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Gifted Dropouts: The Who and the Why

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Abstract

Two studies were conducted to obtain comprehensive information about gifted high school dropouts and to examine factors that are related to their dropout behavior using the Dropout and Student questionnaires of the National Education Longitudinal Study of 1988 (NELS:88). The results indicated that many gifted dropouts were from low socioeconomic-status families and racial minority groups; had parents with low levels of education; and participated less in extracurricular activities. Also, reasons for gifted male dropouts were more related to economic issues, while reasons for gifted female dropouts were more related to personal issues, although both males and females were likely to offer school-related reasons. The logistic regression analysis results indicated that dropout behavior for gifted students was significantly related to students' educational aspirations, pregnancy or child-rearing, gender, father's highest level of education, and mother's highest level of education.

Gifted dropouts appear on a self-actualizing quest; the wanderlust is a means to an end that may not be fully understood, but is an affective and a cognitive component of identity development as they strive for their niche in the world.

—Elsie Robertson (1991, p. 67)

Putting the Research to Use

Due to very limited research on gifted dropouts, we do not have much information about this group. What is the major reason for gifted students to leave school? How do parents respond to their children's dropout behavior? What are gifted dropout students' personal background? What factors are related to gifted students' dropout decisions? Studies dealing with these questions are important because they help to provide research-based information for teachers, parents, counselors, and policy makers. Findings of this study indicate that schools and teachers should communicate closely with the parents of potential gifted dropouts. Parents should have more involvement in their children's personal and school-related problems; and counseling services that focus on dropout prevention should be targeted at culturally diverse, minority, and economically disadvantaged gifted students. The findings reported in this article can serve as the basis for developing guidelines for targeting potential dropouts, developing appropriate curricula, and developing challenging programs for potential gifted dropouts.

The problem of high school dropouts has generated increased interest from researchers, educators, and policy makers. The recent report by the National Center for Education Statistics

(NCES, 1997) reported that, each year, approximately 300,000 to 500,000 students left high school without completing their programs. For example, in 1996, 3.6 million youths, who comprised 11.1% of the 32.4 million 16- through 24-year-olds in the U.S., were not enrolled in a high school program and had not completed high school. This report also indicated that dropout rates varied significantly by racial background and socioeconomic status. Although the gap between the rates for Blacks and Whites narrowed, dropout rates for Hispanics remained higher than those for White and Black students. Students from the lowest income families were approximately eight times more likely to be dropouts than those from the highest income families (NCES, 1997).

Although the issue of high school dropouts has received much attention, only limited research has been devoted to gifted or high-ability dropouts (Robertson, 1991; Sadowski, 1987; Stephenson, 1985), and little is known about these students. In fact, a wide range of estimates exists for the percentage of gifted students who drop out of school. Robertson reported that 25% of all students who drop out of school do so by age 16, and between 18% and 25% of gifted and talented students drop out. *U.S. News & World Report* reported in August, 1983 that up to 18% of all high school dropouts are gifted students (Solorzano, 1983). The Marland report (cited by Irvine, 1987) stated that 18% of dropouts are gifted. However, Irvine criticized this finding: "We don't know how many gifted students drop out, but it's not 18 percent. The Marland Report (1972) was incorrectly interpreted that approximately 18 percent of high school dropouts are gifted" (p. 79).

This variation in gifted dropout estimates is partly due to the multiple definitions of giftedness. In fact, the previous studies about gifted dropouts have focused on academically high-ability students, selected primarily by IQ score. However, recent trends for defining gifted and talented have become broad and flexible. In his three-ring conception of giftedness, Renzulli (1986) argued that there is no single criterion for giftedness. Rather, interaction among the three clusters of traits including above-average, though not necessarily superior, ability; task commitment; and creativity contribute to the development of gifted behaviors. According to this theory, nonintellective factors like motivation are also important and should be considered. The federal Javits Gifted and Talented Students Education Act defined children with outstanding talent in the following ways, supporting the broad definition of gifted:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. (U.S. Department of Education, 1993, p. 26)

As Lajoie and Shore (1981) indicated, a study of school dropouts that includes a broad definition of giftedness may achieve different results from a study with a restricted definition, but it is unclear how they might differ.

Another issue in the study of gifted dropouts is the difficulty in obtaining longitudinal data about this population (Robertson, 1991). Although various research studies have been

proposed for studying high school dropouts, Kunkel and his colleagues (1991) indicated that previous research studies have not clarified the process of dropping out because they examined only a few variables, such as student or institutional characteristics. Willett and Singer (1991) also noted that research should study a single cohort of students for several years, instead of several cohorts of students for a single year. Tinto (1975, 1982, 1988) argued that attrition is a process that occurs over time, rather than a discrete event that is isolated from other experiences of the student (Kunkel et al., 1991). Bachman, Green, and Wirtinen (1972) also indicated that the dropout decision is long in the making and is based on the student's personal background, traits, abilities, and school experiences. It is obvious that longitudinal data for gifted dropouts are necessary; however, it is not easy to gather these types of data. As Robertson indicated, a high percentage of gifted dropouts have the ability to graduate from high school and continue further levels of education, and this group presents a major loss of potential to self and society. There is, however, very limited research about this group.

Review of the Literature

Factors Related to High School Dropouts

Students' personal backgrounds, including sex, race, socioeconomic status, family background, and personal problems, have been considered to affect students' decisions to drop out of high school (Beacham, 1980; Bernoff, 1981; Curtis, McDonald, Doss, & Davis, 1983; Noth & O'Neill, 1981; Young & Reich, 1974). Studying eighth graders and high school students in Dade County, Stephenson (1985) found that almost 60% of the dropping out took place during the first two years of high school, and Blacks were likely to drop out later than other groups. However, Lobosco (1992) found that, after controlling for family background and other factors, Blacks were more likely to graduate from high school than Whites, Asians, or Hispanics. Similarly, the NCES (1993) report stated that the stereotype of the high school dropout as a Black male is not true. According to the report, the proportion of Black male students leaving school in 1992 was lower than White males (3.3%) and White females (4%), Black females (6.7%), Hispanic males (7.6%), and Hispanic females (9%). Bracey (1994) indicated that, "When differences in the relative sizes of the groups are factored in, the picture of the typical dropout is that of a White, middle-income student." Whites account for 59% of all dropouts, and students from middle-income families account for 57% (NCES).

Many research studies have specified that family factors are significantly related to the decision of students to drop out. Studies found that the dropout's family was less solid, less influenced by a father, less likely to interact in leisure activities, and less able to communicate than the persister's family (Noth & O'Neill, 1981; Sadowski, 1987). Research studies also indicated that loss of a family member due to death or divorce and other family problems influence a student's decision to drop out (Martin, 1981; Massey & Crosby, 1982; Rumberger, 1981). In addition, the level of education and the occupation of dropouts' parents were significant factors in several studies (Martin, 1981; Noth & O'Neill, 1981; Watson, 1976). Other studies acknowledged personal circumstances to be significant in determining the characteristics of high school dropouts: behavior problems (Beacham, 1980; Curtis et al., 1983; Massey & Crosby, 1982); need or preference to work (Noth & O'Neill, 1981; Young & Reich, 1974); low grade-point average (Beacham, 1980; NCES, 1983); and marriage and pregnancy (NCES).

The literature has also suggested that some academic factors, such as low grade-point average, absence, academic failure, lack of interest in school, and dislike for school and teachers, are related to the decision to drop out (Beacham, 1980; Cervantes, 1965; Curtis et al., 1983; Hewitt & Johnson, 1979; Martin, 1981; Massey & Crosby, 1982; NCES, 1983; Noth & O'Neil, 1981; Rumberger, 1981; Schreiber, 1979; Sewell, Palmo, & Manni, 1981; Thornburg, 1975; Young & Reich, 1974).

Beacham (1980) indicated that lack of interest in school is one of the major reasons for dropping out. Similar results were found by Barr and Knowles (1986), who reported that school experiences were important influences in a student's decision to leave school. These students perceive schools as uninteresting and boring places that do not provide challenges. Using discriminant function analysis, Frazer (1992) found that four variables were significant in classifying dropouts: grade-point average, being older than other students, being new to the system, and the number of days that the student attended eighth grade. Soltys (1990) also indicated that absenteeism, lower grade-point averages, and higher rates of school suspensions were significant predictors of students' dropping out. On the other hand, Cordy (1993) reported that the presence of a caring adult, a supportive peer group, alternative educational programs, academic success, motivation to attend postsecondary educational institutions, and participation in fundamental religious groups were reasons at-risk students chose to stay in school rather than drop out. Hertz (1989) argued that educators who accommodate a variety of learning styles can also be a positive factor. Roderick (1991) found that dropout rates increased after transition periods, such as moving from one school to another. She also found that, even after controlling for background and school performance, students who had repeated grades were substantially more likely to drop out regardless of when the grade retention had occurred. Sewell et al. (1981) indicated that the poor academic performance and dropout behavior might result primarily from the failure to keep up with school curriculum:

> However, the discrepancy between the intellectual potential and the poor achievement among dropouts suggests that if academic failure which restricts promotion and increases alienation from school is a major factor in early school leaving, factors other than IQ such as achievement motivation, social class influence, and the institutional impact of the school must be further explored to identify the possible reasons for academic failure. (p. 73)

Focusing on gifted dropouts, Robertson (1991) also emphasized school-related factors, such as schools' failure to address the needs of gifted students and their learning styles. She indicated that schools may not present curricula that address the appropriate learning styles of gifted students. As proof, she indicated that biographies of scientists, writers, performers in the visual and performing arts, business magnates, and athletes reveal that many of them dropped out of school from the elementary years on through secondary school. She stated:

> Gifted children are qualitatively different from others, and those who are potential dropouts are qualitatively different from other gifted children…. An important dimension of the culture of a school is respect for self, for others, and for the school environment…. Also both gifted and at-risk students are clear when they discuss the irrelevance of the curriculum…. It appears that the gifted potential dropout needs the following: an

> experiential learning process, individual projects of the students' own choice, challenging and difficult problems within the real world, some competition and challenge from others, the ability to make decisions for self regarding what will be learned and how it will be learned. Gifted students who may drop out of school need to work with a teacher who models a consultant role or works as a smart colleague in a mentor relationship. (pp. 69–70)

Although a small percentage of gifted students drop out of high school, Robertson made suggestions for dealing with this group based on qualitative data that may be of value in dealing with potential gifted dropouts.

Characteristics of Gifted Dropouts

Sadowski (1987) found the following characteristics in his case study of gifted high school dropouts: (1) There was evidence of instability in the home environment; (2) drug and alcohol consumption were a part of the dropout's environment; (3) gifted dropouts exhibited a lack of interest and motivation in high school; (4) there was evidence of a negative and rebellious attitude towards school and authority; (5) there was evidence of an incomplete or inappropriate gifted curriculum in high school; (6) gifted dropouts developed poor peer relationships and exhibited poor social adjustment; and (7) there was evidence of lack of counseling in high school and inadequate communication between the school and the home (p. i).

Betts and Neihart (1988) developed profiles of gifted and talented students on the basis of their behavior, feelings, and needs. According to the profiles, gifted and talented dropouts were depressed and withdrawn because their needs and feelings were not addressed. School did not support their talent and interest and seemed irrelevant to them. Indicating that gifted dropouts' self-esteem is very low, Betts and Neihart recommended family counseling and individual counseling to help promote self-esteem.

Although research studies generally indicate that gifted dropouts may show signs of maladjustment, problems with authority, nonconformity, family conflicts, hostility, suspiciousness, oversensitivity, and egotism (Davis, 1984; Johnson, 1970; Vaughan, 1968), others have suggested that high-ability dropouts are not emotionally maladjusted, but have different developmental needs (Robertson, 1991; Zaccaria & Creaser, 1971). Robertson stated that, although the reasons for dropping out appear similar between gifted and nongifted students, the underlying motivation is different (see quote at the beginning of this article). She further commented:

> Non-gifted dropouts are escaping from the hostile academic world, viewing the real world as less inimical to them than school…. Gifted dropouts tend to have more supportive families, have more money, come from a value system that encourages self expression and development, are non-minority, and speak English as a primary language. (Robertson, p. 67)

The purpose of this study is to obtain comprehensive information about gifted high school dropouts and to examine factors that are related to gifted students' dropout behavior using nationally representative longitudinal data.

Study 1

Research Questions

1. What are gifted dropouts' reasons for leaving school, what are parents' reactions to their leaving school, and what activities account for their time?
2. Is there any difference between gifted dropouts and nongifted dropouts with respect to their plan to return school?

Research Design and Data

In this study, data were used from the National Education Longitudinal Study of 1988 (NELS:88), which have been collected on a nationally representative sample of students by the National Center for Education Statistics (NCES). NELS:88 began in 1988 by collecting data on approximately 25,000 eighth-grade students, including data from their parents, teachers, and school administrators. Students completed a self-administered questionnaire and a cognitive test on reading, math, science, and history/citizenship/geography (NCES, 1994a). In the first follow-up (1990), students also completed a questionnaire and a cognitive test. In addition to this student questionnaire, a dropout questionnaire was given to students who had dropped out of school at some point between the spring term of the 1987–88 school year and that of the 1989–90 school year. The second follow-up data, collected in 1992, included the same components as the first follow-up, plus the parents' questionnaire, students' transcripts, and course offering information. In the second follow-up, a dropout questionnaire was given to the students who had dropped out of school at some point between the spring term of the 1987–88 school year and the spring term of the 1991–92 school year. The questionnaire covered reasons for leaving school, school experiences, absenteeism, plans for the future, employment, attitudes and self-concept, and home environment. Data from the third follow-up were collected in 1994, two years after the students graduated (see NCES, 1994a).

Two studies were conducted using two different sources of data and samples. In Study 1, the Second Follow-Up Dropout questionnaire of NELS:88 was directly analyzed to get more specific information about gifted dropout students. Because only dropout students completed this questionnaire, gifted dropout and nongifted dropout students were compared. In Study 2, student questionnaire data from the base year, the second follow-up, and the third follow-up were analyzed to examine personal and educational factors that are related to decisions to drop out of school by gifted students. Because the NELS:88 data were collected using stratified cluster sampling, some groups of students were oversampled (Keith & Benson, 1992). Therefore, to obtain an accurate estimate, variables must be weighted with an appropriate weight variable to compensate for unequal probabilities of selection and adjusted for the nonresponse effect. In this study, a panel weight was used to compensate for this. Also, in NELS:88, the sampling error overstates the precision of test statistics in the data analyses because of the nature of the complex sample design. The SUDAAN (Software for Statistical Analysis of Correlated Data) statistical program from the Research Triangle Institute (1995) was used to estimate the standard errors, taking into account the complex survey design in both Study 1 and Study 2.

Sample of the Study

The sample of Study 1 consists of dropout students who were not in an academic program leading to a high school diploma, had not received a GED by the spring of 1992, and who completed the dropout questionnaire in the second follow-up. In this study, to apply a more flexible definition of gifted, gifted students were defined as those who participated in their school district's gifted programs or who had been enrolled in three or more classes in advanced, enriched, or accelerated English, social studies, science, or math. Among 1,285 students who completed the second follow-up dropout questionnaire, 334 were identified as gifted.

Data Analyses and Results

Research Question I

Several descriptive data analyses were conducted to gain specific information about gifted dropouts who completed the second follow-up dropout questionnaire regarding: (1) reasons for leaving school; (2) parents' reactions; (3) time that gifted dropouts spent using computers, not including playing video/computer games; (4) time that gifted dropouts spent working on hobbies, arts, or crafts on their own; and (5) time that gifted dropouts spent doing volunteer work or community services.

Regarding reasons for leaving school, gifted dropouts were asked to respond to 22 items, saying whether the items were related to their decision to drop out. The results indicated that the majority of the gifted male dropouts left school because: (1) I was failing school (49.0%), (2) I got a job (40.7%), (3) I couldn't keep up with my schoolwork (38.1%), (4) I didn't like school (37.4%), and (5) I couldn't work and go to school at the same time (32.7%). The reasons for leaving school by gifted male dropouts were mainly school-related and job-related, while the reasons reported by gifted female dropouts were more related to personal and school problems. Gifted female dropouts reported that they left school because: (1) I didn't like school (35.5%), (2) I was pregnant (33.8%), (3) I became a parent (29.1%) and I was failing school (29.1%), (4) I had another problem (26.8%), and (5) I couldn't keep up with my schoolwork (23.2%). In both groups, school-related reasons such as "I did not like school" and "I am failing school" were main reasons for leaving school (see Table 1).

The examination of the dropouts' reports of their parents' reaction to the dropout behavior revealed that many of the dropouts' parents (75%) tried to talk them into staying in school. Interestingly, 64.4 % of parents reported that it was their children's own decision, while 69.3% of parents said that they were upset. The results indicated that only a small percentage of parents offered outside counseling (9.5%), called a school counselor (22.8%), or called the child's teachers (26.1%) (see Table 2).

Regarding the use of time, a majority of gifted dropouts (73.8%) responded that they never or rarely used a computer, not including playing video/computer games, and only 5.9% of them responded that they used a computer every day. Also, 37% of gifted dropouts responded that they never or rarely spent their time doing their hobbies. A large majority of dropouts (83%) responded that they never or rarely spent time volunteering.

Table 1

Numbers and Percentages of Gifted Male and Female Dropouts Who Reported Various Reasons for Dropping Out of School

Reasons for Leaving School	*Gifted Male Dropouts*		*Gifted Female Dropouts*	
	n = 173	%	*n* = 161	%
I got a job.	66	40.7	30	19.7
I didn't like school.	61	37.4	54	35.5
I couldn't get along with teachers.	48	29.6	24	15.9
I couldn't get along with other students.	22	13.8	24	15.9
I wanted to have a family.	13	8.1	19	12.6
I was pregnant.	—	—	51	33.8
I became a parent.	20	12.6	44	29.1
I had to support my family.	26	16.4	29	19.1
I was suspended from school.	35	22.2	10	6.6
I did not feel safe at school.	18	11.3	14	9.3
I wanted to travel.	10	6.3	10	6.6
My friends had dropped out of school.	18	11.4	6	2.0
I had to care for a family member.	19	12.0	16	10.6
I was expelled from school.	28	17.7	9	6.0
I felt I didn't belong at school.	34	21.3	32	21.1
I couldn't keep up with my schoolwork.	61	38.1	35	23.2
I was failing school.	77	49.0	44	29.1
I got married or planned to get married.	11	6.9	32	21.1
I changed schools and didn't like the new school.	20	12.7	15	10.1
I couldn't work and go to school at same time.	52	32.7	22	14.6
I had a drug/alcohol problem.	12	7.6	3	2.0
I had another problem.	31	26.7	34	26.8

Note. Sum of the percentages is not equal to 100 because dropouts responded either "yes" or "no" on each item. *N* = 334.

Table 2
Numbers and Percentages of Responses by Parents to Their Children's Decision to Drop Out (Gifted Dropouts)

Parents' Reactions	*n*	%
Offered to arrange outside counseling.	31	9.5
Called school counselor.	74	22.8
Called my principal/teachers.	85	26.1
Told me it was my decision.	210	64.4
Punished me for leaving school.	41	12.7
Told me they were upset.	226	69.3
Told me it was OK to leave.	44	13.5
Tried to talk me into staying in school.	247	75.8
Offered to help with personal problems.	154	47.5
Offered to help me make up missed work.	99	30.4
Offered special tutoring.	48	14.8
Offered to put me in a special program.	55	16.9
Offered to send me to another school.	98	30.3

Note. Sum of the percentages is not equal to 100 because dropouts responded either "yes" or "no" on each item. N = 334.

Research Question 2

A chi-square analysis using SPSS and SUDAAN was conducted to examine the difference between gifted dropout and nongifted dropout students with respect to their plan to return to school. Prior to the analysis, the adequacy of expected frequencies was examined, and no violation of assumptions was found. The results indicated that there was no significant difference between gifted dropouts and nongifted dropouts with respect to their plan to return to school, c^2 (1, N = 839) = .02, p = .88. Only 35.85% of gifted dropouts planned to return to school, while 64.15% of gifted dropouts had no plans to return to school. Similarly, 34.87% of nongifted dropouts planned to return to school, while 65.13% of nongifted dropouts had no plans to return to school.

Study 2

Research Questions

1. What are the descriptive characteristics of gifted dropouts regarding their personal background (SES, race, fathers' highest level of education, mothers' highest level of education)?
2. To what extent and in what manner can variation in the dropping out of gifted students vary among students by personal and educational factors (SES, race, gender, quality of school,

fathers' highest levels of education, mothers' highest levels of education, students' educational aspirations, pregnancy or child-rearing, and absenteeism)?

Sample of the Study

The sample in Study 2 consists of gifted dropout and gifted nondropout students who were eighth graders in 1988 and participated in all four rounds of student questionnaires. It should be noted that gifted dropouts in Study 1 and Study 2 are not exactly the same group because some of the gifted dropouts in Study 1 might have returned to school before the third follow-up, classifying them as nondropouts in Study 2. Also, some of the gifted dropouts in Study 1 did not participate in the third follow-up survey, thus decreasing N size in the third follow-up in 1994. Among 12,625 students who participated in the four rounds of student questionnaires, a total of 3,520 gifted students were identified as a sample using the same definition of gifted as Study 1. In Study 2, dropout students were defined as students who were not graduates or GED/certificate holders in 1994. The dropout and gifted status of the sample is described in Table 3.

Table 3
Dropout and Gifted Status of Study 2

	Nongifted		Gifted		Total	
	n	(%)	*n*	(%)	N	(%)
Nondropout	8,628	(68.3%)	3,343	(26.5%)	11,971	(94.8%)
Dropout	477	(3.8%)	177	(1.4%)	654	(5.2%)
Total	9,105	(72.1%)	3,520	(27.9%)	12,625	(100.0%)

Note. The *n* size is unweighted.

Data Analyses and Results

Research Question 1

Several descriptive data analyses were conducted to obtain general characteristics of gifted dropouts who were not graduates or GED/certificate holders in 1994. Four descriptive analyses were conducted regarding (1) percentages of gifted dropouts by SES, (2) percentages of gifted dropouts by race, (3) percentages of gifted dropouts by fathers' highest levels of education, and (4) percentages of gifted dropouts by mothers' highest levels of education.

The results indicated that almost half of the gifted dropout students (48.18%) were in the lowest quartile SES level, while only 3.56% of them were in the highest quartile SES level. By comparison, looking at gifted nondropout students, 19.97% of them were in the lowest quartile level of SES, while 33.77% of them were in the highest quartile level of SES. In a further analysis, a significant difference was found between dropout status and SES level, c^2 (3, N = 3,021) = 69.15, $p < .0001$. Examination of the standardized residuals indicated that more gifted dropout students were in the lowest SES level than expected, and fewer gifted dropout students

were in the highest SES level than expected. On the other hand, fewer gifted nondropout students were in the lowest SES level than expected.

Secondly, ethnic and racial information about gifted dropouts was investigated and compared with gifted nondropout students. Among five categories of race in the NELS:88, 42.90% of gifted dropout students in the sample were White, 17.88% were Hispanic, 27.01% were Black, 10.45% were Native American, and 1.76% were Asian/Pacific Islanders. A chi-square analysis was performed to investigate a significant difference among racial groups with respect to their dropout status, c^2 (4, N = 3,513) = 9.84, $p < .04$. A significant difference was found among racial groups with respect to dropout status. The standardized residuals indicated that more Hispanic and Native Americans than expected dropped out of school, whereas fewer White and Asian Americans than expected dropped out of school.

Finally, parents' highest levels of education were examined among gifted dropout students. For fathers, a high percentage did not finish high school (39.99%) or completed high school, but did not go on to higher education (22.99%). The descriptive analysis of mothers' highest levels of education showed similar results, indicating that 25.55% of mothers of gifted dropout students did not graduate from high school, and 35.92% of them graduated only from high school. Chi-square analyses were conducted between gifted dropout and gifted nondropout students with respect to parents' highest levels of education. Significant differences were found on both fathers' educational level, c^2 (7, N = 3,458) = 48.45, $p < .0001$, and mothers' educational level, c^2 (7, N= 3,489) = 48.07, $p < .0001$. Examination of the standardized residuals indicated that more gifted dropout students' parents did not finish high school than expected, and fewer gifted dropout students' parents continued on to higher education than expected.

Research Question 2

A logistic regression analysis was conducted to examine the relationship between the criterion variable and the set of predictors. Before conducting the logistic regression data analyses, plausible range of data, missing values, outliers, and adequacy of expected frequencies were examined. As a result of the data screening, four predictors were excluded from the data analysis because of missing data on the gifted dropouts. These predictors were students' self-concept, grade-point average, standardized test scores, and extracurricular activities.

After the data screening, to find the best model, direct logistic regression analyses were performed with student group membership (gifted dropouts vs. gifted nondropouts) as a criterion variable and a set of predictors. When examining the decision to drop out by gifted students, a test of the final full model with nine predictors (SES, gender, race, students' educational aspirations, fathers' highest education level, mothers' highest education level, pregnancy or having children, school quality, and absenteeism) against a constant-only model was found to be statistically significant, c^2 (31, N = 1,505) = 332.45, $p < .001$. The regression coefficients, Wald statistics, odds ratio, and 95% confidence intervals of the odds ratios for each predictor are summarized in Table 4. The results indicated that, overall, five variables significantly predict gifted students' dropout behavior: students' educational aspirations (F = 8.60, $p < .0001$), pregnancy or child-rearing (F = 6.15, $p < .01$), gender (F = 9.87, $p < .01$), father's highest level of education (F = 12.86, $p < .0001$), and mother's highest level of education (F = 3.52, $p < .01$).

Table 4

Logistic Regression Analysis of Variables Predicting Gifted Students' Decision to Drop Out of School

Predictor Variables	Beta coeff.	T-test, B=0	Odds Ratio	95% confidence interval for odds ratio	
				Lower	*Upper*
Educational Aspiration					
Won't finish high school	1.08	1.25	2.95	0.54	16.07
Will finish high school	0.97	2.00*	2.63	1.02	6.78
VOC, TRD, BUS school	-0.29	-0.62	0.75	0.31	1.85
Attend college	-0.24	-.048	0.79	0.29	2.10
Finish college	-1.93	-4.23***	0.15	0.06	0.36
Continue education after college	0.00	—	1.00	1.00	1.00
Pregnancy or Having a Child					
Yes	-0.03	-0.04	0.97	0.22	4.36
No	-1.49	-2.33*	0.23	0.06	0.79
No, but expecting	0.00	—	1.00	1.00	1.00
Gender					
Male	1.05	3.14**	2.86	1.48	5.51
Female	0.00	—	1.00	1.00	1.00
Race					
Asian/Pacific Islanders	-1.51	-1.81	0.22	0.04	1.13
Hispanic	-0.63	-0.85	0.53	0.12	2.30
Black	-0.66	-0.09	0.52	0.13	2.12
White	-1.26	-2.01*	0.28	0.08	0.97
Native American	0.00		1.00	1.00	1.00
Quality of School SES					
Low Quartile	4.47	2.20**	87.52	1.63	4625.20
Medium low Quartile	3.86	1.90*	47.52	0.88	2579.84
Medium high Quartile	4.00	1.92*	54.42	0.90	3273.85
High Quartile	0.00	—	1.00	1.00	1.00
Absenteeism					
None	-0.61	-0.99	0.54	0.16	1.83
1 to 2 days	-0.69	-1.12	0.50	0.15	1.69
3 or 4 days	-0.42	-0.57	0.66	0.16	2.79
5 to 10 days	0.00	—	1.00	1.00	1.00
More than 10 days	0.00	—	1.00	1.00	1.00
Father's Education Level					
Did not finish high school	1.21	2.07*	3.35	1.07	10.49
Graduated high school	-0.21	-0.35	0.81	0.25	2.65
Junior college	-1.43	-1.20	0.24	0.02	2.48
College < 4 yrs	0.80	1.34	2.22	0.69	7.16
Graduated college	-0.06	-0.07	0.94	0.17	0.03
Master's degree	-5.30	-5.68***	0.01	0.00	1.00
Ph.D., M.D. etc.	0.00	—	1.00	1.00	1.00
Mother's Education Level					
Did not finish high school	-1.47	-2.45*	0.23	0.07	0.75
Graduated high school	-0.78	-1.48	0.46	0.16	1.29
Junior college	-2.44	-2.54*	0.09	0.01	0.58
College < 4 yrs	0.57	0.96	1.77	0.55	5.70
Graduated college	-0.97	-1.37	0.38	0.09	1.52
Master's degree	0.85	0.59	2.33	0.14	38.20
Ph.D., M. D. etc.	0.00	—	1.00	1.00	1.00

*p <.05, **p < .01, ***p < .001

In addition, SES could be considered a significant variable at the $p = .07$ level. Examination of the odds ratios reveals the influence of the significant variables. The odds ratio represents "the ratio of the predicted odds of dropping out with a one-unit increase in the independent variable to the predicted odds without the one-unit increase" (Rumberger, 1995, pp. 600–603). Therefore, an odds ratio that is greater than one means that the odds of dropping out increase due to a one-unit increase in the independent variable, while an odds ratio that is less than one means that the odds of dropping out decrease due to a one-unit increase in the independent variable.

The results revealed first that gifted students who wanted to finish college had significantly lower odds of dropping out of school than other students. Second, gifted students who did not have a child had significantly lower odds of dropping out of school than gifted students who had a child or were expecting a child. Third, gifted male students were about three times more likely to drop out of school than gifted female students. Fourth, White gifted students were significantly less likely to drop out than other ethnic groups. Fifth, gifted students with fathers who did not finish high school were about three times more likely to drop out of school, while gifted students with fathers who had a master's degree were significantly less likely to drop out. Interestingly, gifted students with mothers who did not finish high school or had graduated junior college were less likely to drop out. These results indicated that fathers' highest level of education was more related to gifted students' dropping out behavior than mothers' level of education. Finally, the results showed that SES was one of the important predictors of dropping out. Gifted students who were in the low quartile and medium-low quartile of SES were much more likely to drop out of high school (see Table 4).

Discussion

Implications

Previous research studies have found various factors that predict which students might drop out of high school. These studies have certain limitations. First, few research studies have focused directly on the gifted dropouts using a broad definition of gifted. Most previous studies of gifted dropouts have focused on the gifted based on IQ scores. However, in the school setting, there are many talented students who are not included in this category, but are potentially at risk of dropping out of school. Because this study used an existing self-report survey, nonintellective factors like motivation could not be addressed to the extent that we would have liked. However, using broad and flexible criteria, this study obtained general characteristics of gifted dropouts. A second limitation of previous studies is related to the generalization issue. Previous research studies used data that represent specific regions or schools. As the literature indicated, because school quality and personal background such as SES and ethnicity affect students' dropping out of school, national data should be used to obtain a more precise picture of high school students' dropout behavior. Using nationally representative longitudinal data, this study obtained comprehensive information about gifted dropouts not to determine the number of gifted dropouts, but to help them to continue their education. More specifically, the focus was on exploring personal and educational factors related to their dropout behavior.

Several characteristics of gifted dropouts were found in this study. First, study results confirmed that many gifted dropouts were from low-SES families and racial minority groups;

had parents with low levels of education; and participated less in extracurricular activities. The present study findings indicated that Hispanic and Native American students were more likely to drop out of school, while White gifted students were less likely to drop out than other ethnic groups. In addition, the study results clearly indicated that SES and parents' educational levels were significantly related to gifted students' dropping out of high school. Almost half of the gifted dropouts (48.18%) were in the lowest quartile SES level, and only 3.56% of them were in the highest quartile SES level. This number was the reverse of that for gifted nondropouts. Also, a high percentage of gifted dropouts' parents did not finish high school or only graduated from high school. The SES and parents' educational levels may relate to the educational support at home. Ekstrom and his colleagues (Ekstrom, Goertz, Pollack, & Rock, 1986) reported that (1) dropouts received fewer educational aids from parents, (2) their parents had lower educational expectations, and (3) their parents had less interest in and were less likely to monitor their children's school activities. It is not clear from this study that gifted dropouts' parents provided poor educational support to their children. However, the present study reveals that many gifted dropouts had very limited experience with computers and spent little time on hobbies. The study also shows that gifted dropouts' parents were not actively involved in their children's dropping out. Although 75% of parents tried to talk them into staying in school, only a small percentage of parents took actions such as calling the school counselor or teacher, offering special tutoring or programs, or offering another school. Although a large percentage of parents were "upset" about the decision to drop out, it is clear that more positive action should be considered on the part of parents. This result implies that potential gifted dropouts' parents should have more involvement with regard to their children's problems and communicate closely with teachers because parents' educational aspirations and their involvement may affect gifted students' performance, as well as deportment (Ekstrom et al., 1986).

Second, the finding with respect to reasons for leaving school suggests that many of the gifted students left school because they were failing school, did not like school, got a job, or were pregnant, although there were many other related reasons. Especially, school-related reasons such as "I did not like school" or "I am failing school" were common reasons among both male and female groups. This finding was similar to the previous study from NCES, which included all ability groups. According to the NCES report (1994b), the reasons for leaving school reported by dropouts were more often school-related than job-related or family-related. Also, male dropouts were more likely than female dropouts to report leaving because of school expulsion and suspension. In addition, present study results indicated that students' educational aspirations were significantly related to gifted students dropping out of school. Some gifted students have low educational aspirations because of personal or school-related problems. This suggests that teachers and parents should guide and encourage potential dropouts to continue their education.

Based on the study findings, the following recommendations for action would help potential gifted dropouts to continue their education: (1) Schools and teachers need to recognize the characteristics of gifted dropouts and identify potential gifted dropouts in the early grades; (2) school culture should be changed to meet the needs of potential gifted dropouts, providing an appropriate and challenging curriculum that addresses their particular interests and learning styles; (3) more opportunities for extracurricular activities and encouragement to participate in them should be provided to potential gifted dropouts; (4) counseling services and special

programs should be given to minority and economically disadvantaged gifted students; and (5) schools and teachers should communicate closely with potential gifted dropouts' parents, and parents should have more involvement with regard to their children's problems.

It should also be noted that some of the gifted students dropped out of school because they failed their courses, even though they were identified as gifted. This finding has an important implication for teachers and researchers. In this study, we used a flexible definition that included a broad range of gifted students. If educators and researchers use a restrictive definition of giftedness, focusing on IQ only, some talented young students who are potential dropouts will be overlooked and not provided with appropriate educational assistance, such as counseling services. Therefore, it is more appropriate to use a broad definition of giftedness when we study the population of dropouts.

Limitations

One limitation that should be noted is that, in Study 2, students who participated in all four rounds of the data survey were selected as a sample, which reduced the sample size. The number of participants in NELS:88 third follow-up data was much fewer than that of other years because it is hard to follow-up with students after they graduate high school. In addition, there were many missing data points on the specific variables, especially on the gifted dropout site. For example, several variables such as self-concept, grade-point average, and standardized test scores were excluded in the data analysis in Study 2 because of missing data on the gifted dropout site. In the case of grade-point average and standardized test scores, many data on gifted dropouts were not available because they dropped out in the 12th grade. It is not clear why more gifted dropouts than gifted nondropouts have missing data on the self-concept variable. Although the literature suggested that these variables are related to the decision to drop out, it was deemed useless to include these variables in this study because of the number of missing data points.

Suggestions for Future Research

Some researchers argue that it is necessary to distinguish among the varying types of dropout behaviors. Tinto (1975) distinguished between academic dismissal and voluntary withdrawal, pointing out that academic dismissal is most closely associated with grade performance and voluntary withdrawal is not. According to Tinto, academic dismissals have low aptitudes, intellectual ability, and social status, whereas voluntary withdrawals are more likely to have high intellectual ability and high social status. Voss, Wendling, and Elliott (1966) also distinguished three major types of dropouts: involuntary dropouts, retarded dropouts, and capable dropouts. They explained that involuntary dropouts leave school because of some personal crisis, such as the death of a parent or an accident. The retarded dropouts are those who failed to do the necessary work or the requirements for graduation. Students in this category lack the ability to do the required work or have the potential ability, but lack the requisite skills. The capable dropout is the student who has the requisite ability and does superior work in school, but may or may not be making satisfactory academic progress. These students leave school for reasons other than low ability. Although these arguments did not directly focus on gifted dropouts, the finding of the present study partly supports these arguments. On the question regarding the reasons they leave school, some gifted dropouts responded that they failed school,

while others responded that they left school voluntarily. It is not clear in this study that these two groups are absolutely separate; however, it is important to examine the types of gifted dropouts in the future because intervention would be different based on the reasons for dropping out. Therefore, further study is needed about the types of gifted dropouts regarding how their background and dropout patterns are different from each other.

These studies focused on exploring general characteristics of gifted dropouts and examining personal and educational factors related to their dropout decision. However, the process of dropping out is a longitudinal process, and these factors interact with each other. Therefore, it is suggested that further research should examine not only important factors, but also their causal relationship and interactions using a longitudinal path analysis technique. Also, it is suggested that further study should develop instruments or behavior check lists that identify the potential gifted dropouts. These can provide a more practical guideline to teachers and school counselors.

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