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## Commonwealth of Pennsylvania's GED graduates' progress.

Gary J. Dean

**Abstract:** A follow-up study of 3,099 GED graduates in Pennsylvania from 1974 through 1994 was conducted to identify changes in employment characteristics, living arrangements, and income, as well as preparation for the GED, further education, and outcomes of passing the GED. All findings indicated that GED graduates perceived obtaining the GED as extremely beneficial.

### Purpose and Methodology

The purpose of this project was to identify the outcomes of obtaining a GED in the Commonwealth of Pennsylvania. The study was funded by the Pennsylvania Department of Education (PDE), Project #098-6013.

The survey instrument was developed based on a review of the literature and was field tested by sending it to GED graduates in the Pittsburgh, PA, area. The resulting instrument consisted of 70 items on six pages. The sample for the study was obtained in the following manner: 1) a random sample of 300 GED graduates was selected for each year from 1982 through 1994, 2) a sample of 965 was randomly selected by hand for 1975 to 1981 (the time period prior to computerization of GED records), and 3) all of these records were cross-checked with the Pennsylvania Department of Transportation (PennDOT) current registrations of drivers licenses which resulted in a sample of 3,099 individuals. Two mailings were sent during the winter of 1996. There were 989 usable responses to these mailings. Based on the original sample of 3,099, this is a response rate of 31.91%. When the undeliverable surveys ( $n = 626$ ) are removed, the resulting adjusted response rate for the study is 39.99%.

The potential for response bias was determined by a third mailing sent in May, 1996, to a random sample ( $n = 200$ ) of the nonrespondents ( $n = 1484$ ) with a response of  $n = 49$  (24.5%). A shortened version of the survey was used to acquire demographic data from the nonrespondents. Analysis of the data was accomplished in two ways. First, ANOVAs were used to determine that there were no statistically significant differences between the respondents and nonrespondents for age when the GED was taken (respondent mean age = 29.23 and nonrespondent mean age = 27.22,  $F = 1.33$ ,  $df = 1$ ,  $p = .248$ ) and for their current age (respondents = 37.51 and nonrespondents = 34.71,  $F = 2.39$ ,  $df = 1$ ,  $p = .122$ ). There was a difference between respondents and nonrespondents for the number of years of school completed prior to taking the GED (respondents = 10.11 and nonrespondents = 10.51 years of school,  $F = 5.07$ ,  $df = 1$ ,  $p = .025$ ). In the second analysis, Pearson chi-squares were computed to show that there were no differences between respondents and nonrespondents for gender (chi-square = 1.48,  $df = 1$ ,  $p = .222$ ), current

employment status (chi-square = 4.41, df = 1, p = .353), and current income (chi-square = 10.60, df = 1, p = .101).

## Findings

The following topics are addressed in this paper: demographics, employment characteristics, income and living arrangements, preparation for the GED, and further education and outcomes of the GED. Only selected findings are presented in this paper; the full report contains additional findings (Dean, Eisenreich, & Hubbell, 1996).

### Demographics

There were a total of 456 men and 518 women, with 15 respondents not providing their gender identity. The mean age of respondents at the time of taking the GED was 29.32, and their current mean age was 37.71. The mean age for men at the time they took the GED was 27.49, and the mean age for women was 30.93 (the difference was statistically significant with  $F = 19.87$ ,  $df = 1$ , and  $p = .000$ ). There was also a statistically significant difference between the current ages of the men and women with the mean age of the women at 38.72 and the mean age of the men at 36.42 ( $F = 9.11$ ,  $df = 1$ ,  $p = .003$ ). These differences indicate that the women were typically older than their male counterparts for both when they took the GED and their current age.

### Employment Characteristics

Respondents were asked to indicate employment characteristics for both the time periods before they took the GED and the present. The findings indicate that more people are employed for pay now as compared to the time before they took the GED. Before the GED there were 38.7% ( $n = 371$ ) not employed for pay versus 18.2% ( $n = 173$ ) now. Those employed for pay increased from 60.2% ( $n = 578$ ) to 77.6% ( $n = 736$ ). A Pearson chi-square was computed for the differences in the distributions of employment status. The resulting data showed that there was a statistically significant difference in employment status from before the time the GED was taken to the present. The Pearson chi-square statistic was 192.36,  $df = 4$ ,  $p = .000$ . The trend in the data indicate that the number of people employed for pay increased significantly after the GED as opposed to before it.

The number of hours respondents were employed before they took the GED and now was also measured. Those employed for 30 hours or less constituted 33.2% ( $n = 229$ ) of the sample before the GED and 16.7% ( $n = 126$ ) now. Also, the number employed for 31 hours or more increased from 66.8% ( $n = 461$ ) before the GED to 83.43% ( $n = 631$ ) now. A Pearson chi-square was computed for the differences in the two distributions for hours employed. The resulting analysis shows that the number of respondents working 31 or more hours per week increased significantly

from before taking the GED to now. The Pearson chi-square statistic was 24.34, with  $df = 1$ , and  $p = .000$ .

The respondents' perceptions of the skill level of their jobs was also measured. Again, the data indicate a positive trend with those considering their jobs to be low to moderately skilled at 88.4% ( $n = 617$ ) before they took the GED and 51.2% ( $n = 395$ ) now. Correspondingly, the percent of those considering their jobs to be highly or very highly skilled jumped from 11.6% ( $n = 81$ ) before the GED to 48.8% ( $n = 376$ ) now. When the responses of low skilled to very highly skilled are rated on a scale of 1 to 5, then mean scores for before the GED and now can be computed and compared. The mean response for before the GED was 2.32 versus a mean response of 3.47 for now. A dependent samples  $t$  test conducted between the two means resulted in a  $t$  statistic of -25.49, with  $df = 676$ , and  $p = .000$ . The statistically significant difference indicates that the respondents in this study considered their jobs to be more highly skilled now as compared to the time before they took the GED test.

Job satisfaction was measured by a scale consisting of A = Not at all satisfied, B = Somewhat satisfied, C = Moderately satisfied, D = Highly satisfied, and E = Very highly satisfied. The findings indicate that those with no to moderate job satisfaction (responses A + B + C) decreased from 88.1% ( $n = 602$ ) before the GED to 50.1% ( $n = 382$ ) now, while those with high job satisfaction (responses D + E) increased from 11.9% ( $n = 81$ ) before the GED to 49.7% ( $n = 377$ ) now. As in the case of skill level, job satisfaction can be ranked on a scale from 1 to 5. The mean response for before the GED was 2.26 versus a mean response of 3.44 for now. A dependent samples  $t$  test conducted between the two means resulted in a  $t$  statistic of -23.04, with  $df = 659$ , and  $p = .000$ . The statistically significant difference indicates that the respondents in this study are more highly satisfied with their jobs now than before they took the GED test.

In the item measuring benefits received from employment, respondents could check as many responses as applied to them. The changes in job benefits are as follows: those receiving no benefits decreased from 490 (49.9%) before the GED to 298 (30.3%) now; those receiving health insurance increased from 348 (35.4%) before the GED to 547 (55.6%) now; those receiving life insurance increased from 209 (21.3%) before the GED to 410 (41.7%) now; those receiving a pension or retirement increased from 183 (18.6%) to 394 (40.1%) now; and those receiving vacation benefits increased from 296 (30.1%) to 530 (53.9%) now. In all cases the difference between before the GED and now was statistically significant in the desired direction indicating that respondents received more benefits from work now than before taking the GED.

### Income and Living Arrangements

Responses indicated that more people owned a home after they took the GED test than before; home ownership rate was 53.1% for now versus 34.7% before the GED. A Pearson chi-square for this item resulted in a chi-square statistic of 140.38,  $df = 1$ , and  $p = .000$ .

A total of 83.4% ( $n = 742$ ) earned less than \$20,000 before the GED versus 57.3% ( $n = 529$ ) now. This is compared to 16.6% ( $n = 147$ ) earning more than \$20,000 before the GED versus

42.7% (n = 395) now. This same configuration of responses put into a 2 x 2 contingency table results in a chi-square statistic of 98.88, with df = 1, and p = .000, indicating that the differences in income for before the GED and now are statistically significant.

Preparation for the GED Test

Of the respondents, 57.6% indicated that they enrolled in ABE/GED classes as preparation for the GED test, 6.1% worked with an individual tutor, 41.0% took a practice GED test, 61.8% used curriculum materials designed for GED preparation, 29.1% studied with a friend or relative, and 22.1% talked with someone who had previously taken the GED test.

The helpfulness of different aspects of ABE/GED classes were ranked using a six-point scale from 1 = not helpful to 6 = very helpful (Table 1). The respondents considered the teachers as the most helpful aspect of the ABE/GED classes followed closely by the books and materials. In every case the women rated the items statistically significantly higher than the men, indicating that the women felt the ABE/GED classes were more helpful than the men did.

The average number of times respondents were enrolled in ABE/GED classes was 1.06 (with a standard deviation of .37). The overwhelming majority of respondents enrolled in ABE/GED classes only once. The average length of stay in ABE/GED classes was 10.93 weeks, SD = 11.22, and the range was from 0 to 98 weeks. Respondents also indicated the number of times they took the GED test: 91.7% (n = 888) took the test once, 6.6% (n = 64) took it twice, 1.4% (n = 13) took it three times, .1% (n = 1) took it 4 times, and .2% (n = 2) took it five times.

Further Education and Outcomes of Passing the GED Test

Respondents were asked to identify the impact on their lives of earning a GED. They rated items on a six point scale from 1 = not at all helpful to 6 = a great deal helpful. As is indicated in Table 2, the following outcomes were rated most highly: feel better about self, improve life in general, encourage children to finish school, get a better job, enroll in additional schooling, and increasing income. The gender comparisons of these responses indicated that the difference between men and women was statistically significantly different for each response.

Table 1: Helpfulness of ABE/GED Classes

<b>How helpful were the following:</b>	<b>n</b>	<b>Mean</b>	<b>F</b>	<b>df</b>	<b>p</b>	
A. The teachers	Men	184	4.99	4.74	1	.030
	Women	278	5.26			
	Total	462	5.19			
B. The books and materials	Men	184	4.78	11.05	1	.001

	Women	278	5.17			
	Total	462	5.06			
C. The things you were taught	Men	184	4.52	12.58	1	.000
	Women	278	4.97			
	Total	462	4.84			
D. The other students	Men	184	3.14	8.44	1	.004
	Women	278	3.61			
	Total	462	3.45			
E. The place where the classes were held	Men	184	4.09	13.53	1	.000
	Women	278	4.65			
	Total	462	4.47			
F. The times when classes were held	Men	193	4.69	10.34	1	.001
	Women	294	5.08			
	Total	487	4.91			
G. Overall helpfulness of the classes	Men	193	4.96	11.41	1	.001
	Women	294	5.32			
	Total	487	5.19			

Respondents were asked to identify how many other people they have encouraged to attend ABE/GED classes. The range of responses is from 0 to 40 with a mean of 2.23 and standard deviation of 4.02. An ANOVA was run to determine if there were differences between the number of people encouraged to enroll in ABE/GED by men and women. Men encouraged an average of 1.90 people to attend ABE/GED classes while the women encouraged an average of 2.49 people to attend. This difference was statistically significant at  $F = 4.08$ ,  $df = 1$ ,  $p = .044$ . The number of people encouraged to take the GED by the respondents was also measured. The average number encouraged was 3.29 with a standard deviation of 5.69. While 188 people did not encourage anyone to take the test, a total of 419 respondents encouraged between one and three people to take the test.

A total of 599 people (60.56% of the total sample) participated in some form of further education after they took the GED. These respondents were enrolled in a total of 812 education and training programs. There were 225 respondents enrolled in technical, non-degree programs; 149 people enrolled in two-year associate degree programs; 50 respondents enrolled in four-year colleges and universities; and 252 respondents who participated in on-the-job training. In addition to the options given in the item, 136 respondents indicated other types of further education and training in which they participated: EMT training, vocational-technical school, fire or police training, and truck driver training.

Table 2: Impact of Earning the GED

<b>Impact:</b>	<b>Gender</b>	<b>n</b>	<b>Mean</b>	<b>F</b>	<b>df</b>	<b>p</b>
A. Keep a job	Men	392	2.93	7.41	1	.007
	Women	414	3.30			
	Total	806	3.19			
B. Get a better job	Men	392	3.39	6.61	1	.010
	Women	414	3.75			
	Total	806	3.66			
C. Increase your income	Men	392	3.28	7.05	1	.008
	Women	414	3.66			
	Total	806	3.54			
D. Perform better in your job	Men	392	2.85	16.32	1	.000
	Women	414	3.39			
	Total	806	3.22			
E. Help your children with their school and work	Men	392	2.46	28.02	1	.000
	Women	414	3.17			
	Total	806	2.91			
F. Encourage your children to finish school	Men	381	3.45	21.45	1	.000
	Women	409	4.20			
	Total	790	3.93			
G. Enroll in additional schooling	Men	381	3.27	14.31	1	.000
	Women	409	3.85			
	Total	790	3.64			
H. Become more involved in your community	Men	381	2.21	27.62	1	.000
	Women	409	2.86			
	Total	790	2.62			
I. Feel better about yourself	Men	381	4.73	47.58	1	.000
	Women	409	5.45			
	Total	790	5.17			
J. Improve your life in general	Men	381	3.93	24.83	1	.000
	Women	409	4.57			
	Total	790	4.35			
K. Be more economically secure	Men	150	3.07	5.53	1	.019

	Women	157	3.62			
	Total	307	3.71			
L. Enter the military	Men	150	1.32	6.80	1	.010
	Women	157	1.07			
	Total	307	1.39			

### Discussion

This study compares favorably with other studies of GED graduates conducted in Pennsylvania, Iowa, Kentucky, and Canada. A study by Miller (1987) of GED graduates in Pennsylvania corroborates that self-esteem is a primary beneficiary of passing the GED. Miller found that 70% of the respondents indicated increases in self-esteem and 90% felt their families shared their sense of accomplishment. Also, Miller found that full-time employment increased from 31.7% to 48%. A study in Canada found that full-time and part-time employment increased 12.5% while unemployment decreased 45.8% for those who passed the GED (New Brunswick Department of Advanced Education and Training, 1990). In addition it was found that 36% enrolled in additional training. The Iowa study found that 13 measures of employment and economic security all increased for GED graduates (State of Iowa, Department of Education, 1992). Similar findings were also evident in the Kentucky study (Raisor, Gerber, Bucholtz, & McCreary, 1993).

This study of GED graduates in Pennsylvania demonstrates the perceived benefits of obtaining a GED. Respondents indicated improvements in all of the economic and noneconomic indicators measured. The findings provide additional strong evidence of the value of obtaining a GED.

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