 repeat examinees, 58,126 (60.25 percent) passed the GED Tests. The pass rate was calculated by dividing the total number of repeat examinees by the total number of passers. In the current study, pass rate calculation did not distinguish examinees who completed the GED Tests from those who did not complete, since three years passed after their first time taking the GED Tests.

Age and gender. As shown in Table 9, the pass rate decreased as repeat examinees' ages increased. The youngest age group (16 to 18 years) had the highest pass rate, at 63.03 percent, while the pass rate for the oldest age group (60 years and older) was only 46.41 percent.

Approximately 64 percent of male repeat examinees successfully passed the GED Tests by testing at least two times. Female repeat examinees had a lower pass rate at 56.46 percent, compared with males at 63.52 percent.

Ethnicity and primary language. The lowest pass rate (52.64 percent) was for African-American repeat examinees. The pass rate varied little among the following ethnic groups: American Indian/Alaska Native, Asian, Hispanic, and Pacific Islander/Hawaiian, which ranged from 57.35 percent to 60.84 percent. The pass rate for white repeat examinees was 68.00 percent.

Repeat examinees whose primary language was English had the highest pass rate, at 61.65 percent, compared with all other repeat candidates whose primary language was Spanish, French, or another language. Repeat examinees whose primary language was French had a pass rate of 43.96 percent. The pass rates for examinees whose primary language was Spanish or other languages were 51.59 percent and 52.38 percent, respectively.

Highest education level. Repeat examinees who had completed 11th grade had the highest pass rate, at 62.46 percent, compared with all other repeat examinees. Repeat examinees whose highest education level was sixth grade had the lowest pass rate, at 47.41 percent. The pass rate was nearly the same for repeat examinees whose highest education levels were eighth, ninth, 10th, 11th, and 12th grade or higher, as displayed in Table 9.

Income. There was a noticeable difference in the pass rate between repeat examinees who earned more than $40,000 a year (68.49 percent) and repeat examinees who made equal to or less than $40,000 a year. Among repeat examinees whose earnings were from $0 to $40,000, the pass rates were similar and ranged from 59.00 percent to 62.61 percent.

Taking the Official GED Practice Tests. Repeat examinees who took the Official GED Practice Tests had a higher pass rate (62.53 percent) than those who did not take practice tests (56.97 percent).

Table 9. Pass Rates for Repeat Examinees, by Demographic Variables: 2006

	Did Not Pass		Passed		Total
	N	% in row	N	% in row	N
Overall	38,349	39.75	58,126	60.25	96,475
Gender					
Male	19,394	36.48	33,776	63.52	53,170
Female	17,291	43.54	22,426	56.46	39,717
Age					
16–18	12,578	36.97	21,448	63.03	34,026
19–24	10,884	38.93	17,073	61.07	27,957
25–29	4,426	38.72	7,006	61.28	11,432
30–34	3,093	41.48	4,364	58.52	7,457
35–39	2,613	44.74	3,227	55.26	5,840
40–49	3,295	47.45	3,649	52.55	6,944
50–59	1,149	51.41	1,086	48.59	2,235
60 and older	246	53.59	213	46.41	459
Ethnicity					
Hispanic	8,619	43.41	11,236	56.59	19,855
American Indian/Alaska Native	844	42.65	1,135	57.35	1,979
Asian	617	40.35	912	59.65	1,529
African American	11,439	47.36	12,712	52.64	24,151
Pacific Islander/Hawaiian	242	39.16	376	60.84	618
White	11,451	32.00	24,337	68.00	35,788
Primary Language					
English	27,219	38.35	43,764	61.65	70,983
French	116	56.04	91	43.96	207
Spanish	3,524	48.41	3,755	51.59	7,279
Other	670	47.62	737	52.38	1,407

Table 9 continued on next page

Table 9, continued from previous page

Highest Education Level (Grade)					
None to 5	239	50.32	236	49.68	475
6	477	52.59	430	47.41	907
7	720	45.48	863	54.52	1,583
8	3,135	39.65	4,772	60.35	7,907
9	6,762	39.63	10,299	60.37	17,061
10	8,490	38.14	13,773	61.86	22,263
11	8,950	37.54	14,894	62.46	23,844
12	2,431	43.63	3,141	56.37	5,572
Higher than 12	568	40.69	828	59.31	1,396
Total Prior Year Income (Dollars)					
0	9,404	40.18	13,999	59.82	23,403
1–3,000	6,201	38.26	10,007	61.74	16,208
3,001–5,000	1,725	37.39	2,889	62.61	4,614
5,001–7,500	1,240	38.61	1,972	61.39	3,212
7,501–10,000	1,280	39.19	1,986	60.81	3,266
10,001–15,000	1,615	37.94	2,642	62.06	4,257
15,001–20,000	1,392	41.00	2,003	59.00	3,395
20,001–25,000	1,000	40.63	1,461	59.37	2,461
25,001–30,000	740	39.13	1,151	60.87	1,891
30,001–40,000	575	39.49	881	60.51	1,456
40,001 or higher	339	31.51	737	68.49	1,076
Took Official GED Practice Tests					
Yes	21,925	37.47	36,590	62.53	58,515
No	11,340	43.03	15,016	56.97	26,356

Descriptive statistics by retesting status of GED Tests examinees who did not pass on their first attempt and by passing status of GED Tests repeat examinees. Appendix A presents detailed descriptive statistics for repeat examinees and non-repeating examinees who did not pass the GED Tests on the first try. Overall, the distribution for each social and demographic variable was similar between repeat and non-repeating examinees who did not pass on the first attempt. Also, the distribution was in line with that of all GED Tests candidates reported in the *2006 GED Testing Program Statistical Report* (ACE, 2007). Appendix C presents descriptive statistics for repeat examinees based on their passing status. (To avoid redundancy, detailed descriptions are not provided here.)

Reasons for testing. How did repeat examinees endorse different reasons for testing? Appendix B presents the distribution of reasons for testing as self-reported by repeat examinees. As for all GED Tests candidates, personal satisfaction (32.68 percent) was the most popular reason among

all 17 reasons for testing (American Council on Education, 2005, 2006, 2010). Twenty-nine percent of repeat examinees tested to get a better job.

Part II: HGLM results

How do individual- and testing center–level factors predict the likelihood of retesting for GED Tests examinees who did not pass on their first attempt? Unconditional HGLM model results indicated that the typical retesting rate for a testing center across all testing centers in the United States was approximately 50 percent. There were big differences among retesting rates across all testing centers. Some testing centers might have a retesting rate as low as 20 percent, while other testing centers might have a retesting rate as high as 80 percent. Testing center–level factors could explain approximately 12 percent of the difference in the likelihood of retesting for a GED Tests candidate in a first unconditional model.

Conditional HGLM model results suggested that all level-1 predictors, except testing to get a first job, were statistically significantly related to the likelihood of retesting for a GED Tests candidate who did not pass the GED Tests on his or her first attempt. Appendix D displays results from HGLM analysis.

In terms of basic demographic variables, white GED Tests candidates had a higher probability of retesting, holding all other predictors and the random effect constant in the model. The likelihood of whites retesting was 26 percent higher than that of non-white candidates. Gender and primary language were not practically significant predictors. Controlling for other variables in the model, a 20-year increase (compared with other candidates) in age would predict a 9 percent decrease in the likelihood of retesting.

A GED Tests candidate who took the Official GED Practice Tests was 13 percent more likely to retest than similar candidates who did not take the Official GED Practice Tests. Also, for candidates whose highest education level was higher than fifth grade, the likelihood that they would retest was 22 percent higher than that of those whose highest grade level was fifth grade or lower. A first-attempt score of 40 points higher predicted a 13 percent increase in the likelihood of retesting. For example, a candidate whose first-attempt score was 390 was 13 percent more likely to retest than a test-taker with a first-attempt score of 350.

Test-takers who tested with the hopes of entering a two-year college had a 15 percent higher chance of retesting compared with their counterparts who did not plan to test to enter a two-year college. Testing to get a first job showed no correlation to retesting.

Regarding testing center–level predictors, three variables (testing fee, GED Tests completion required in one day, and allowing candidates to schedule testing in one content area test at a time) significantly predicted a GED Tests candidate's decision of whether to retest; significance was both statistically and practically meaningful.

Requiring GED Tests completion in one day was associated with a lower retesting rate, holding other predictors constant. Testing centers that require completing the GED Tests within one day had a 42 percent lower retesting rate compared with those testing centers that did not require candidates to complete the GED Tests within one day. Also, allowing testing in one content area at a time reduced the likelihood of retesting by 19 percent. Therefore, the key point was to decide on a realistic number of subjects to be tested at one time.

Testing fees are related to the likelihood of retesting. The model predicted that when a fee increased by $60, there was an 11 percent decrease in the likelihood of retesting, and when it increased by $100, there was a 19 percent decrease in the likelihood of retesting. Required retesting fees, allowing GED Tests completion in a single day, required completion of the GED Tests in two sessions, allowing test-takers to wait a certain number of days before retesting, and required scoring of the GED Tests before completion did not predict the likelihood of retesting.

How do individual- and testing center–level factors predict the likelihood of passing the GED Tests for repeat examinees? Similar HGLM models were employed to examine how individual and testing center–level factors predicted the likelihood of passing the GED Tests for repeat examinees. Unconditional model results suggested that for a typical testing center, 62 percent of repeat examinees would be likely to pass the GED Tests, with a range between 37 percent and 80 percent. Testing center–level factors could explain approximately 7 percent of the differences in repeat examinees' likelihood of passing the GED Tests.

Conditional HGLM model results indicated that five predictors were positively related to repeat examinees' chances of passing the GED Tests: male, white, English as the primary language, testing to enter a two-year college, and GED Tests completion before scoring. Testing to get a first job, age, and completing the GED Tests before retesting (see footnote 1) had a negative relationship with the likelihood of passing the GED Tests. Appendix E presents results from the conditional HGLM model.

A typical male repeat examinee had a 25 percent higher chance to pass the GED Tests than a female examinee, holding all other predictors constant. The probability of passing the GED Tests for white repeat examinees was 70 percent higher than that for non-white retesting candidates. Age had a significant negative relationship with the likelihood of passing, with a 10-year increase in age resulting in a 14 percent decrease in a repeat examinee's likelihood of passing the GED Tests. For those completing the GED Tests before retesting, the likelihood of passing was 60 percent lower than for those candidates who retested before completing the GED Tests. A repeat examinee whose primary language was English was 10 percent more likely to pass the GED Tests.

Repeat examinees whose highest education level was higher than fifth grade were 13 percent more likely to pass the GED Tests compared with those whose highest education level was fifth grade or lower. First-attempt score was significantly positively associated with the likelihood of passing the GED Tests, but the effect was negligible. A 100-point increase in first-attempt score predicted an 11 percent increase in the likelihood of passing the GED Tests. For goal commitment variables, repeat examinees who tested to enter a two-year college had a 23 percent higher chance of passing the GED Tests compared with those who did not note that reason.

The model showed that five testing center–level predictors have both a statistically and practically significant association with the likelihood of passing the GED Tests. A *required fee for retesting*, *requiring test-takers to complete the GED Tests in one day*, and *allowing testing in one content area at a time* had a negative impact on repeat examinees' chances of passing the GED Tests. In a testing center that required a fee for retesting, the likelihood of passing the GED Tests was 17 percent lower compared with a testing center that did not impose a fee, holding all other predictors constant. Similarly, in testing centers requiring GED Tests completion in one day, repeat examinees' likelihood of passing the GED Tests was 35 percent lower compared with testing centers without the requirement. Also, allowing retesting in one content area at a time resulted in a 13 percent decrease in the likelihood of passing the GED Tests.

The likelihood of passing the GED Tests was 29 percent higher for test-takers who tested at a center that required completion of all tests before scoring than for those at testing centers without that requirement. The likelihood of passing the GED Tests was about the same regardless of whether a testing center required GED Tests completion in two sessions or allowed examinees to complete the GED Tests in one day. The contribution of the testing fee to the model was not significant. Testing centers have different requirements for the number of days test-takers must wait before retesting. The model indicated that a waiting period of 60 days before retesting was associated with a 13 percent increased likelihood of passing the GED Tests.

One highly interesting finding was detected from HGLM analysis. An individual-level characteristic—completion of the GED Tests before retesting—was negatively associated with the likelihood of passing. However, a testing center–level variable—GED Tests completion before scoring—was significantly positively related to the likelihood of passing, with moderate effect.

Summary

Descriptive statistics. Overall, about half of GED Tests examinees who did not pass the GED Tests on their first attempt retested at least once. The percentage of repeat examinees (about 50 percent) was higher than that of Martin's study (1995) using only Wisconsin data (around 40 percent).

Among repeat examinees in the current study, nearly 60 percent eventually passed the GED Tests through persistent effort. Approximately 32 percent of all non-passers retest and pass. Of repeat examinees in the current study, 52.85 percent retested in only one subject area. That is, approximately half did not meet the minimum score requirements on a single subject area test on their first attempt.

Mathematics and Language Arts, Writing, had the highest number of candidates who retested. Fifty-four percent of repeat examinees retested in Mathematics, and 49.25 percent retested in Language Arts, Writing. The vast majority of examinees (approximately 83 percent) tested no more than two times for a single content area test, except Mathematics (77.57 percent).

Major demographic characteristics for repeat examinees include 57.24 percent males. Young examinees (aged 16 to 29) accounted for approximately 76 percent of repeat test-takers. Nearly 43 percent were white, 28.78 percent were African American, and 23.66 percent were Hispanic. The majority of repeat examinees (88.87 percent) reported their primary language as English. African-American candidates and candidates not taking Official GED Practice Tests tended not to retest.

HGLM models. The HGLM models were sufficient models to investigate individual- and testing center–level predictors of retesting and passing. Being a young white candidate, completing higher than fifth grade, having a higher first-attempt score, having a goal to enter a two-year college, and taking the Official GED Practice Tests were associated with a higher likelihood of retesting. At the individual level, gender, primary language, and testing to get a first job were not associated with the probability of retesting.

At the testing center level, only a few predictors were significantly related to retesting. *GED Tests completion required in one day* and *allowing testing in one content area at a time* both reduced the probability of retesting. Surprisingly, all other testing center–level variables,

including a *required retesting fee* and *days to wait before retesting*, were not related to the likelihood of retesting.

According to the HGLM model, the likelihood of passing was significantly different among candidates and testing centers. Only *taking the Official GED Practice Tests* and testing to *get a first job* at the individual level were not associated with the probability of passing the GED Tests for repeat examinees. Again, at the individual level, completing the GED Tests before retesting reduced the probability of passing. The probability of passing increased for young, white, males with English as a primary language, who had a higher first-attempt score, who completed higher than fifth grade, and who had a goal to enter a two-year college.

At the testing center level, five predictors were highlighted by the model for statistical and practical significance. *Required retesting fee*, *GED Tests completion required in one day*, and *allowing testing in one content area at a time* were all negatively associated with the chance of passing for repeat examinees. *GED Tests completion before scoring* increased repeat examinees' probability of passing the GED Tests. The longer repeat examinees waited before retesting, the higher the chance for them to pass the GED Tests. Interestingly, *required retesting fee* was significantly associated with the likelihood of passing, but not retesting, yet testing fees influenced the likelihood of retesting, not passing.

Discussion

The current study provided a general depiction of GED Tests repeat examinees across the country in terms of their retesting behavior and basic demographic characteristics. Until the current study, no single study had ever been conducted to impart to the adult education community the fundamental information about examinees who did not pass the GED Tests on their first attempt.

An important set of findings from the descriptive analyses is that about one-third of all test-takers do not pass the GED Tests on their first attempt, and approximately half of the non-passers retest. Candidates who don't pass the first time have no chance of passing if they do not retest, of course, so what happens to the other half of non-passers who choose not to retest? How could testing centers, instructional staff, counselors, and others interested in the success of candidates work together to reach out to test-takers who have not passed and help them understand that they simply have *not passed yet?* Candidates who had no preparation before testing are of particular concern. Inviting non-passers to review their scores, identify their strengths, and target areas for improvement could make a difference as they decide whether to retest and how to prepare. This invitation seems especially critical for older or non-white candidates, those with little prior formal education or who are English-language learners, and those who have not taken the Official GED Practice Tests.

Additionally, just one-third of these non-passers retest and later pass. This result implies that two-thirds of non-passers at first attempt do not pass later, perhaps even after multiple attempts. This finding has serious implications for counseling. In situations in which a GED Tests examiner has little or no contact with instructional or counseling services, it may be unclear where candidates could turn for assistance. Resources need to be made available to help them identify what they still need to learn so they can target their preparation to the content area tests they have yet to pass. Testing centers could encourage candidates to take results to a local instructional center to discuss and plan further. Even in situations in which the connections between testing and preparation are solid, candidates need clear, specific guidance to identify and target their needs.

As previously mentioned, those who could not pass the GED Tests the first time need more help as they pursue a high school equivalency credential. The study results highlighted that Mathematics and Language Arts, Writing, were the most difficult subject areas. This finding could provide useful advice for adult educators' instruction plans. Adult educators who spend more time identifying and teaching mathematics and writing concepts that adult learner frequently don't grasp could benefit those learners who later take the GED Tests.

Also, candidates taking the Science test, while tending to retest least frequently, had the lowest probability of passing on a second attempt. This finding might help test-takers who struggle with science to realize that application of scientific logic and understanding of abstract concepts cannot typically be sharpened in a short time. Also, their skills in handling graphic materials might not improve as easily as their reading skills. Taking the time to fully prepare before retesting in Science is recommended for GED Tests examinees who could not succeed on their first attempt.

Multilevel analyses indicated that individual characteristics play a significant role in deciding whether GED Tests examinees who did not pass on the first attempt should retest, which is reasonable in an academic achievement setting. Medhanie and Patterson (2009) also found that individual characteristics accounted for nearly 90 percent of GED testing performance differences among test-takers. Testing center and jurisdictional policies in that study had a share of explaining performance differences, but did not play a major part. In the current study, testing center policies could predict up to 12 percent and 7 percent, respectively, of the likelihood that candidates would retest after an unsuccessful first attempt and if retesting would increase the likelihood of passing the GED Tests. The remaining 88 percent and 93 percent could only be predicted from individual characteristics. This information is important for GED Tests Administrators and examiners to recognize because testing policies play a significant yet limited role in whether candidates retest or pass.

Two sets of HGLM results suggested that there were considerable differences in retesting and passing rates among testing centers. It is important to keep in mind that the models considered both individual- and testing center–level variables simultaneously, and that other combinations of variables could potentially yield different results. Testing center characteristics played a greater role in the likelihood of retesting compared with the likelihood of passing, which indicated that testing center policies could relate more closely to the decision to retest for GED Tests examinees who did not pass on the first attempt. However, passing the GED Tests was decided primarily by individual-level predictors.

Some major findings from HGLM analyses warrant further discussion. First, similar to findings of descriptive analyses, HGLM results showed that being a young, white male test-taker whose primary language is English resulted in a higher chance of retesting and passing. Therefore, GED testing professionals and adult educators may need to emphasize more GED Tests preparation for female and minority students with low scores, as well as for English-language learners who express an interest in the test but may not have sufficient language skills. The results were similar to Medhanie and Patterson's study (2009). The authors found that the test-taking performance of African-American and Hispanic candidates was poorer than that of white examinees. However, the authors also found that taking the Official GED Practice Tests could mitigate the effect for African-American GED Tests candidates.

Second, results disclosed that GED test-takers' goal commitment was a significant predictor. Testing to *enter a two-year college* was positively related to the likelihood of retesting and passing the GED Tests. Adult educators who encourage adult learners to pursue

postsecondary education after passing the GED Tests may inspire candidates to achieve higher performance. In response to President Obama's February 2009 call to increase the number of U.S. college graduates by 2020, policy makers must advocate the value of postsecondary education, which could help educators and GED test-takers consider setting postsecondary academic goals at an earlier stage. Having a future academic goal may inspire GED Tests examinees who do not pass initially to try again.

Third, individual-level results from both sets of HGLM models suggested that completing the entire battery of GED Tests before retesting had a strong negative relationship with the likelihood of retesting and passing the tests. The results indicated that GED Tests examinees who did not pass on the first attempt may need to adjust their testing strategies to improve their chances for retesting and passing. For example, they could set up a realistic number of subject area tests. Meanwhile, testing center–level results also disclosed that both *requiring GED Tests completion in one day* and *allowing testing in one content area at a time* were negatively associated with the likelihood of retesting and passing, which indicated that taking a realistic number of content area tests at one time is critical. Completing all five subject areas at once might be too overwhelming for GED Tests candidates who already struggled to pass the test on a first attempt. Examinees could focus on a few content area tests at a time, which might increase their chances of passing.

Fourth, jurisdictional or testing center policies that require completion before scoring may actually improve the chances for candidates to pass, even though it makes no difference in their decision to retest. However, this completion policy may only benefit individual test-takers who are adequately prepared to complete all five subtests of the GED Tests before knowing the outcome. Any advantage of the testing center policy may be outweighed by academic struggles at the individual level.

Fifth, testing center–level findings revealed that some policies might be unnecessarily restrictive, while other policies might help examinees decide to retest and increase their likelihood of passing. For example, a *required retesting fee* had a moderately negative relationship with passing the GED Tests. Although requiring a fee to retest may neither promote nor prevent retesting, it could deter repeat test-takers from passing. Similar to the policy on the number of GED Tests to take before retesting, testing centers must adopt policies that encourage GED test-takers to adjust their testing strategies based on their own academic level.

Finally, HGLM models indicated that *days to wait before retesting* had a positive relationship with the likelihood of passing the test. Testing centers could implement policies that encourage test-takers to wait and better prepare themselves for the second attempt. It may not be wise to allow examinees who did not pass on the first attempt to simply try their luck immediately after their first time testing. Allowing enough time to pass so that the candidate can prepare, yet not so much time that the candidate believes the opportunity to be lost, may not only heighten the value of the test for the candidate, but also allow the candidate to take advantage of preparation opportunities outlined at the beginning of this discussion.

Limitations and future studies

There were several limitations in the current study, which was descriptive and predictive yet not causal. First, even though the literature suggested that socioeconomic status might have a powerful relationship with individuals' academic achievement, no such indictor was available in this study. Although personal income was presented as one of the descriptive statistics, its quality as a predictive variable was limited because of how it was collected categorically. Therefore,

HGLM analyses could not include the income variable, and this lack might have biased the interpretation of effects for some variables like ethnicity and primary language.

Next, future studies should investigate whether probabilities for retesting and passing are differential based on subject areas. Tyler et al. (2004) found that females in Florida and Texas found math to be the most difficult subject while writing was more difficult for males. Also, future studies might examine the total time from starting to test, to retesting and eventually passing the GED Tests. Information regarding preparation activities after the first attempt could allow adult educators to help test-takers better prepare for the GED Tests.

Finally, although both HGLM conditional models were a significant improvement over the unconditional models, the model-predicting function is limited to available variables in the dataset. Future studies might explore more unidentified predictors, which are likely to be associated with the probability of retesting and passing.

Appendix A.* Descriptive Statistics for Candidates Who Did Not Pass on Their First Attempt, by Retesting Status: 2006

	Retested		Did not retest		Total
	N	**% in group**	**N**	**% in group**	**N**
Overall	96,475	48.32	103,173	51.68	199,648
Gender					
Male	53,170	57.24	53,990	53.15	107,160
Female	39,717	42.76	47,590	46.85	87,307
Age					
16–18	34,026	35.31	29,535	28.71	63,561
19–24	27,957	29.02	33,938	32.99	61,895
25–29	11,432	11.87	13,403	13.03	24,835
30–34	7,457	7.74	8,312	8.08	15,769
35–39	5,840	6.06	6,507	6.32	12,347
40–49	6,944	7.21	8,054	7.83	14,998
50–59	2,235	2.32	2,553	2.48	4,788
60 and older	459	0.48	585	0.57	1,044
Ethnicity					
Hispanic	19,855	23.66	20,836	22.37	40,691
American Indian/Alaska Native	1,979	2.36	2,308	2.48	4,287
Asian	1,529	1.82	1,645	1.77	3,174
African American	24,151	28.78	32,662	35.07	56,813
Pacific Islander/Hawaiian	618	0.74	551	0.59	1,169
White	35,788	42.65	35,143	37.73	70,931
Primary Language					
English	70,983	88.87	74,214	88.95	145,197
French	207	0.26	282	0.34	489
Spanish	7,279	9.11	7,390	8.86	14,669
Other	1,407	1.76	1,550	1.86	2,957

Highest Education Level in Grades					
None to 5	475	0.59	590	0.69	1,065
6	907	1.12	959	1.12	1,866
7	1,583	1.95	1,852	2.16	3,435
8	7,907	9.76	8,129	9.46	16,036
9	17,061	21.06	18,035	20.99	35,096
10	22,263	27.48	23,512	27.36	45,775
11	23,844	29.43	25,162	29.28	49,006
12	5,572	6.88	6,275	7.30	11,847
Higher than 12	1,396	1.72	1,412	1.64	2,808
Total Prior Year Income (Dollars)					
0	23,403	35.87	23,256	33.48	46,659
1–3,000	16,208	24.84	16,877	24.29	33,085
3,001–5,000	4,614	7.07	5,249	7.56	9,863
5,001–7,500	3,212	4.92	3,643	5.24	6,855
7,501–10,000	3,266	5.01	3,847	5.54	7,113
10,001–15,000	4,257	6.53	5,011	7.21	9,268
15,001–20,000	3,395	5.20	4,044	5.82	7,439
20,001–25,000	2,461	3.77	2,855	4.11	5,316
25,001–30000	1,891	2.90	2,114	3.04	4,005
30,001–40,000	1,456	2.23	1,519	2.19	2,975
40,001 and higher	1,076	1.65	1,053	1.52	2,129
Took Official GED Practice Tests					
Yes	58,515	68.95	55,198	59.61	113,713
No	26,356	31.05	37,400	40.39	63,756

*Appendix A data differ from data presented in Table 8 in that they are organized as a percent within each demographic group (column) rather than for the row.

Appendix B. Distribution of GED Tests Candidates Who Did Not Pass on the First Attempt, by Reasons for Testing and Retest Status: 2006

Reasons for Testing	Retested		Did Not Retest		Percent of Total Who Did Not Pass
	Number	%	Number	%	
Enroll in Tech/Trade Program	16,635	17.24	18,918	18.34	17.81
Enter Two-Year College	17,947	18.60	18,421	17.85	18.22
Enter Four-Year College	11,858	12.29	11,400	11.05	11.65
Skill Certification	6,617	6.86	6,713	6.51	6.68
Job Training	8,283	8.59	8,473	8.21	8.39
Get First Job	6,578	6.82	6,151	5.96	6.38
Keep Current Job	2,676	2.77	4,616	4.47	3.65
Get a Better Job	27,799	28.81	31,136	30.18	29.52
Employer Requirement	6,761	7.01	7,144	6.92	6.96
Military Entrance	4,481	4.64	3,755	3.64	4.13
Military Career	2,253	2.34	1,836	1.78	2.05
Early Release	2,610	2.71	2,147	2.08	2.38
Court Order	3,568	3.70	3,921	3.80	3.75
Public Assistance Requirement	1,319	1.37	2,224	2.16	1.77
Role Model for Family	15,222	15.78	16,843	16.33	16.06
Personal Satisfaction	31,524	32.68	31,604	30.63	31.62
Other	10,792	11.19	10,782	10.45	10.81

Appendix C. Descriptive Statistics for Repeat Examinees, by Passing Status: 2006

	Did Not Pass		Pass		Total
	N	**%**	**N**	**%**	**N**
Overall	38,349	39.75	58,126	60.25	96,475
Gender					
Male	19,394	52.87	33,776	60.10	53,170
Female	17,291	47.13	22,426	39.90	39,717
Age					
16–18	12,578	32.85	21,448	36.94	34,026
19–24	10,884	28.43	17,073	29.40	27,957
25–29	4,426	11.56	7,006	12.07	11,432
30–34	3,093	8.08	4,364	7.52	7,457
35–39	2,613	6.83	3,227	5.56	5,840
40–49	3,295	8.61	3,649	6.28	6,944
50–59	1,149	3.00	1,086	1.87	2,235
60 and older	246	0.64	213	0.37	459
Ethnicity					
Hispanic	8,619	25.95	11,236	22.16	19,855
American Indian/Alaska Native	844	2.54	1,135	2.24	1,979
Asian	617	1.86	912	1.80	1,529
African American	11,439	34.44	12,712	25.07	24,151
Pacific Islander/Hawaiian	242	0.73	376	0.74	618
White	11,451	34.48	24,337	47.99	35,788
Primary Language					
English	27,219	86.33	43,764	90.52	70,983
French	116	0.37	91	0.19	207
Spanish	3,524	11.18	3,755	7.77	7,279
Other	670	2.13	737	1.52	1,407
Highest Education Level in Grades					
None to 5	239	0.75	236	0.48	475
6	477	1.50	430	0.87	907
7	720	2.27	863	1.75	1,583

8	3,135	9.87	4,772	9.69	7,907
9	6,762	21.28	10,299	20.92	17,061
10	8,490	26.72	13,773	27.97	22,263
11	8,950	28.17	14,894	30.25	23,844
12	2,431	7.65	3,141	6.38	5,572
Higher than 12	568	1.79	828	1.68	1,396
Total Prior Year Income (Dollars)					
0	9,404	36.86	13,999	35.24	23,403
1–3,000	6,201	24.31	10,007	25.19	16,208
3,001–5,000	1,725	6.76	2,889	7.27	4,614
5,001–7,500	1,240	4.86	1,972	4.96	3,212
7,501–10,000	1,280	5.02	1,986	5.00	3,266
10,001–15,000	1,615	6.33	2,642	6.65	4,257
15,001–20,000	1,392	5.46	2,003	5.04	3,395
20,001–25,000	1,000	3.92	1,461	3.68	2,461
25,001–30,000	740	2.90	1,151	2.90	1,891
30,001–40,000	575	2.25	881	2.22	1,456
40,001 or higher	339	1.33	737	1.86	1,076
Took Official GED Practice Tests					
Yes	21,925	65.91	36,590	70.90	58,515
No	11,340	34.09	15,016	29.10	26,356

Appendix D. Fully Conditional HGLM Results for the Likelihood of Retesting (Population Average Model): 2006

	Coefficient	Standard Error	P value	Odds Ratio
Fixed Effects				
Individual-level predictors (level 1)				
Demographic variables				
Age, γ_{10}	-0.005	0.001	<0.001	0.995
Male, γ_{20}	0.088	0.015	<0.001	1.092
White, γ_{30}	0.233	0.017	<0.001	1.262
English as the primary language, γ_{40}	0.061	0.027	0.024	1.063
Academic achievement variables				
First-attempt standard score, γ_{50}	0.003	0.000	<0.001	1.003
Completed the GED Tests, γ_{60}	-1.988	0.015	<0.001	0.137
Took Official GED Practice Tests, γ_{70}	0.119	0.017	<0.001	1.127
Highest grade level higher than fifth grade, γ_{80}	0.202	0.092	0.027	1.224
Goal commitment variables				
Testing to enter a two-year college, γ_{90}	0.137	0.018	<0.001	1.147
Testing to get a first job, γ_{110}	0.015	0.027	0.576	1.015
Testing center–level predictors (Level 2)				
Intercept, γ_{00}	-0.059	0.025	0.017	0.942
Testing fee, γ_{01}	-0.002	0.001	0.006	0.998
Required fee for retesting, γ_{02}	-0.003	0.060	0.957	0.997
GED Tests completion required in one day, γ_{03}	-0.550	0.115	<0.001	0.577
GED Tests completion allowed in one day, γ_{04}	0.092	0.052	0.077	1.097
GED Tests completion required in two sessions, γ_{05}	0.046	0.062	0.463	1.047
Allowing testing in one content area at a time, γ_{06}	-0.205	0.065	0.002	0.815
Days waiting before retesting, γ_{07}	0.000	0.001	0.951	1.000
GED Tests completion before scoring, γ_{08}	-0.024	0.063	0.700	0.976
Random Effects	**Variance**	**Chi-square**	**P value**	
Level 1 Intercept, u_0	0.701	12580.156	<0.001	
Reliability Estimate				λ
Level 1 Intercept, β_0				0.725

Appendix E. Fully Conditional HGLM Results for Likelihood of Passing the GED Tests (Population Average Model): 2006

Fixed Effects	Coefficient	SE	P value	Odds Ratio
Individual-level predictors				
Demographic variables				
Age, γ_{10}	-0.015	-0.001	<0.001	0.985
Male, γ_{20}	0.222	0.020	<0.001	1.248
White, γ_{30}	0.531	0.022	<0.001	1.701
English as the primary language, γ_{40}	0.096	0.035	0.006	1.101
Academic achievement variables				
First-attempt standard score, γ_{50}	0.001	0.000	<0.001	1.001
Completion of the GED Tests before retesting, γ_{60}	-0.935	-0.021	<0.001	0.393
Took Official GED Practice Tests, γ_{70}	0.037	0.023	0.103	1.038
Highest grade level higher than fifth grade, γ_{80}	0.124	0.124	0.319	1.132
Goal commitment variables				
Testing to enter a two-year college, γ_{90}	0.206	0.024	<.001	1.228
Testing to get a first job, γ_{110}	-0.091	0.035	0.011	0.913
Testing center predictors				
Intercept, γ_{00}	0.471	0.020	<.001	1.602
Testing fee, γ_{01}	-0.001	0.001	0.246	0.999
Required fee for retesting, γ_{02}	-0.181	0.051	0.001	0.834
GED Tests completion required in one day, γ_{03}	-0.435	0.095	<.001	0.647
GED Tests completion allowed in one day, γ_{04}	0.039	0.042	0.354	1.040
GED Tests completion required in two sessions, γ_{05}	-0.058	0.051	0.256	0.943
Allowing testing in one content area at a time, γ_{06}	-0.134	0.053	0.011	0.874
Days waiting before retesting, γ_{07}	0.002	0.000	<.001	1.002
GED Tests completion before scoring, γ_{08}	0.256	0.053	<.001	1.292
Random Effects	**Variance**	**Chi-square**	**P value**	
Level 1 Intercept, u_0	0.299	4708.619	<0.001	
Reliability Estimate				λ
Level 1 Intercept, β_0				0.489

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