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ABSTRACT

This study used data for a representative sample of 8th graders from the National Educational Longitudinal Study of 1988. The intent was to (1) compare student's dropout status with variables such as demographics, academic and economic factors, limited English proficiency status, and other risk factors of dropping out, (2) distinguish factors associated with four different levels of dropout status (returned to high school, received GED, continued postsecondary studies without high school degree, no further schooling), (3) examine the relationship between subsequent education decisions of dropouts and postsecondary school attainment, and (4) contrast the economic and life satisfaction outcomes of different types of dropouts. Socioeconomic status, academic aspirations and achievement, and family parent interactions were found to be the best determining factors between one-time dropouts who finished education and those who did not. A weak correlation was found between ethnicity and return to high school versus receipt of a GED. Students who completely quit school were found to be unlikely to receive postsecondary education. There were no significant differences in life satisfaction between former dropouts who received a diploma and those who received a GED, but there were significant differences between those who completed their education and those who did not. (Contains five data tables and 26 references.) (SLR)

Analysis of Subsequent Educational Decisions of High School Dropouts and Their Life Outcomes

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Abstract

The following study used data from the National Education Longitudinal Study of 1988 to examine the relationship between a set of predictor variables and one-time high school dropouts who had completed their high school education versus those who had not. Economic, academic, family, and educational aspiration variables separated these groups. While possible to distinguish high school completers from non-completers, it was more difficult to distinguish those with a high school diploma from those with a GED. Subsequent life outcomes showed the same pattern. There were significant, albeit small, differences in life outcomes for high school completers versus non-completers. Again, little differences were found between one-time dropouts with diplomas versus those with GEDs. A suggestion was made to use variables that distinguished between dropouts who had finished their education versus those who had not to maximize the recruitment of high school dropouts to finish their education.

Analysis of Subsequent Educational Decisions of High School Dropouts and Their Life Outcomes

National statistics show that the status dropout rate for 16- to 24-year-olds declined from 14% to 11% between the early 1980s and 2000 (Kaufman, Alt, Chapman, & MPR Associates, 2001). Although there is a slight improvement in reducing dropout rates, there are still approximately 3.8 million 16- to 24-year-olds in the United States who have not finished high school (Kaufman et al., 2001). As the U.S economy becomes more technology oriented, the labor market needs an educated and skilled labor force. Thus, high school dropouts who have only limited education and skills will become even more disadvantaged by the shift in the economy.

The current disadvantaged state of dropouts in our society has been well documented in virtually every facet of life. Relative to employment, dropouts receive lower wages, have a higher job turnover rate, higher unemployment rate, and are more likely to live in a cycle of poverty (Markey, 1988; McMillen & Kaufman, 1996; Rumberger, 1987). Such employment patterns cause dropouts to have a higher probability of being welfare-dependent, a condition that increases social costs for all (Catterall, 1987). Personally, high school dropouts are less satisfied with their life and more likely to suffer from social despair and other psychological crises (Kortering, Hess, & Braziel, 1997). As can be surmised from the studies listed here, dropping out of high school is related to a host of negative life situations. Moreover, one can expect these situations to be exacerbated by the

increasing skills needed by the current labor pool to meet the technological demand to fuel the current "Age of Knowledge".

Fortunately, being a high school dropout does not have to be a lifetime condition (Chuang, 1997; U.S. Department of Education, 2002a; Wayman, 2001). In trying to avoid the negative consequences of dropping out of school, some high school dropouts decide to re-enroll in high school to eventually earn a high school diploma. Alternatively, some high school dropouts earn alternative certification such as the General Educational Development (GED) certificate. Another group of one-time high school dropouts continue their education without the benefit of a high school degree by taking high school and/or college classes at post-secondary institutions that do not require a student to finish high school. Still, a substantial group of erstwhile dropouts have no desire for further education after they leave high school. What characteristics distinguish these different types of dropouts? What factors relate to the various subsequent decisions of former high school dropouts to return to education? Finally, do these various subsequent decisions make a difference in the life outcomes of the dropouts?

Several studies have attempted to identify the characteristics and factors that differentiate dropouts who return to education versus those who do not (Berktold, Geis, Kaufman, & MPR Associates, 1998; Davenport & El-Sanhurry, 1991; Wayman, 2001). Davenport & El-Sanhurry (1991) employed discriminant analysis on data from High School Beyond (National Opinion Research Center, 1987) to identify the profiles that differentiate dropouts who eventually complete their education versus those who do not. Their findings showed that academic

factors (e.g. educational aspiration, perceived educational ability, and test scores) and economic factors (home resources and family income) are strong discriminant predictors. Based on the profile, they found no difference between returning dropouts who obtain high school diplomas and those who earn the GED certificate. They also found ethnic differences in post-dropout decisions in that Black dropouts are more apt to return to high school than seek a GED.

Berktold et al. (1998) used data from the third follow-up of the National Educational Longitudinal Study of 1988 (NELS-88). They found that returning dropouts with high school diplomas or GED were from families with middle to high socio-economic status, high achievement scores, high parents' educational expectations, and personal educational expectations. They stated that age at dropout, high school academic performance, and childbearing made a difference between dropouts with high school diplomas and those with GEDs. They did not find associations between high school completion and ethnicity in their study. Wayman (2001) conducted a longitudinal study on three southwestern communities with Mexican American and White dropouts. His study found that socio-economic status and academic ability were associated with degree attainment among dropouts. In addition, age at dropout and presence of children differentiated dropouts who eventually completed high school and GED earners.

Although these previous studies have shown some factors consistently associated with high school dropouts' subsequent decisions, the social psychological processes for the dropouts to determine their subsequent educational decisions have been given little attention. In a special issue of *School*

Psychology Quarterly in 2001, Doll and Hess (2001) mentioned the importance of examining the relationships of psychological and ecological factors with dropouts. Thus, the current research investigates social psychological elements related to dropouts' subsequent educational decisions (for example, interactions between dropouts with parents, peers and teachers).

Since high school dropouts face hardships in employment opportunities, have less opportunity for further higher education, and are more dissatisfied with life, a second goal of the current research effort is to investigate the extent to which subsequent education choices by dropouts make a difference. Do dropouts who eventually earn a high school diploma or GED certificate differ in economic outcomes and life satisfaction from dropouts who do not return to education?

Finally, we investigate differences between dropouts returning to high school for a regular diploma versus those opting for alternative certification. The rapid growth in the number of GED recipients has attracted the attention of educators, sociologists and economists investigating differences in various life outcomes for GED recipients versus high school graduates and dropouts (Berktold et al., 1998; Boesel, 1998; Boesel, Alsalam, & Smith, 1998; Brown, 2000; Cao, Stromsdorfer, & Winter, 1996; Cameron & Heckman, 1993; Murnane, Willet, & Boudett 1995; Murnane, Willet, & Boudett 1997, Murnane, Willet, & Tyler 1999).

In terms of economic outcomes, Carmen and Heckman (1993) found no differentiation in wages earned and amount worked for dropouts who received a GED versus those without any high school certification. On the other hand,

several studies using data from the Longitudinal Survey of Youth (NLSY) found that GED recipients earned more and had a higher growth rate of wages than dropouts with no credential. Still, they earned less than ordinary high school graduates (Cao et al., 1996; Murnane et al., 1997). Several studies have shown that the greatest benefit of obtaining a GED is to offer opportunities for further higher education and training (Murnane et al., 1997; Boesel et al., 1998). GED recipients are more likely to enroll in postsecondary education and vocational training than dropouts with no certificate. Boesel et al. (1998) stated that the opportunities of further education and training for GED holders also have indirect benefits on their economic outcomes. Nevertheless, dropouts with GEDs were found to have lower completion rates in postsecondary education than high school graduates (Carmen and Heckman, 1993; Boesel, 1998; Boesel et al., 1998).

Most of the above studies compared the economic and educational outcomes among high school graduates, GED holders, and dropouts without any certification. One major problem of these studies is the comparison of GED recipients with high school graduates. The concern is that the majority of high school graduates were not originally high school dropouts. To achieve a fair comparison, high school graduates with dropout experience should be used as the comparison group to students who have earned a GED. Using NELS third follow-up data, Berktold et al. (1998) compared the subsequent educational attainment between dropouts with high school diplomas and those with GEDs. They found no difference in postsecondary enrollment between the two groups.

Both had approximately a 30% advantage in obtaining postsecondary education or training than dropouts without any certification.

Note that the third follow-up data were collected approximately two years out of high school. Some prior dropouts were still in postsecondary education. Also this short time span to become established in the workforce negated any comparison of economic returns across the various dropout groups. Another limitation is the lack of comparing life satisfaction across various types of dropouts. Dean (1998) found that GED recipients in Pennsylvania had higher life satisfaction than dropouts. Since there are negative psychological consequences of dropping out of high school, comparison of life satisfaction outcomes across dropouts with various subsequent education decisions is potentially useful.

The main goal of the present study is to examine student characteristics, academic factors, economic factors, and social psychological factors related to the subsequent education decisions of high school dropouts concerning their educational status. Next, we will investigate the relationship of various life outcomes (academic, economic, and life satisfaction) to the subsequent decision of whether to return to education. Two separate comparisons were made to achieve these objectives, dropouts who eventually received a high school diploma or GED versus dropouts who had no certificate. The final comparison was between dropouts with a high school diploma versus those with a GED.

Method

This study used base year to fourth follow-up data from the National Education Longitudinal Study of 1988 (U.S. Department of Education, National

Center for Education Statistics, National Education Longitudinal Study of 1988/00 (NELS: 88/00): Base Year through fourth-follow up). The data contain longitudinal information for a nationally representative sample of 8th graders in 1988. These students were surveyed every two years until 1994. The fourth follow-up was conducted in 2000. The NELS: 88/00 data provide more updated information for comparing the life outcomes of various types of dropouts than previous follow-ups (U.S. Department of Education, 2002a). Anyone who had ever dropped out and had a valid subsequent educational decision was selected. The total sample included 1,937 subjects. Subsequent educational decisions of the high school dropouts were categorized into four groups. One group returned and graduated from high school (GRAD). Another group obtained a GED or alternate certification (GED). The third group responded that they were still in an educational program. Finally, the last group had not obtained a diploma or certificate and was not currently enrolled in any educational program to obtain one (QUIT). The percentage distribution for each group in the sample is 22.5% (GRAD), 42.3% (GED), 5.7% (TRY), and 29.5% (QUIT), respectively.

All analyses in the present study employed the fourth follow-up questionnaire weight (F4QWT) that applies to all fourth follow-up respondents (U.S. Department of Education, 2002b). The reason for employing the fourth follow-up questionnaire weight (F4QWT) rather than the fourth follow-up panel weight is because all the dropout subjects were included in the sampling frame for the fourth follow-up survey. Another reason for using the fourth follow-up questionnaire weight is that the main grouping variable of interest, updated

subsequent educational decisions (completion status), was collected during the fourth follow-up. Given that the data were collected using cluster sampling (students sampled within schools); regular standard errors are inappropriate for statistical inferences (Kish, 1965). Thus, all standard errors for any statistical tests were computed assuming that there were half as many subjects (design effect of 2). Precedence for this approach with this data was set by Hoffer (1997) who also assumed a design effect of two as he investigated course-taking patterns.

An array of variables was chosen from the NELS: 88/00 data for our analyses consistent with the factors we wished to study. These variables include demographic characteristics, academic factors, economic factors, social psychological factors, postsecondary outcomes, economic outcomes, and life satisfaction outcomes. Composites of these factors and outcomes were constructed via separate factor analyses for variables used for each composite. Factor scores, which give the optimum weights, were used to represent the composites. The final list of variables for each composite is summarized in Appendix A. Note that each set of variables in Appendix A form an optimal composite with the exception of the student characteristics.

Consistent with our goals, we first examine the relationship of the student's dropout status with several student characteristics. The student characteristics are: gender, ethnicity, limited English proficiency status, family socio-economic status, achievement in eighth grade, and the number of risk factors of dropping out. Next, we perform a discriminant analysis to distinguish factors associated with the different levels of dropout status. Then, contingency

table analysis is used to examine the relationship between the subsequent education decisions of dropout and postsecondary educational attainment. Finally, multivariate analysis of variance (MANOVA) was employed to contrast the economic and life satisfaction outcomes across types of dropouts. A successive MAVOVA was run by treating postsecondary educational attainment as a static covariate so as to examine its relationship with economic outcomes and life satisfactions across dropouts with various subsequent education decisions. Both discriminant analysis and MANOVA were first used to differentiate dropouts who were subsequently successful in completing their education (GRAD + GED) versus those remaining dropouts (TRY + QUIT). The same techniques were then applied to compare dropouts who eventually obtained their high school diploma (GRAD) versus those with a GED (GED).

Results

Student Characteristics and Subsequent Education Decisions

Table 1 shows the proportion of the high school dropouts who returned and graduated from high school (GRAD), those who earned an alternate certification (GED), those who are still trying to complete their high school education (TRY), and those who are content to remain dropouts (QUIT) for a variety of student characteristics. All of the student characteristics with the exception of gender are significantly related to the dropout categories.

Insert Table 1 About Here

Hispanic dropouts were as likely to complete their education as not. About 66% of white students who dropped out eventually finished. Native Americans and Blacks followed them at about 61%. Asian dropouts, on the other hand, did not fare as well – the majority of Asian dropouts remained dropouts. Students from most of the ethnic groups who returned to complete their education obtained their GED. This was not true for Native Americans who were equally likely to get a high school degree as a GED. Here too, Asian students did not follow the normal trend. While most Asian students who dropped out were more likely to stay out, those who returned were more likely to return to high school.

Students requiring limited English proficiency services were more than twice as likely to remain dropouts as students not so classified. As scores on SES and the three achievement tests rose, students have a greater likelihood of finishing their education. As expected, risk for dropping out was inversely related to finishing high school.

What Factors Distinguish the Subsequent Education Decisions?

Discriminant analysis was used to ascertain the factors that best discriminate one-time dropouts who completed their education (GRAD + GED) versus those who had not (TRY+QUIT). The final model accounted for almost 20% of the variance and had a correct classification rate of almost 70%. The optimum model contained four significant predictors: Socio-economic Status, Academic Aspirations, Academic Achievement, and Family Parents Interaction (see Table 2). The variables that constitute these factors are given in the appendix. Note that three of these factors were found earlier in a study employing data from

High School and Beyond conducted by Davenport and El-Sanhurry (1991) and in a study by Berktold et al. (1998). The "family parent interaction" variable, however, is new.

Insert Table 2 About Here

A second discriminant analysis was attempted to discriminate students who returned to school to graduate versus those who obtained alternate certification. While a significant dimension was obtained, the dimension was weak, accounting for only a fraction of the variance (5%) and the proportion of correct predictions was just over 50%. Moreover, ethnicity was the only consistent predictor. Thus, it appears that although one can predict with some accuracy who will return to complete their high school education, predicting whether or not they will return to high school or choose an alternative path is harder. While ethnicity may provide some assistance with this second question, it remains a poor predictor.

Relationships between Subsequent Education Decisions and Life Outcomes

We next examined the relationship between current dropout status and subsequent life outcomes. The first variable examined is postsecondary attainment (attendance at a postsecondary institution of education beyond high school). This variable is binary, so it was analyzed separately from the others. The proportions of students attending post-secondary education was 61.4% for GRAD, 57.4% for GED, 34.7% for TRY, and 8.7% for QUIT. The chi-square test for a four (dropout status) by two (PSE or no PSE) contingency table was significant ($\chi^2 = 217.53, p$

$< .001$, $df = 3$). In order to see the relative contributions of the dropout categories, the total likelihood ratio (LR) of 246.44 was decomposed. The comparison between QUIT and the other groups is responsible for most of the disparity ($LR = 233.67$, $p < .001$, $df = 1$), whereas the comparisons within the groups other than QUIT accounts only for a relatively very small, albeit significant, portion ($LR = 11.45$, $p = .003$, $df = 2$). This result indicates that students who QUIT are unlikely to take postsecondary education after high school, compared with the other categories. The result may also suggest that many dropouts return to become certified as a pre-requisite for post-secondary education.

Table 3 shows the means and standard deviations for several outcome variables by different levels of dropout status. The variables consisted of composites for Economic Outcomes, Job Satisfaction, Home & Leisure Activities, Social Activities, and Community Participation. For the first set of analyses, two groups were formed based on dropout status: GRAD and GED versus TRY and QUIT. This allowed a test of differences on outcomes between students who returned to school and those who did not. In the second set of analyses, scores for GRAD and GED were compared to see the importance of high school graduation on various life outcomes. For each set of analyses, multivariate analysis of variance (MANOVA) was employed to test the overall effect of dropout status with all of the outcome variables simultaneously. Also, PSE was entered into the model as a factor to provide statistical control for education beyond the high school level. This was done to isolate the effect of education beyond the high school level, given the current study's emphasis on high school completion as

well as the mode of completion (diploma versus GED). Finally, univariate ANOVAs were performed to compare means for each outcome variable separately.

Insert Table 3 About Here

The results for GRAD versus GED showed no significant difference for the interaction between dropout status and PSE ($\lambda = .99, p = .88$) or for the main effect of dropout status ($\lambda = .97, p = .08$). Given the marginal p-value for dropout status, we noted the univariate results and found no significant differences for interaction or dropout status with the exception of one variable, Community Participation in which the GRAD group showed slightly higher means. The overall conclusion is that the manner in which students complete their education is not considered crucial for better outcomes relative to the variables used in this analyses; both groups are similar to each other in terms of these outcomes.

In contrast, there was a difference between one-time dropouts who went back to complete their education versus those who had not. However, the interpretation of results becomes a bit more complicated given a significant interaction between dropout status and post secondary education ($\lambda = .82, p < .001$). For single variables, interactions for Economic Outcomes, Job Satisfaction, and Home & Leisure were significant. Due to the interaction, comparisons must be made conditionally on PSE. Group means conditional on PSE are shown in Table 4. For the PSE group, MANOVA showed significance for the multivariate test ($\lambda = .63, p < .001$). Mean differences for Job Satisfaction and Home &

Leisure were significant. For the No PSE group, MANOVA also showed significance for the multivariate test ($\lambda = .91$, $p < .001$). Here, mean differences for Economic Outcomes and Job Satisfaction were significant. In the PSE group, non-completers tended to show higher scores on the outcome measures than completers. In contrast, the results for the No PSE students were reversed. For this group completers had the higher means.

Insert Table 4 About Here

In order to examine the magnitude of the effects, effect sizes were obtained (Table 5). In spite of the significant results for high school completers versus non-completers, most of the effect sizes are small. Only the Home and Leisure variable for PSE and Job Satisfaction for No PSE had effect sizes of any note, 0.28 and 0.18 respectively.

Insert Table 5 About Here

Discussion

Consistent with findings of previous studies, subsequent education decisions of one-time high school dropouts was related to family socio-economic status and academic ability (Bertold et. al, 1998; Davenport and El-Sanhurry, 1991; Wayman, 2001). Dropouts from economically depressed environments were less likely to complete their high school education and students with higher academic test scores were more likely to finish. Dropouts with limited English

proficiency also remained out of education with higher rates, as did students with higher risk scores for dropping out. Also, educational aspirations appear to matter. A new predictor also emerged here, parent and family interaction.

In contrast and inconsistent with some of the previous literature (Cao et al., 1996; Murnane et al., 1997), we found little to differentiate students receiving GEDs from those receiving high school diplomas. Note, however, that our findings are consistent with Carmen and Heckman (1993) who found no economic difference between the two groups. A non-difference between the GED and GRAD groups was also confirmed by the MANOVA on subsequent life outcomes. The type of certification seems not to matter.

These same MANOVA results showed a significant, but small difference between high school completers and non-completers after accounting for possible further education. The bottom line is that there are qualitative differences between high school completers and non-completers. Differences between students with diplomas versus GEDs are not as obvious.

Further research could focus on taking the predictors that have emerged over a host of studies and placing them in one predictive model that would help differentiate subsequent high school completers from non-completers. Use of this model would help to target dropouts who would be more likely to finish their high school education. Special attention could then be placed on these individuals to help them complete their education. This targeted recruitment should not be performed at the expense of other dropouts who do not have as favorable profiles, but as a way to ensure reaching those who are more apt to respond.

References

Berktold, J., Geis, S., Kaufman, P., & MPR Associates, Inc. (1998). *Subsequent educational attainment of high school dropouts* (NCES Publication No. 98-085). Washington D.C.: National Center for Education Statistics, U.S. Department of Education.

Boesel, D. (1998). The street value of the GED diploma. *Phi Delta Kappa, 80*(1), 65-66, 68, 96.

Boesel, D., Alsalam, N., & Smith, T. (1998). *Educational and labor market performance of GED recipients* (NLE Publication No. 98-2033). Washington D.C.: Office of Educational Research and Improvement.

Brown, B. (2000). *Is the GED a valuable credential?* Retrieved from: http://ericacve.org/docgen.asp?/tbl=mr&ID=100 (Dec 19, 2002).

Cameron, S., & Heckman, J. (1993). The non-equivalence of high school equivalents. *Journal of Labor Economics, 11*(1), 1-41.

Cao, J., Stromsdorfer, E., & Weeks, G. (1996). The human capital effect of general education development certificates on low income women. *The Journal of Human Resources, 31*(1), 206-228.

Catterall, J. (1987). On the social costs of dropping out of school. *High School Journal, 71*, 19-30.

Chuang, H. (1997). High school youths' dropout and re-enrollment behavior. Economics of Education Review, 16(2), 171-186.

Davenport, E, & El-Sanhurry, N. (1991). *Dropouts who become graduates: Analysis from the High School and Beyond national database.* Paper

presented to the 1991 annual meeting of the American Education Research Association in Chicago, Illinois.

Dean, G. (1998). The value of obtaining a GED in Pennsylvania. *PAACE Journal of Lifelong Learning*, *7*, 73-85.

Doll, B., & Hess, R. (2001). Through a new lens: Contemporary psychological perspectives on school completion and dropping out of high school. *School Psychology Quarterly*, *16*(4), 351-356.

Hanfer, A., Ingels, S., Schneider, B., & Stevenson, D. (1990). *A profile of the American eighth grader* (NCES Publication No. 1990-458). Washington, D.C.: National Center for Educational Statistics, U.S. Department of Education.

Hoffer, T. B. (1997). High school graduation requirements: effects on dropping out and student achievement. *Teachers College Record*, *98*, 584-607.

Kaufman, P., Alt, M., Chapman, C., & MPR Associates. (2001). *Dropout rates in the United States: 2000* (NCES Publication No. 2002-114). Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Kish, L. (1965). *Survey sampling*. New York: John Wiley & Sons.

Kortering, L., Hess, R., & Braziel, P. (1997). School dropout. In G. G. Bear, K. M. Minke, & A Thomas (Eds), *Children's needs II: Development, problem, and alternatives* (pp. 511-521). Bethesda, MD: National Association of School Psychologists.

Markey, P. (1988). The labor market problems of today's high school dropouts. *Monthly Labor Review, 111*(6), 36-8.

McMillen, M., & Kaufman, P. (1996). *Dropout rates in the United States: 1994.* Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Murnane, R., Willett, J., & Boudett, K. (1995). Do high school dropouts benefit from obtaining a GED? *Educational Evaluation and Policy Analysis, 17*(2), 133-147.

Murnane, R., Willett, J., & Boudett, K. (1997). *Does acquisition of a GED lead to more training, post-secondary education, and military service for school dropouts?* Retrieved from: http://papers.nber.org/papers/W5992 (Dec 18, 2002).

Murnane, R., Willett, J., & Tyler, J. (1999). *Who benefits from obtaining a GED? Evidence from High School and Beyond.* Retrieved from: http://papers.nber.org/papers/w7172.pdf (Dec 21, 2002)

National Opinion Research Center (1987). *High school and beyond 1980 sophomore cohort third follow-up (1986): Data file user's manual.* Chicago: University of Chicago.

Rumberger, R. (1987). High school dropouts: A review of issues and evidence. *Review of Educational Research, 57*, 101-21.

U.S. Department of Education. (2002a). *Coming of Age in the 1990s: The eighth grade class of 1988 12 years later* (NCES Publication No. 2002-321). Washington, D.C.: U.S Department of Education.

U.S. Department of Education. (2002b). *Base year to fourth follow-up data file user's manual* (NCES Publication No. 2002-323). Washington, D.C.: U.S Department of Education.

Wayman, J. (2001). *Factors influencing GED and diploma attainment of high school dropouts*. Education Policy Analysis Archives, 9(4). Retrieved from: http://olam.ed.asu.edu/epaa/v9n4/ (Dec 19, 2002).

Table 1
Percentage Distribution of Subsequent Education Decisions of High School Dropouts by Student Characteristics

Student Characteristics	Subsequent Education Decisions of Dropouts			
	GRAD	GED	TRY	QUIT
Gender				
Male	18.4	40.9	4.9	35.8
Female	22.4	41.6	5.3	30.7
Ethnicity				
American Indian/Alaska Native	30.3	30.3	3.0	36.4
Asian/Pacific Islanders	28.6	14.3	21.4	35.7
Hispanic	19.9	30.1	3.6	46.4
Black	19.9	40.9	10.8	28.4
White	20.0	45.9	3.7	30.5
LEP Status				
LEP	16.7	11.1	2.8	69.4
No LEP	20.5	44.4	5.3	29.8
8th Grade SES (Quartile)				
25%	16.9	30.2	7.8	45.1
50%	16.1	53.3	2.8	27.8
75%	28.5	53.3	1.5	16.8
100%	29.0	58.0	4.3	8.7
8th Grade Achievement: Math (Quartile)				
25%	17.5	31.0	9.9	41.6
50%	20.9	51.0	2.4	25.7
75%	26.1	48.7	1.7	23.5
100%	30.4	56.5	2.2	10.9
Reading (Quartile)				
25%	18.2	31.4	6.4	43.9
50%	19.0	46.0	7.6	27.5
75%	24.2	53.8	1.5	20.5
100%	31.8	53.0	1.5	13.6

Table 1 (Continued)
Percentage Distribution of Subsequent Education Decisions of High School Dropouts by Student Characteristics

Science (Quartile)				
25%	18.7	30.6	10.1	40.6
50%	18.5	48.3	3.4	29.8
75%	25.0	52.2	1.5	21.3
100%	29.3	55.2	1.7	13.8
Risk factors for dropping out of school[1]				
None	25.9	51.4	1.8	20.9
One	16.9	44.6	3.9	34.6
Two	17.3	38.1	6.0	38.7
Three or more	18.9	28.8	13.5	38.7

[1] Risk factors were 1) being from a single-parent household; 2) coming from a low income family (less than $15,000); 3) having an old sibling who dropped out of high school; 4) having parents who did not finish high school; 5) being a limited proficiency student; 6) being home alone for 3 or more hours after school per day.

SOURCE: Hanfer, A., Ingels, S., Schneider, B., & Stevenson, D. (1990). *A profile of the American eight grader.* (NCES 90-458). Washington, D.C.: National Center for Educational Statistics, U.S. Department of Education.

Table 2
Discriminant Analysis Results

Step	Wilks	df1	df2	P-value
1	57.688	1	490.26	0.000
2	45.166	2	489.26	0.000
3	36.521	3	488.26	0.000
4	28.921	4	487.26	0.000

Variables	Standardized Discriminant Coefficients	Correlation with Variables
Socio-Economic Status	0.473	0.704
Academic Aspiration	0.253	0.578
Academic Achievement	0.463	0.703
Family Parents Interaction	0.362	0.540

Table 3

Means and Standard Deviations for Outcome Variables by Subsequent Education Decisions of High School Dropouts

Outcome Variables	Subsequent Education Decisions of High School Dropouts				Completion Status	
	GRAD	GED	TRY	QUIT	Completers	Non-Completers
Economic Outcomes	.06 (1.00)	.05 (1.03)	-.18 (.97)	-.09 (.98)	.05 (1.02)	-.10 (.97)
Job Satisfaction	.09 (.87)	.01 (1.04)	-.06 (.97)	-.13 (1.07)	.04 (.99)	-.12 (1.06)
Integration: Home & Leisure	-.01 (.88)	-.04 (.67)	.84 (2.35)	-.06 (1.03)	-.03 (.75)	.05 (1.31)
Integration: Social Activities	.08 (.99)	.02 (.99)	-.06 (1.11)	-05 (1.02)	.04 (.99)	-.06 (1.03)
Integration: Community Participation	.19 (1.13)	-.02 (.99)	-.13 (.79)	-.11 (.95)	.08 (1.04)	-.11 (.93)

Note. Standard deviations are shown in parentheses.

Table 4
Group Means Comparison between Completers and Non-Completers Conditional on Postsecondary Education Attainment (PSE)

	PSE		No PSE	
Outcome Variables	Completers	Non-Completers	Completers	Non-Completers
Economic Outcomes	.03 (1.01)	.03 (.96)	.09 (1.02)	-.12 (.98)
Job Satisfaction	-.07 (1.04)	.24 (.76)	.19 (.89)	-.17 (1.09)
Integration: Home & Leisure	-.01 (.74)	.96 (2.37)	-.06 (.75)	-.07 (1.04)
Integration: Social Activities	.02 (1.02)	.02 (1.22)	.05 (.93)	-.06 (1.01)
Integration: Community Participation	.11 (1.06)	-.04 (1.09)	-.00 (1.01)	-.12 (.91)

Note. Standard deviations are shown in parentheses.

Table 5
Effect Size Comparisons for Outcome Variables

	Completers	Completers vs. Non-Completers	
Outcome Variables	GRAD vs. GED	PSE	No PSE
Economic Outcomes	.00	.00	.10
Job Satisfaction	.04	.09	.18
Integration: Home & Leisure	.02	.28	.00
Integration: Social Activities	.03	.00	.06
Integration: Community Participation	.08	.05	.06

Note. A value of η is shown in each entry.

Appendix A

Variables from NELS: 88/00 Survey Used in the Present Study

Student Characteristics	
F4RACE	Respondent's ethnicity
F4SEX	Respondent's gender (0: Female; 1: Male)
BYLEP	Limited English Proficiency composite (0: No LEP; 1: LEP)
BYSESQ	Socio-economic status quartile
BYRISK	Risk factors for dropping out of school
Academic Factors	
Academic Aspiration	
BYS45	How far in school do you think you will get.
BYS47	How sure respondent is to go further than high school.
BYS48A	How far in school do respondent's father wants the respondent to go
BYS48B	How far in school do respondent's mother wants the respondent to go
Coursework	
Math	
F1S22E	How much coursework in Algebra II
F1S22F	How much coursework in Trigonometry
F1S22G	How much coursework in Pre-Calculus
F1S22H0000	How much coursework in Calculus
Science	
F1S23E	How much coursework in Chemistry
F1S23G	How much coursework in Physics
English	
F1S24A	How much coursework in English
Academic Effort	
BYS79A	Time spent on Math homework each week
BYS79B	Time spent on Science homework each week
BYS79C	Time spent on English homework each week
Academic Achievement	
BY2XRSTD	8th grade Reading standardized test scores
BY2XMSTD	8th grade Math standardized test scores
BY2XSSTD	8th grade Science standardized test scores
Economic Factors	
Family SES	
BYSES	Socio-economic status composite
BYFAMINC	Yearly family income
Academic Items	
BYS35C	Respondent's family has regularly magazines
BYS35D	Respondent's family has an encyclopedia
BYS35E	Respondent's family has an atlas
BYS35F	Respondent's family has a dictionary
BYS35G	Respondent's family has a typewriter
BYS35M	Respondent's family has more than 30 books

Non-academic Items	
BYS35I	Respondent's family has an electric dishwasher
BYS35J	Respondent's family has a clothes dryer
BYS35K	Respondent's family has a washing machine
BYS35L	Respondent's family has a microwave oven
BYS35N	Respondent's family has an VCR
Social Psychological Factors	
Student-Parents Interaction	
BYS36A	Discuss programs at school with parents
BYS36B	Discuss school activities with parents
BYS36C	Discuss things studied in class with parents
Parents' Involvement	
BYS37A	Respondent's parents attended a school meeting
BYS37B	Respondent's parents spoke to teacher/counselor
BYS37C	Respondent's parents visited respondent's classes
Peer Academic Attitudes	
F1S70A	Important friends attend class regularly
F1S70B	Among friends, how important to study
F1S70D	Among friends, how important to get good grades
F1S70F	Among friends, how important to finish high school
F1S70I	Among friends, how important to continue education past high school
School Climate	
BYS58C	Students cutting class a problem at school
BYS58D	Physical conflicts among student a problem
BYS58E	Robbery or theft a problem at school
BYS58F	Vandalism of school property a problem
BYS58G	Students use of alcohol a problem at school
BYS58H	Students use of illegal drugs a problem
BYS58I	Students possession of weapons a problem
BYS58J	Physical abuse of teachers a problem
BYS58K	Verbal abuse of teachers a problem
School Safety Perception	
BYS57A	Respondent had something stolen at school
BYS57C	Someone threatened to hurt respondent at school
BYS59K	Respondent don't feel safe at this school
Classroom Misbehaviors	
BYS59E	Other students often disrupt class
BYS59L	Student disruptions inhibit learning
BYS59M	Misbehaving students often get away with it

Teacher	
BYS59A	Students get along well with teachers
BYS59B	There is real school spirit
BYS59C	Rules for behavior are strict
BYS59D	Discipline is fair
BYS59F	The teaching is good
BYS59G	Teachers are interested in students
BYS59H	Teachers praise respondent's effort
BYS59I	In class, respondent feels put down by his/her teachers
BYS59J	Most of respondent teachers listen to what he/she say
Academic Outcome	
F4ATTPSE	Ever attended a postsecondary education institution after high school
Economic Outcomes	
F4AACTF	Current activity-full-time job
F4AEMPL	Employed for pay
F4HI99	Income of respondent in 1999
Life Satisfaction	
Job Satisfaction	
F4BSPAY	Job satisfaction-pay
F4BSFRG	Job satisfaction-fringe benefits
F4BSIMP	Job satisfaction-work importance
F4BSPRO	Job satisfaction-promotion opportunity
F4BSEDI	Job satisfaction-use of past training
F4BSSEC	Job satisfaction-job security
F4BSED2	Job satisfaction-further training
F4BSOVR	Job satisfaction-overall satisfaction
Home Leisure	
F4ICOMPT	Integration-use computer at home
F4IINET	Integration-Internet for information
F4ITVNEW	Integration-watch TV news
Social Activities	
F4ICULT	Integration-attend plays, concerts
F4IRELIG	Integration-organized religion
F4ISPORT	Integration-participated in sports
Community Participation	
F4IYOUTH	Integration-youth organization volunteer
F4ICIVIC	Integration-civic/community volunteer

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