Review of Educational Research
Summer 1987, Vol. 57, No. 2, pp. 101–121

High School Dropouts: A Review of Issues and Evidence

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The problem of high school dropouts has generated increased interest among researchers, policymakers, and educators in recent years. This paper examines the many issues involved in trying to understand and solve this complex social and educational problem. The issues are grouped into four areas covering the incidence, causes, consequences, and solutions to the problem. Within each area, the discussion identifies the important issues involved, the current state of research on the issues, and considerations for future research.

Dropping out of high school has long been viewed as a serious educational and social problem. By leaving high school prior to completion, most dropouts have serious educational deficiencies that severely limit their economic and social well-being throughout their adult lives. The individual consequences lead to social costs of billions of dollars.

Over the last 40 years, the proportion of young people who have failed to finish high school has decreased substantially. In 1940, more than 60% of all persons 25 to 29 years old had not completed high school; by 1980, that proportion had dropped to less than 16% (U.S. Bureau of the Census, 1985, Table 215).

Despite these long-term declines in dropout rates, interest in the dropout issue among educators, policymakers, and researchers has increased substantially in recent years. State and local education officials are currently devoting more time and resources to measuring the extent of the problem, to examining its causes, and setting up programs for dropout prevention and recovery. Policymakers are promoting and supporting these efforts and passing legislation to fund them. More research has appeared on the problem of dropouts in the last 2 years than in perhaps the previous 15.

If the long-term incidence of dropping out is declining, why has the concern for this problem increased of late? Several explanations could account for this increased concern. First, although the long-term trend of dropping out has declined, the short-term trend has remained steady and even increased, especially for some groups. The proportion of white male dropouts, for example, increased from 14% to 17% between 1968 and 1978, and then declined to 16% in 1984 (Table 1).

A second reason for the increased attention to dropouts is that minority populations, who have always had higher dropout rates than the white population, are increasing in public schools. In 1982, racial and ethnic minorities represented the

An earlier version of this paper appeared in *California Public Schools Forum*, Fall 1986. I would like to thank Jim Block, Edwin Bridges, Henry Levin, G. Alfred Hess, Michael Olivas, four anonymous reviewers, and the editor for their helpful comments.

TABLE 1
Dropout Rates by age, sex, race, and ethnicity: Selected years, 1968-1984 (percentages)

Cohort	1968	1978	1980	1982	1984
3 to 34-year-olds	18.3	12.9	12.7	12.7	12.6
white males	17.1	12.2	12.2	12.4	12.5
white females	17.3	12.4	11.9	11.9	11.7
black males	25.8	17.2	16.5	16.7	15.7
black females	25.6	16.2	16.2	14.9	15.0
Hispanic males	—	28.1	28.3	26.9	27.0
Hispanic females	—	29.0	27.3	27.3	26.7
18 to 19-year-olds	15.7	16.7	15.7	16.7	15.2
white males	14.3	16.3	16.1	16.6	15.8
white females	14.6	15.0	13.8	14.9	14.0
black males	23.8	25.8	22.7	26.4	19.7
black females	24.7	22.8	19.8	18.1	14.5
Hispanic males	—	36.6	43.1	34.9	26.2
Hispanic females	—	39.6	34.6	31.1	26.0
16 to 17-year-olds	7.8	8.8	8.8	7.3	6.8
white males	6.9	9.6	9.3	7.3	7.3
white females	7.6	8.7	9.2	8.0	6.9
black males	10.1	5.2	7.2	6.4	5.5
black females	14.2	9.4	6.6	5.5	4.9
Hispanic males	—	15.6	18.1	12.2	13.6
Hispanic females	—	12.2	15.0	15.9	12.7

Note. Dropout rates represent the percent of each cohort who are dropouts. Dropouts are defined as persons of a given cohort who are not enrolled in school in October of the year in question and have not received a high school diploma or an equivalent high school certificate. Source: U.S. Department of the Census, *School Enrollment*, Current Population Reports, Series P-20, various issues (Washington, D.C.: U.S. Government Printing Office, various years).

majority of students enrolled in most large U.S. cities and more than 90% of all students in such cities as Newark, Atlanta, and San Antonio (Plisko & Stern, 1985, Table 1.5). And the proportions will increase in the future; this alone could drive up high school dropout rates.

A third reason for increased concern about dropouts is that many states have recently passed legislation to raise academic course requirements for high school graduation. Although increasing academic demands could help to motivate some students, others—especially those who already have a tenuous commitment to school—might be more inclined to drop out (McDill, Natriello, & Pallas, 1985, 1986). Major efforts will be required to prevent more students in this high-risk population from dropping out, efforts that have often not been included in the initial round of educational reforms (Levin, 1986).

A fourth reason for the increased concern about dropouts is a widespread belief that the educational requirements of work will increase in the future. Most of the recent state reform efforts and the national reports on education that prompted them have been predicated on a belief that the increased use of new technologies and structural changes in the composition of jobs in the economy will require more

educational skills (e.g., National Commission on Excellence in Education, 1983; Task Force on Education for Economic Growth, 1983). While these visions of the future have yet to be substantiated (Levin & Rumberger, in press), they do suggest that dropouts will be even more disadvantaged in the future job market than they have been in the past (National Academy of Sciences, 1984).

A final reason for increased concern about dropouts is political. Leading education officials at the state and federal levels have recently initiated the idea of using a series of "indicators" to judge the performance of the nation's and states' school systems. These efforts began with the U.S. Department of Education's publishing a series of education "wall charts" that compared state systems of education along a series of dimensions, including the high school completion rates. Now the states themselves, through the efforts of the Council of Chief State School Officers and the U.S. Department of Education, are beginning to define and collect comparable data that can be used for such comparisons. This requirement has prompted increased attention not only to the problem of how to define and measure dropouts (Wittebols, 1986) but also how to reduce the incidence of dropping out and improve this indicator of school performance.

Whatever the reasons for this heightened concern, the dropout issue is likely to command increased attention from researchers, policymakers, and educators at the local, state, and national levels for some time to come. The purpose of this paper is to begin to examine the many issues involved in trying to understand and solve this complex social and educational problem.

In the remainder of the paper, I will briefly analyze four major facets of this problem: its (a) incidence; (b) causes, including social, economic, psychological, and educational factors; (c) individual and social consequences; and (d) solutions. For each facet, I will identify the important issues involved, the current state of research on the issues, and considerations for future research. I will also attempt to identify the various academic disciplines—such as psychology, sociology, and economics—that are useful in understanding the nature of this problem and its solutions.

The Incidence of the Problem

Before this or any perceived social problem can be fully understood, it is important to know the magnitude or incidence of the problem. What is the incidence of dropping out of high school? Is the incidence increasing or decreasing? How do the incidence of dropping out and trends in the dropout rate vary among different social groups and different educational settings?

The Incidence of Dropping Out

The first question is the most important in understanding the nature of this problem, yet it is also the most difficult to answer. In fact, no one knows what the high school dropout rate really is in the United States. That is because there is no consensus definition of a high school dropout, nor is there a standard method for computing the dropout rate. At the national level, the two most widely cited dropout statistics—the dropout rate computed from U.S. Census data and the high school attrition rate computed from state-level school enrollment data—show widely different dropout rates and probably represent lower and upper limits to the true rate.

The U.S. Census Bureau computes the dropout rate as the proportion of a given age cohort that is not enrolled in school and has not completed high school. The latest figures available are for October 1984. They show a dropout rate of 6.8% for persons 16 and 17 years old and a dropout rate of 15.2% for persons 18 and 19 years old (Table 1).

The other widely cited national dropout statistic is based on attrition data. It shows the proportion of a given entering high school class, usually the ninth grade, that graduates 4 years later. The latest figures show an average attrition rate of 29.1% for high school class of 1984 in the U.S., with state-level attrition rates varying from a low of 10.7% in Minnesota to a high of 43.3% in Louisiana (Table 2).

One reason these two statistics are so different is that they were designed to answer different questions about dropouts. The Census statistic is designed to

TABLE 2
Attrition rates by state (percentages)

State	1972	1982	1984	State	1972	1982	1984
U.S. average	22.8	27.2	29.1	Missouri	22.5	24.6	33.8
Alabama	34.6	32.9	37.9	Montana	21.0	17.8	17.9
Alaska	20.7	29.0	25.3	Nebraska	14.1	16.4	13.7
Arizona	26.2	27.6	35.4	Nevada	25.0	24.7	33.5
Arkansas	31.1	25.3	24.8	New Hampshire	19.3	21.7	25.8
California	20.1	31.1	36.8	New Jersey	20.3	21.9	22.3
Colorado	15.2	23.7	24.6	New Mexico	23.1	28.4	29.0
Connecticut	16.6	28.8	20.9	New York	25.3	33.7	37.8
Delaware	22.0	18.2	28.9	North Carolina	31.4	31.6	30.7
District of Columbia	45.2	44.2	44.8	North Dakota	11.0	12.7	13.7
Florida	27.9	34.6	37.8	Ohio	19.7	22.5	20.0
Georgia	35.2	—	36.9	Oklahoma	20.7	22.4	26.9
Hawaii	10.9	15.8	26.8	Oregon	20.8	28.3	26.1
Idaho	15.3	23.1	24.2	Pennsylvania	15.0	21.2	22.8
Illinois	22.0	25.2	25.5	Rhode Island	18.9	27.1	31.3
Indiana	23.9	23.1	23.0	South Carolina	30.8	35.7	35.5
Iowa	10.5	14.2	14.0	South Dakota	9.5	16.1	14.5
Kansas	17.2	19.1	18.3	Tennessee	27.6	31.1	29.5
Kentucky	29.6	33.1	31.6	Texas	29.8	31.8	35.4
Louisiana	33.5	36.0	43.3	Utah	16.7	18.6	21.3
Maine	19.1	27.9	22.8	Vermont	29.1	22.3	16.9
Maryland	19.8	24.4	22.2	Virginia	23.6	25.0	25.3
Massachusetts	22.1	24.1	25.7	Washington	16.1	23.1	24.9
Michigan	19.0	27.3	27.8	West Virginia	28.1	25.2	26.9
Minnesota	8.5	10.8	10.7	Wisconsin	10.9	16.5	15.5
Mississippi	42.4	37.0	37.6	Wyoming	16.9	21.7	24.0

Note. Attrition rates were calculated by subtracting graduation rates from 100%. Graduation rates were calculated by dividing the number of public high school graduates by the public 9th-grade enrollment four years earlier. 1984 data were adjusted for migration and unclassified students. Source: U.S. Department of Education, *State Education Statistics* (Washington, DC: U.S. Department of Education, January 1984 and January 1986.

determine the number and proportion of persons from a given demographic cohort who are dropouts. State attrition data, which are constructed from enrollment and graduation information, are designed to reveal how well the educational system is doing in graduating students. But beyond differences in purpose, differences in these statistics can be traced to six factors that must be considered in computing any dropout rate: (a) choice of cohort, (b) initial membership in cohort, (c) definition of dropout, (d) time for determining dropout status, (e) source of information, and (f) level of determination.

The first factor is the choice of cohort to be used as a base for determining the dropout rate. The Census figure is based on an age cohort, while the education figure is based on a class cohort. Neither one is necessarily superior to the other, although the latter creates more problems because it requires measuring a cohort's status over an interval of time—first as a member in the cohort and then as a dropout—while the former can be determined at one point in time. In either case it is necessary to determine the particular age or class cohort to use in computing a dropout rate. One problem with using the entering ninth grade class is that it ignores those students who have dropped out in earlier grades.

The second factor is determining a person's initial status as a member of the cohort. It is not difficult to determine one's status in an age cohort, but it is in a class cohort. In the latter case it is necessary to determine which students should be included as members of the cohort, such as students in special education or in juvenile and mental institutions, as well as when membership in the cohort is determined (Wittebols, 1986). At the school or district level this may be particularly problematic because some students shop around for schools or are transients (such as the children of migrant workers), which means they could be "enrolled" in more than one school or district at any one time (California State Department of Education, 1986, pp. 26–27). Students who are counted twice as members of a given class cohort (including students held back a grade) would overstate enrollment figures and therefore overstate the attrition rate.

The third, and most critical, factor in measuring dropout rates is determining whether or not a person is a high school dropout. Currently, local and state education agencies employ widely different methods for defining dropouts (Wittebols, 1986). "Dropout" is generally defined as a residual status, indicating someone who has not graduated from, or is not currently enrolled in, a full-time, state-approved education program. That is, most states recognize only persons who are studying for, or who have received, regular high school diplomas. Persons who have completed the General Educational Development (GED) examination or receive a high school equivalency certificate from the state are often considered dropouts. So too are persons still enrolled in school at the time dropout status is determined (usually 4 years after entering the ninth grade).

The Census Bureau uses a much narrower definition of dropouts. Persons who have a regular or equivalent high school certificate or who are still attending school are not considered dropouts. This method also raises questions. First, is an alternative high school certificate equivalent to a regular high school diploma? Some recent research suggests that GED holders do not do as well as regular high school graduates in the labor market or further educational opportunities, which may indicate that the two credentials are not equivalent (Fields, 1986; Quinn & Haberman, 1986).

Second, how should subsequent enrollment status be determined? Some students who are officially enrolled in school may not be attending regularly and at some point should be considered dropouts rather than students. A more difficult problem concerns students who transfer from one institution to another. Most states require some official verification that a student has enrolled in another state-approved institution, such as an official request for the student's transcript received within a specified number of days (Wittebols, 1986). Surveys of individual school districts show that many school leavers cannot be easily traced, and even those who reenter may not have their transcripts requested (California State Department of Education, 1986; Hammack, 1986). Thus, this procedure not only could overstate the number of dropouts but also puts schools and districts with large proportions of school leavers and transient students at a disadvantage, in that they would have a greater proportion of students to follow up.

A fourth factor that must be considered in computing any dropout rate is the time interval for determining dropout status. Currently, state-level attrition data are based on graduation rates of a ninth-grade class 4 years later. Dropouts include not only persons still enrolled or holding high school certificates at that time but also persons who may receive a regular or equivalent high school diploma at a later point in time.

A recent study of 1980 high school sophomores who later dropped out of school shows that 38% had received a regular or equivalent high school diploma by 1984 (Kolstad & Owings, 1986, Table 1). A 1985 survey found that almost 50% of young Americans who did not complete the 12th grade had studied for the GED, and 40% of those had received it (Kirsch & Jungeblut, 1986, Figure 3). The current 30% attrition rate in California could be reduced to 20% if adjustments were made for those persons who are likely to receive regular or equivalent high school diplomas by the time they are 30 years of age (California State Department of Education, 1986, pp. 30–31).

The issue of determining an appropriate time interval may become more important in the future if more students opt to finish high school at a later time or through alternative means. This, in fact, could be happening as more students become aware of, and have, the opportunity to finish their high school diplomas at community colleges, at night school programs, or through other means.

A fifth factor that must be considered in computing any dropout rate is the source of information on enrollment and graduation status. The Census Bureau uses population data collected in October of each year as part of the ongoing Current Population Survey. Census enumerators obtain enrollment information about each member of the sample household. This information, which can come secondhand, could be inaccurate because parents, for example, might not know the actual enrollment or graduation status of their children, or they may not want to reveal it.

Dropout rates computed with official education data at a state or local level are also subject to error because of current differences in measuring and collecting dropout data. Some of these differences may be overcome by current efforts to define and collect comparable data by states and localities. But it appears unlikely that all these differences will be overcome because of the inherent difficulties in collecting and sharing information among schools, districts, and state education agencies over an extended period of time.

The final factor to consider in measuring dropout rates is the level of determination. Currently, Census data are used to compute a dropout rate at a national and regional level. Attrition rates are currently computed at a state level and averaged across states to compute a national figure. Dropout rates are also computed for schools and districts in some states, with more likely to be computed in the future.

Dropout statistics, computed at any level of the educational system, are clearly appropriate for measuring the number of students who are failing to finish high school and for measuring, in part, how well the educational system is performing. However, the existence of these statistics, even if they were comparably defined and measured, inevitably leads to inappropriate comparisons between schools, districts, and states. Such comparisons are inappropriate because school systems enroll different types of students who have very different propensities to drop out of school. One remedy to this problem is to produce "adjusted" or disaggregated statistics that reflect differences in the kinds of students attending different school systems, although appropriate procedures have yet to be established (Toles, Schulz, & Rice, 1986).

This discussion has pointed out the numerous factors that must be considered in deriving suitable and accurate dropout statistics. Additional research can help to illuminate these issues further, but ultimately policymakers and educators must decide on an appropriate definition of dropping out before accurate data can be collected. Such efforts are currently under way through cooperative work between the U.S. Department of Education and the Council of Chief State School Officers (Wittebols, 1986). But even with such cooperation, differences in official dropout rates are likely to continue because different dropout measures are used to address different questions and are computed by different organizations.

Trends in Dropout Rates

A second major question about the incidence of dropping out concerns trends: Is the dropout rate getting better or worse? Since there is no consensus on an appropriate dropout measure, it is difficult to assess trends in the dropout rate.

Census data, which have been computed on a yearly basis for more than 20 years, show no long-term increase in the aggregate dropout rate, only short-term increases. The dropout rate for persons 16 and 17 years old increased from 7.8% in 1968 to 8.8% in 1980 and then declined to 6.8% in 1984. The dropout rate for persons 18 and 19 years old increased from 15.7% to 16.7% between 1968 and 1982, and then dropped to 15.2% in 1984 (Table 1).

State-level attrition data show that average dropout rates for the nation increased from 22.8% in 1972 to 27.2% in 1982 and then remained steady between 1982 and 1984 (Table 2). These same data show that dropout rates increased in most states between 1972 and 1984, but decreased quite substantially in some states, such as Arkansas and Vermont.

Some of the observed increases in dropout rates could have come about from changes in the school participation patterns. California enrollment data show that the proportion of 9th-, 10th-, and 11th-grade students failing to enroll in school the following year actually went down between 1977 and 1983, while the proportion

of 12th-grade students who failed to graduate went up dramatically (California Assembly Office of Research, 1985, Figure 4). This shift could have come about from an increasing number of high school seniors deciding to finish high school at a later time, such as through night school programs or through community colleges.

Variations Among Social Groups and School Systems

A third major question about the incidence of dropping out concerns variations among social groups and school systems. It is well-known that dropout rates vary widely among social groups. Dropout rates are higher for members of racial, ethnic, and language minorities, for men, and for persons from lower socioeconomic status. A national survey of 1980 high school sophomores shows an overall dropout rate of 13.6%. But dropout rates computed with these data varied from 12.2% for whites to 18.7% for Hispanics, from 12.6% for women to 14.6% for men, and from 8.9% for students from the highest socioeconomic levels to 22.3% for students from the lowest socioeconomic levels (Kolstad & Owings, 1986, Tables 1, 2, and 3). Census data show dropout rates for 18- and 19-year-olds varying from 14.0% for white females to 26.2% for Hispanic males (Table 1). Dropout rates are also higher for American Indians and particular Hispanic subgroups, particularly Cubans and Mexican Americans (Brown, Rosen, Hill, & Olivas, 1980, Table 2.31; LaFromboise & Rudes, 1983, Table 12.1).

Trends in dropout rates based on Census data also show variations among social groups. Dropout rates for persons 18 and 19 years old declined from 23.8% in 1968 to 19.7% in 1984 for black males, from 24.7% to 14.5% for black females, and from 14.6% to 14.0% for white females. For white males, the dropout rate *increased* from 14.3% in 1968 to 17.9% in 1981, although it declined to 15.8% in 1984. Dropout rates for Hispanics show little change over the last decade, except for Hispanic males 18 to 19 years old, for whom the rate declined from 35.5% in 1972 to 26.2% in 1984 (Table 1).

These data suggest that some racial and ethnic minorities, particularly blacks, who traditionally have always had much higher dropout rates than whites, have shown marked improvements in their propensity to finish high school. The increasing dropout rates for white males could be related to changing patterns of school participation mentioned earlier and therefore may not indicate that the problem is actually getting worse for this group.

Dropout rates vary widely among school systems as well as social groups. Not only are there widespread variations in dropout rates among state educational systems, as the earlier data clearly show, but there are also widespread variations among school districts and even among schools within the same district.

In Chicago, for example, dropout rates for the 63 Chicago high schools range from 10% to 62% (Toles, Schulz, & Rice, 1986, Table 1). Of course, some of these differences are due to differences in the populations of students enrolled in the educational systems. But even after controlling for differences in student populations, widespread differences among school systems remain, differences that more clearly illustrate the ability of schools to educate and graduate their students. In the Chicago schools, observed dropout rates were 50% higher to 50% lower than the rate expected given the composition of the students in the schools (Toles, Schulz, & Rice, Table 1).

The Causes of the Problem

No one really knows what causes students to drop out of high school. Dropouts themselves report a number of different reasons for leaving school, with marked differences reported by different social groups (Table 3). Almost one half of all dropouts and more than half of white and black males cite school-related reasons for leaving school, such as disliking school or being expelled or suspended. Twenty percent of all dropouts, but almost 40% of Hispanic males, cite economic reasons for leaving school. A third of all female dropouts report personal reasons for leaving school, such as pregnancy or marriage. While these reasons suggest that students drop out of school for a variety of reasons, they are unable to reveal the underlying, causal factors that lead to dropping out. Many reasons, such as getting a job or getting pregnant, should probably be considered symptoms rather than causes of dropping out.

Factors Associated With Dropping Out

A large body of empirical research has identified a wide range of factors that are associated with dropping out. The factors can be grouped into several major categories: demographic, family-related, peer, school-related, economic, and individual. Within each of these categories there can be a large number of specific factors. Some are well-known and widely documented in numerous studies; others have not been well-explored in relation to this particular problem. Some of these factors can be manipulated through policy interventions within and outside of the schools; others cannot.

The demographic factors associated with dropping out are well-known and were

TABLE 3
Primary reason high school dropouts left school, by sex, race, and ethnicity: 1979 (percentage distribution)

Reason	Males			Females			Total
	White	Black	Hispanic	White	Black	Hispanic	
School-related:							
Poor performance	9	9	4	5	5	4	7
Disliked school	36	29	26	27	18	15	29
Expelled or suspended	9	18	6	2	5	1	7
School too dangerous	1	0	0	2	1	1	1
Economic:							
Desired to work	15	12	16	5	4	7	10
Financial difficulties	3	7	9	3	3	9	4
Home responsibilities	4	4	13	6	8	8	6
Personal:							
Pregnancy	0	0	0	14	41	15	17
Marriage	3	0	3	17	4	15	9
Other	20	21	23	19	11	25	19
TOTAL	100	100	100	100	100	100	100

Note. Data are for persons 14 to 21 years of age. Source: "Dropping out of high school: The influence of race, sex, and family background" by R. W. Rumberger, 1983, *American Educational Research Journal, 20,* p. 201.

cited earlier. Members of racial and ethnic minorities are much more likely to drop out of school than white, Anglo students, and males are somewhat more likely to drop out of school than females.

A large number of factors associated with family background and structure have also been identified in the research literature. Perhaps the most important is socioeconomic status. Numerous studies have found that dropout rates are higher for students from families of low socioeconomic status, no matter what particular factors are used to measure socioeconomic status (e.g., Kolstad & Owings, 1986; Rumberger, 1983a). Particular family-related factors associated with dropping out include low educational and occupational attainment levels of parents, low family income, speaking a language other than English in the home, single-parent families, and the absence of learning materials and opportunities in the home (e.g., Ekstrom et al., 1986; Rumberger, 1983a; Steinberg, Blinde, & Chan, 1984).

The influence of peers has not received much attention in previous research on this problem, although it is a subject of considerable interest in other areas of educational achievement (Bridge, Judd, & Moock, 1979, chapter 8). Many dropouts have friends who are also dropouts, just as friends' educational aspirations and expectations are related more generally. But it is not clear to what extent and in what ways a student's friends and peers influence the decision to leave school.

School-related factors associated with dropping out have received considerable attention, particularly because many of these factors are ones that can be manipulated through practice and policy. It is fairly well-documented that poor academic achievement in school, as measured by grades, test scores, and grade retention, is associated with dropping out (Borus & Carpenter, 1984; Ekstrom et al., 1986; Wehlage & Rutter, 1986). It is also known that behavioral problems in school are also associated with dropping out, including absenteeism, truancy, and discipline problems (Bachman, Green, & Wirtanen, 1971; Wehlage & Rutter).

Most research on school-related factors has focused on students' behaviors and performance in school. Little attention has been given to the influences of schools themselves—their organization, leadership, teachers—on students' decisions to drop out. Yet many dropouts attend schools with very poor facilities and inadequate teaching staffs, conditions that could affect their performance in school and ultimately their decision to leave (Fine, 1986). School-level dropout rates vary widely even controlling for differences in student populations; this further suggests that school-related factors exert a powerful influence on students' decisions to leave school (Toles, Schulz, & Rice, 1986).

Economic factors also influence students' decisions to leave school. About 20% of dropouts report that they left school because they wanted to or felt they had to work to help out their families (Table 3). But as with other reasons students report, it is unclear to what extent work is initially seen as a desirable or necessary alternative to school before a student drops out or whether students first decide to leave school and then decide to find a job.

Finally, there are a host of individual factors associated with dropping out. Dropouts have lower levels of self-esteem and less sense of control over their lives than other students. They have poor attitudes about school and low educational and occupational aspirations (Ekstrom et al., 1986; Wehlage & Rutter, 1986). Finally, many dropouts report that they leave school to get married or because they are pregnant (Ekstrom et al., 1986; Rumberger, 1983a).

Developing a More Comprehensive Model

While previous research on the causes of dropping out has been helpful in identifying the wide range of factors associated with this behavior, the empirical literature is still lacking. Many studies have focused on only a few of the many factors known to be associated with this problem, and many are based on correlational models that simply identify the direct relationship between one factor and dropout behavior, sometimes controlling for the influence of other factors.

What is needed is a more comprehensive, causal model of the dropout process. Such a model should successfully identify the full range of proximal and distal influences, the interrelationships among them, and their long-term, cumulative effects. Developing such a model should be the goal of researchers working in this area. In pursuit of this goal, researchers should consider the following factors.

First, they should attempt to uncover the processes that underlie and lead to this problem. Many of the factors known to be associated with this problem are structural in nature and reveal little of the underlying processes. For example, why do Hispanics or children from socioeconomically poor families have higher dropout rates? Some possible explanations include the use of language in the home, the amount of time that parents spend with their children, and the type of "parenting" style used in the home (Dornbush et al., in press; Liebowitz, 1977; Steinberg, Blinde, & Chan, 1984).

Understanding school processes also deserves further attention (Natriello, Pallas, & McDill, 1986). In fact, dropping out itself might better be viewed as a process of disengagement from school, perhaps for either social or academic reasons (Catterall, 1986), that culminates in the final act of leaving. Identifying and understanding the processes within homes and schools is an area where ethnographic studies can make important contributions (e.g., Fine, 1986).

Second, future research efforts need to explore the interrelationships among the various factors associated with dropping out. This is particularly important in trying to separate actual causes of this problem from correlates such as attitudes and behaviors. For example, while many female dropouts say they leave school because they are pregnant, both getting pregnant and leaving school may be caused by a number of other, related factors (Hofferth & Moore, 1979). Similarly, poor attitudes and disruptive behavior in school might be better considered symptoms of underlying problems than actual causes of dropping out.

Third, researchers should attempt to measure the long-term, cumulative effects of the various influences on dropping out. This is particularly important given the influences of family background and early school achievement. Family background can have a powerful, cumulative influence on school achievement through its effects on such things as kinds of schools children attend, their attitudes about school, and learning that takes place in the home. These influences affect a student's achievement at an early age, which, in turn, influences subsequent attitudes and performance in school (e.g., Stroup & Robins, 1972). Yet the cumulative influence of family background and early school achievement has not been fully explored either generally or with respect to the problem of dropping out.

Finally, a comprehensive model of dropout behavior should address the notion that there are different types of dropouts who leave school for different reasons.

That is, there is no "typical" dropout. A poor, urban black may drop out of school because he is doing badly, his school is understaffed, and he believes his economic prospects are poor whether or not he finishes school. A suburban, middle-class white may drop out of school because he is bored although doing reasonably well in school, he wants to spend some time with his friends, and he knows he can finish school later on at the community college. The causes and the nature of dropping out are very different for these two types of teenagers. Such differences should be explored further and used to develop separate models of dropping out for different types of students (Grant & Sleeter, 1986).

A more comprehensive model of dropout behavior should help identify the actual causes of dropping out and their relative influence. The result would be of immediate use to educators and policymakers. It would help identify potential dropouts at an early age, when effective interventions could be designed and implemented. It would also help identify the kinds of educational interventions, both academic and psychological in nature, that could be most effective in addressing this problem. And it would help identify the mix of both educational and social interventions that could be effective in helping potential and actual dropouts.

The Consequences of the Problem

Concern for dropouts is predicated on a belief that leaving high school before graduation is bad for the individual and for society. Dropping out of high school is generally viewed as a visible form of academic failure in the same way that high school graduation is seen as a visible form of academic success at the secondary level. Yet neither act may reveal much about educational achievement. A recent study of the Chicago school system found, for example, that 47% of students enrolled in the ninth grade in 1980–81 graduated by 1984, but only 15% graduated who could read at or above the national average (Designs for Change, 1985). Similarly, not all dropouts are behind in school and have poor test scores (Fine, 1986).

In fact, dropping out could be beneficial for some kids as well as for the schools they attend. Some students are not able or willing to get anything out of school; others choose other alternatives over going to school, alternatives that in some cases can be more fulfilling and rewarding. And some students who remain in school can be very disruptive to those students who want to be there and to learn. A recent study of high school graduates and dropouts found, for example, that dropouts showed equal or greater improvements in self-esteem and a sense of control than high school graduates (Wehlage & Rutter, 1986).

Overall, however, most evidence supports the notion that dropping out has negative individual and social consequences. Individual dropouts suffer because many have difficulty finding steady, well-paying jobs not just when they first leave school but over their entire lifetimes. Society suffers as well because unemployment and lost earnings lower tax revenues and increase demands on social services. But the consequences of dropping out go beyond simple economic losses, no matter how large they may be. They cover a wide range of individual and social outcomes that need to be better understood.

Individual Consequences

The most immediate individual consequence of dropping out of school is a low level of academic skills. While graduating from high school does not ensure that a person has sufficient academic skills for successful employment and further education, failing to graduate usually ensures that a person does not. Recent studies confirm that dropouts, on average, have lower academic skills than high school graduates generally and even those graduates of similar personal characteristics (e.g., Alexander, Natriello, & Pallas, 1985).

Because of their low levels of academic skills, many high school dropouts find it difficult to secure steady employment and an adequate income. These economic effects are sizable and are well-documented with published government statistics. In the fall of 1982, for example, dropouts from the 1981–82 school year had unemployment rates almost twice as high as 1982 high school graduates, 42% versus 23% (Table 4). Even those dropouts who are able to secure year-round, full-time employment still earn from 12% to 18% less than workers who complete high school (Table 4).

Dropouts' lower level of educational achievement does not just have an immediate economic consequence, it becomes an even bigger disadvantage over time because dropouts have fewer opportunities to obtain additional education and training needed to remain even relatively competitive in the job market. For example, Census data reveal that the difference in expected lifetime earnings from ages 18 to 64 between a male high school graduate and a male high school dropout in 1979 was more than $250,000 (U.S. Bureau of the Census, 1983, Table 1).

Of course, the economic consequences of dropping out of school are not the same for all social groups. The relative economic disadvantage of dropping out is larger for whites than for Hispanics or blacks. In the fall of 1982, for example, white dropouts had unemployment rates almost twice as large as white high school graduates, while the unemployment rates for Hispanics and blacks were only one fourth to one third as high (Table 4). Thus, there may be less economic incentive for minorities to stay in school than whites, especially when black high school graduates still experience an unemployment rate of over 50%.

While the educational and economic consequences of dropping out are generally well-documented, much less attention has been focused on trying to identify and measure other individual consequences. These would include effects on psychological well-being and health. It is possible that dropping out of school leads to poorer mental and physical health either directly or indirectly through its effects on employment and income. One study found, for example, that increased unemployment was associated with increases in total mortality, suicides, and admissions to state mental hospitals (Brenner, 1976). Since dropouts have higher rates of unemployment than other persons, this study would suggest that they would also suffer greater rates of mortality, suicide, and mental disorders. Yet the causal relationship between dropping out of school and subsequent mental and physical health has not been fully explored.

Social Consequences

Dropping out of high school affects not only those who leave school but also society at large. Moreover, the social consequences go beyond the economic and

TABLE 4

Unemployment rates (percentages) and annual earnings (in dollars) for high school dropouts and high school graduates, by sex, race, and ethnicity

Cohort	1976		1982	
	Level	Ratio Dropouts/ Graduates	Level	Ratio Dropouts/ Graduates
Unemployment[a]				
Total		1.78		1.85
Dropouts	30.9		41.6	
Graduates	17.4		22.5	
Males		1.75		2.05
Dropouts	28.3		43.4	
Graduates	16.2		21.2	
Females		1.96		1.60
Dropouts	36.9		38.3	
Graduates	18.8		23.9	
Whites		1.90		1.89
Dropouts	27.5		36.0	
Graduates	14.5		19.0	
Blacks		1.24		1.35
Dropouts	56.9		71.4	
Graduates	45.8		53.0	
Hispanics		2.01		1.23
Dropouts	27.9		42.2	
Graduates	13.9		34.3	
Annual earnings[b]				
Males		.82		.84
Dropouts	7,351		10,964	
Graduates	9,004		13,088	
Females		.87		.82
Dropouts	5,758		8,414	
Graduates	6,620		10,235	

[a] Unemployment rates in October of each year for persons 16 to 24 years old who either graduated or dropped out of high school in the preceding academic year.

[b] Annual earnings for year-round, full-time workers who were 18 to 24 years old as of March of the following year.

Sources: Unemployment data from A. M. Young, "Students, graduates and dropouts in the labor market," *Monthly Labor Review, 100* (July 1977), Table 3, and A. M. Young, "Youth labor force marked turning point in 1982," *Monthly Labor Review, 106* (August 1983), Table 4. Earnings data from U.S. Bureau of the Census, *Current Population Reports,* Series P-60, No. 114 (July 1978), Table 48, and No. 142 (February 1984), Table 48.

psychological impacts that befall individual high school dropouts. In the only comprehensive study that has ever been done on this facet of the dropout problem, Levin (1972) identified seven social consequences of inadequate education, which he defined as the failure to complete high school:

1. Forgone national income;
2. Forgone tax revenues for the support of government services;

3. Increased demand for social services;
4. Increased crime;
5. Reduced political participation;
6. Reduced intergenerational mobility; and
7. Poorer levels of health. (p. 10)

For each of these areas he examined the research literature and summarized what was known about the relationship between education and that particular social outcome. He then estimated the social costs associated with the first four outcomes.

Forgone income is perhaps the most often cited social consequence of dropping out of high school. It is also the most widely documented. Levin estimated that the forgone income from a cohort of males 25 to 34 in 1969 who failed to finish high school amounted to $237 billion. This forgone income resulted in forgone government revenues of $71 billion (Levin, 1972, p. ix). A more recent study estimated the forgone income of both male and female dropouts from the national high school class of 1981 at $228 billion and forgone government revenues at more than $68 billion (Catterall, 1985, Table 2).

The social consequences and social costs of dropping out go beyond forgone income and revenues, however. As Levin documented, high school dropouts are more likely to require a wide range of social services, including welfare, medical assistance, and unemployment assistance. They are also more likely to engage in crime, have poorer health, have lower rates of intergenerational mobility, and lower rates of political participation. Based on the research literature and cost data available at that time, he estimated the social costs of providing social services and fighting crime associated with dropping out at $6 billion per year (Levin, 1972, p. ix). Today, of course, the figures would be much higher.

Levin's study is remarkably useful in helping to identify a wide range of social consequences that are due to dropping out. However, the study and the literature it reviews are more than 14 years old. Given the large amount of research that has been undertaken in the last 14 years in the areas of crime, health, and welfare, it would be useful to once again examine this large body of literature to try to ascertain the many social consequences of dropping out.

It is likely, for example, that the social consequences are greater today than in the past. That definitely appears to be the case with respect to earnings and unemployment. The earnings differential between male high school dropouts and male high school graduates increased from $73,000 in 1968 to $260,000 in 1979, a much greater increase than the increase in consumer prices over the same period (Levin, 1972, Table 8; U.S. Bureau of the Census, 1983, Table 1). Unemployment rates for high school dropouts were 20% higher than overall unemployment rates in 1950, but 100% higher in 1979 (Rumberger, 1983b, Table 5).

Yet the economic consequences of dropping out may not be changing similarly for all racial and ethnic groups. In 1976, for example, Hispanic dropouts had unemployment rates twice as high as Hispanic high school graduates, but by 1982 unemployment rates for Hispanic dropouts were 25% higher (Table 4). These differences need to be better documented and linked to students' decisions to drop out of school.

In the future, the relative economic disadvantage of dropping out of high school could be even greater than today. The skill requirements of many jobs could be altered in the future because of the increased use of new technologies. Without a

sound, basic education, dropouts will be less able to learn new skills and adapt to a changing work environment (National Academy of Sciences, 1984). Therefore they could become even less employable.

The consequences of dropping out of high school deserve more attention from researchers and policy analysts. An attempt should be made to document more fully the wide range of impacts, both good and bad, resulting from dropping out of high school, as well as differences in these impacts among racial and ethnic groups. And more comprehensive estimates should be prepared on the total social costs of this major problem. Such estimates could be valuable in rallying political support to fund dropout prevention and recovery programs.

Solutions to the Problem

Not all students can or should be expected to finish high school. Yet many students want to finish school and could be helped through effective policy interventions. Without such interventions the dropout rate could easily increase due to the rising proportion of minorities in the school-age population and increased academic requirements for high school graduation. Whereas further research on the causes of dropping out will help to better identify and measure the influence of the many factors associated with this problem, the search for effective solutions cannot wait.

Concerted efforts are currently being made in finding and promoting solutions to the dropout problem throughout the United States. At least 15 state-level commissions have been convened in the last couple of years to address the problems of at-risk students (Smith & Hester, 1985). Many districts, especially those with large at-risk populations, have enacted a variety of programs designed to reduce the incidence of dropping out. And new studies have been undertaken to identify and characterize successful dropout programs around the country (e.g., Bullis, 1986; National Foundation for the Improvement of Education, 1986; Stern et al., 1985).

Toward Effective Interventions

Recent reviews of dropout programs and the vast literature on the causes of dropping out, although far from complete, do suggest some of the elements needed to develop a successful strategy of dropout prevention and recovery. Some of these elements include: (a) different programs designed for different types of dropouts; (b) an appropriate mix of educational and noneducational services in each program; (c) accurate and timely identification of students with a high risk of dropping out; and (d) programs designed for early prevention, late prevention, and recovery.

The first element follows from the discussion of the causes of dropping out. Different kinds of students drop out for different reasons. Some are related to problems in school, such as a lack of interest or poor performance; others are related to factors outside of the school, such as the need to find work or having a child. A comprehensive strategy will need to address all of these factors, providing programs for different children with different needs. For example, recovery programs for teenage mothers will have to serve their needs for child care as well as for an education; prevention programs for similar kinds of students should include birth control information and services as well as educational services.

Beyond these apparent needs, there are a host of other needs that effective programs must address. They must first address the particular academic needs of the students, by providing an appropriate type of curriculum, teaching staff, instructional progress, and even schedule and location (Stern, 1986). For example, reviews of dropout programs suggest that successful programs often mix academic and vocational studies, provide more individualized instruction, and use a teaching staff more sensitive and responsive to the needs of the students (Bullis, 1986; Olsen & Edwards, 1982; Stern, 1986).

Besides these educational elements, successful programs need to address other needs of students. Perhaps the most important is their psychological need for someone to care about them individually, a need that is often met through the provision of counseling (Bullis, 1986; Olsen & Edwards, 1982; Treadway, 1985).

The third element is crucial if dropout prevention programs are to be successful. That is, the schools must be able to successfully identify those students who are most likely to drop out of school if they hope to do something about it. A recent study of California dropouts found that half of the dropouts interviewed did not discuss their decision with anyone at school before they left (Olsen & Edwards, 1982, p. 32).

Timely identification is equally important. The earlier a student with a high risk of dropping out is identified, the more likely it is that a sustained effort at dropout prevention will be successful. Research has shown that some dropouts begin showing signs of academic failure and disengagement in school in the early elementary grades (Lloyd, 1978; Stroup & Robins, 1972). Successful identification of high-risk students in elementary and junior high school would provide more time to intervene and address the needs of these kids at an early age.

The final element follows from the third. If students with a high risk of dropping out can be identified at an early age, prevention programs should be started at an early age as well. Even if accurate, early identification is not possible, it still makes sense to initiate early interventions for disadvantaged kids who generally have a high probability of dropping out. A recent evaluation of one preschool program for the disadvantaged found that it reduced the incidence of dropping out (Schweinhart et al., 1985).

Many current efforts to address the problem of dropouts are premised on a belief that dropouts constitute a relatively small percentage of the school population. In this case, special, supplemental programs can be set up to target these at-risk populations while schools continue to serve other students with regular programs. But such a strategy is insufficient in school systems, such as those in New York, Boston, and Chicago, where close to half of the students drop out. In this case, where dropping out is often the rule rather than the exception, more fundamental and systematic changes will be needed to address the problem (Hess, 1986).

The Need for Systematic Evaluations

While descriptive reviews of programs are helpful in helping to design effective interventions, systematic evaluations are needed to determine both the effectiveness of dropout prevention and recovery programs and their costs (Rossi, Freeman, & Wright, 1979). Evaluations of program effectiveness determine the extent to which programs are effective in producing their desired outcomes. In dropout prevention programs, for example, desired outcomes may be a reduced incidence of dropping

out among the target population or improvements in some of the known correlates of dropping out, such as student involvement or academic performance. Evaluations must be able to determine whether the outcome was actually caused by the program or caused by something else.

Evaluations of costs involve determining all the resources used in the program, not only so that the full cost of the program can be determined, but so that the program can be properly implemented in another setting (Levin, 1983). Information on program effects and costs can then be compared in two ways. Cost-benefit studies determine whether a program's benefits exceed its costs; cost-effectiveness studies determine whether one program is more effective for each dollar spent than other, alternative programs.

Although some early cost-benefit studies of dropout programs were done in the 1960s (e.g., Weisbrod, 1965), to my knowledge there have been no recent studies where both the effectiveness and the costs of dropout programs have been fully evaluated (U.S. Government Accounting Office, 1986). Yet only by considering both the costs and the effectiveness of dropout programs will it be possible to produce the greatest improvement in the dropout problem at the lowest social cost. One of the problems that plagues even modest efforts to identify effective programs is a lack of suitable information on program features and outcomes (Stern et al., 1985, p. 34).

There have been some attempts to measure the effectiveness of some regular school programs in keeping students in school. Vocational education in high schools, for example, is often said to make schooling more relevant for certain kinds of kids and thus increase their likelihood of staying in school. Other kinds of alternative educational programs, such as alternative or continuation schools or employment training programs, are thought to have similar effects (Stern et al., 1985). Yet the effectiveness of such programs on reducing the likelihood of dropping out has not been demonstrated (Catterall & Stern, 1986; U.S. Government Accounting Office, 1986).

While no cost-effectiveness evaluations of dropout programs have been undertaken, there have been attempts to compare the costs of dropout prevention to the economic benefits associated with the completion of high school. In his earlier study, Levin estimated that each dollar of social investment in dropout prevention would produce $6 in national income and almost $2 in tax revenues over the lifetime of the 25- to 34-year-old males he examined (Levin, 1972, p. 30). A more recent study estimated that the costs of dropout prevention in Chicago would be less than 1% of the economic benefits derived from increased tax revenues, reduced welfare payments, and savings from the costs of crime (Hess & Labuer, 1985, p. 7).

Conclusions

Dropping out of high school is considered to be an important educational and social problem. As such, it has commanded the attention of researchers, policymakers, and educators who are trying both to better understand the nature of the problem and to do something about it. Part of the difficulty in pursuing these efforts is that this problem, like many others, is complex and multifaceted. Each of the four major facets discussed in this review—the incidence of the problem, its causes, consequences, and remedies—requires attention. And each requires a broad,

interdisciplinary approach that acknowledges not only the educational aspects of the problem, but the social, economic, and psychological ones as well.

Because dropping out of school has been a long-standing problem, there is a considerable research literature on this topic, especially from the 1960s (e.g., Bachman, Green, & Wirtanen, 1971). This earlier literature, although useful in exploring the wide range of factors associated with this problem, in general suffers from several shortcomings. First, many of the studies were largely correlational in nature and are able to show only bivariate relationships between dropping out and a host of antecedents or outcomes. Second, at best they explore the longitudinal nature of the problem over a short period of time, such as from an early high school to a later high school period. Third, many of the factors associated with this problem, especially those related to family background, focus on structural characteristics rather than processes.

Current and future research efforts need to move beyond these earlier efforts while building on them. Much recent research on dropouts has simply replicated the descriptive nature of earlier studies with more recent data. Such efforts are necessary and useful as a first step, but to move beyond them will require overcoming the limitations of these earlier studies. That is, new research efforts should focus on developing multivariate, longitudinal, and comprehensive models of the causes and consequences of dropping out. Additional research effort is also needed in conducting systematic evaluations of dropout prevention and recovery programs.

The dropout problem is unlikely ever to go away. But concerted and cooperative efforts by educators, policymakers, and educational researchers can improve our understanding of the problem and help reduce its incidence.

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